5 IMPROVEMENT ALTERNATIVES

5.1 Alternative Development Process

5.1.1 Near-Term Improvements

Those improvements which have been funded and are currently underway in one form or another have been categorized as "near-term" improvements. These improvements include the following six projects:

- Leisure Town Road Park-and-ride
- Bella Vista Park-and-ride
- Fairfield Transportation Center - Phase 2
- Red Top Road Park-and-ride – Phase 1
- Leisure Town Road Interchange Improvement
- "Aux Lane Project" – Widen I-80 to 10 Lanes from I-680 to SR 12 East

5.1.2 Main-Line Freeway Improvements

Based on existing traffic volumes, and future unconstrained travel demand forecasts, along with a constrained analysis of corridor bottlenecks and queues, highway, transit and park and ride improvement alternatives were developed. These alternatives were supplemented by input from public scoping meetings and input provided by Caltrans and local agency staff.

The wide range of improvements considered and developed included a host of regionally and locally significant main-line freeway improvements. These improvements were evaluated relative to one another and prioritized accordingly. Regionally significant mainline improvements include the addition of mixed-flow or HOV lanes to the County's freeways, and significant interchange improvements at major freeway-to-freeway interchanges. Locally significant mainline improvements include auxiliary lanes, parallel route improvements, new over-crossings and ramp improvements at interchanges.

5.1.3 Local Interchange Improvements

Local interchange improvements were developed and prioritized by jurisdiction. Local interchanges include all interchanges in the study corridors with the exception of major freeway to freeway connectors. The development of appropriate improvements to local interchanges was performed in coordination with local agency staffs. These improvements include interchange modernizations, new over-crossings, capacity enhancements and/or ramp terminal intersection improvements. Local interchange improvements are driven by local land-use decisions and policies. At this time, a key issue for the study is the identification of right-of-way requirements for ultimate interchange improvements so that jurisdictions may protect this right-of-way.

5.2 Near-Term Improvements

As discussed above, near-term improvements are those projects that have secured funding sources and are underway in one way or another (design, construction, etc). These projects are described in this section for informational purposes.

Near-Term Project 1A: Leisure Town Road Park and Ride
A park-and-ride facility with 46 parking spaces will be constructed in the southwest quadrant of the I-80/Leisure Town Road Interchange. Figure 5-1 illustrates the location of this project.

Near-Term Project 1B: Bella Vista Road Park and Ride
A park-and-ride facility with 200 parking spaces will be constructed in the southwest quadrant of the I-80/Bella Vista Road Interchange. Figure 5-2 illustrates the location of this project.

Near-Term Project 1C: Fairfield Transportation Center – Phase 2
The Fairfield Transportation Center is located adjacent to the eastbound off-ramp from I-80 at West Texas Street. It currently consists of a 400-space parking garage and an eight bus-bay transit center. A special rideshare pick-up and drop-off point is integrated into the facility. To cope with increasing parking demand at this location, the City of Fairfield is in the process of adding another 234 spaces in a new parking lot located on the west side of the Transit Center. Figure 5-3 illustrates the location of this project.

Near-Term Project 1D: Red Top Road Park and Ride
A park-and-ride facility with 200 parking spaces will be constructed in the northwest quadrant of the I-80/Red Top Road Interchange. It will replace and supplement the 61 spaces at the Green Valley Interchange. Figure 5-4 illustrates the location of this project.

Near-Term Project 1E: Leisure Town Road Interchange Improvement
Plans for the improvement of the I-80/Leisure Town Road interchange have been developed and approved. This project is fully funded and construction is anticipated to begin shortly. Figure 5-5 shows the location of the project.

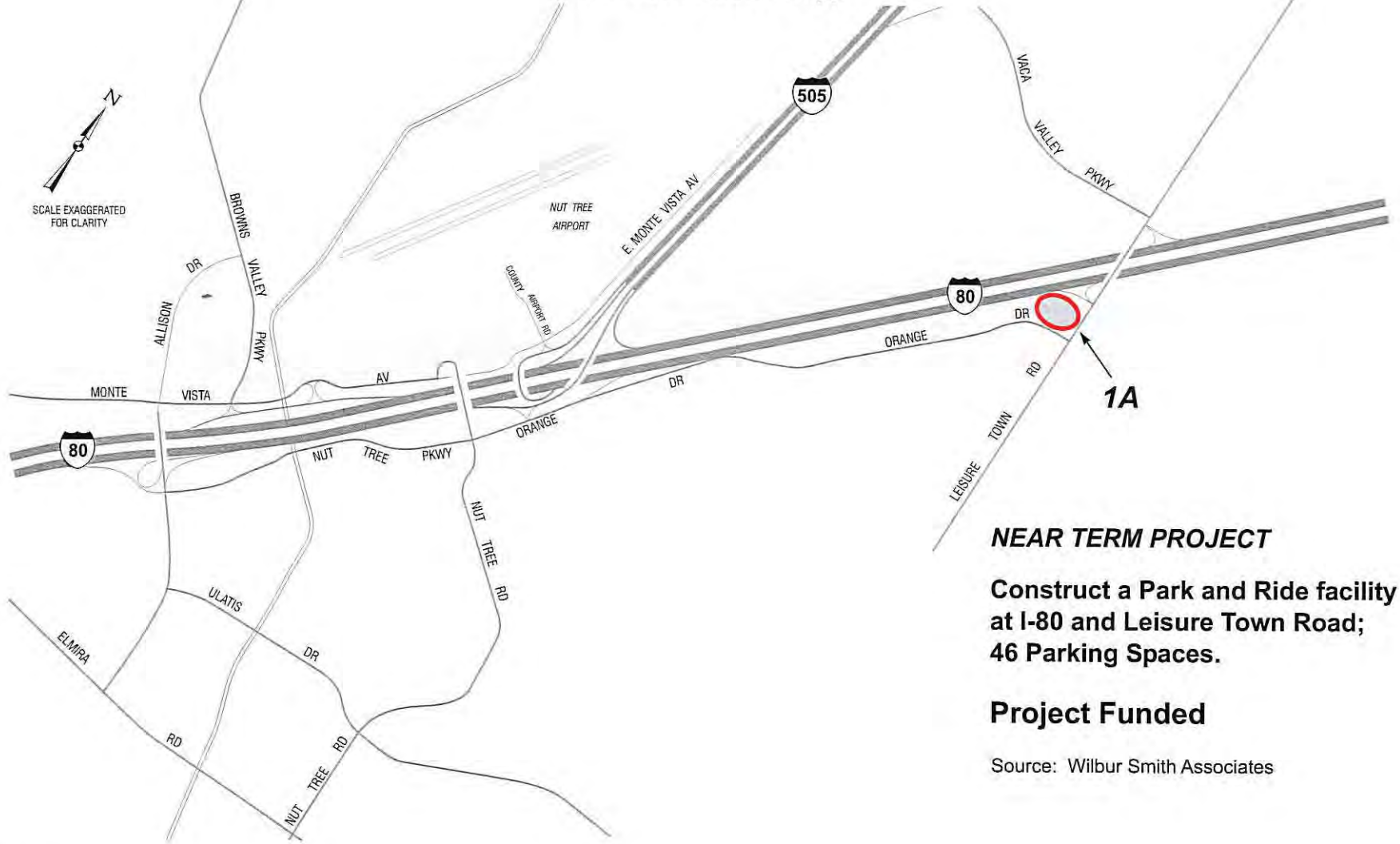
Near-Term Project 1F: Widening EB/WB I-80 – I-680 to SR 12 East
Interstate 80 between I-680 and SR 12 East is proposed to be widened to provide an additional through lane in each direction. This modification would provide five through lanes in each direction between the I-680 and the SR 12 East interchanges. Figure 5-6 shows the location of the project. This project is currently under construction, with an estimated completion of late 2004.

SEGMENT 7 PROJECT

Project 1A

Leisure Town Park & Ride

(For Information Only)



NEAR TERM PROJECT

Construct a Park and Ride facility at I-80 and Leisure Town Road; 46 Parking Spaces.

Project Funded

Source: Wilbur Smith Associates

Korve Engineering

Project 1A.cdr

June 5, 2003
Rev 7-1-03
Rev 3-04-04

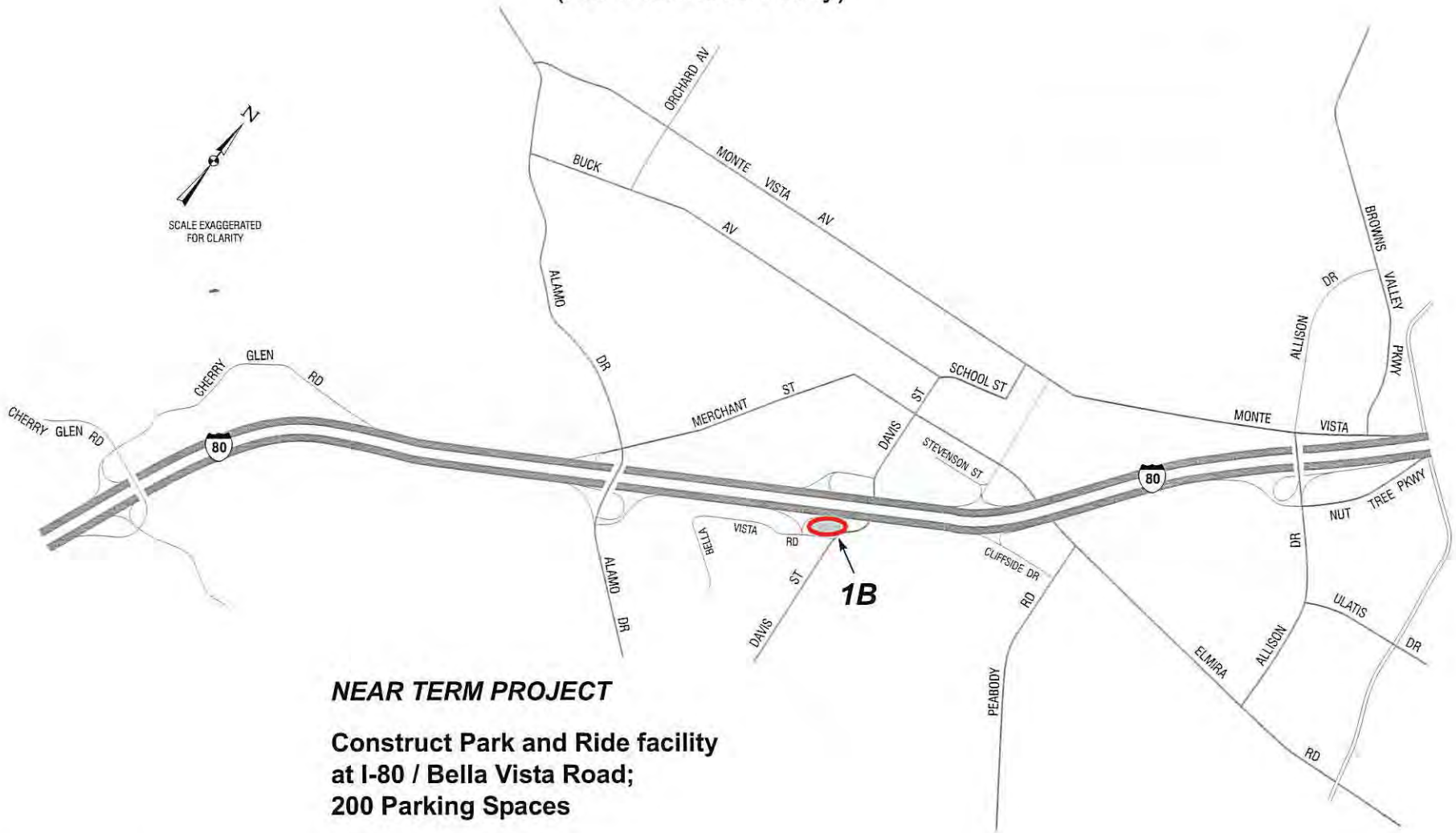
Figure 5-1

SEGMENT 6 PROJECT

Project 1B

Bella Vista Park & Ride

(For Information Only)



NEAR TERM PROJECT

Construct Park and Ride facility at I-80 / Bella Vista Road; 200 Parking Spaces

Project Funded

Source: Wilbur Smith

Korve Engineering

Project 1B.cdr

June 5, 2003
March 4, 2004

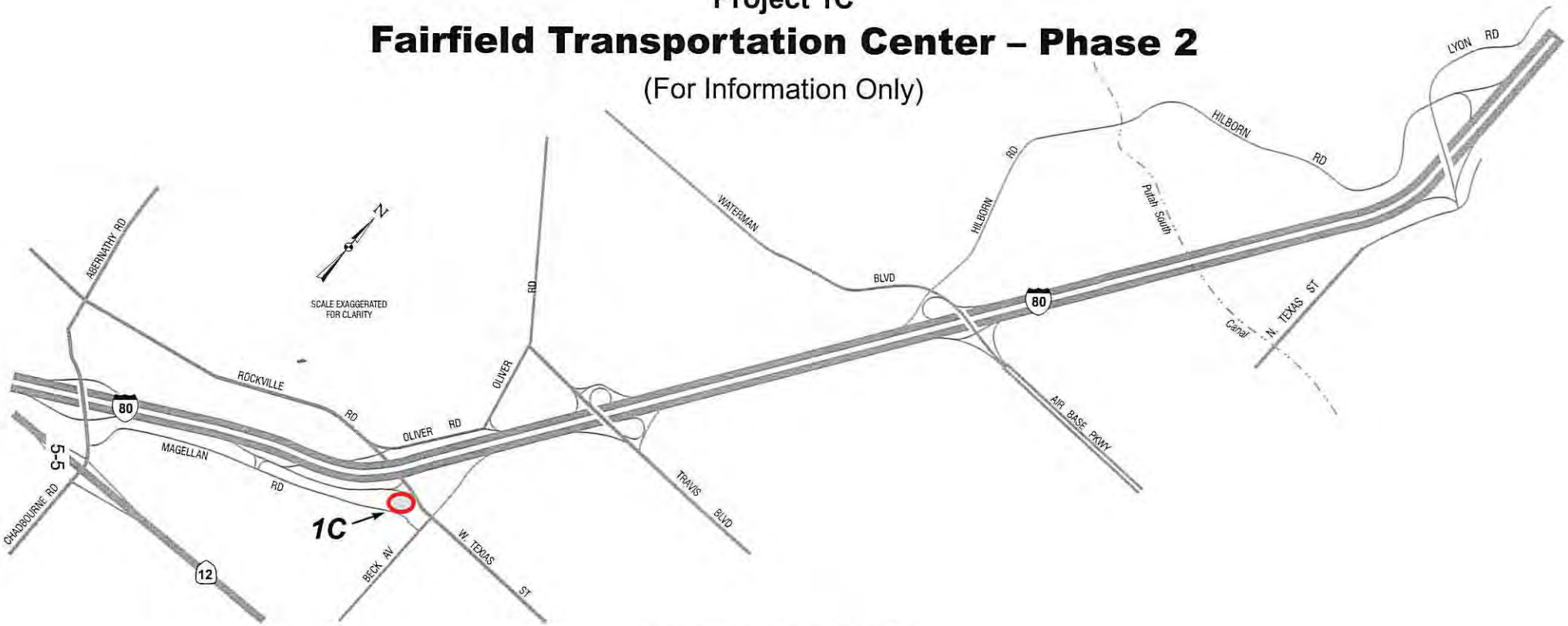
Figure 5-2

SEGMENT 6 PROJECT

Project 1C

Fairfield Transportation Center – Phase 2

(For Information Only)



NEAR TERM PROJECT

Improve / Expand Fairfield Transportation Center

Project Underway - Funded

Source: Wilbur Smith

Korve Engineering

Project 1C Rev.cdr

June 5, 2003
Rev 7-1-03
Rev 3-9-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

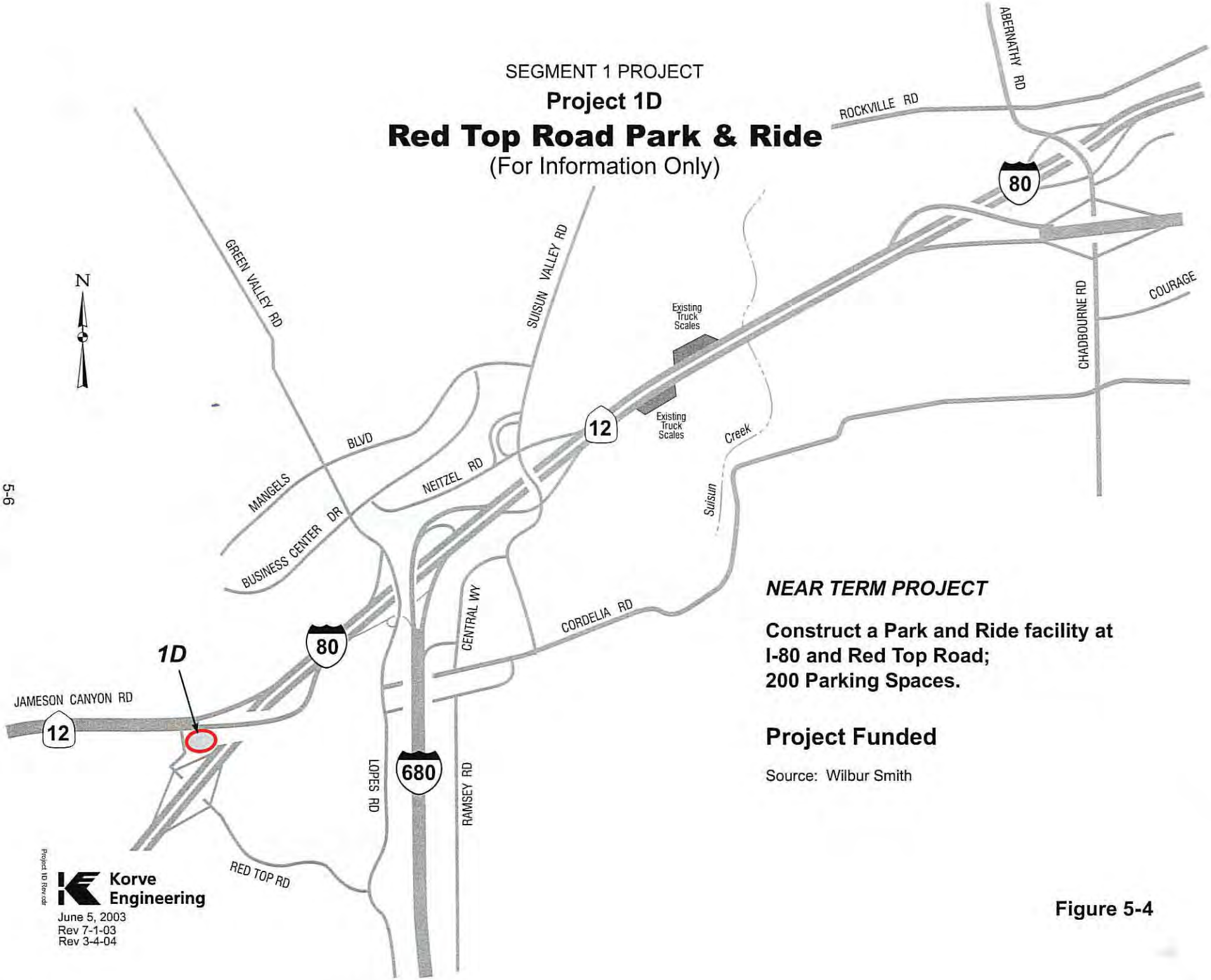
Figure 5-3

SEGMENT 1 PROJECT

Project 1D

Red Top Road Park & Ride

(For Information Only)



NEAR TERM PROJECT

Construct a Park and Ride facility at I-80 and Red Top Road; 200 Parking Spaces.

Project Funded

Source: Wilbur Smith

Korve Engineering

June 5, 2003
Rev 7-1-03
Rev 3-4-04

Project 1D Rev.cdr

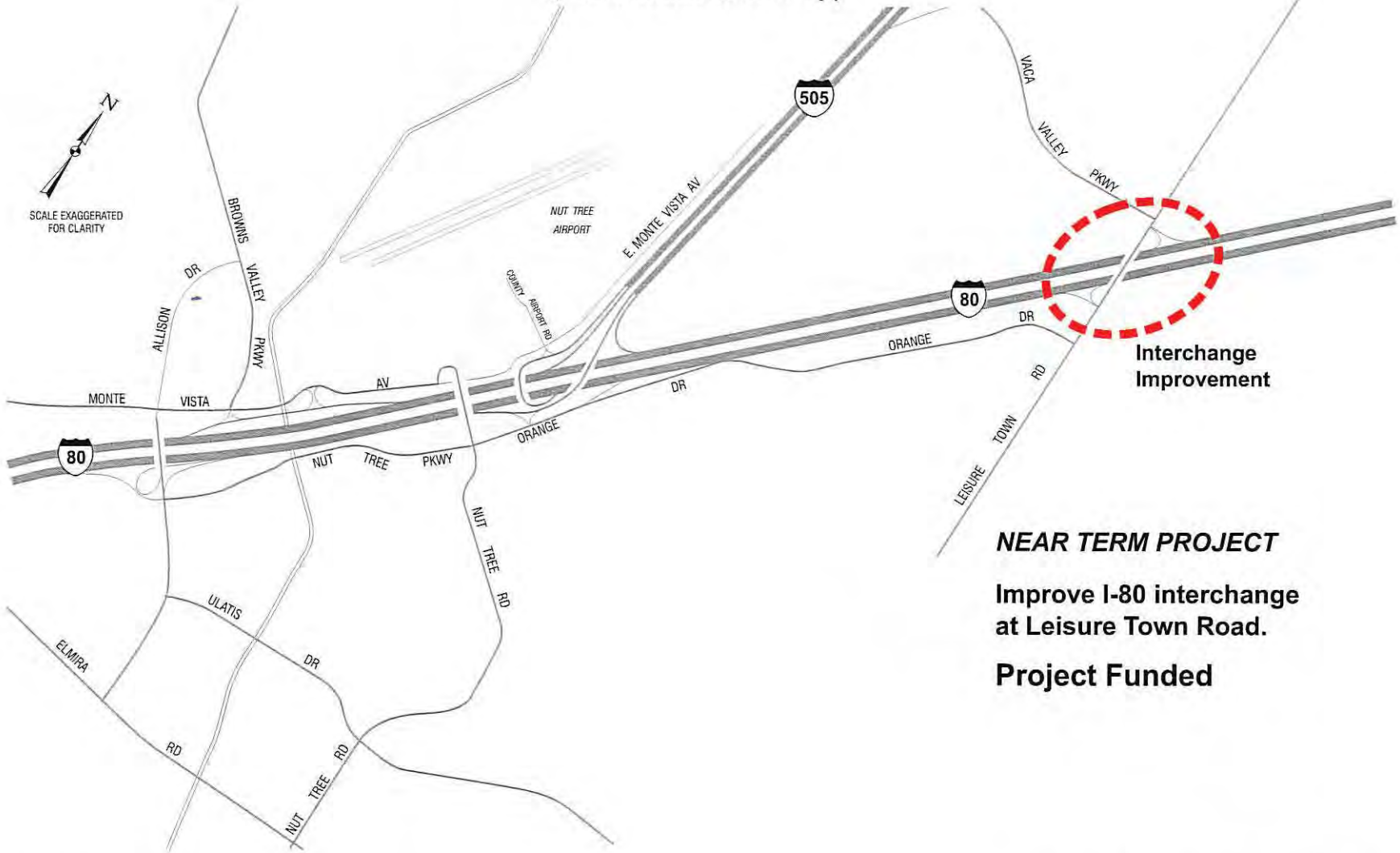
Figure 5-4

SEGMENT 7 PROJECT

Project 1E

Leisure Town Road Interchange Improvement

(For Information Only)



NEAR TERM PROJECT

Improve I-80 interchange at Leisure Town Road.

Project Funded

Korve Engineering

February 27, 2004
March 4, 2004

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

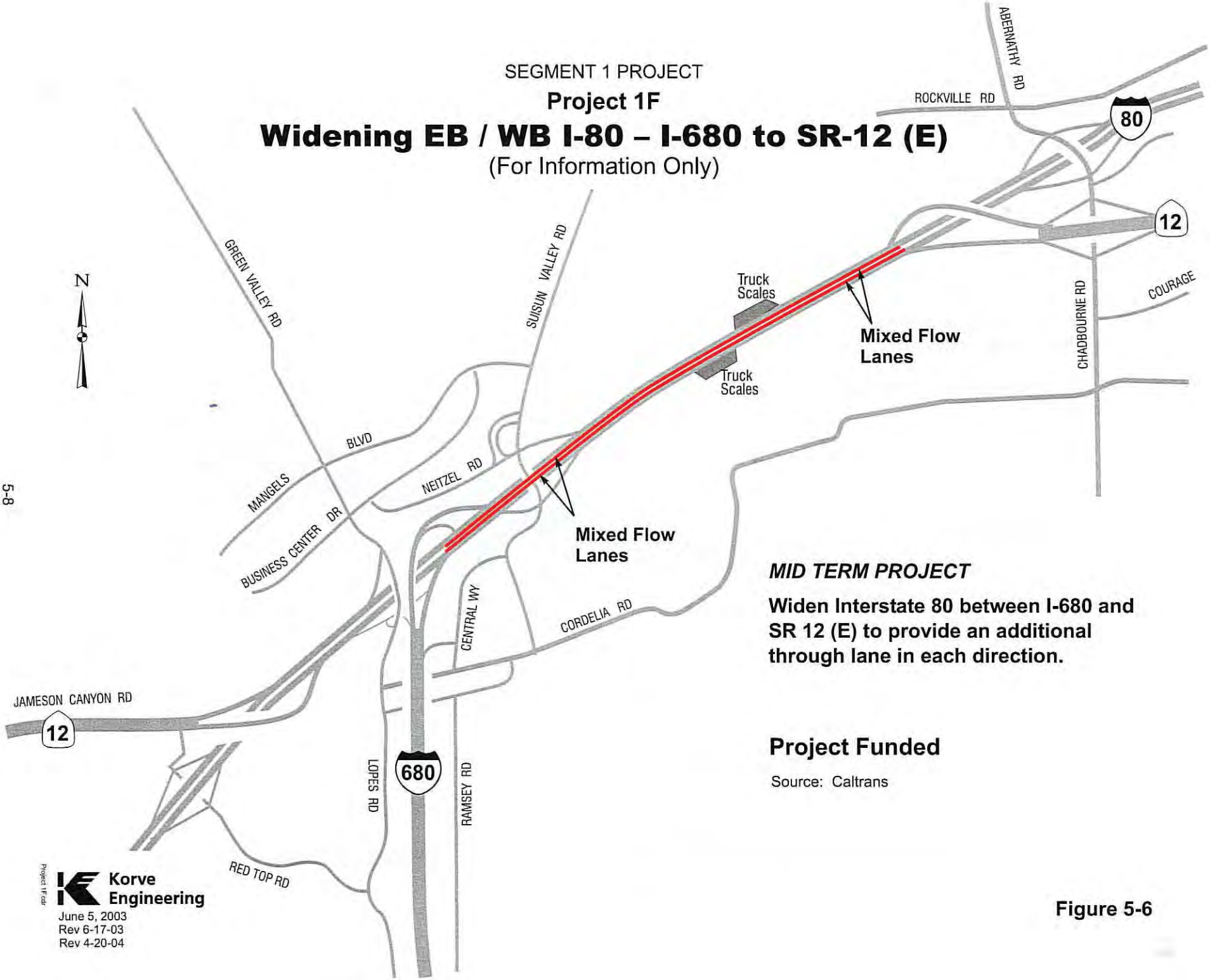
Figure 5-5

SEGMENT 1 PROJECT

Project 1F

Widening EB / WB I-80 – I-680 to SR-12 (E)

(For Information Only)



MID TERM PROJECT

Widen Interstate 80 between I-680 and SR 12 (E) to provide an additional through lane in each direction.

Project Funded

Source: Caltrans

Figure 5-6

5.3 Mainline Improvements

This section describes each of the mainline improvement projects developed for the corridor study. For each project a brief discussion and graphic is provided. The improvement projects are evaluated and prioritized in Section 6.

5.3.1 Segment 1

North Connector
The purpose of this roadway project, illustrated in Figure 5-7, is to relieve congestion on I-80 by serving local traffic between the SR 12 East and SR 12 West interchanges. Local traffic in this area must currently use the freeway to complete many local trips. On the east end of the North Connector project, the alignment would run from the Abernathy Road over-crossing at I-80 to Suisun Valley Road, connecting to Business Center Drive. On the west side, the North Connector would run from Business Center Drive to the Red Top Road/Jameson Canyon Road intersection, where a new traffic signal would be installed. State Route 12 West would be widened near the intersection to accommodate traffic movements at the North Connector intersection. The North Connector would be a two to four-lane signalized arterial. This project is currently in the Project Approval/Environmental Documentation (PA/ED) process, and has been declared to have independent utility, relative to the other segment 1 improvements, by FHWA and Caltrans.

It should be noted that construction of the western end of the North Connector (the piece which would connect to SR 12 West at Red Top Road) would allow additional traffic, over and above current demands, to reach westbound SR 12 West. Queues on westbound SR 12 West are anticipated to occur at the end of the truck climbing lane where the facility will narrow from two to one westbound lanes. If the North Connector were to be constructed prior to the widening of SR 12 West to two westbound lanes, these queues would be exacerbated by the additional traffic which would access westbound SR 12 West due to the North Connector.

EB I-80 Auxiliary Lane – Suisun Valley Road to Truck Scales
This project, illustrated in Figure 5-8, would include the installation of an eastbound I-80 auxiliary lane between the Suisun Valley Road on-ramp and the truck scale off-ramp. An eastbound auxiliary lane currently exists in this section, and it is significantly used by trucks exiting eastbound I-80. During peak truck periods, the auxiliary lane serves truck scale queue spillbacks, keeping truck queues from blocking the eastbound I-80 mainline travel lanes. However, this lane will be eliminated by Project 1F. This project would re-install this important auxiliary lane. With the potential pending relocation of the truck scales to a site to the east within the interchange, this lane should be extended to the new scales.

WB I-80 Auxiliary Lane – Truck Scales to Suisun Valley Road
This project, illustrated in Figure 5-9, includes the installation of an auxiliary lane between the eastbound truck scale on-ramp and the Suisun Valley Road off-ramp. The purpose is to relieve congestion resulting from heavy weaving movements between these two ramps, including slow moving trucks exiting the truck scales in the westbound

direction. With the potential pending relocation of the truck scales to a site to the east within the interchange, this lane should be extended to the new scales.

I-80 HOV Lanes – SR 12 West to Air Base Parkway (Requires Design Exception)
This project, illustrated on Figure 5-10, includes the installation of HOV lanes on I-80 in both directions between SR 12 West and Air Base Parkway. Preliminary work has been accomplished on this project by Caltrans (*Caltrans HOV Preliminary Plan*, February 8, 2003). To be accomplished prior to the relocation or reconstruction of the truck scales, this project would require a design exception for non-standard shoulders along the truck scale's frontage.

Braid EB I-80 Ramps – I-680 to Suisun Valley Road
This project, illustrated in Figure 5-11, would braid all of the eastbound I-80 ramps between Green Valley Road and Suisun Valley Road, including the heavy traveled eastbound on-ramp from I-680. The purpose of this project is to eliminate heavy weaving conflicts between these interchanges. This operation is exacerbated by the extremely short weaving distance which exists between the I-680 eastbound on ramp and the Suisun Valley Road eastbound off-ramp. Also included in this improvement is the construction of the I-680/Red Top Road interchange with associated ramp and local road improvements. With this improvement I-680 would be widened to six lanes from I-80 to the new Red Top Road interchange.

Relocate/Reconstruct Truck Scales
The Cordelia Truck Scales generate significant congestion in Segment 1 during peak hours. The scales also constrain the widening of I-80 in Segment 1 in their current location, and need to be relocated prior to additional improvements being pursued in this section. The recommendation of the STA Board of Directors is to relocate/reconstruct the scales in a location east of Suisun Creek within Segment 1. Due to the importance of this project, and the complexities involved, a detailed study of the scales was undertaken to determine a better place for the scales, including potential locations outside of Segment 1 (*Cordelia Truck Scales Relocation Study Draft Summary Report*, Korve/Mark Thomas/Nolte, September 2003). The analysis and findings of this report, as they pertain to the study corridors, are discussed in detail in Section 5.6. Figure 5-12 provides a brief summary of this project.

I-80 HOV Lanes from SR 12 West to Air Base Parkway – Shoulder Upgrade
This project, illustrated in Figure 5-13, would upgrade the shoulder widths of the HOV Lane project between SR 12 West and Air Base Parkway to full Caltrans standards. Upon the reconstruction/relocation of the Cordelia Truck Scales, physical constraints on both sides of the freeway would no longer exist and the construction of full-standard shoulders would become possible.

EB/WB I-80 Auxiliary Lane – SR 12 East to Suisun Valley Road
This project, illustrated in Figure 5-14, includes the installation of auxiliary lanes in both directions on I-80 from SR 12 East to Suisun Valley Road.

Braid EB I-80 Ramps – SR 12 West to Green Valley Road
This project, illustrated in Figure 5-15, would braid the eastbound I-80 ramps between SR 12 West and Green Valley Road. The purpose of this project is to eliminate heavy

weaving conflicts between these two interchanges and complement widening of eastbound Jameson Canyon Road to two lanes.

WB I-80 Auxiliary Lane – Green Valley Road to SR 12 West
This project, illustrated in Figure 5-16, includes the construction of an auxiliary lane on westbound I-80 between Green Valley Road and SR 12 West. The lane would be added at the westbound Green Valley Road on-ramp and would end at the SR 12 West off-ramp. The project would be built in conjunction with the widening of westbound Jameson Canyon Road to two lanes.

EB/WB I-80 Mixed-Flow Lane – SR 12 East to I-680
This project, illustrated in Figure 5-17, would install a mixed-flow lane on I-80 in both directions between SR 12 East and I-680. The existing truck scales, located in this segment, would need to be relocated to accommodate this improvement. A decision on the ultimate location of the truck scales has not been reached at this time; the scales could either be relocated outside of Segment 1, or to another location inside of Segment 1, with appropriate ramp braiding. Currently there are four lanes in each direction on this section of freeway, but funding has been secured for an additional lane (Project 1F).

Braid WB I-80 Ramps – Suisun Valley Road to SR 12 West
This project would eliminate existing and future weaving conflicts by braiding the westbound I-80 ramps between Suisun Valley Road and SR 12 West. As illustrated in Figure 5-18, this project would benefit on and off-ramp movements in this section, as well as the heavily traveled mainline freeway segments between the interchanges.

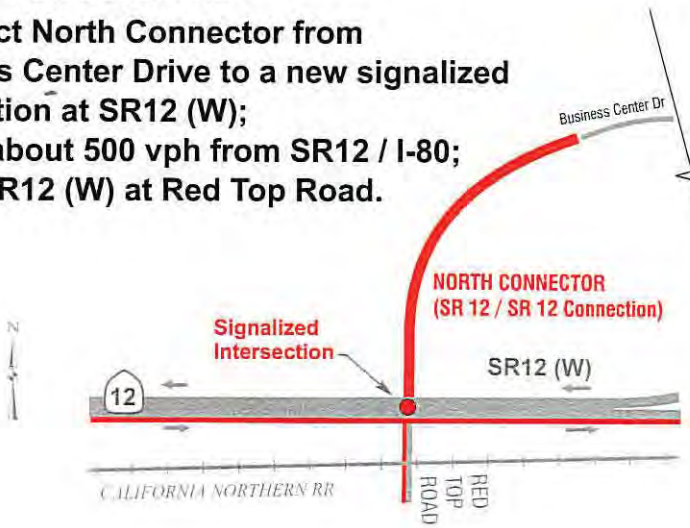
SEGMENT 1 PROJECT

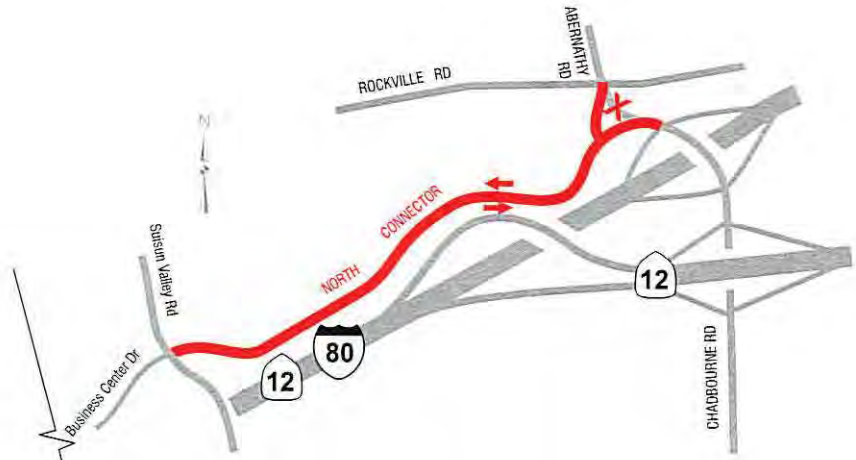
North Connector

North Connector West Segment

PROJECT DESCRIPTION

Construct North Connector from Business Center Drive to a new signalized intersection at SR12 (W);
Diverts about 500 vph from SR12 / I-80;
Widen SR12 (W) at Red Top Road.





North Connector East Segment

PROJECT DESCRIPTION

Construct North Connector from Suisun Valley Road to Abernathy Road;
Diverts about 1400 vph from I-80

Estimated Cost for west North Connector: $19,000,000 (2003);
for east North Connector: $49,600,000 (2003);
for Jameson Canyon Widening: $9,900,000 (2003)

Total Cost: $78,600,000

NOTE: Project Partially Funded

Korve Engineering

6-5-03
Rev 5-20-04

Project 5 Rev.cdr

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-7

SEGMENT 1 PROJECT

EB I-80 Auxiliary Lane – Suisun Valley Road to Truck Scales

PROJECT DESCRIPTION

Construct an auxiliary lane between the Suisun Valley Road eastbound on ramp and the truck scales eastbound off ramp.

- **Forms queuing lane for exiting trucks**
- **Adds 1000 VPH capacity to I-80 in peak hour**

Estimated Cost: $2,400,000

Source: Mark Thomas

Project 6A Rev.cdr

Korve Engineering

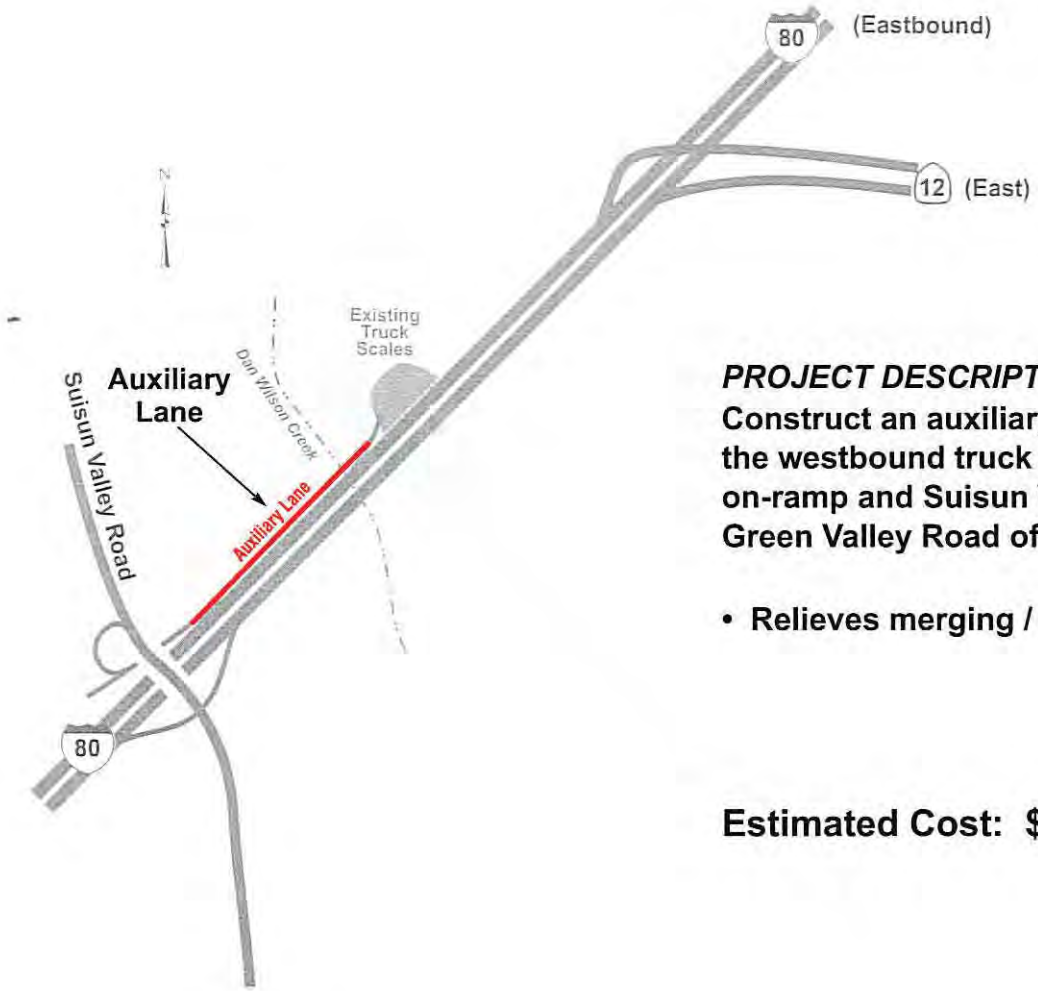
June 5, 2003

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-8

SEGMENT 1 PROJECT

WB I-80 Auxiliary Lane – Truck Scales to Suisun Valley Road



PROJECT DESCRIPTION

Construct an auxiliary lane between the westbound truck scale on-ramp and Suisun Valley Road / Green Valley Road off-ramp.

- **Relieves merging / weaving of entering trucks**

Estimated Cost: $1,700,000

Korve Engineering

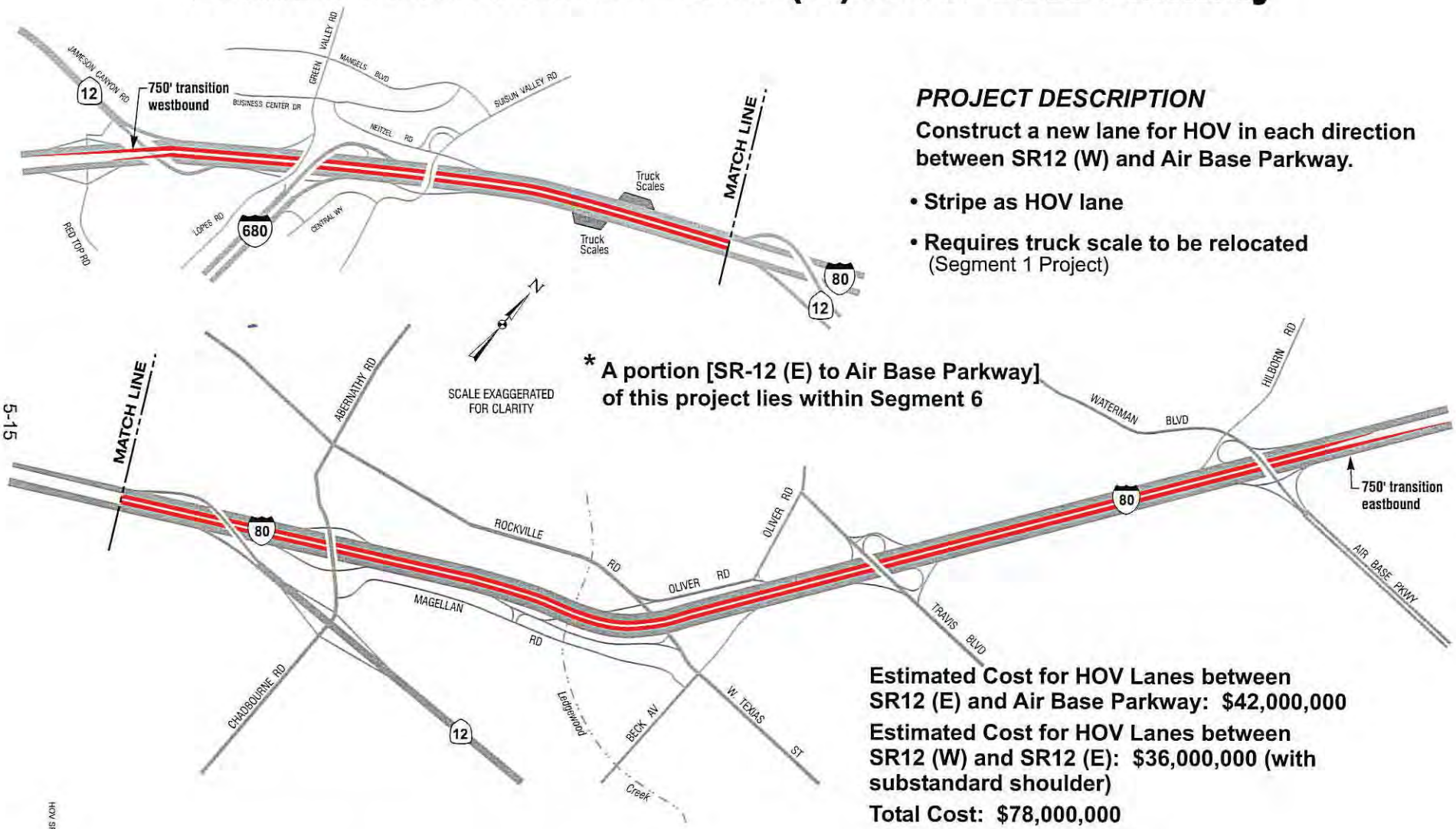
June 5, 2003

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-9

SEGMENT 1 PROJECT

EB/WB I-80 HOV Lanes – SR12(W) to Air Base Parkway



PROJECT DESCRIPTION

Construct a new lane for HOV in each direction between SR12 (W) and Air Base Parkway.

- **Stripe as HOV lane**
- **Requires truck scale to be relocated** (Segment 1 Project)

Estimated Cost for HOV Lanes between SR12 (E) and Air Base Parkway: $42,000,000

Estimated Cost for HOV Lanes between SR12 (W) and SR12 (E): $36,000,000 (with substandard shoulder)

Total Cost: $78,000,000

Recalculated by Korve Engineering

NOTE: Project Partially Funded

Korve Engineering

Source: Mark Thomas

June 5, 2003
Rev 5-20-04

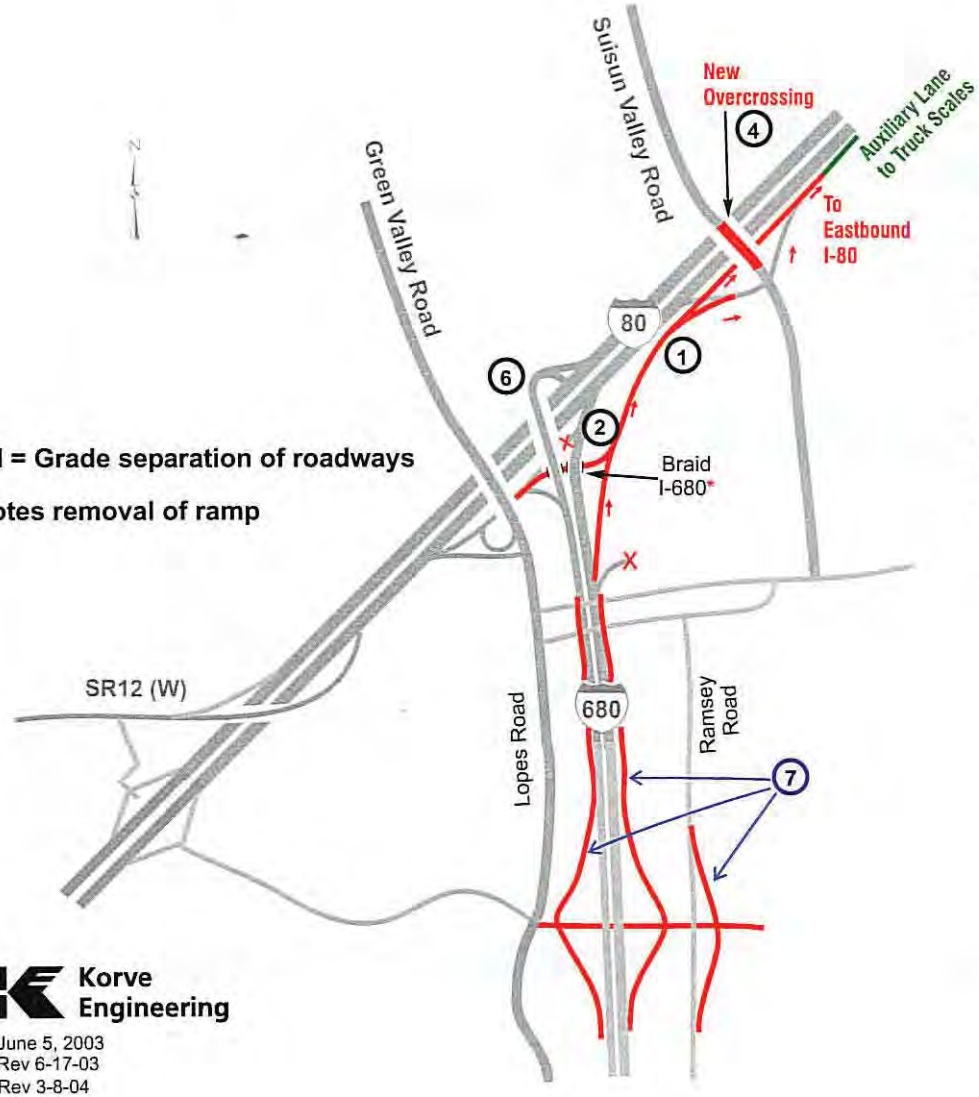
HOV SR12 to Air Base Pkwy.cdr

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-10

SEGMENT 1 PROJECT

Braid EB I-80 Ramps – I-680 to Suisun Valley Road with Improvements on I-680 including Red Top Road Interchange



* Braid = Grade separation of roadways

X denotes removal of ramp

Korve Engineering

June 5, 2003
Rev 6-17-03
Rev 3-8-04

Project 7 Rev.cdr

PROJECT DESCRIPTION

Braid I-680 / Green Valley Road / Suisun Valley Road eastbound ramps and improve I-680 including Red Top Road Interchange

1. Grade separates I-80 to Suisun Valley Road weave
2. Grade separates Green Valley ramp - I-680 merge
4. Replace or lengthen Suisun Valley Road over-crossing (optional)
   - Add auxiliary lane from Suisun Valley Road to truck scales (Segment 1 Project)
6. Replace southbound I-680 Connector Structure (optional)
7. Widening I-680 to six lanes from Red Top Overcrossing north to I-80
   - I-680/Red Top Road Interchange
   - Realignment of Ramsey Road to accommodate the Red Top Interchange
   - Improvements to Red Top Road from I-680 to I-80
   - Removal of the NB I-680/Central Ave hook ramp into Old Cordelia

Estimated Cost: $131,000,000 – $186,000,000
(Improvement 7 alone: $94,000,000)

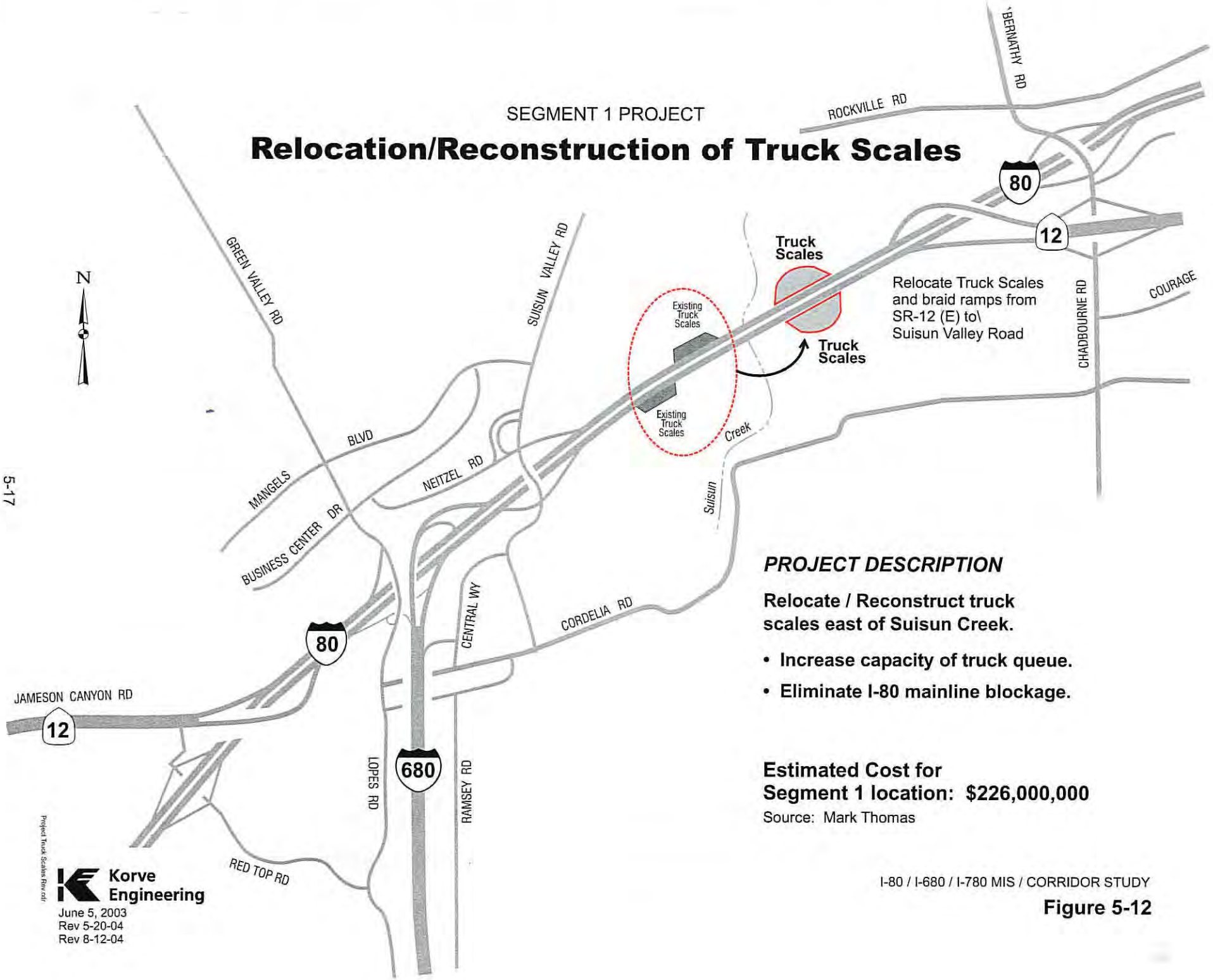
Source: Mark Thomas

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-11

SEGMENT 1 PROJECT

Relocation/Reconstruction of Truck Scales



PROJECT DESCRIPTION

Relocate / Reconstruct truck scales east of Suisun Creek.

- **Increase capacity of truck queue.**
- **Eliminate I-80 mainline blockage.**

Estimated Cost for Segment 1 location: $226,000,000

Source: Mark Thomas

Korve Engineering

June 5, 2003
Rev 5-20-04
Rev 8-12-04

Project Truck Scales Rev.cdr

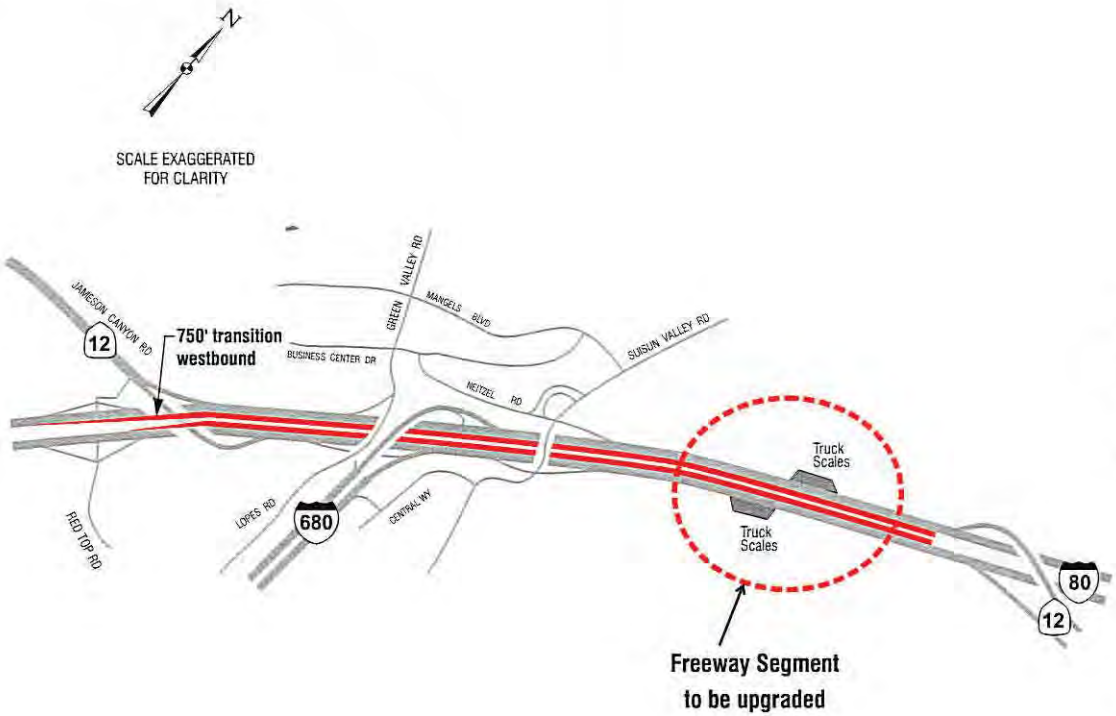
I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-12

SEGMENT 1 PROJECT

Upgrade to Full Caltrans Standards

EB/WB I-80 HOV Lanes – SR12(W) to Air Base Parkway



PROJECT DESCRIPTION

Upgrade the shoulders of the freeway along the proposed HOV lane to full Caltrans standard upon the relocation of the truck scales.

Estimated Cost for upgrading shoulder standards: $4,000,000

Source: Korve Engineering

Upgrade to CT Standards.cdr

Korve Engineering

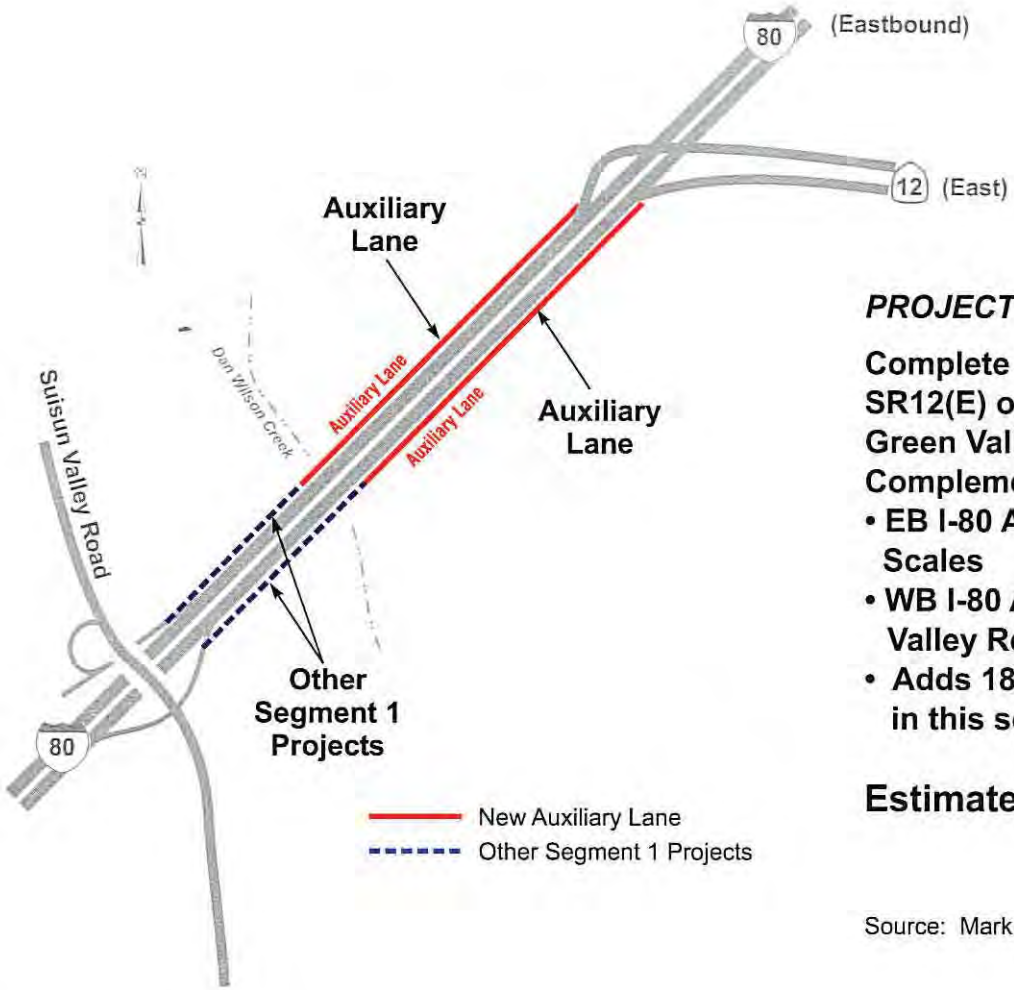
May 20, 2004

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-13

SEGMENT 1 PROJECT

EB/WB I-80 Auxiliary Lane – SR12(E) to Suisun Valley Road



PROJECT DESCRIPTION

Complete auxiliary lane between the westbound SR12(E) on-ramp and Suisun Valley Road / Green Valley Road off-ramp.

Complements Other Segment 1 Projects:

- **EB I-80 Aux Lane - Suisun Valley Rd to Truck Scales**
- **WB I-80 Aux Lane - Truck Scales to Suisun Valley Rd**
- **Adds 1800 VPH capacity to I-80 in peak hour in this segment**

Estimated Cost EB: $5,800,000
WB: $5,100,000

Source: Mark Thomas

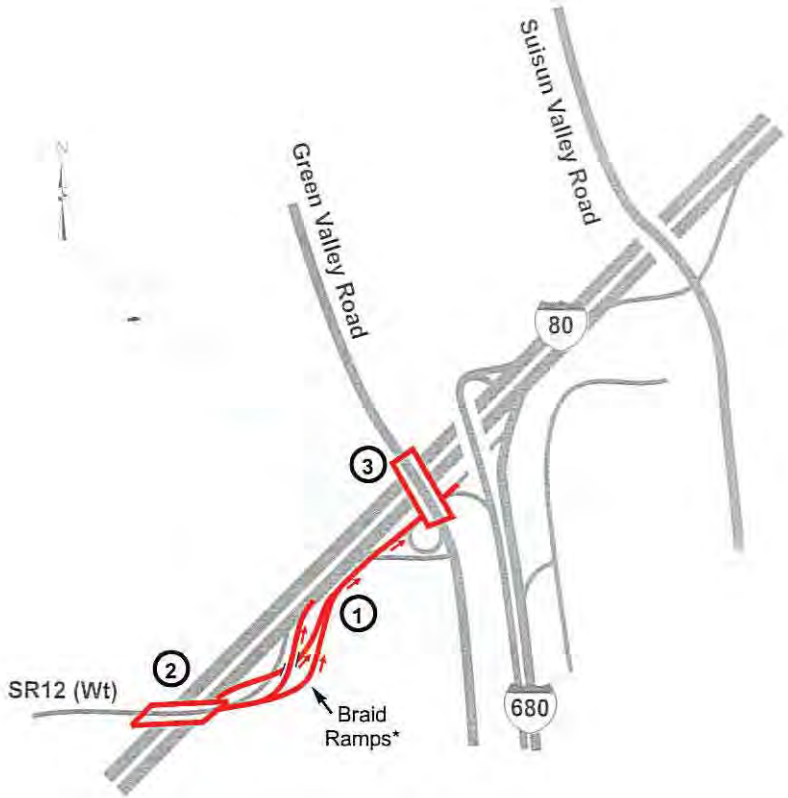
Korve Engineering

Project 14A Rev 2.cdr
June 5, 2003
Rev 2-27-04
Rev 3-10-04
Rev 8-12-04
Rev 8-26-04

Figure 5-14

SEGMENT 1 PROJECT

Braid EB I-80 Ramps – SR12 (W) to Green Valley Road



* Braid = Grade separation of roadways

PROJECT DESCRIPTION

Reconstruct the ramps along the eastbound corridor from SR12 (W) to Green Valley Road to enhance traffic operations and correct deficiencies.

1. **Eliminates substandard SR12 / Green Valley Road weave**
2. **Replaces the SR12 (W) bridge over I-80**
3. **Replaces existing Green Valley overcrossing**

- **Project is built in conjunction with 2 new lanes on eastbound SR12 (W)**

Estimated Cost: $44,000,000

Source: Mark Thomas

Korve Engineering

June 5, 2003
Rev 6-17-03
Rev 5-20-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-15

SEGMENT 1 PROJECT

WB I-80 Auxiliary Lane – Green Valley Road to SR12 (W)

PROJECT DESCRIPTION

Construct an auxiliary lane from the Green Valley Road on-ramp to the SR12 (W) off-ramp and construct 2-lane off-ramp to SR12 (W).

- **Eliminates merge capacity and exit capacity bottlenecks**
- **Requires relocation of bike path**
- **Built in conjunction with Jameson Canyon widening**

Estimated Cost: $2,200,000

Source: Mark Thomas

Korve Engineering

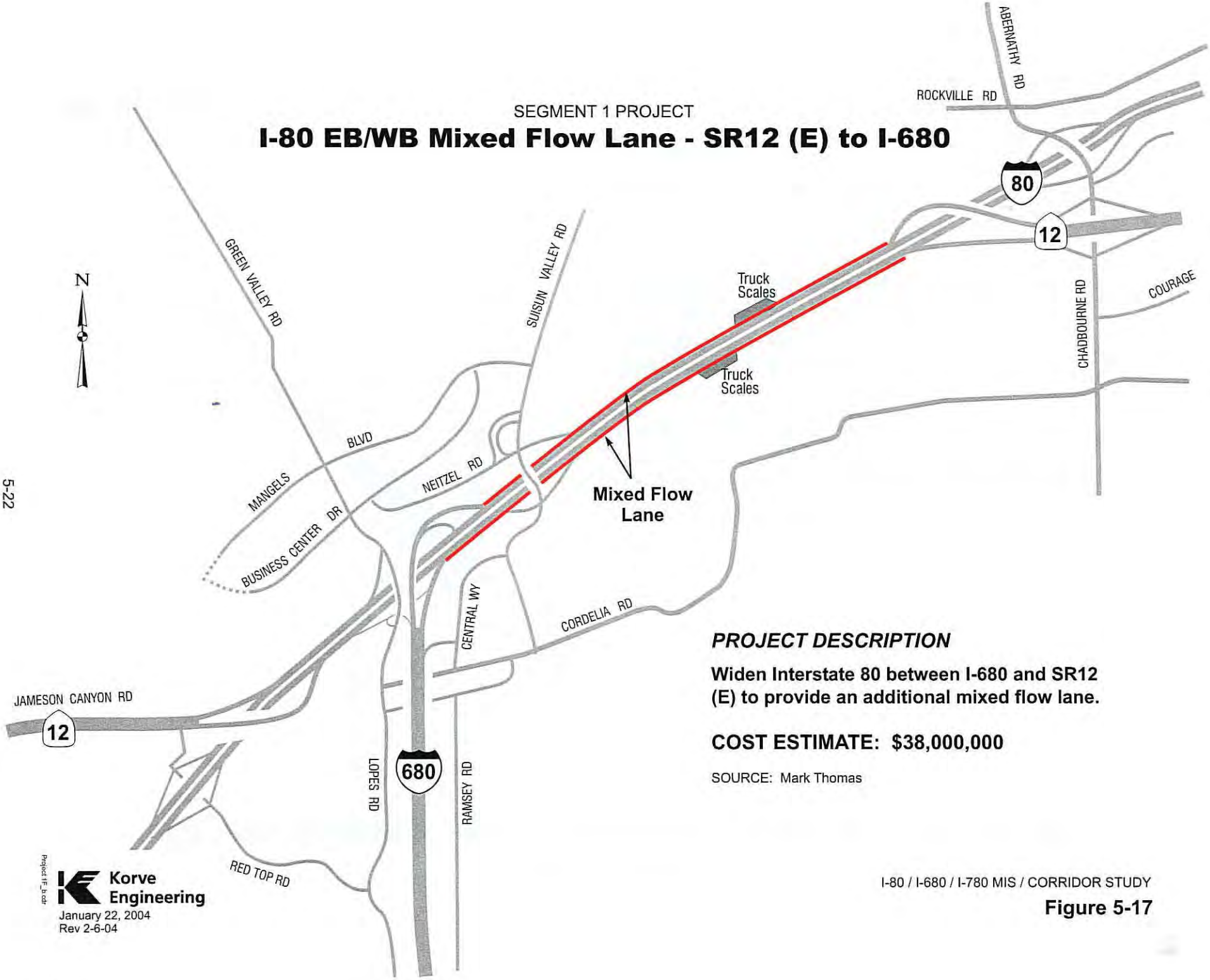
June 5, 2003
Rev 6-17-03

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-16

SEGMENT 1 PROJECT

I-80 EB/WB Mixed Flow Lane - SR12 (E) to I-680



PROJECT DESCRIPTION

Widen Interstate 80 between I-680 and SR12 (E) to provide an additional mixed flow lane.

COST ESTIMATE: $38,000,000

SOURCE: Mark Thomas

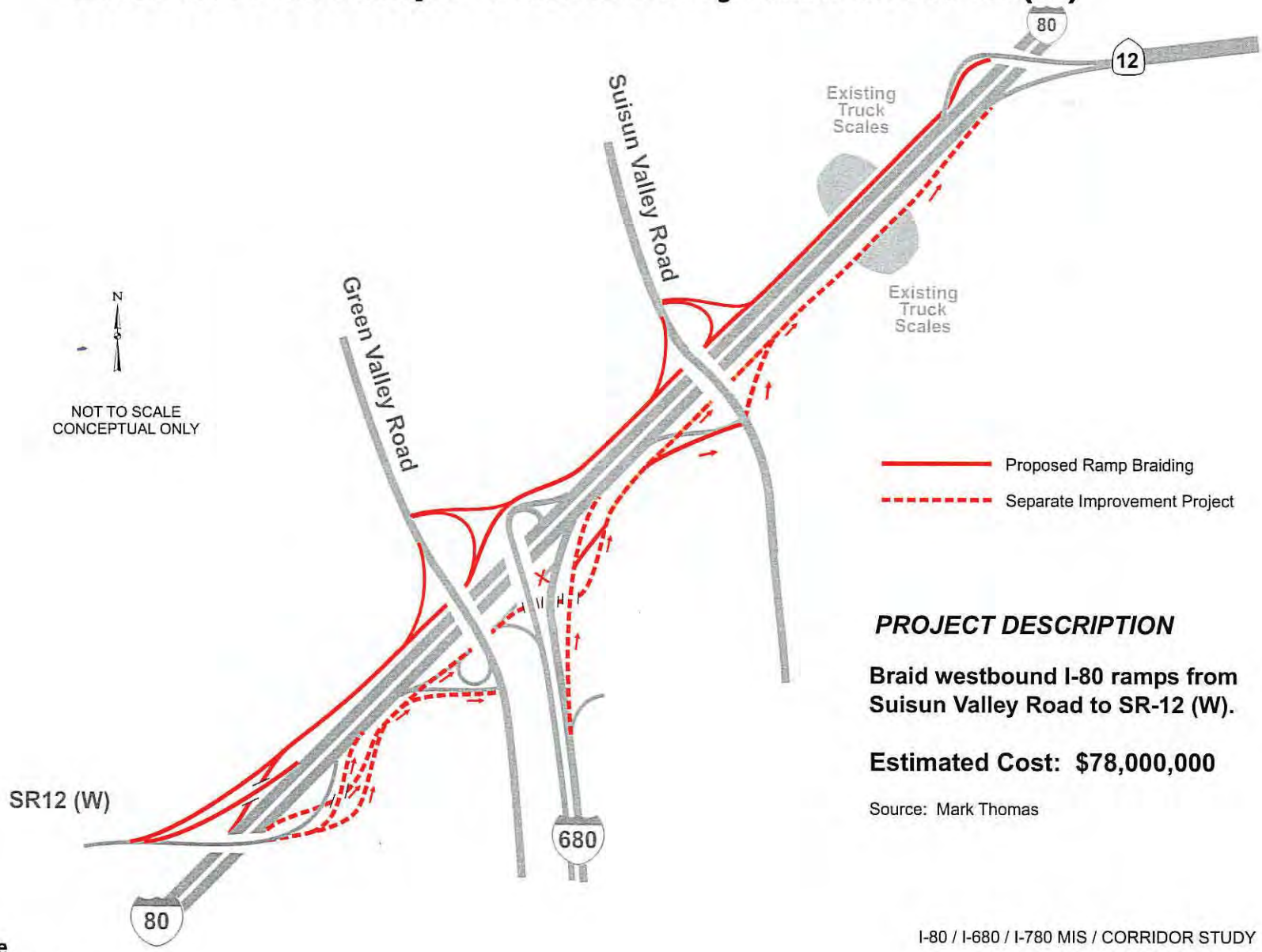
Korve Engineering
January 22, 2004
Rev 2-6-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-17

SEGMENT 1 PROJECT

Braid WB I-80 Ramps - Suisun Valley Road to SR-12 (W)



PROJECT DESCRIPTION

Braid westbound I-80 ramps from Suisun Valley Road to SR-12 (W).

Estimated Cost: $78,000,000

Source: Mark Thomas

Braid WB 80 Ramps.cdr

Korve Engineering

January 23, 2004
Rev 2-6-04
Rev 5-20-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-18

5.3.2 Segment 2

Extend WB I-80 HOV Lane from East of the Carquinez Bridge
This project, illustrated in Figure 5-19, includes the extension of the westbound I-80 HOV lane from east of the Carquinez Bridge to the Maritime Academy Road on-ramp. This project could be constructed by either replacing or overlaying the existing shoulder, with some minor spot widening. According to the current Caltrans' design, the project would involve the construction of substandard shoulders and lane widths, which would reduce the total cost to $1.5 million. As part of the project, the Maritime Academy Road westbound on-ramp to I-80 would be closed, as westbound I-80 on-ramp traffic would be rerouted via the SR 29 on-ramp. The installation of a traffic signal at the intersection of Sonoma Boulevard and Maritime Academy is currently funded.

It should be noted that a longer extension of this HOV lane to a point further east would be a highly desirable project. Current westbound I-80 queues in the morning peak hour begin at approximately the I-780 interchange. If this lane were extended further eastward, HOVs would gain a further travel time advantage.

Install EB I-80 Signage for SR 29 West of Toll Plaza
This improvement, illustrated in Figure 5-20, would install signage west of the Carquinez Bridge toll plaza, notifying vehicles of the upcoming off-ramp to northbound SR 29, and advising them to use the right lanes upstream of the toll plaza. Currently, during the evening peak hour high numbers of peak hour weaving vehicles create congestion just downstream of the Carquinez Bridge toll plaza. This occurs because of the presence of the off-ramp to northbound SR 29, less than one-half mile downstream of the toll plaza.

Complete WB I-80 HOV Lane between SR 37 and Carquinez Bridge
This project, illustrated in Figure 5-21 through Figure 5-26, includes the installation of a westbound HOV lane on I-80, between SR 37 and the Carquinez Bridge. This project would be accomplished by widening into the existing freeway median where possible. However, various locations would require widening to the outside, and installation of new retaining walls due to the limited availability of right-of-way. In addition, the project would require a number of design exceptions for non-standard shoulder widths. This would include a design exception for a non-standard inside shoulder of 1.2 meters along the entire stretch of the project and non-standard outside shoulders under existing over-crossing structures. These types of non-standard inside and outside shoulders are common on the section of I-80 between Richmond and Emeryville.

Complete EB I-80 HOV Lane between Carquinez Bridge and SR 37 with Improvements to Redwood Parkway EB Off-ramp
This project, illustrated in Figure 5-21 through Figure 5-26, includes the installation of an eastbound HOV lane on I-80, between SR 37 and the Carquinez Bridge. This project would be accomplished by widening into the existing freeway median where possible. However, various locations would require widening to the outside, and installation of new retaining walls due to the limited availability of right-of-way. In addition, the project would require a number of design exceptions for non-standard shoulder widths. This would include a design exception for a non-standard inside shoulder of 1.2 meters along the entire stretch of the project and non-standard outside shoulders under existing over-

crossing structures. These types of non-standard inside and outside shoulders are common on the section of I-80 between Richmond and Emeryville. The second Redwood Street eastbound off-ramp would be closed as part of this project. With this closure, improvements (widening) would be needed to the first (westernmost) Redwood Road off-ramp.

The cost estimate prepared for this project assumes the completion of several other projects. First, it is assumed that the eastbound HOV lane from east of the Carquinez Bridge to the Maritime Academy on-ramp would be completed prior to implementation of this project. It is anticipated that two other projects along I-80 would also be completed before this project, including deceleration/auxiliary lanes between the Carquinez Bridge and Redwood Street, and pavement rehabilitation between Redwood Street and American Canyon Road. The installation of sound walls and widening of the Sonoma Boulevard under-crossing structure are being proposed in conjunction with the deceleration/auxiliary lane project. The rehabilitation projects would install a full standard pavement section in the median, which would reduce the cost of this project.

WB I-80 Mixed-Flow Lane – SR 29 to Cumming Skyway

This project, illustrated in Figure 5-27, would install a westbound mixed-flow lane on I-80 between the SR 29 southbound on-ramp and the Cummings Skyway westbound off-ramp. To implement this improvement, a design exception for non-standard shoulders on the Carquinez Bridge would be necessary. The inside and outside shoulders on the bridge would be 1.25 meters wide under this improvement, which would include five travel lanes across the bridge.

I-80/I-780 Interchange Improvements

This project, illustrated in Figure 5-28 and Figure 5-29, would improve the existing sub-standard geometry and capacity of the ramp connecting westbound I-780 to eastbound I-80. This ramp would be widened to two lanes to accommodate heavy existing and forecast ramp volumes. Currently, the Laurel Street over-crossing impairs sight distance for westbound vehicles on I-80. This problem is exacerbated by queues generated by the weave of the I-80 eastbound off ramp to Lincoln Road east and the I-780/I-80 eastbound on-ramp, and inadequate spacing between the Cedar Street ramps and I-80 on I-780. This project would reconstruct the Laurel Street over-crossing to eliminate the sight distance problem and close the Cedar Street ramps.

Turner Parkway Extension over I-80 to Fairgrounds Drive with Park and Ride Lot and HOV Connectors

This project, illustrated in Figure 5-30, would construct a new over-crossing of I-80, connecting Turner Parkway east of I-80 with Fairgrounds Drive west of the freeway. The project is assumed to be completed after the construction of HOV lanes on I-80 from the Carquinez Bridge to SR 37. The project would require a two-lane over-crossing spanning I-80, with direct HOV connectors to and from the west. These HOV connectors would require a signalized intersection mid-span on the over-crossing, with widening to accommodate a left turn pocket. This project would also include a park-and-ride lot on the west side of I-80 as illustrated in Figure 5-30.

The acquisition of right-of-way would be necessary to provide the approaches and embankments for the over-crossing structure and HOV connectors. Interstate 80 would

need widening to the west to preserve Admiral Callaghan Road east of the freeway. This would require the acquisition of some property along the west side of the freeway.

EB I-80 Auxiliary Lane – Redwood Street to SR 37 with 2-lane Off-ramp
This project, illustrated in Figure 5-31, includes the installation of an eastbound auxiliary lane between the Redwood Street on-ramp and SR 37 off-ramp. As part of the project, the off-ramp to SR 37 would be widened to two lanes. This auxiliary lane would add capacity on I-80 between interchanges and relieve congestion resulting from merging and weaving of traffic. Expanding the freeway exit from one to two lanes would add needed capacity for the connector to SR 37. Currently this one-lane ramp widens to three lanes immediately downstream of the gore point. Widening the ramp to two lanes would take advantage of this available capacity, which will be needed with the upcoming opening of the SR 37 freeway conversion. Retaining walls would be required as part of the project due to grade differences between Admiral Callaghan Lane and I-80.

EB I-80 Auxiliary Lane – Tennessee Street to Redwood Street
This project, illustrated in Figure 5-32 and Figure 5-33, would install an eastbound auxiliary lane between the Tennessee Street on-ramp and the Redwood Street off-ramp. This lane would add needed capacity on I-80 between the interchanges and relieve congestion due to the merging and weaving of ramp volumes. Retaining walls and right-of-way acquisition would be required to implement the project.

I-80/I-780/Curtola Parkway HOV Connector
This project includes installation of an HOV connector from eastbound Curtola Parkway to the westbound I-80 median HOV lane. An issue for this project is the vertical separation between I-780 and the I-80 HOV lane. The new HOV flyover structure would be 50 feet above the I-780 grade to clear traffic when crossing I-80. The project requires the realignment of the I-780/I-80 ramp connections and shifting a portion of westbound I-80 to the north to accommodate the HOV connector in the median. This would have right of way implications for a portion of a modular home community and would include the closure of Lincoln Road West. The spatial constraints mentioned above would make this project difficult to accomplish. New access would be required for the community impacted by the Lincoln Road West closure.

EB I-80 Auxiliary Lane – I-780 to Georgia Street
This project, illustrated in Figure 5-35, would install an eastbound auxiliary lane between the I-780 on-ramp and the Georgia Street off-ramp. This lane would add needed capacity on I-80 between the interchanges and relieve congestion due to the merging and weaving of ramp volumes. To implement this project, retaining walls and right-of-way acquisition would be required in the commercial area on Lincoln Road East and Road East.

WB I-80 Auxiliary Lane – Georgia Street to I-780
This project, illustrated in Figure 5-35, would install a westbound auxiliary lane between the Georgia Street on-ramp and off-ramp to I-780/Curtola Parkway. This lane would add needed capacity on I-80 between the interchanges and relieve congestion due to the merging and weaving of ramp volumes. Retaining walls and right-of-way acquisition would be required to implement the project.

WB I-80 Auxiliary Lane – Redwood Street to Tennessee Street
This project, illustrated in Figure 5-32 and Figure 5-33, would install a westbound auxiliary lane between the Redwood Street on-ramp and off-ramp to Tennessee Street. This lane would add needed capacity on I-80 between the interchanges and relieve congestion due to the merging and weaving of ramp volumes. Retaining walls and right-of-way acquisition would be required to implement the project.

I-80 Ramp Improvements – Through Vallejo (SR 29 to Redwood)
Interchanges on the stretch of I-80 through Vallejo, from SR 29 to Redwood Street, are closely spaced and do not meet current interchange spacing standards. This substandard spacing creates weaving and merge-diverge conflicts. These conflicts generate mainline congestion and slow travel flow on I-80. In addition, the close spacing and substandard ramp geometry create safety hazards. This section was identified as having an accident rate significantly above the statewide average in the existing conditions analysis.

The goal for this segment of freeway would be to achieve one-half mile spacing between interchanges. To ensure adequate local access and capacity, improvements to ramps, interchanges, local streets, frontage roads and parallel facilities would be necessary as part of any project to improve ramps. Figure 5-36 illustrates the area of potential interchange modification. Specific changes have not been identified at this time.

SEGMENT 2 PROJECT

Extension of WB I-80 HOV Lane – East of Carquinez Bridge to Maritime Academy Drive On-Ramp

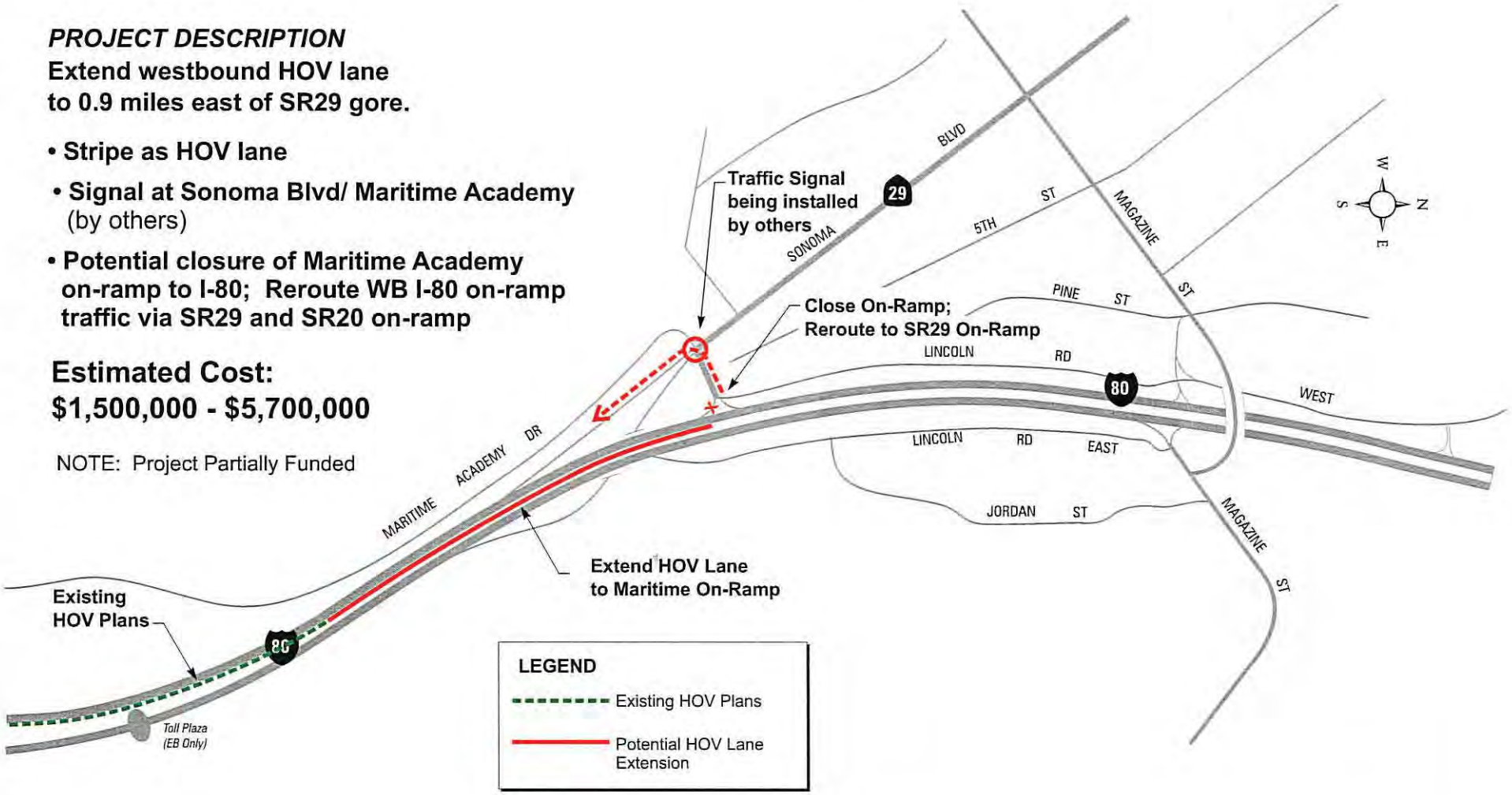
PROJECT DESCRIPTION

Extend westbound HOV lane to 0.9 miles east of SR29 gore.

- **Stripe as HOV lane**
- **Signal at Sonoma Blvd/ Maritime Academy** (by others)
- **Potential closure of Maritime Academy on-ramp to I-80; Reroute WB I-80 on-ramp traffic via SR29 and SR20 on-ramp**

Estimated Cost:
$1,500,000 - $5,700,000

NOTE: Project Partially Funded



Korve Engineering

Project 2.cdr
10-23-03

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-19

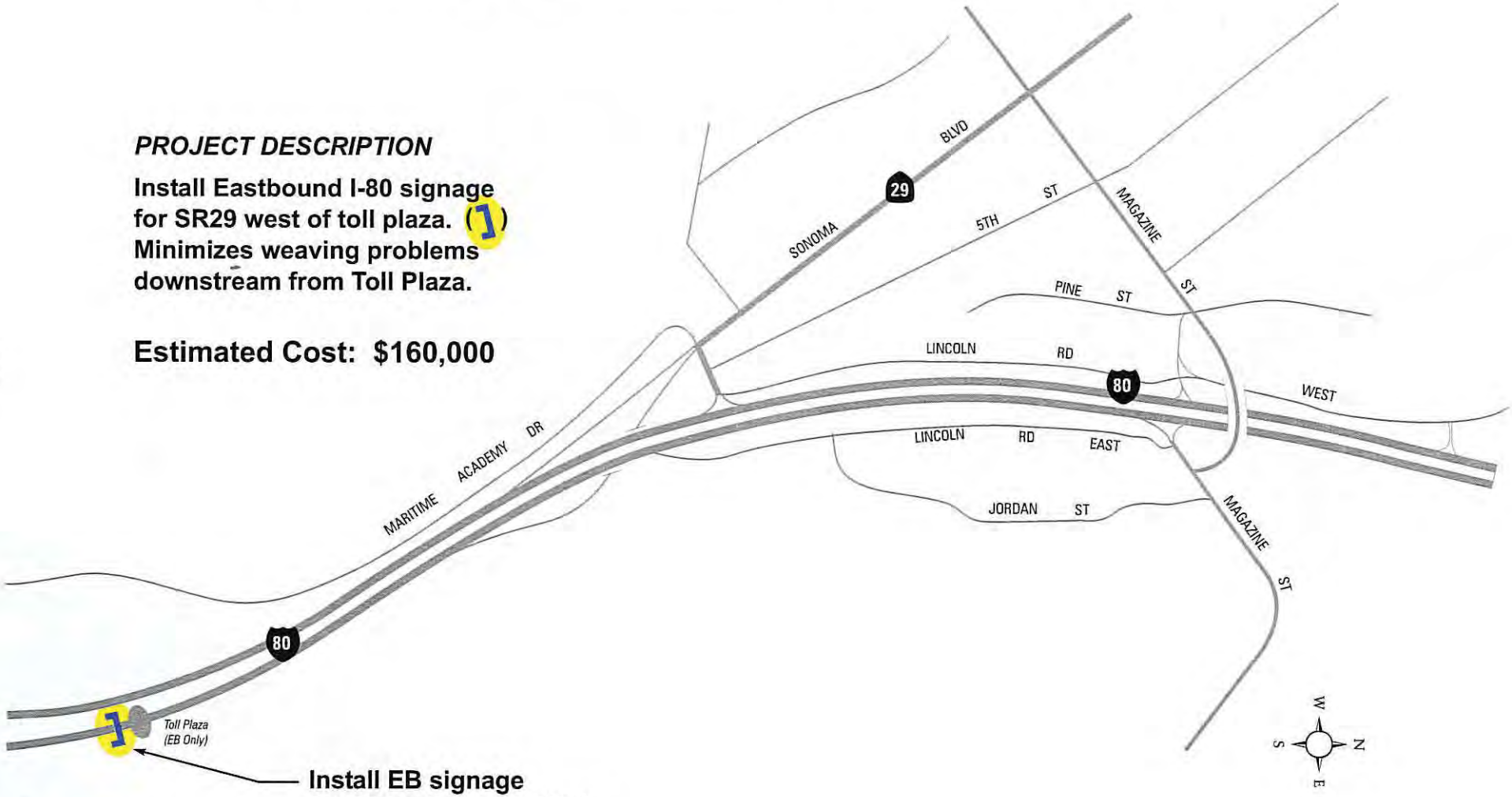
SEGMENT 2 PROJECT

EB I-80 Signage for SR29 – West of Toll Plaza

PROJECT DESCRIPTION

Install Eastbound I-80 signage for SR29 west of toll plaza. (1) Minimizes weaving problems downstream from Toll Plaza.

Estimated Cost: $160,000



Install EB signage for SR29 directing SR29 traffic to right lanes

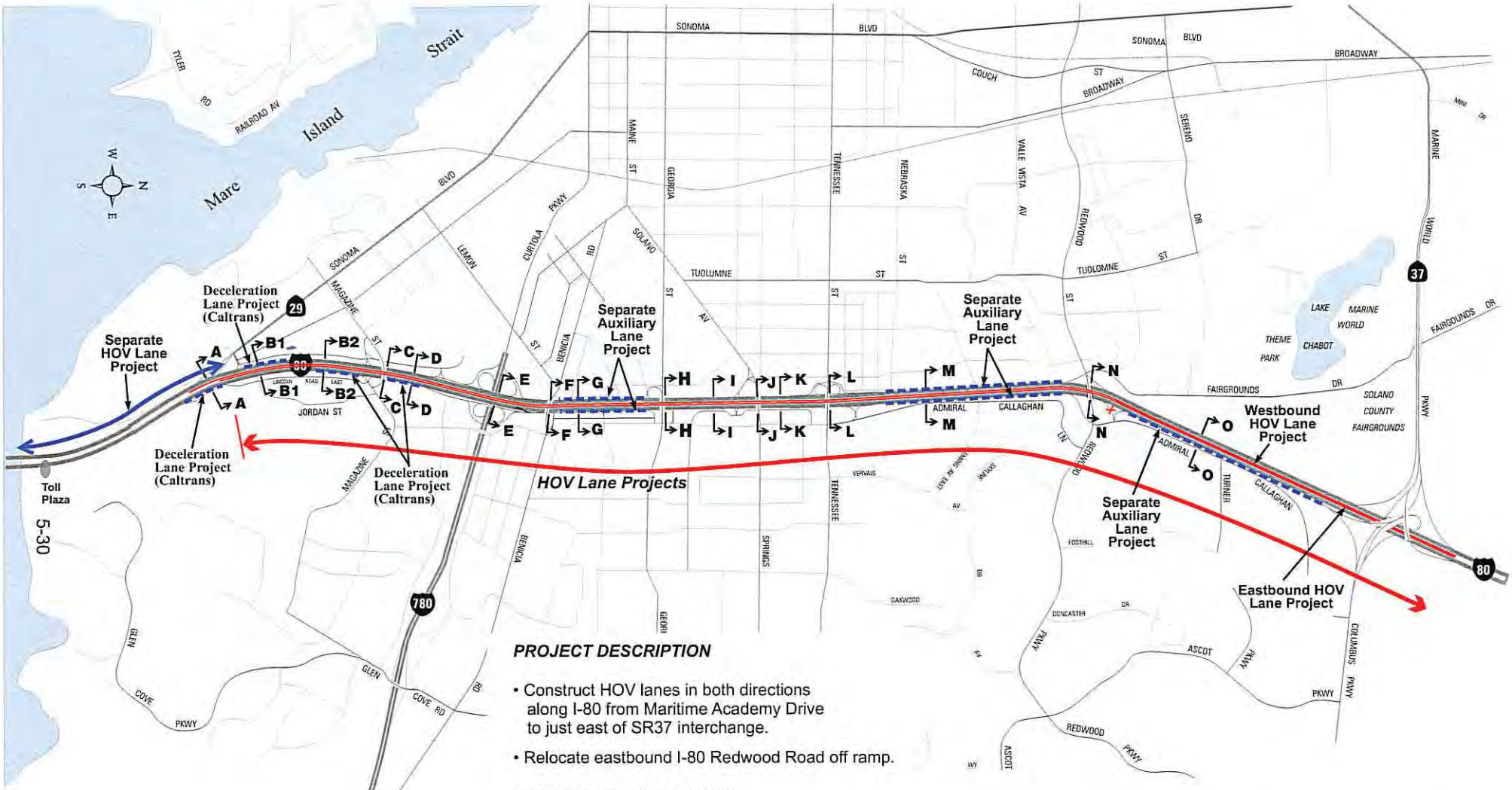
Korve Engineering

Toll Plaza Sign.cdr

10-23-03

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-20



PROJECT DESCRIPTION

- Construct HOV lanes in both directions along I-80 from Maritime Academy Drive to just east of SR37 interchange.
- Relocate eastbound I-80 Redwood Road off ramp.

WB HOV Cost: $15,700,000
EB HOV Cost: $32,300,000

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-21

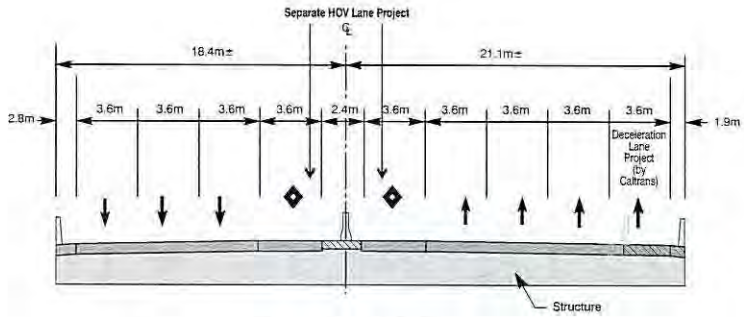
WB I-80 HOV Lane – SR-37 to Carquinez Bridge
EB I-80 HOV Lane – Carquinez Bridge to SR-37

with Improvement on Redwood Road EB Off-Ramp

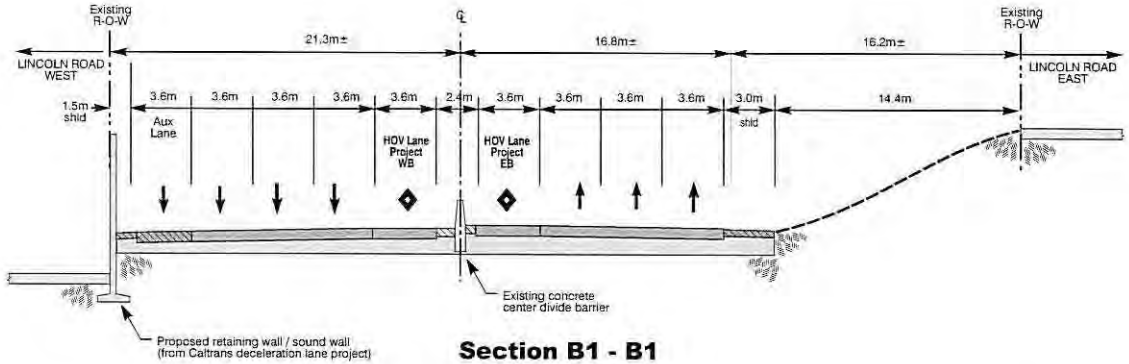
September 10, 2003
Revised 1-27-04
Revised 5-20-04

Korve Engineering

Seg 2 HOV final.cdr



Section A-A
Sonoma Boulevard Undercrossing
(Widening by others)
NOT TO SCALE

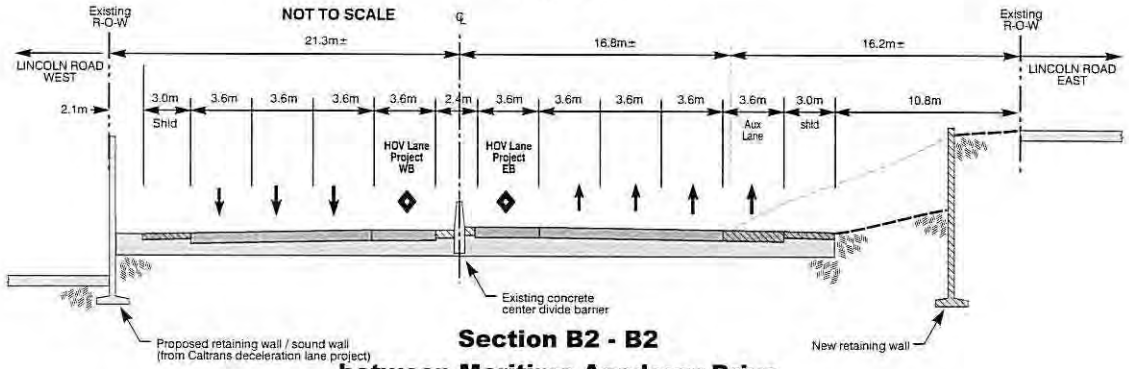


Section B1 - B1
NOT TO SCALE

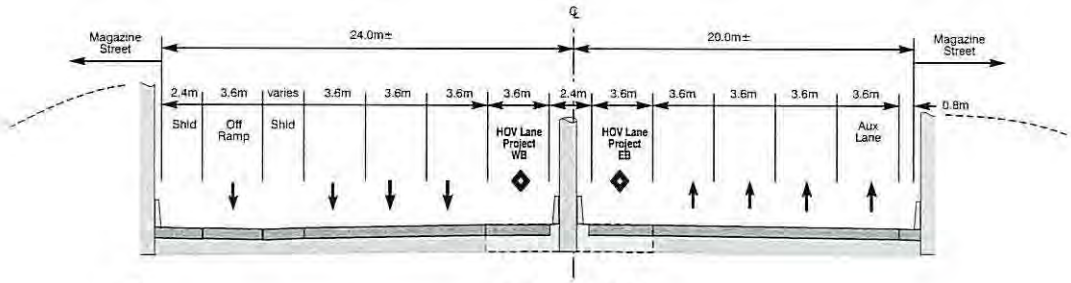
NOTES

All right-of-way at undercrossing structure is to the end of structure.

All median pavement has been brought to standard by pavement rehabilitation project.



Section B2 - B2
between Maritime Academy Drive and Magazine Street
NOT TO SCALE



Section C-C
Magazine Street Overcrossing
NOT TO SCALE

Seg 2 Sections Rev 2 restucent.cdr

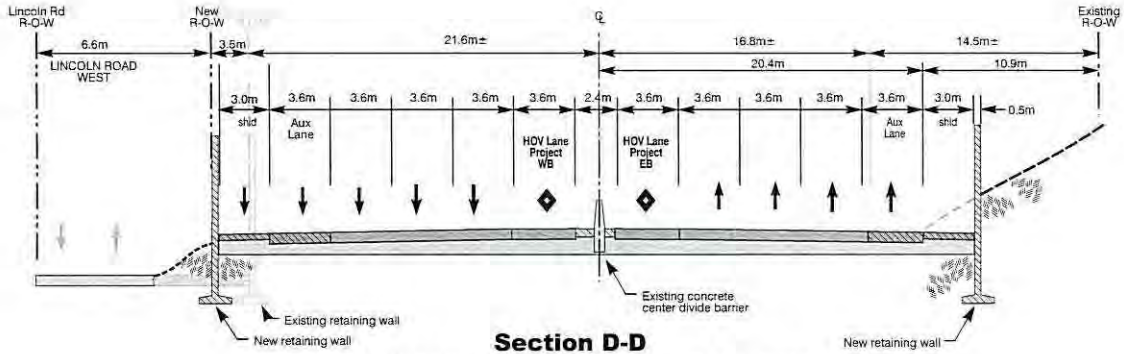
I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-22

Segment 2 Project: WB I-80 HOV Lane - SR-37 to Carquinez Bridge
Segment 2 Project: EB I-80 HOV Lane - Carquinez Bridge to SR-37

CROSS SECTIONS

September 10, 2003
Rev 1-21-04
Rev 5-20-04

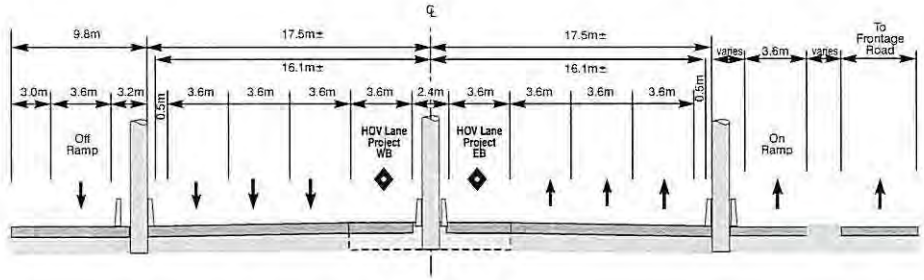


Section D-D
between Magazine Street and I-780
NOT TO SCALE

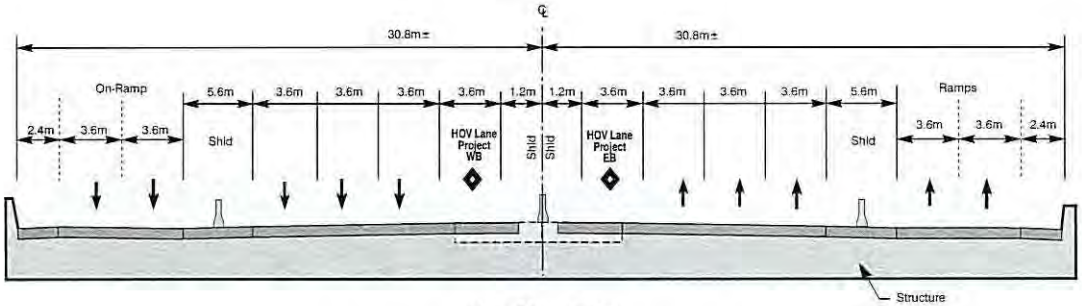
NOTES

All right-of-way at undercrossing structure is to the end of structure.

All median pavement has been brought to standard by pavement rehabilitation project.



Section F-F
Benicia Road Overcrossing
NOT TO SCALE



Section E-E
I-80 Bridge Overcrossing I-780
(No Widening Required)
NOT TO SCALE

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-23

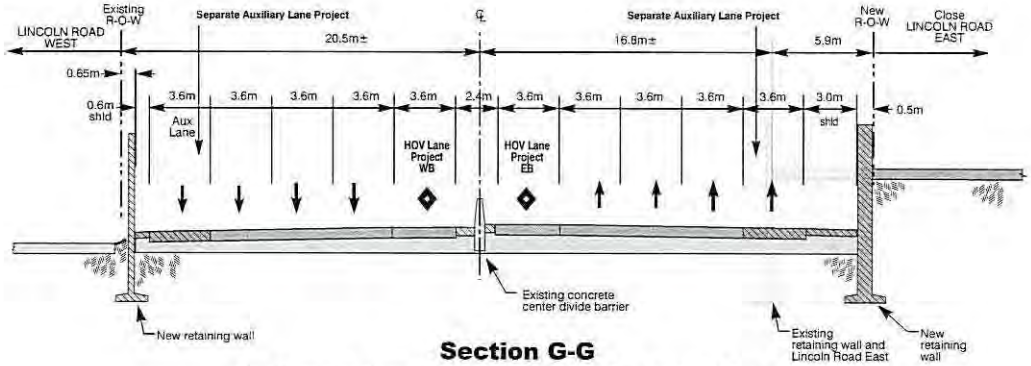
Segment 2 Project: WB I-80 HOV Lane - SR-37 to Carquinez Bridge

Segment 2 Project: EB I-80 HOV Lane - Carquinez Bridge to SR-37

CROSS SECTIONS

September 10, 2003
Rev 1-21-04
Rev 5-20-04

Seg 2 Sections Rev 2 reduced.cdr



Section G-G

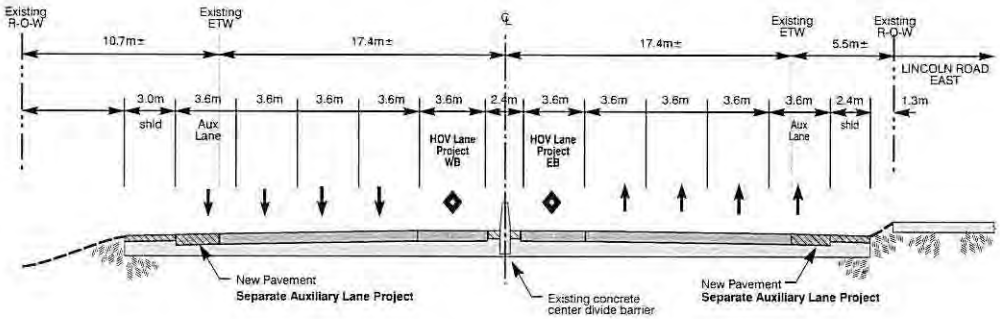
between Benicia Road and Georgia Street

NOT TO SCALE

NOTES

All right-of-way at undercrossing structure is to the end of structure.

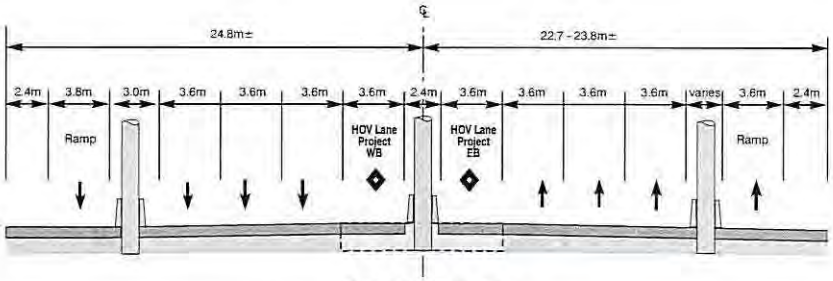
All median pavement has been brought to standard by pavement rehabilitation project.



Section I-I

between Georgia Street and Springs Road

NOT TO SCALE



Section H-H

Georgia Street Overcrossing

NOT TO SCALE

Seg 2 Sections Rev 2 reduced.cdr

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

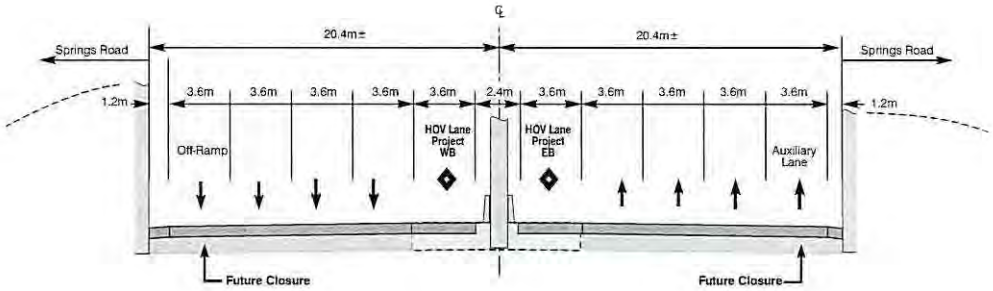
Figure 5-24

Segment 2 Project: WB I-80 HOV Lane - SR-37 to Carquinez Bridge

Segment 2 Project: EB I-80 HOV Lane - Carquinez Bridge to SR-37

CROSS SECTIONS

September 10, 2003
Rev 1-21-04
Rev 5-20-04



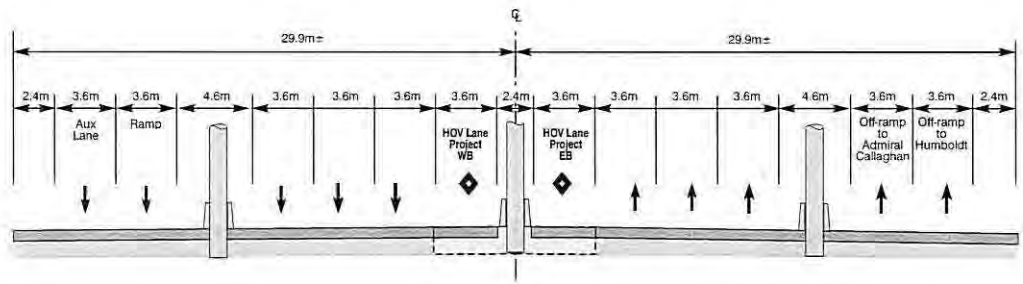
Section J-J
Springs Road Overcrossing

NOT TO SCALE

NOTES

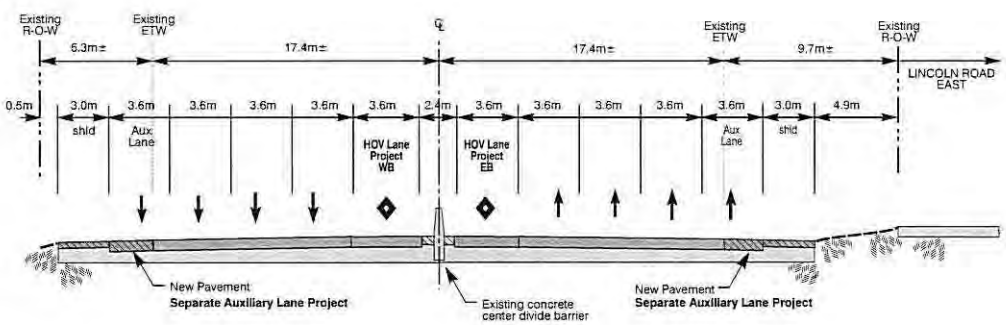
All right-of-way at undercrossing structure is to the end of structure.

All median pavement has been brought to standard by pavement rehabilitation project.



Section L-L
Tennessee Street Overcrossing

NOT TO SCALE



Section K-K
between Springs Road and Tennessee Street

NOT TO SCALE

Seg 2 Sections Rev 2 reduced.cdr

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

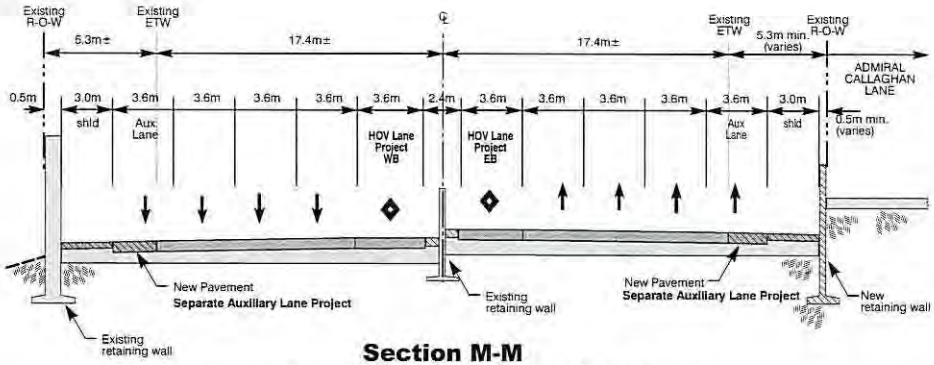
Figure 5-25

Segment 2 Project: WB I-80 HOV Lane - SR-37 to Carquinez Bridge

Segment 2 Project: EB I-80 HOV Lane - Carquinez Bridge to SR-37

CROSS SECTIONS

September 10, 2003
Rev 1-21-04
Rev 5-20-04



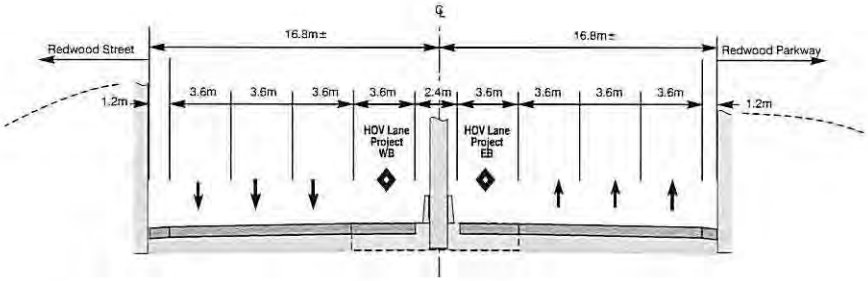
Section M-M
between Tennessee Street and Redwood

NOT TO SCALE

NOTES

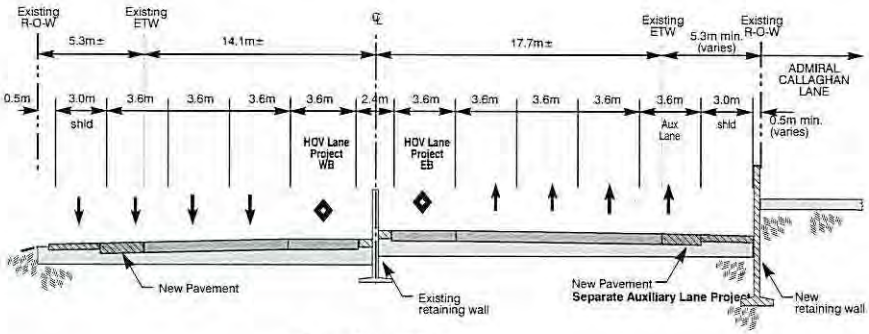
All right-of-way at undercrossing structure is to the end of structure.

All median pavement has been brought to standard by pavement rehabilitation project.



Section N-N
Redwood Street Overcrossing

NOT TO SCALE



Section O-O
between Redwood and SR 37

NOT TO SCALE

Seg 2 Sections Rev 2 reduced.cdr

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-26

Segment 2 Project: WB I-80 HOV Lane - SR-37 to Carquinez Bridge

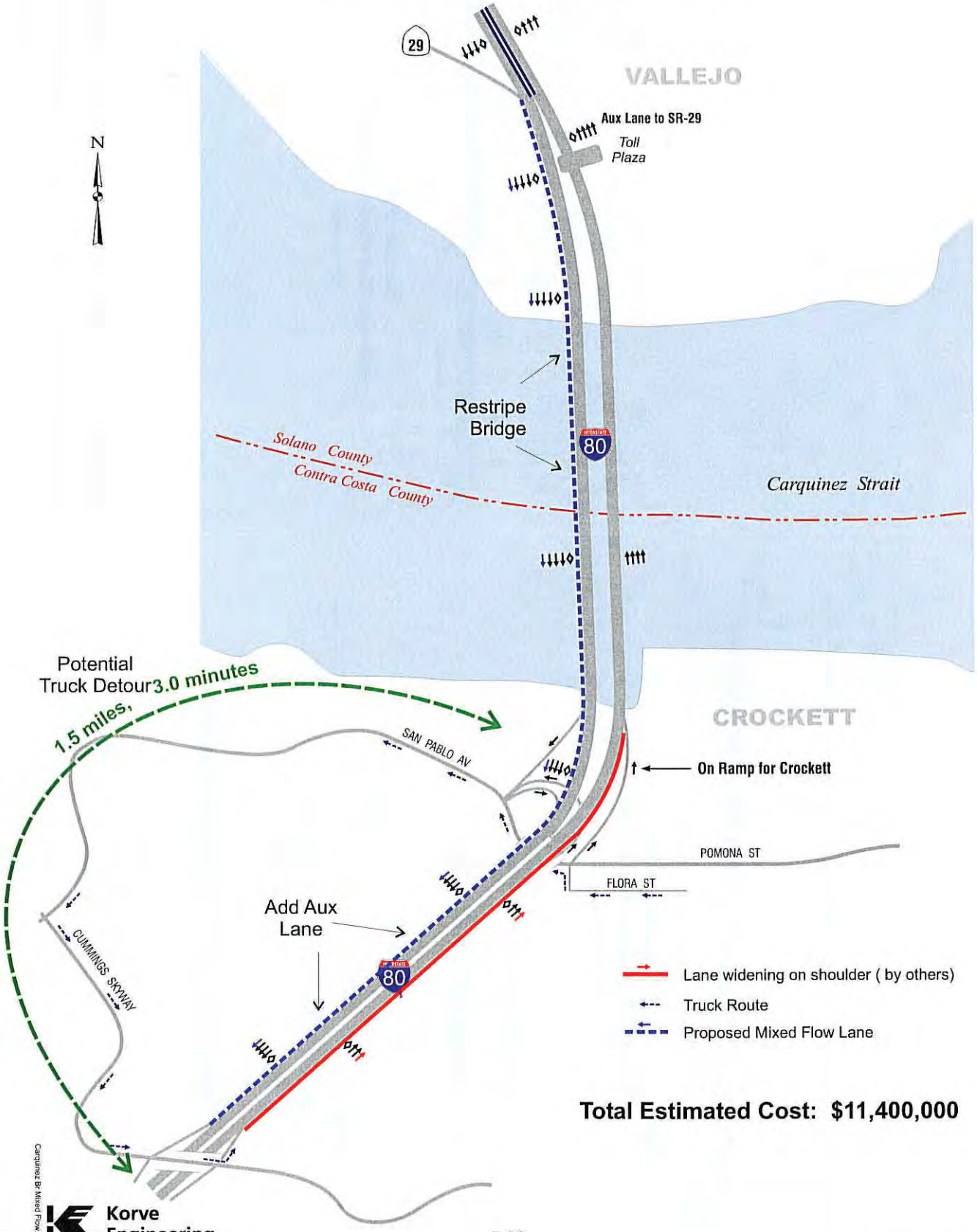
Segment 2 Project: EB I-80 HOV Lane - Carquinez Bridge to SR-37

CROSS SECTIONS

September 10, 2003
Rev 1-21-04
Rev 5-20-04

SEGMENT 2 PROJECT

WB I-80 Mixed Flow Lane (SR 29 to Cummings Skwy)



Total Estimated Cost: $11,400,000

Carquinez Br Mixed Flow.cdr

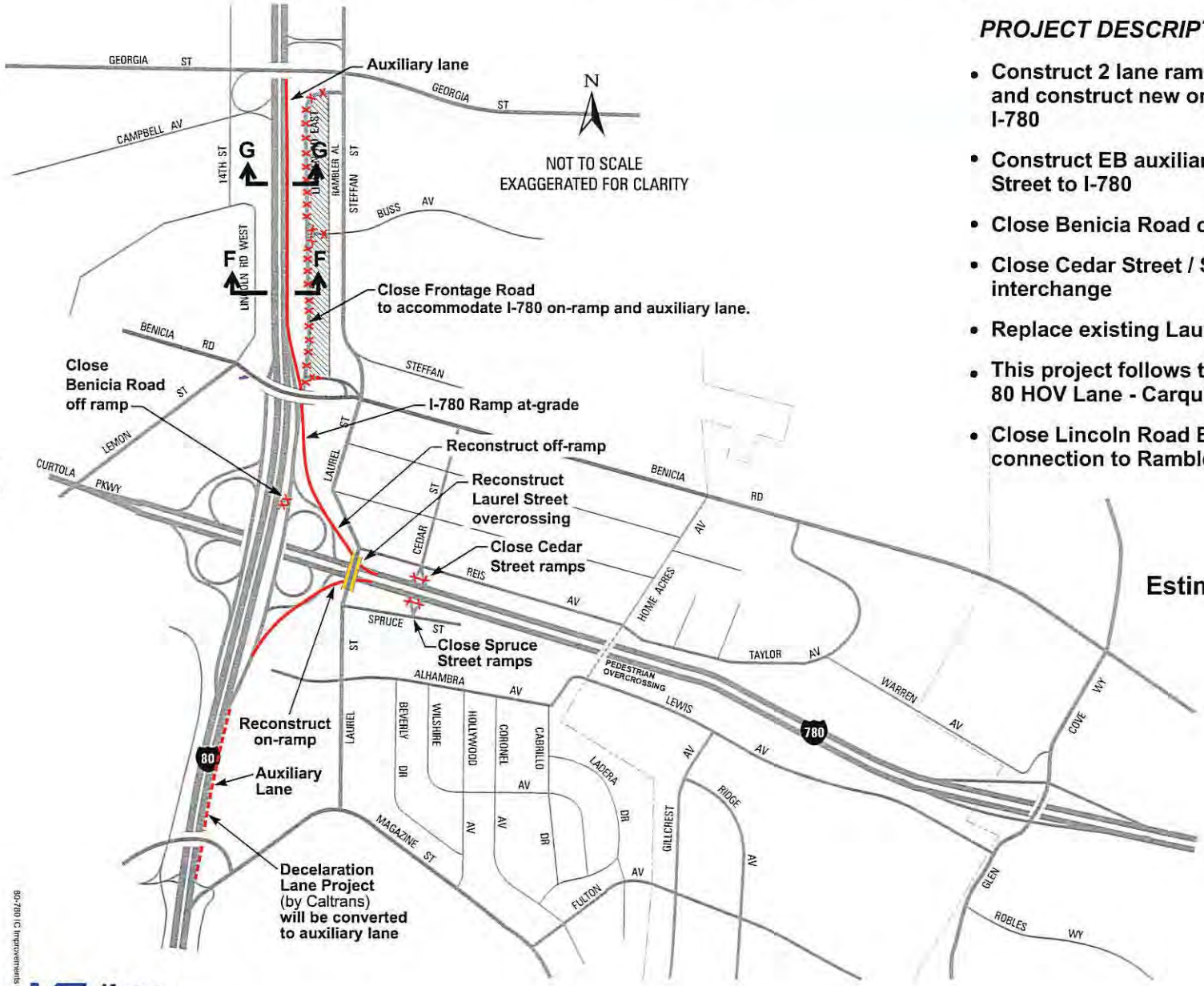
Korve Engineering

Rev 5-21-04

Figure 5-27

SEGMENT 2 PROJECT

I-80 / I-780 Interchange Improvements



PROJECT DESCRIPTION

- Construct 2 lane ramp from NB I-780 to EB I-80 and construct new on ramp from EB I-80 to SB I-780
- Construct EB auxiliary lane from Magazine Street to I-780
- Close Benicia Road off ramp at I-80 EB
- Close Cedar Street / Spruce Street / I-80 interchange
- Replace existing Laurel Street Bridge over I-780
- This project follows the Segment 2 Project: I-80 HOV Lane - Carquinez Bridge to SR-37
- Close Lincoln Road East from Benicia Road connection to Rambler Alley

Estimated Cost: $48,000,000

Korve Engineering

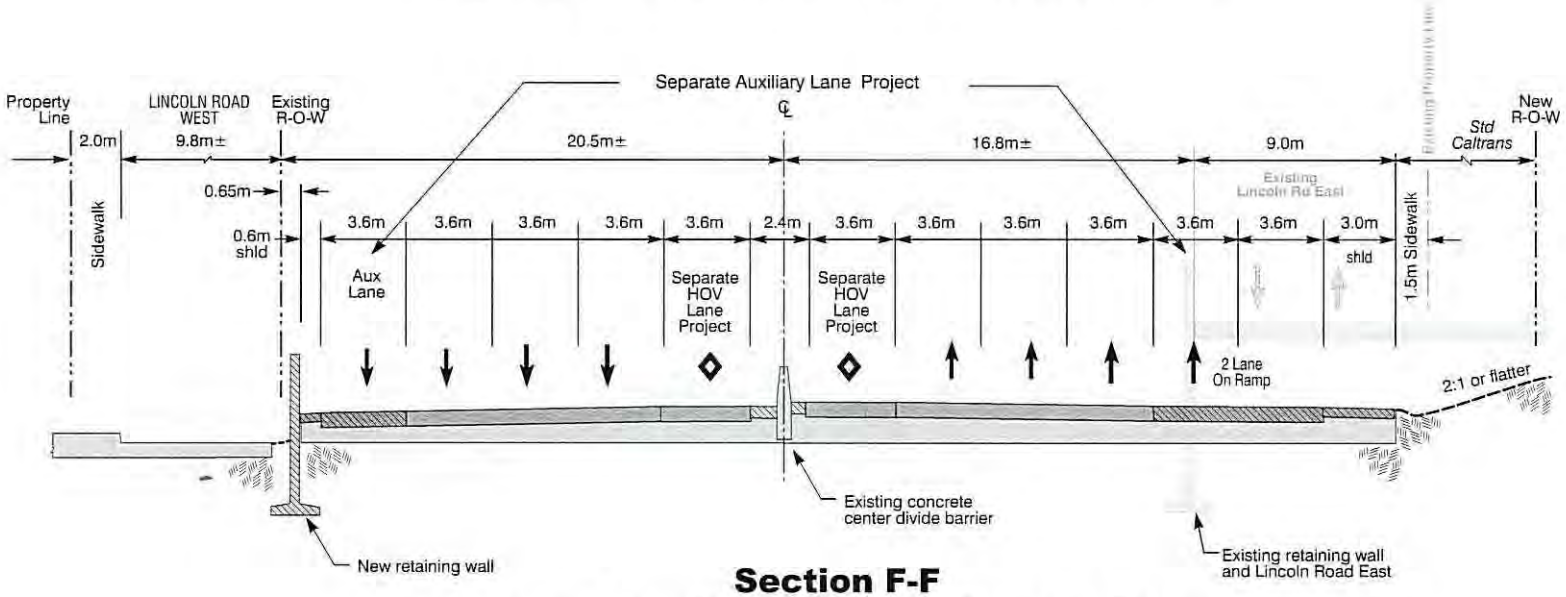
October 30, 2003
Revised 2-6-04
Revised 5-20-04

80-780 IC Improvements Rev 5.cdr

Figure 5-28

SEGMENT 3 PROJECT

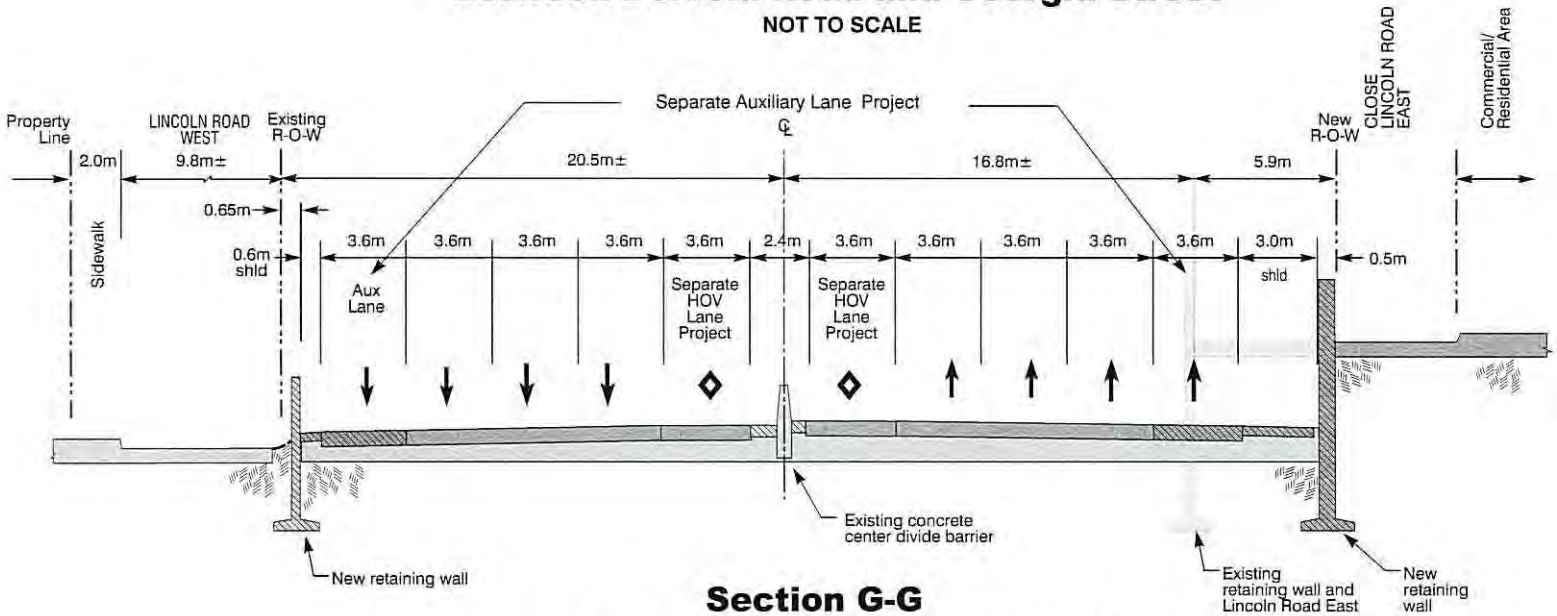
I-80 / I-780 Interchange Improvements



Section F-F

between Benicia Road and Georgia Street

NOT TO SCALE



Section G-G

between Benicia Road and Georgia Street

NOT TO SCALE

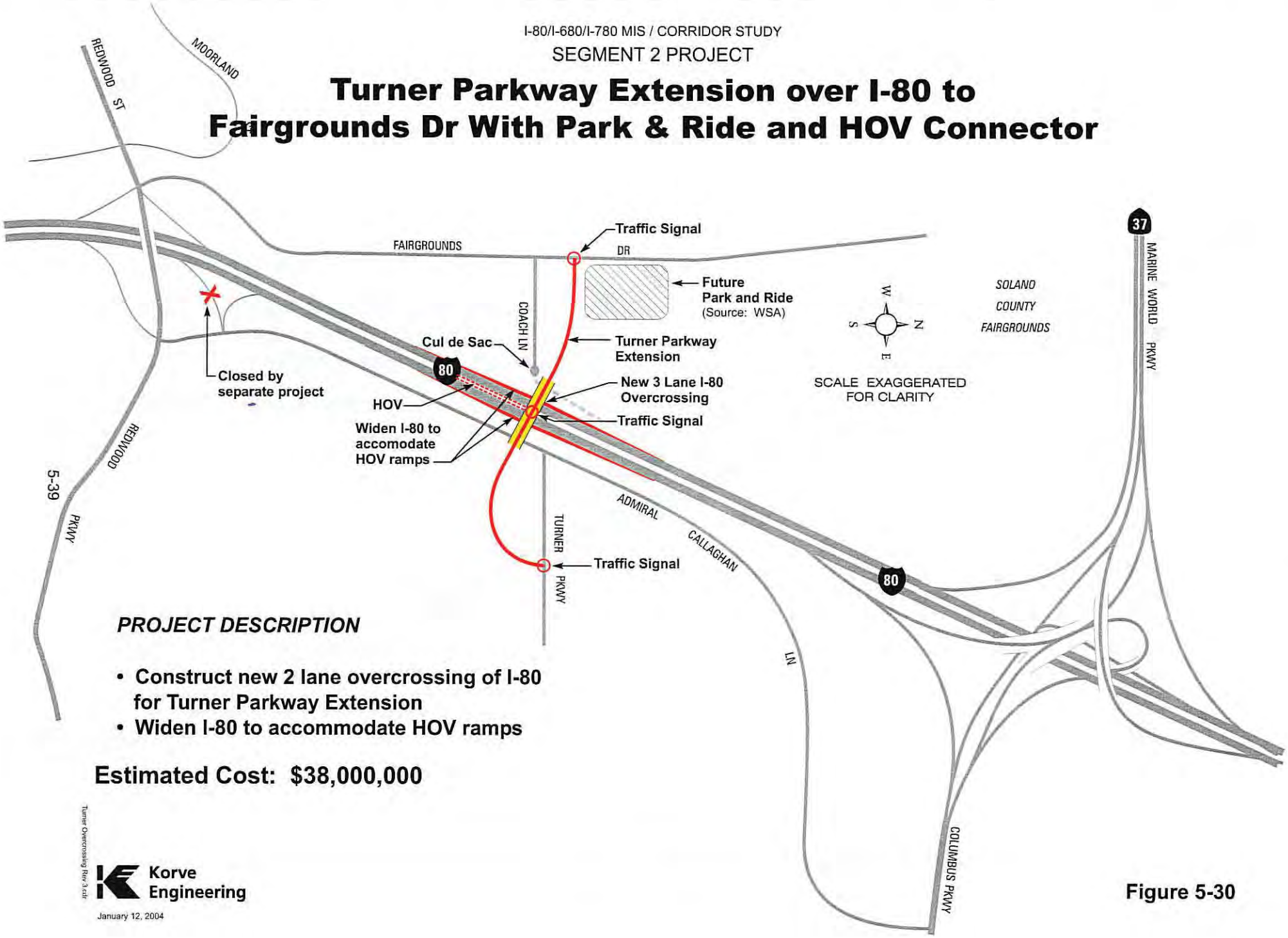
SOURCE: Project 2b, I-80 HOV Lanes

Figure 5-29

Seg 3 Sections flw2.cdr

SEGMENT 2 PROJECT

Turner Parkway Extension over I-80 to Fairgrounds Dr With Park & Ride and HOV Connector



PROJECT DESCRIPTION

- **Construct new 2 lane overcrossing of I-80 for Turner Parkway Extension**
- **Widen I-80 to accommodate HOV ramps**

Estimated Cost: $38,000,000

Korve Engineering

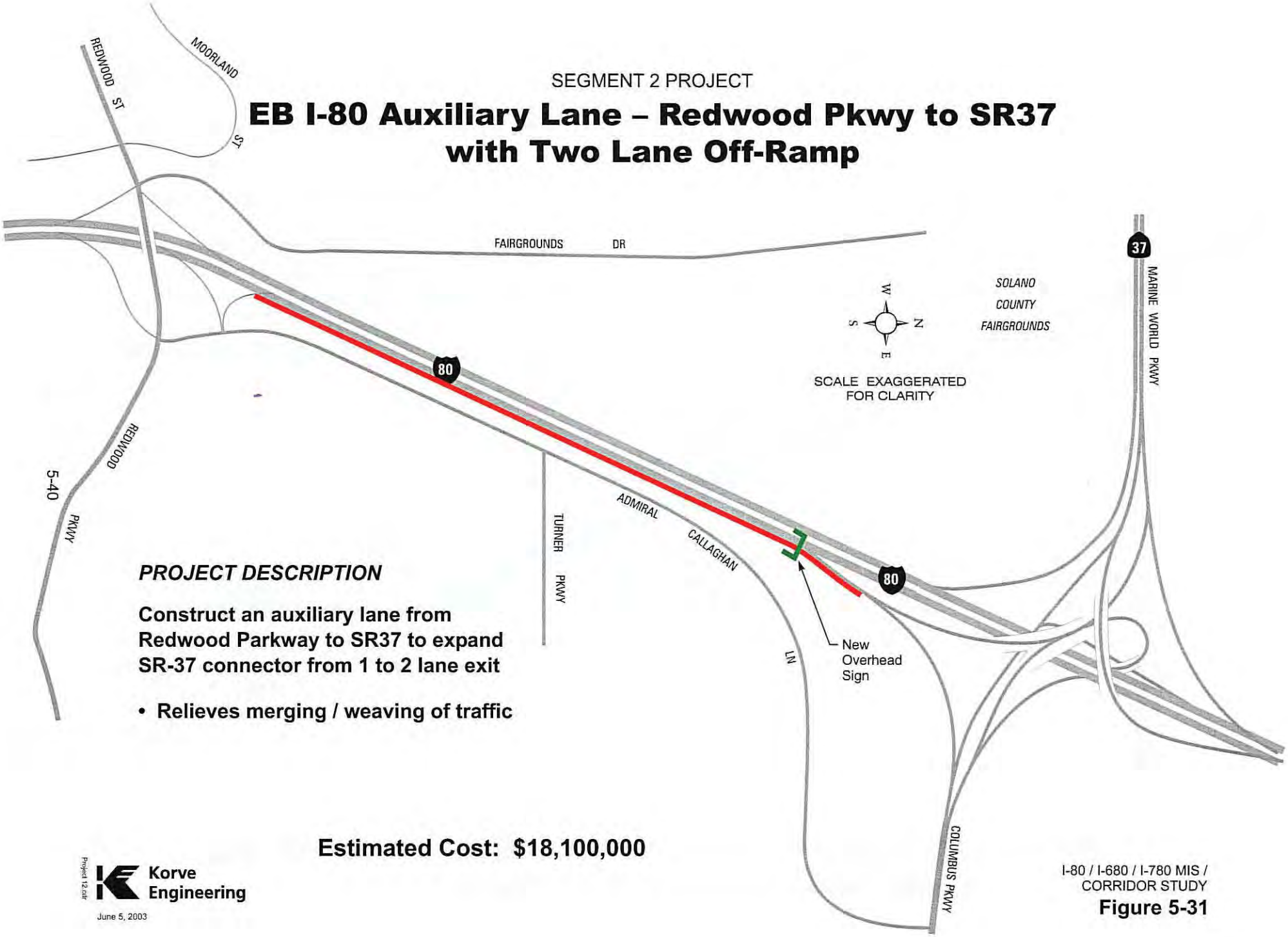
January 12, 2004

Turner Overcrossing Rev 3.cdr

Figure 5-30

SEGMENT 2 PROJECT

EB I-80 Auxiliary Lane – Redwood Pkwy to SR37 with Two Lane Off-Ramp



PROJECT DESCRIPTION

Construct an auxiliary lane from Redwood Parkway to SR37 to expand SR-37 connector from 1 to 2 lane exit

- **Relieves merging / weaving of traffic**

Estimated Cost: $18,100,000

Korve Engineering

Project 12.cdr

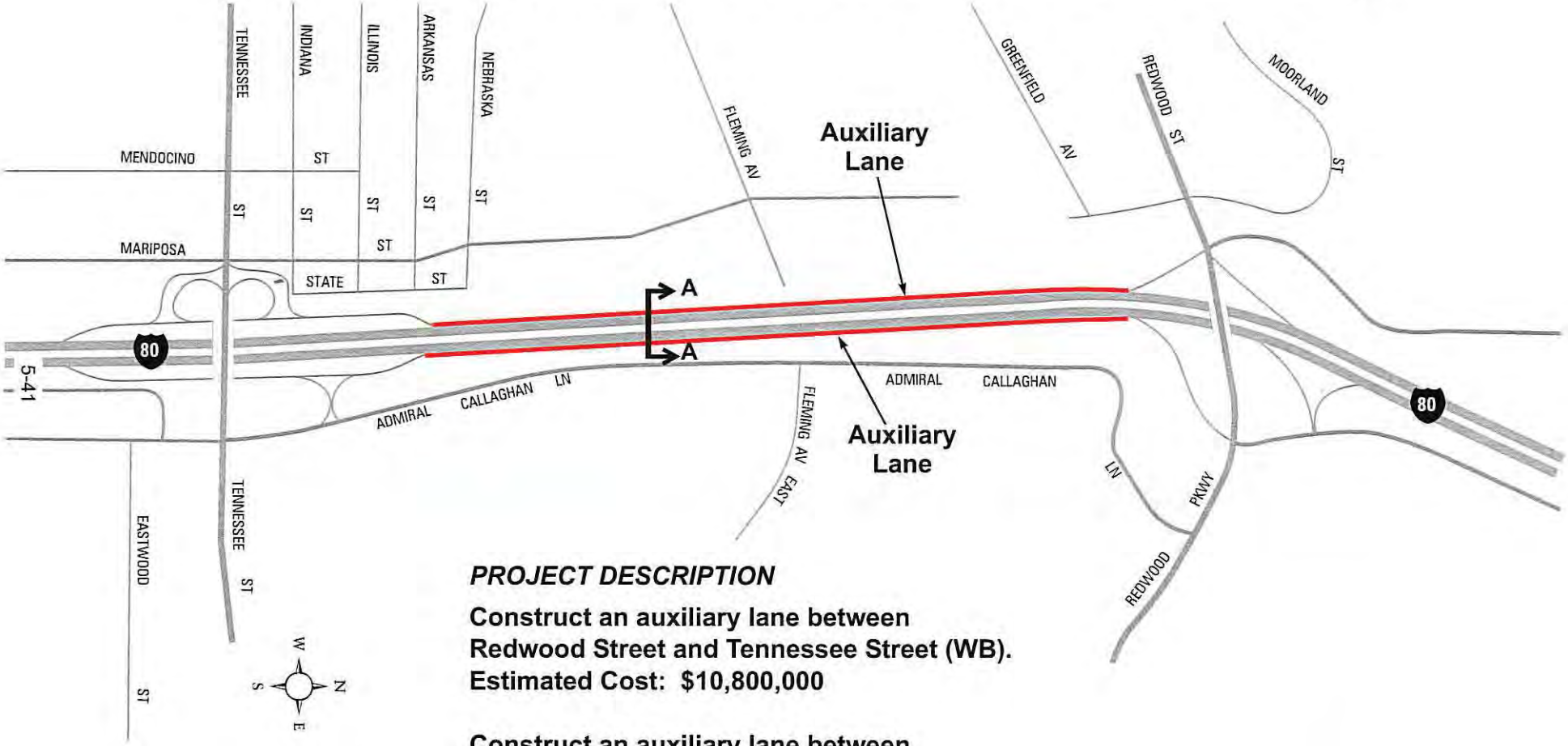
June 5, 2003

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-31

SEGMENT 2 PROJECT

WB I-80 Auxiliary Lane – Redwood St to Tennessee St
EB I-80 Auxiliary Lane – Tennessee St to Redwood Pkwy



SCALE EXAGGERATED FOR CLARITY

PROJECT DESCRIPTION

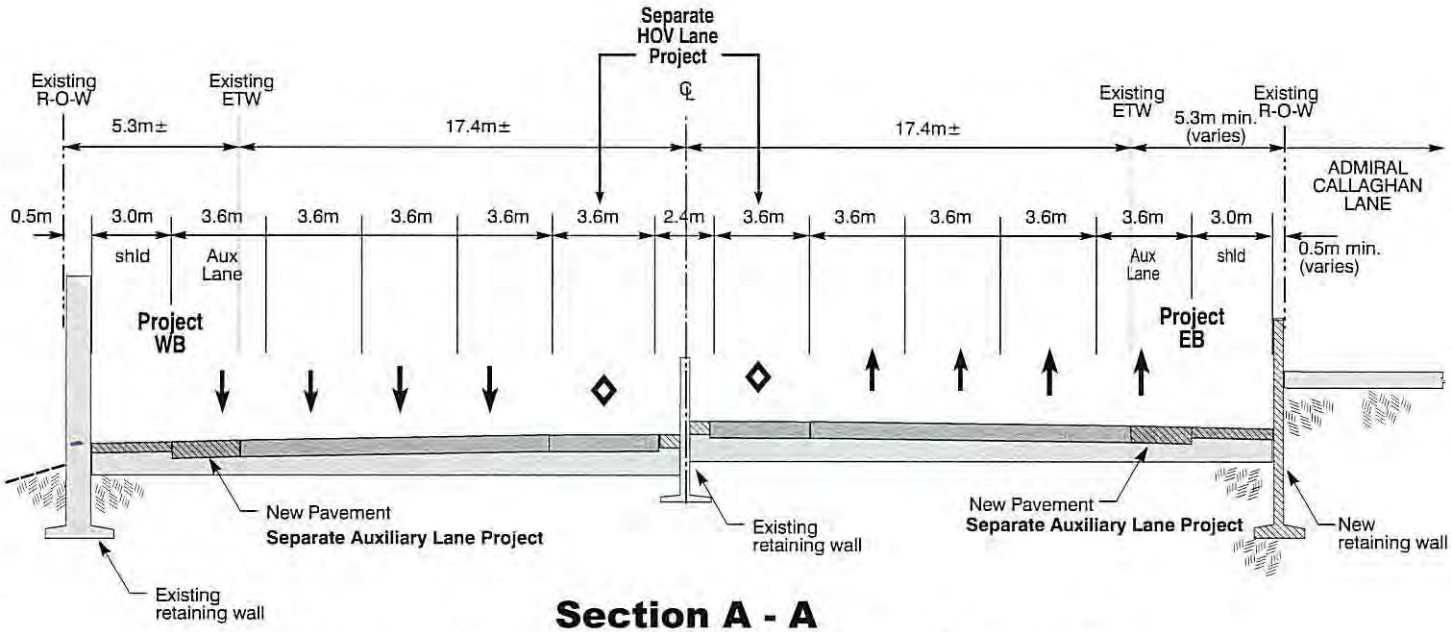
Construct an auxiliary lane between Redwood Street and Tennessee Street (WB).
Estimated Cost: $10,800,000

Construct an auxiliary lane between Tennessee Street and Redwood Parkway (EB).
Estimated Cost: $18,800,000

Korve Engineering

June 5, 2003

Figure 5-32



Section A - A

between Tennessee Street and Redwood

NOT TO SCALE

NOTES

All right-of-way at undercrossing structure is to the end of structure.

All median pavement has been brought to standard by pavement rehabilitation project.

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

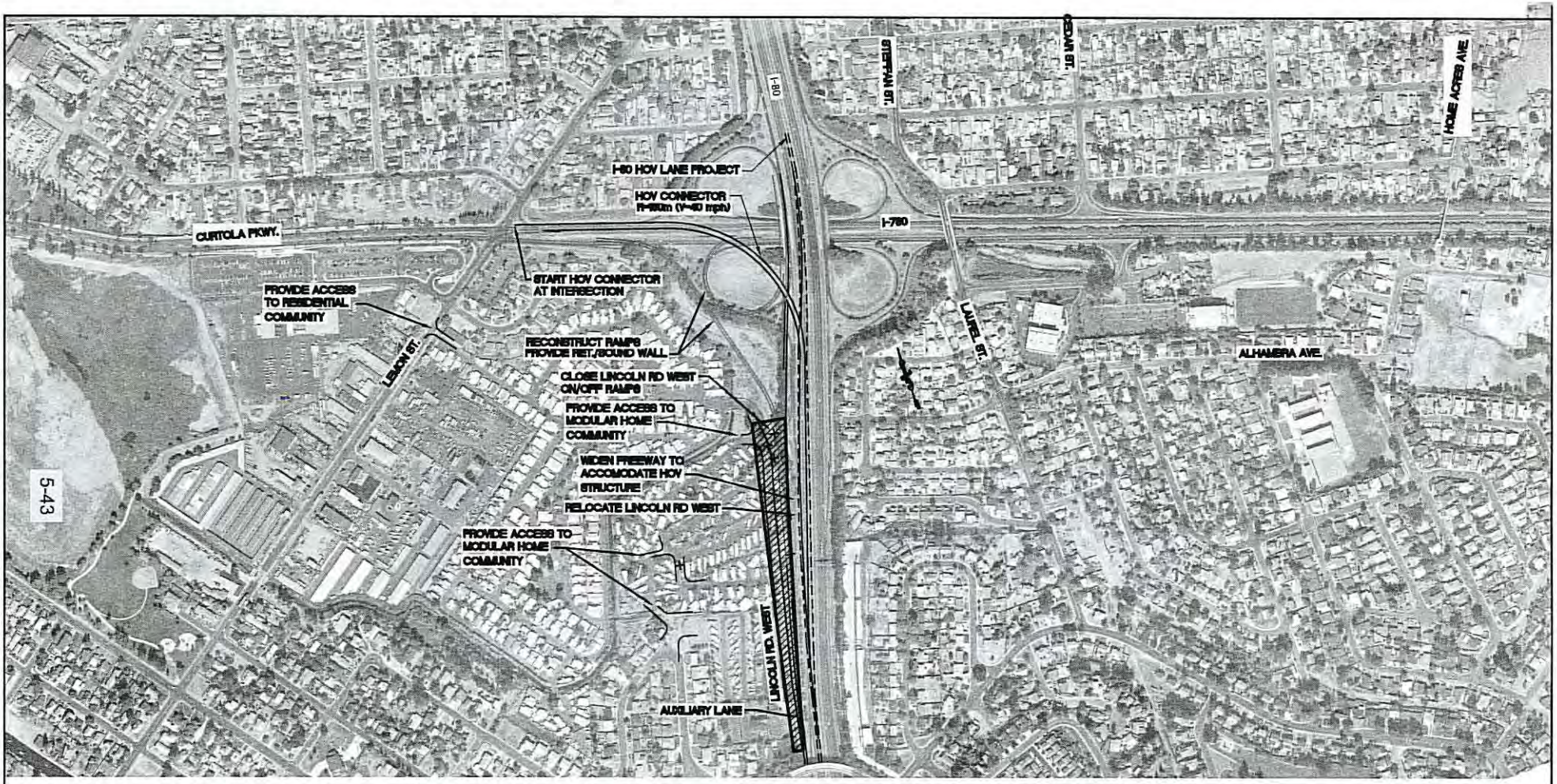
Figure 5-33

WB I-80 Auxiliary Lane - Redwood St to Tennessee St

EB I-80 Auxiliary Lane - Tennessee St to Redwood Pkwy

CROSS SECTIONS

5-20-04



LEGEND

- RIGHT OF WAY TAKE
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

January 30, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $45,000,000

I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

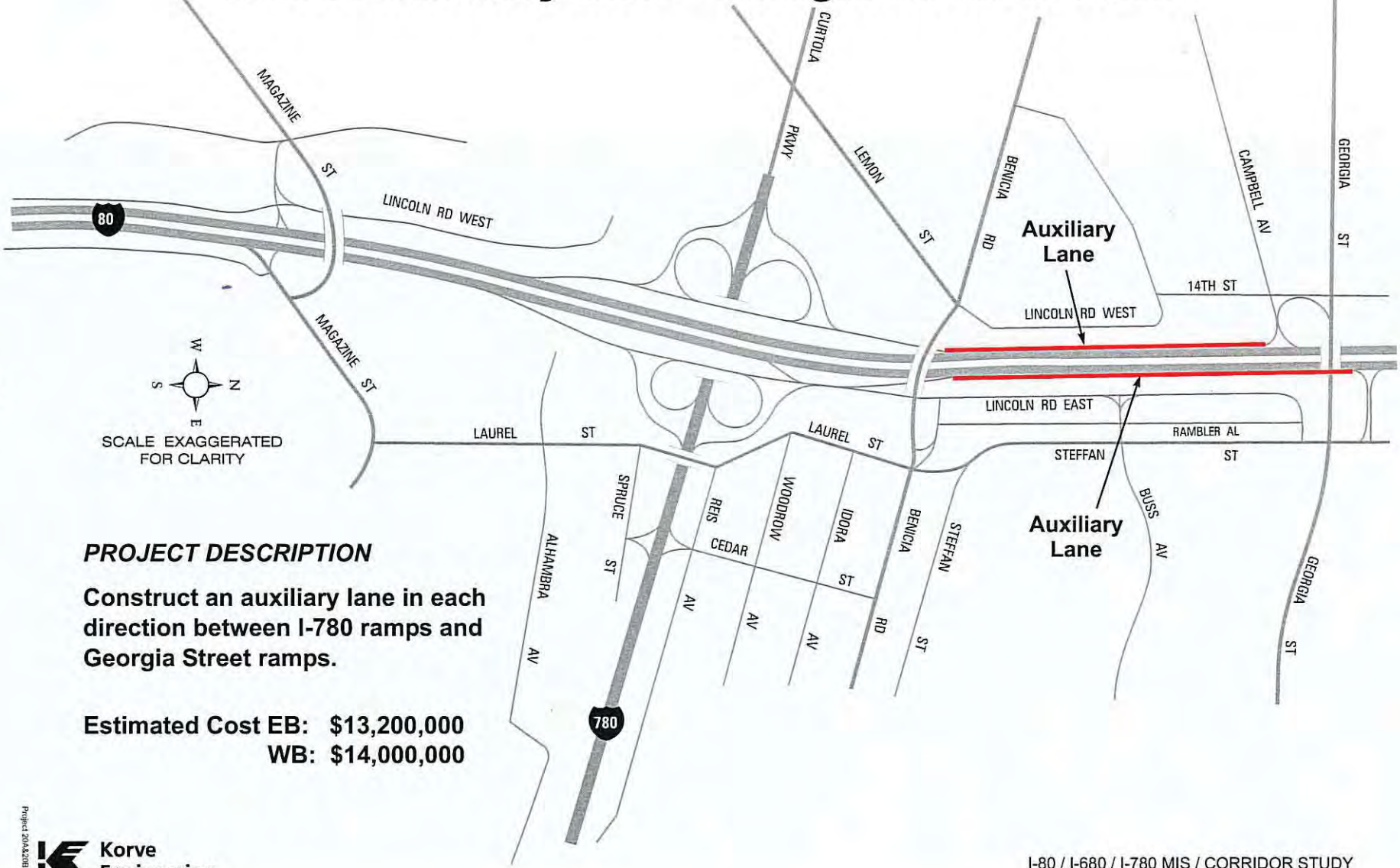
I-80/I-780/CURTOLA PKWY HOV CONNECTOR PROJECT

Korve Engineering

Figure 5-34

SEGMENT 2 PROJECT

EB I-80 Auxiliary Lane – I-780 to Georgia Street
WB I-80 Auxiliary Lane – Georgia Street to I-780



PROJECT DESCRIPTION

Construct an auxiliary lane in each direction between I-780 ramps and Georgia Street ramps.

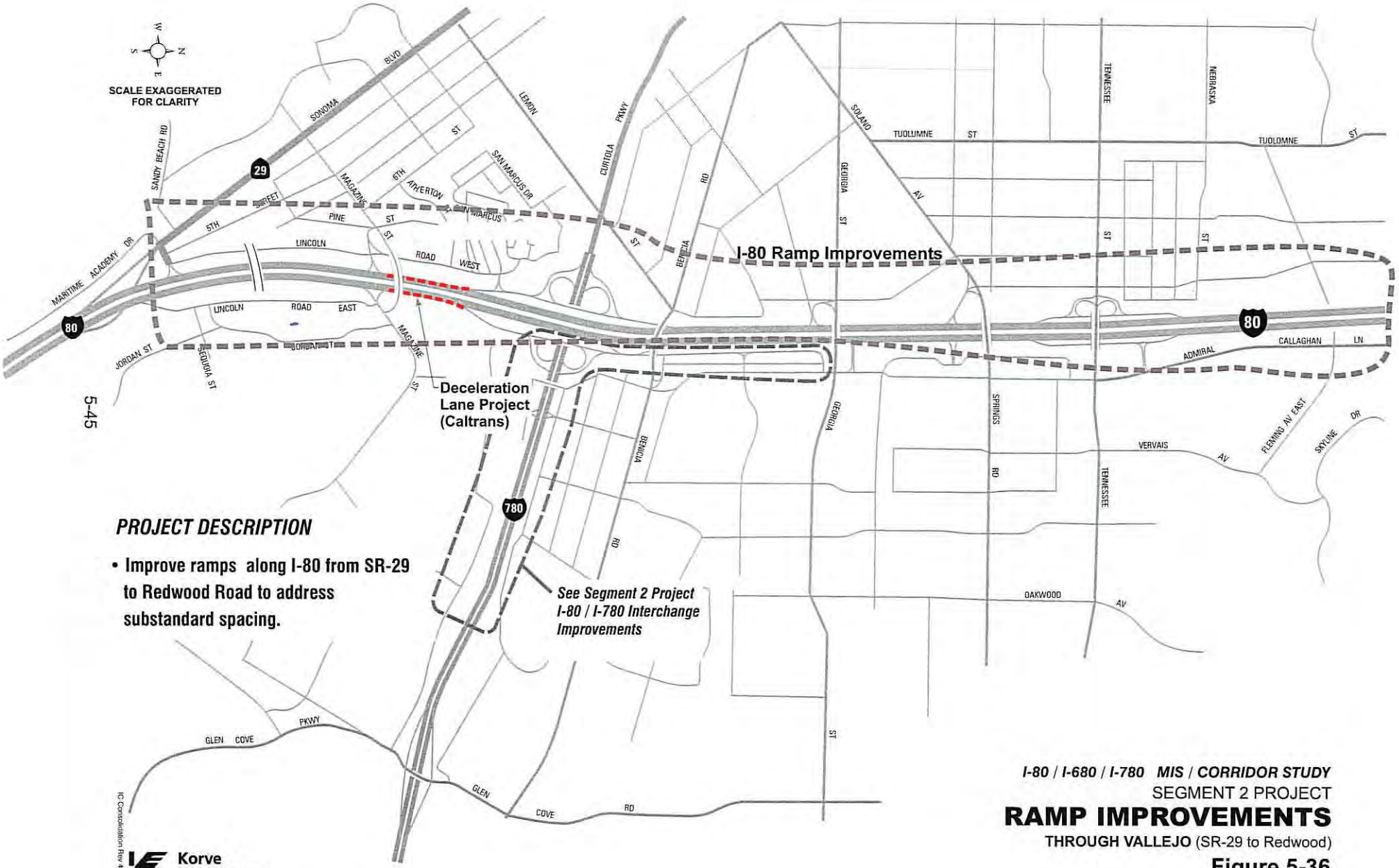
Estimated Cost EB: $13,200,000
WB: $14,000,000

Korve Engineering

June 5, 2003

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-35



PROJECT DESCRIPTION

- Improve ramps along I-80 from SR-29 to Redwood Road to address substandard spacing.

Korve Engineering

IC Consolidation Rev 4.cdr

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 2 PROJECT

RAMP IMPROVEMENTS

THROUGH VALLEJO (SR-29 to Redwood)

Figure 5-36

November 3, 2003
Revised 2-2-04
Revised 3-4-04
Revised 8-12-04

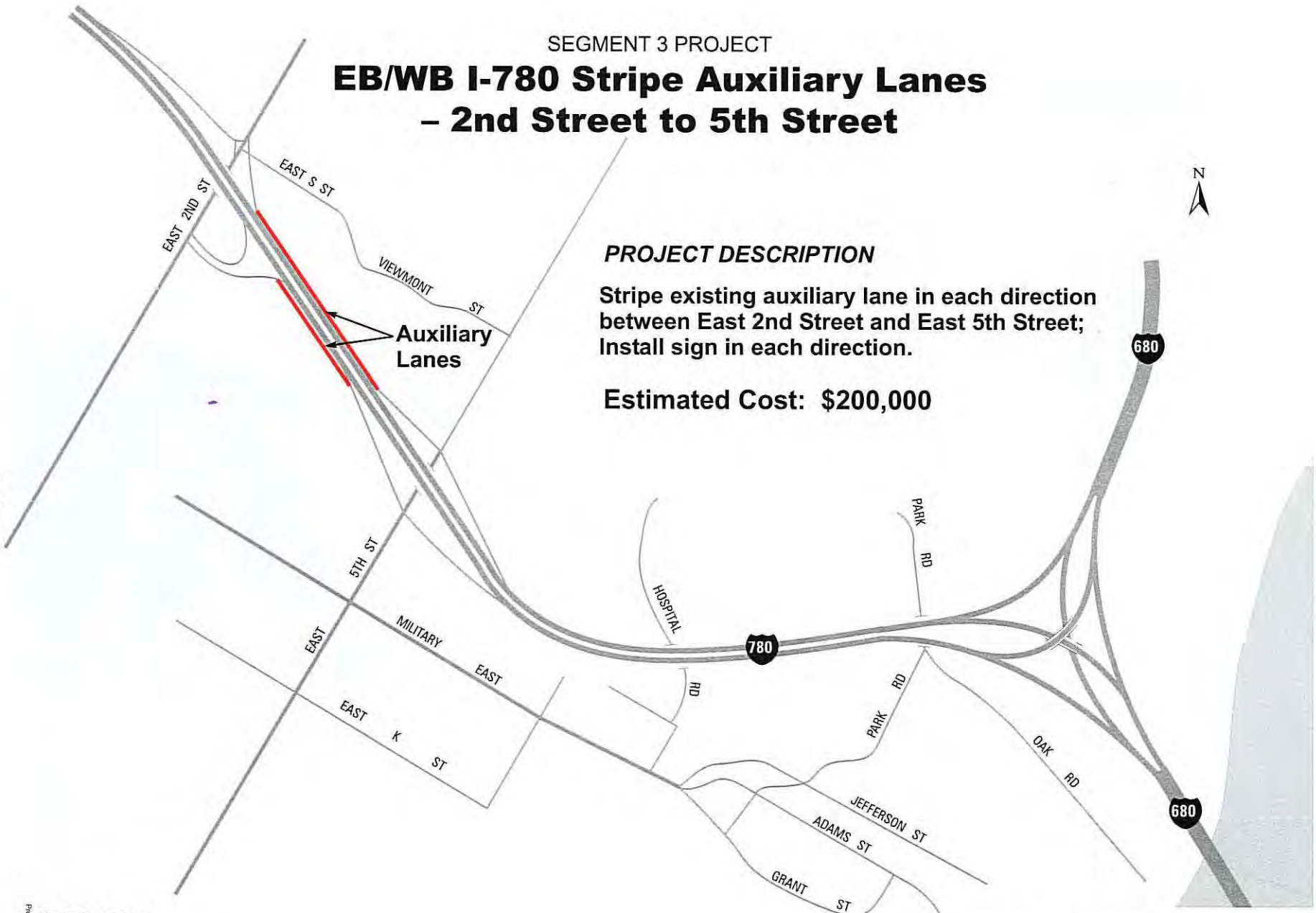
5.3.3 Segment 3

Stripe Auxiliary Lanes on I-780 between 2nd Street and 5th Street
This project, illustrated in Figure 5-37, includes the installation of an auxiliary lane in each direction on I-780 between 2nd Street and 5th Street. There is currently sufficient paved space on the freeway to stripe this lane, and no additional right-of-way would need to be acquired. The lane would add capacity on I-780 between these two interchanges to help alleviate congestion caused by the merging and weaving of traffic.

I-780 Auxiliary Lane – Military West Street to Columbus Parkway
This project, illustrated in Figure 5-38, would install auxiliary lanes on I-780 in both directions between Military West Street and Columbus Parkway. The purpose of this project is to eliminate heavy weaving conflicts between these two interchanges. This project would be entirely accomplished within the existing Caltrans right-of-way.

SEGMENT 3 PROJECT

EB/WB I-780 Stripe Auxiliary Lanes – 2nd Street to 5th Street



PROJECT DESCRIPTION

Stripe existing auxiliary lane in each direction between East 2nd Street and East 5th Street; Install sign in each direction.

Estimated Cost: $200,000

Korve Engineering

Project 22.cdr

June 5, 2003
March 10-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-37

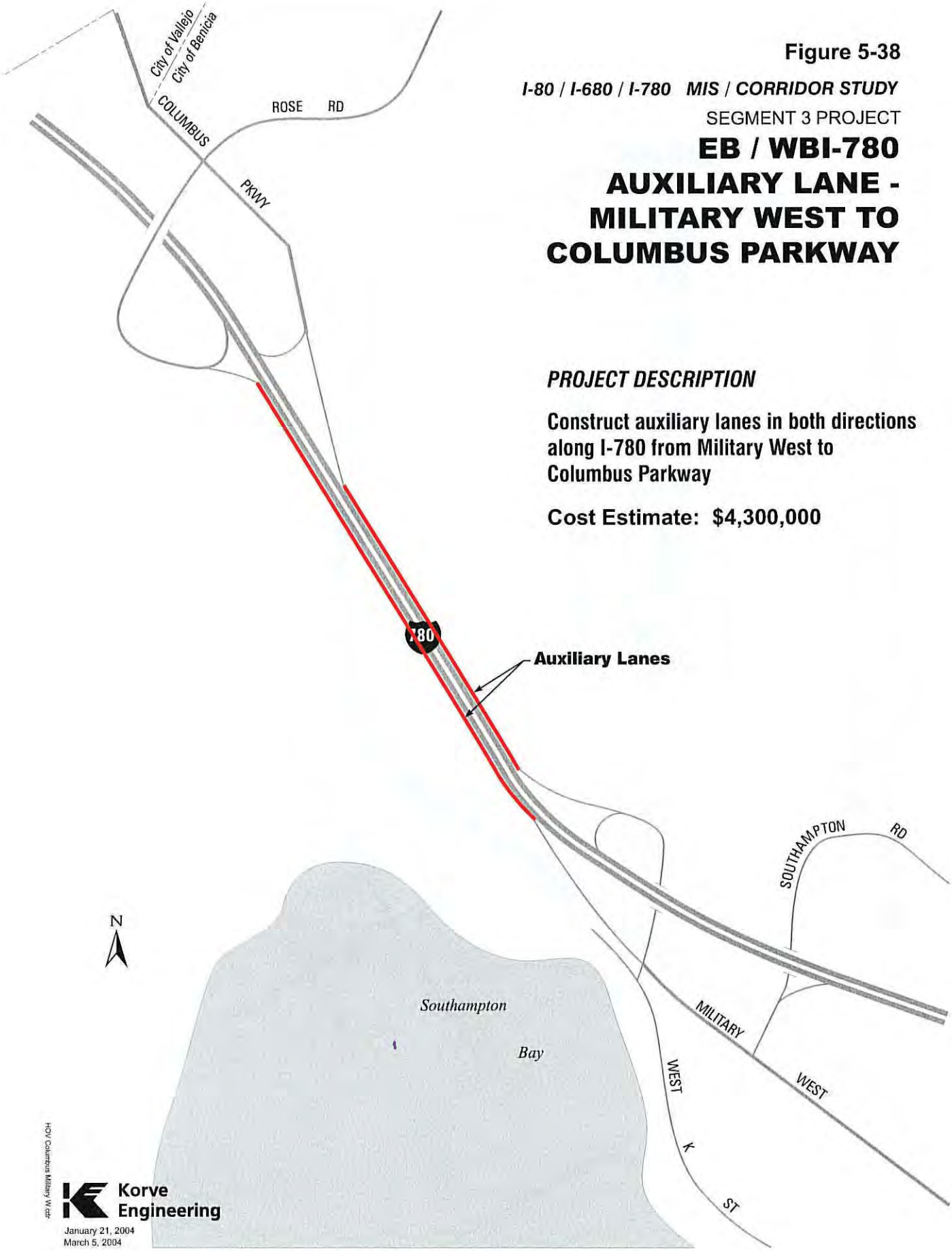


Figure 5-38

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 3 PROJECT

EB / WBI-780 AUXILIARY LANE - MILITARY WEST TO COLUMBUS PARKWAY

PROJECT DESCRIPTION

Construct auxiliary lanes in both directions along I-780 from Military West to Columbus Parkway

Cost Estimate: $4,300,000

Korve Engineering

January 21, 2004
March 5, 2004

HOV Columbus Military W cdr

5.3.4 Segment 4

I-680 HOV Lanes between Benicia Bridge and I-80 with Direct Connectors
This project, illustrated in Figure 5-39 through Figure 5-41, would install northbound and southbound HOV lanes on I-680 between the Benicia Bridge and the I-80/I-680 interchange. The project also includes the construction of direct HOV connectors between I-680 and I-80 East. Most of the project would be accomplished by widening the freeway in the median, with the exception of the Benicia viaduct stretch where the structure and approaches would need to be widened to the outside. There is a swale in the median that would be replaced with slotted drains along the stretch once the full pavement is constructed. Right-of-way encroachment would be limited to the area by the Benicia viaduct where some commercial property may potentially be impacted.

SEGMENT 4 PROJECT

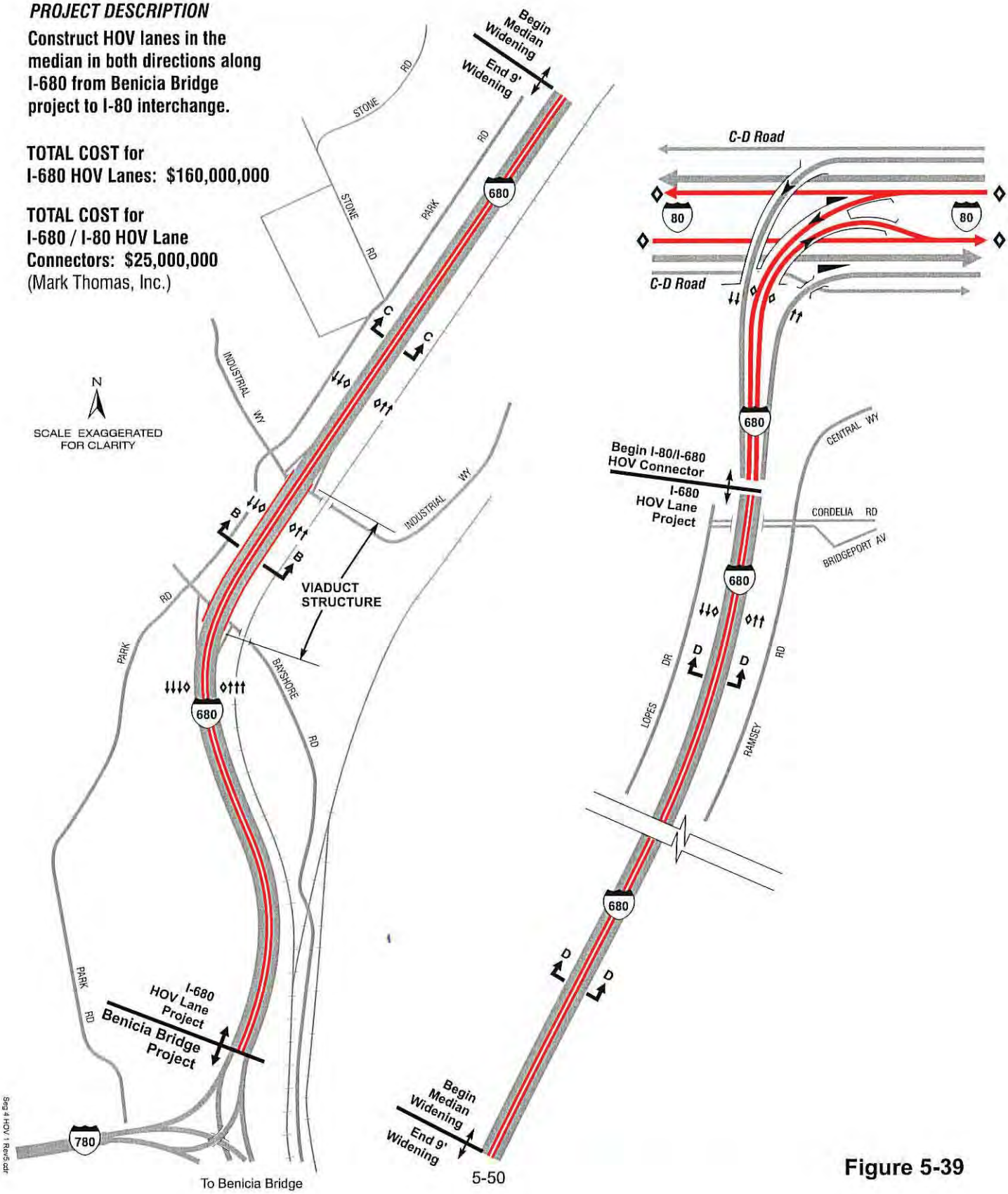
NB/SB I-680 HOV Lane
Benicia Bridge to I-80

PROJECT DESCRIPTION

Construct HOV lanes in the median in both directions along I-680 from Benicia Bridge project to I-80 interchange.

TOTAL COST for I-680 HOV Lanes: $160,000,000

TOTAL COST for I-680 / I-80 HOV Lane Connectors: $25,000,000
(Mark Thomas, Inc.)



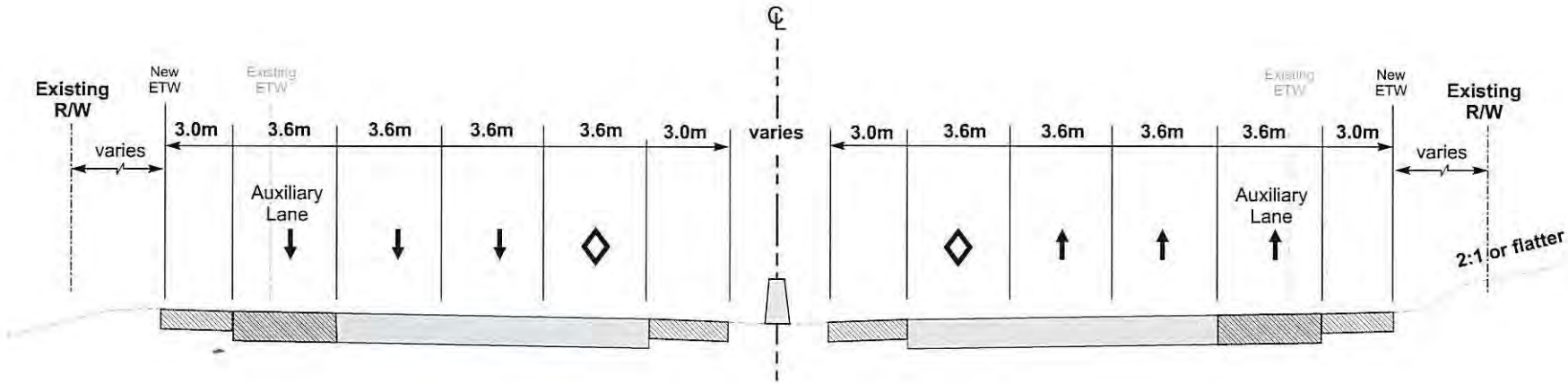
Seg 4 HOV 1 Rev5.cdr

Figure 5-39

NB/SB I-680 HOV LANE - BENICIA BRIDGE TO I-80

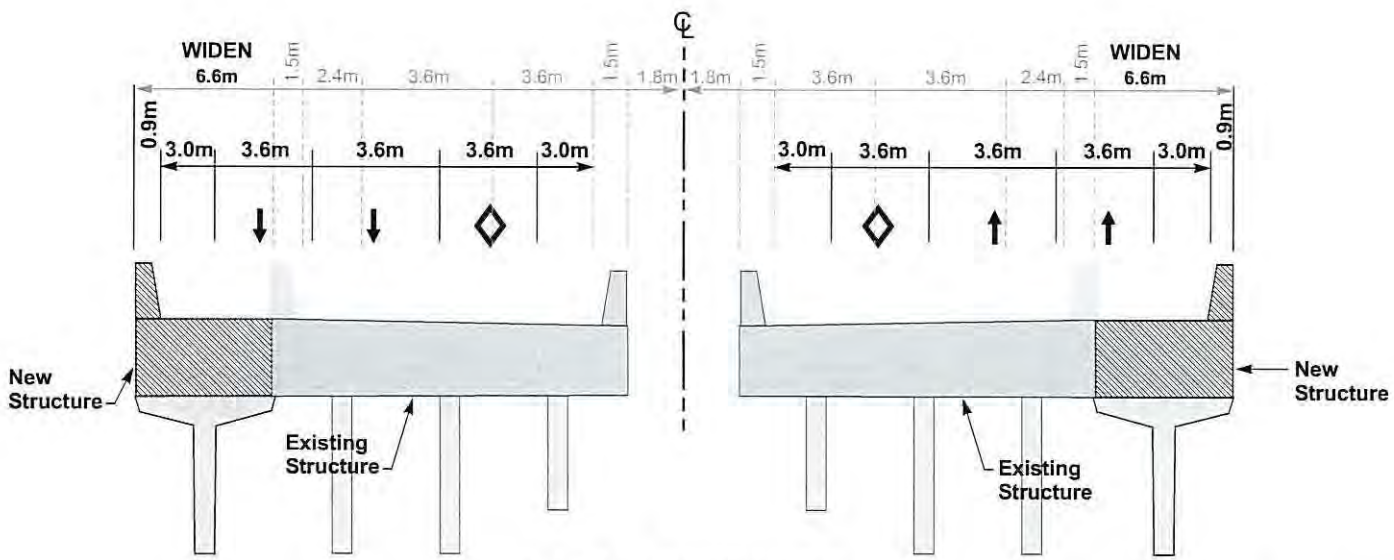
HOV LANE IN BOTH DIRECTIONS (MEDIAN WIDENING)

CROSS SECTIONS



TYPICAL SECTION A-A

Not to Scale



TYPICAL SECTION B-B
(Viaduct)

Not to Scale

Typical Sections.cdr

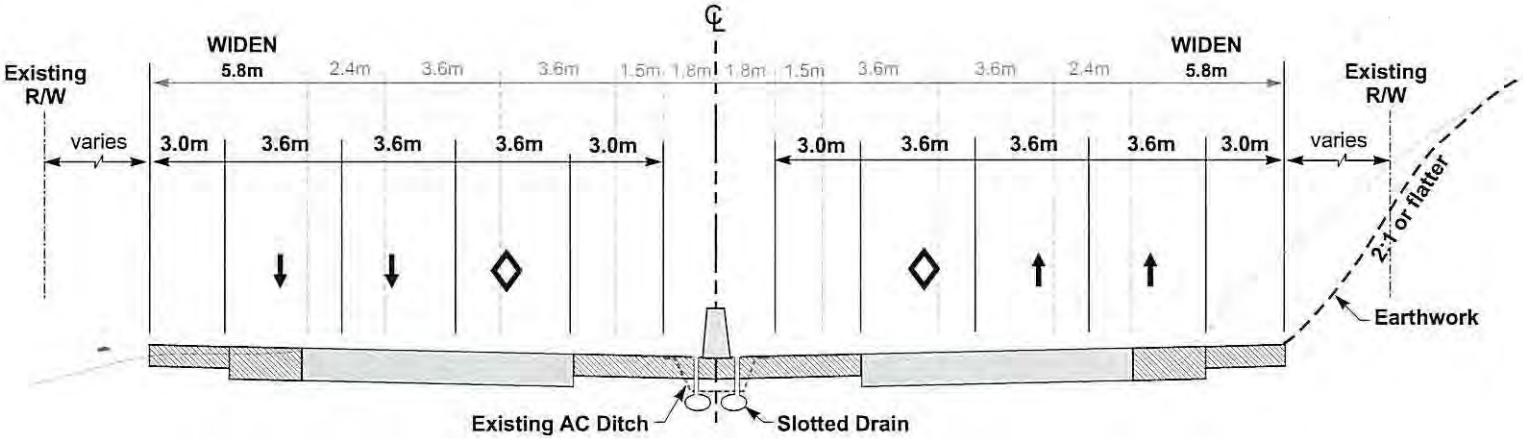
REV 3-5-04

Figure 5-40

NB/SB I-680 HOV LANE - BENICIA BRIDGE TO I-80

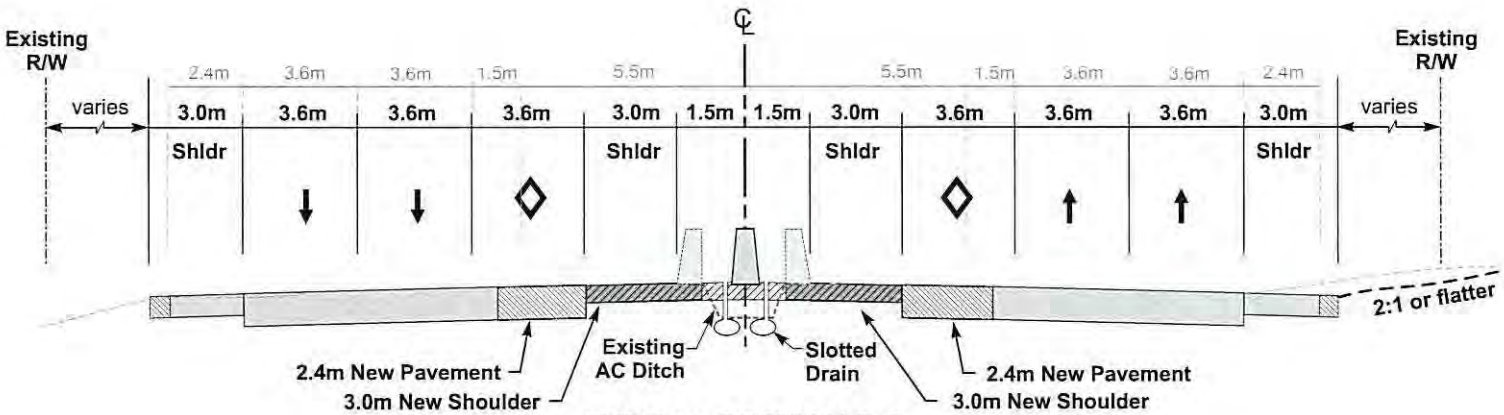
HOV LANE IN BOTH DIRECTIONS (MEDIAN WIDENING)

CROSS SECTIONS



TYPICAL SECTION C-C

Not to Scale



TYPICAL SECTION D-D

Not to Scale

Typical Sections.cdr

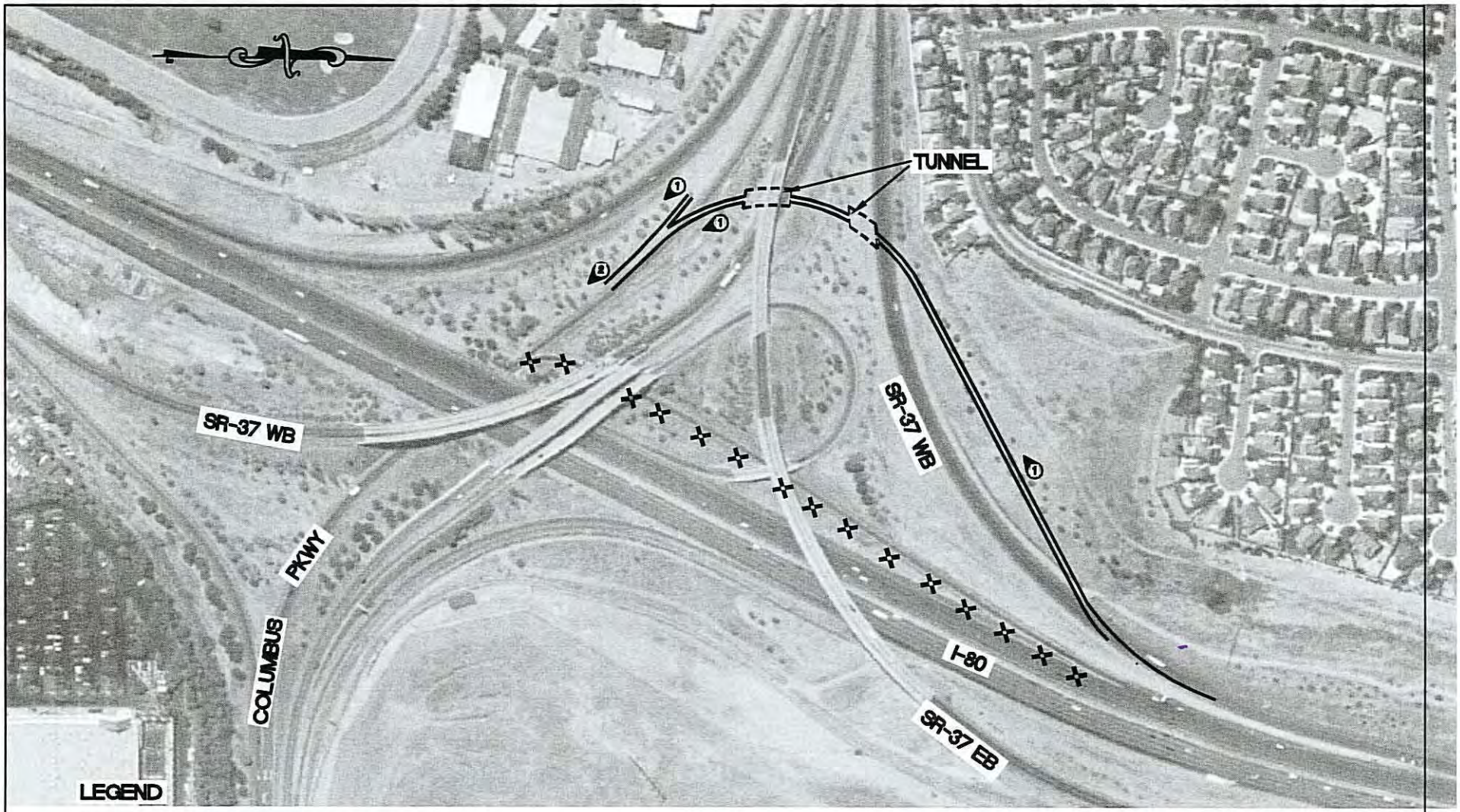
REV 3-5-04

Figure 5-41

5.3.5 Segment 5

I-80/SR 37/Columbus Parkway Interchange Improvement

This project, illustrated in Figure 5-42, would include the reconstruction of the ramp connector between westbound I-80 and eastbound SR 37/Columbus Parkway. The existing connection in this location would be replaced, due to its substandard radius. Tunnel structures would be required to construct a full standard ramp at this location, as illustrated in Figure 5-42.



LEGEND

RIGHT OF WAY TAKE

APPROXIMATE PRESENT RIGHT OF WAY

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

January 27, 2003

4000 0 4000 8000

Scale: 1:4000

ESTIMATED COST:$7,000,000

I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

I-80/SR-37/COLUMBUS PKWY INTERCHANGE IMPROVEMENT

Figure 5-42

5.3.6 Segment 6

EB I-80 Auxiliary Lane – Travis Boulevard to Air Base Parkway
This project, illustrated on Figure 5-43, includes the installation of an eastbound auxiliary lane on I-80 from Travis Boulevard to Air Base Parkway. This improvement would be implemented to relieve congestion brought about by merging and weaving movements. Right-of-way acquisition would be necessary in this area to implement this improvement.

EB I-80 Mixed Flow Lane – SR 12 East to Beck Avenue Merge
This project, illustrated in Figure 5-44, includes the installation of an eastbound auxiliary lane from SR 12 East to the Beck Avenue eastbound on-ramp merge. The lane would add necessary main-line capacity on I-80, subsequent to eastbound capacity enhancements in Segment 1. To implement this improvement, widening of the Ledgewood Creek crossing would be needed.

WB I-80 Auxiliary Lane – West Texas Street to Abernathy Road
This project, illustrated in Figure 5-45, includes the installation of a westbound auxiliary lane on I-80 from West Texas Street to Abernathy Road. This improvement would increase capacity on I-80 between interchanges and relieve heavy weaving conflicts.

WB I-80 Auxiliary Lane – Waterman Boulevard to Travis Boulevard
This project, illustrated in Figure 5-46, includes the installation of a westbound auxiliary lane from Waterman Boulevard to Travis Boulevard. The lane would add capacity on I-80 between interchanges to alleviate merging and weaving congestion. Right-of-way acquisition would be necessary in this area to implement this improvement.

I-80/I-505 Weave Correction Project
A detailed Project Study Report for this project was prepared by Caltrans (*I-80/I-505 Weave Correction Project Study Report*, Caltrans, April 1990). The project, as illustrated in Figure 5-47, would reconstruct the southbound I-505/I-80 connector. The purpose of the project is to reduce conflicts among weaving vehicles on I-80 between northbound I-505 connector and the southbound I-505 connector. This would be achieved by widening the southbound I-505 connector to two lanes and adding one mixed flow lane on westbound I-80.

Complete I-80 HOV Lanes – Air Base Parkway to I-505
This project, illustrated in Figure 5-48 to Figure 5-55, includes the installation of HOV lanes on I-80 from Air Base Parkway to I-505. The project would be primarily accomplished by widening the freeway in the median. Several design exceptions for substandard inside shoulders (1.8 meters) would be necessary near the Nut Tree Parkway over-crossing where right-of-way is extremely limited. In this location, the widening would require a portion of Nut Tree Parkway to accommodate HOV lanes in the median. Widening in this area is also made difficult due to the proposed Weave Correction Project from I-505 to I-80. This project would install an auxiliary lane from I-505 to the Monte Vista Avenue off-ramp.

A median retaining wall would be required between the North Texas Street and the Lagoon Valley Road interchanges where the eastbound and westbound directions of I-80 are not at the same grade. Caltrans is proposing structure rehabilitation projects at the Ulatis Creek crossing and at the Monte Vista Avenue under-crossing structure. These two structures would need to be widened into the median. These structures are assumed to be completed before the HOV lane project and would provide the necessary width for the HOV lanes. The City of Vacaville is also proposing the reconstruction of the Monte Vista Avenue and Nut Tree Parkway over-crossings. These reconstruction projects are also assumed to be completed before the HOV lane project. Widening of the Davis Street under-crossing and Putah South Canal crossing would be required because the current structures do not have sufficient space for HOV lanes in both directions.

EB I-80 Mixed-Flow Lane – SR 12 East to Air Base Parkway
This project, illustrated on Figure 5-56 through Figure 5-66, includes the installation of an eastbound mixed-flow lane from SR 12 East to Air Base Parkway. This lane would be added to increase the carrying capacity of the freeway in this section. This capacity will be necessary subsequent to improvements on I-80 between I-680 and SR 12 East.

WB I-80 Mixed-Flow Lane – Air Base Parkway to SR 12 East
This project, illustrated on Figure 5-56 through Figure 5-66, includes the installation of a westbound mixed-flow lane from Air Base Parkway to SR 12 East. This lane would be added to increase the carrying capacity of the freeway in this section. This capacity will be necessary once improvements are made on I-80 between I-680 and SR 12 East.

WB I-80 Auxiliary Lane – North Texas Street to Waterman Boulevard
This project, illustrated in Figure 5-67, includes the installation of a westbound auxiliary lane from North Texas Street to Waterman Boulevard. The lane would add capacity on I-80 between the interchanges and relieve merging and weaving congestion. Widening of the Putah South Canal crossing would be needed to accommodate the auxiliary lane. Retaining walls and right-of-way acquisition would also be required to implement this project.

EB I-80 Auxiliary Lane – Air Base Parkway to North Texas Street
This project, illustrated in Figure 5-68, includes the installation of an eastbound auxiliary lane from Air Base Parkway to North Texas Street. The lane would add capacity on I-80 between the interchanges and relieve merging and weaving conflicts. Widening of the freeway crossing at Putah South Canal would be necessary to accommodate the auxiliary lane. Retaining walls and right-of-way acquisition would be required as part of this project.

EB I-80 Auxiliary Lane – Cherry Glen Road to Alamo Drive
This project, illustrated in Figure 5-69, includes the installation of an eastbound auxiliary lane from Cherry Glen Road to Alamo Drive. The lane would add capacity on I-80 to reduce merging and weaving congestion. Widening of the Alamo Creek crossing would be necessary to accommodate the auxiliary lane. Retaining walls and right-of-way acquisition would also be required.

WB I-80 Auxiliary Lane – Merchant Street to Cherry Glen Road
This project, illustrated in Figure 5-69, includes the installation of a westbound auxiliary lane on I-80 from Merchant Street to Cherry Glen Road. The lane would add capacity to help alleviate congestion due to merging and weaving conflicts. Widening of the Alamo Creek crossing would be required to accommodate the auxiliary lane. Retaining walls and additional right-of-way would also be needed for this project.

EB I-80 Auxiliary Lane – North Texas Street to Lagoon Valley Road
This project, illustrated in Figure 5-70, includes the installation of an auxiliary lane on eastbound I-80 from North Texas Street to Lagoon Valley Road. The lane would add capacity on I-80 between the interchanges and relieve merging and weaving congestion. The right-of-way impacts from this project would be minimal.

EB I-80 Auxiliary Lane – Alamo Drive to Davis Street
This project, illustrated in Figure 5-71, includes the installation of an auxiliary lane on eastbound I-80 from Alamo Drive to Davis Street. The lane would add capacity on I-80 to reduce merging and weaving congestion. The project would require retaining walls at Bella Vista Road due to limited right-of-way.

EB I-80 Auxiliary Lane – Davis Street to Peabody Road
This project, illustrated in Figure 5-71, includes the installation of an auxiliary lane on eastbound I-80 from Davis Street to Peabody Road. The lane would add capacity on I-80 to reduce merging and weaving congestion. It would require the widening of the existing Davis Street under-crossing. Right-of-way would be needed at the location where the structure is to be widened.

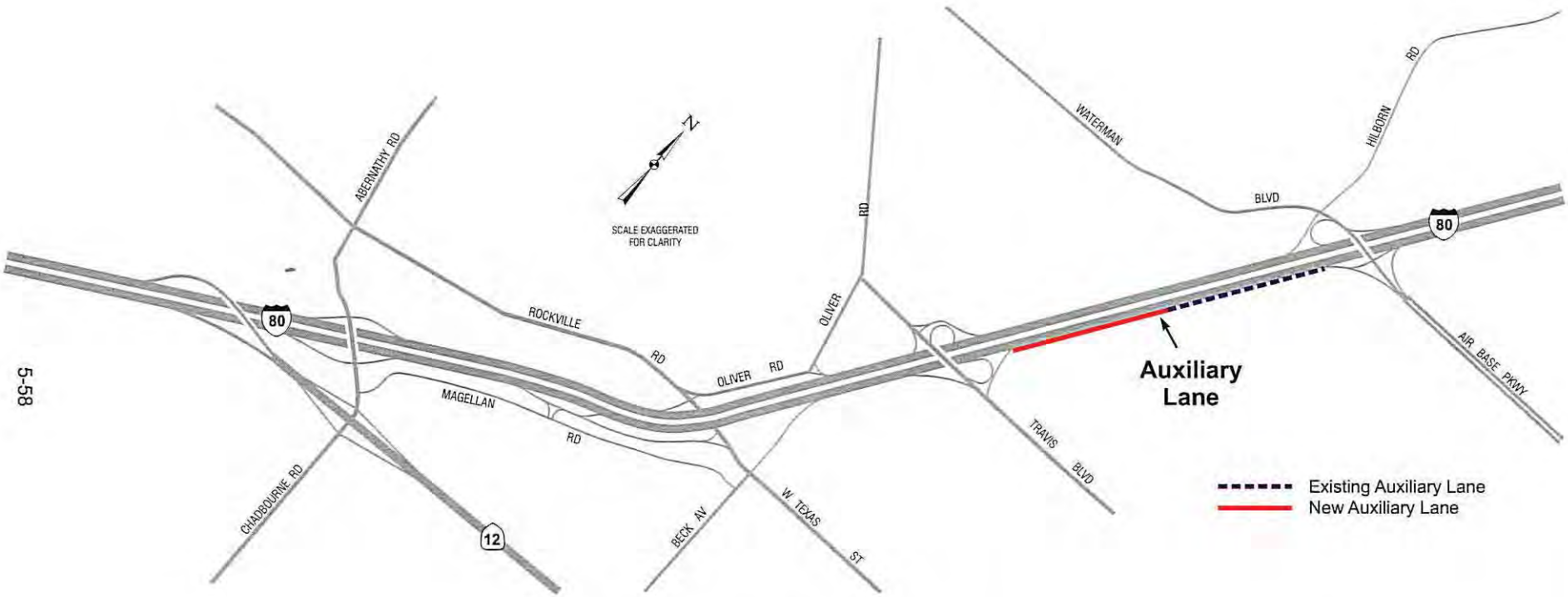
EB I-80 Auxiliary Lane – Peabody Road to Alison Parkway
This project, illustrated in Figure 5-71, includes the installation of an auxiliary lane on eastbound I-80 from Peabody Road to Alison Parkway. The lane would add capacity on I-80 to reduce merging and weaving congestion. This project would require the widening of the Elmira Road under-crossing and the Ulatis Creek crossing structures. Additional right-of-way would be needed at the locations where the structures are to be widened.

WB I-80 Auxiliary Lane – Monte Vista Avenue to Mason Street
This project, illustrated in Figure 5-71, includes the installation of an auxiliary lane on eastbound I-80 from Monte Vista Avenue to Mason Street. The lane would add capacity on I-80 to reduce merging and weaving congestion. It would require widening of the Elmira Road under-crossing and the Ulatis Creek crossing structures. Additional right-of-way would be needed at the locations where the structures are to be widened.

WB I-80 Auxiliary Lane – Mason Street to Alamo Drive
This project, illustrated in Figure 5-71, includes the installation of an auxiliary lane on eastbound I-80 from Mason Street to Alamo Drive. The lane would add capacity on I-80 to reduce merging and weaving congestion. Widening of the Davis Street under-crossing would be required and right-of-way would be needed at the location of the structural widening.

SEGMENT 6 PROJECT

EB I-80 Auxiliary Lane - Travis Boulevard to Air Base Parkway



PROJECT DESCRIPTION

Extend current auxiliary lane between Travis Boulevard and Waterman Boulevard / Air Base Parkway in both directions.

- **Relieves merging / weaving of traffic**

Estimated Cost: $3,700,000

Korve Engineering

Project 8.cdr

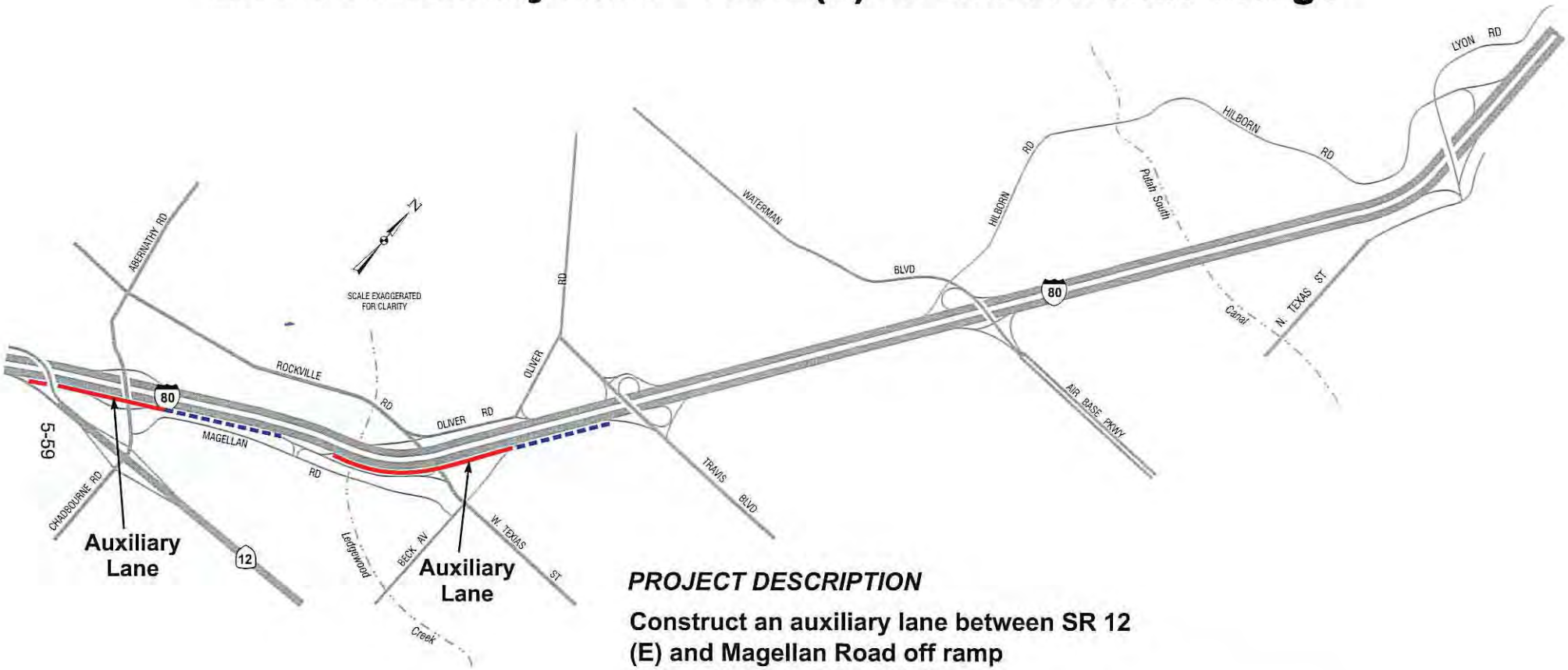
January 12, 2004

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-43

SEGMENT 6 PROJECT

EB I-80 Auxiliary Lane – SR12(E) to Beck Avenue Merge



New Auxiliary Lane

Existing Auxiliary Lane

PROJECT DESCRIPTION

Construct an auxiliary lane between SR 12 (E) and Magellan Road off ramp
Estimated Cost: $4,400,000

Construct an auxiliary lane between Magellan Road on ramp and Beck Avenue on ramp
Estimated Cost: $12,600,000

Project 11A & 11B.cdr

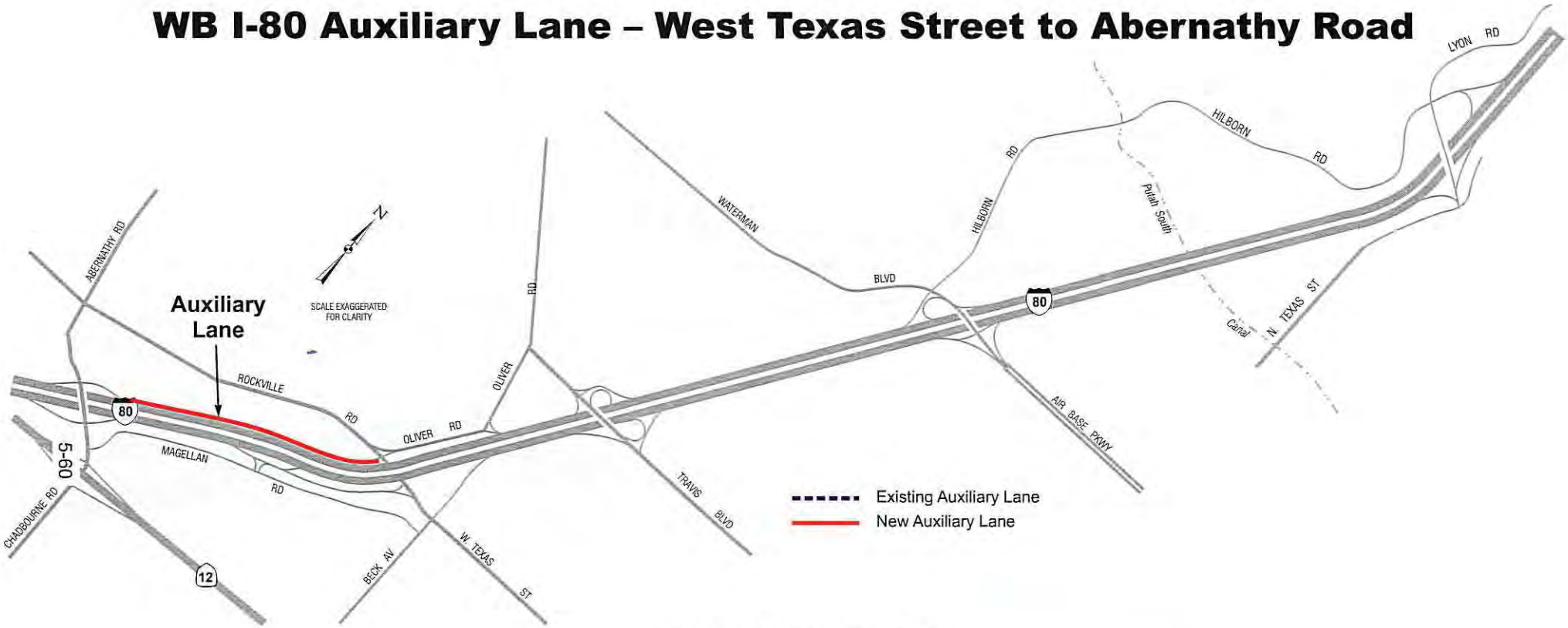
Korve Engineering

June 5, 2003
Rev 1-12-04

Figure 5-44

SEGMENT 6 PROJECT

WB I-80 Auxiliary Lane – West Texas Street to Abernathy Road



PROJECT DESCRIPTION

Construct an auxiliary lane between W. Texas Street and Abernathy Road
Estimated Cost: $4,400,000

Source: Wilbur Smith

Korve Engineering

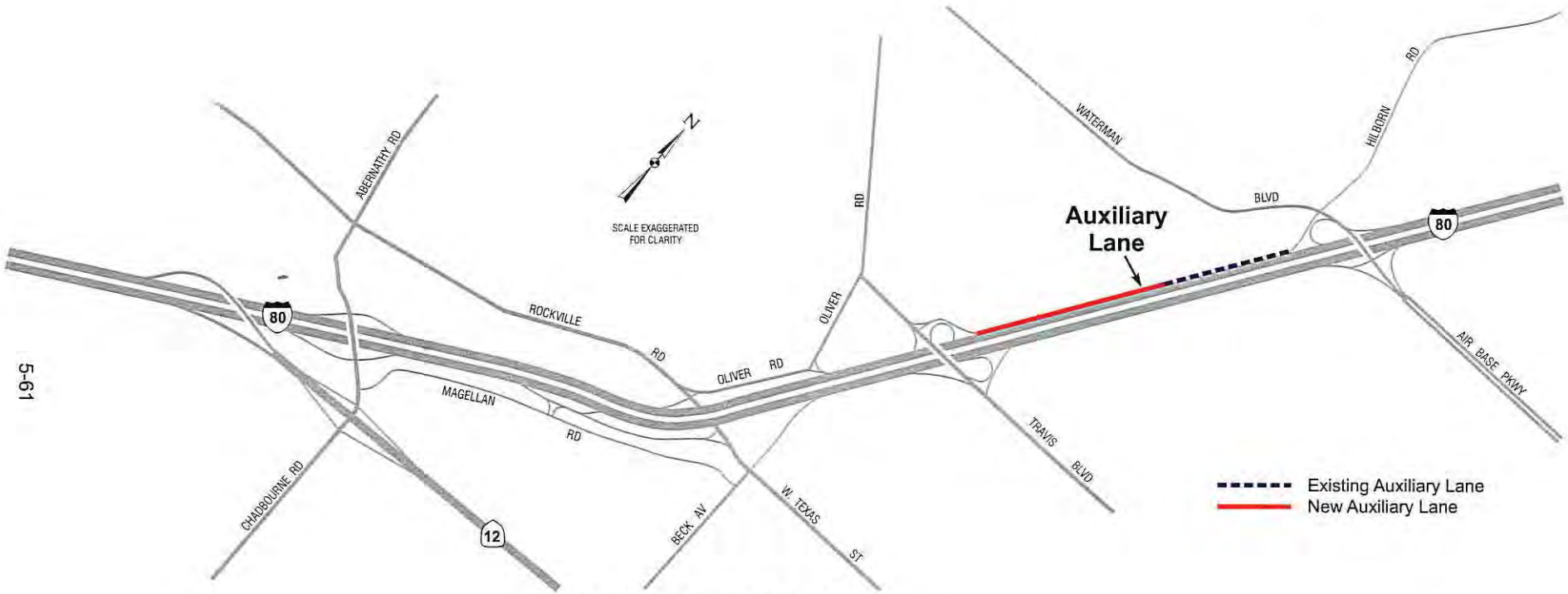
Project fig.cdr

June 5, 2003
Rev 2-27-04

Figure 5-45

SEGMENT 6 PROJECT

WB I-80 Auxiliary Lane - Waterman Boulevard to Travis Boulevard



PROJECT DESCRIPTION

Extend current auxiliary lane between Travis Blvd and Waterman Blvd / Air Base Parkway.

- **Relieves merging / weaving of traffic**
- **Adds 900 VPH of capacity on I-80 between interchanges**

Estimated Cost: $5,000,000

Korve Engineering

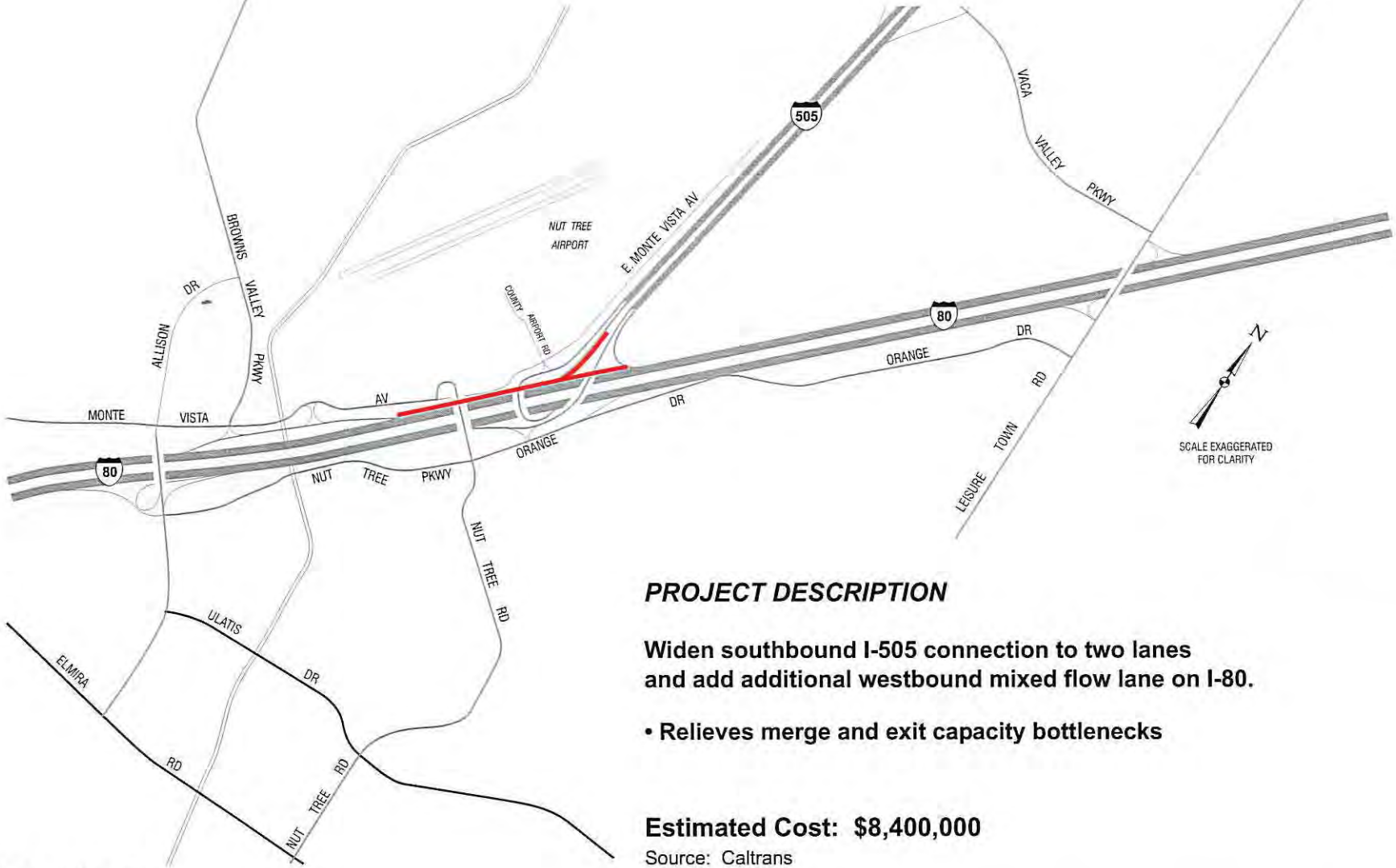
January 12, 2004

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-46

SEGMENT 6 PROJECT

I-80 / I-505 Weave Correction Project



PROJECT DESCRIPTION

Widen southbound I-505 connection to two lanes and add additional westbound mixed flow lane on I-80.

- **Relieves merge and exit capacity bottlenecks**

Estimated Cost: $8,400,000

Source: Caltrans

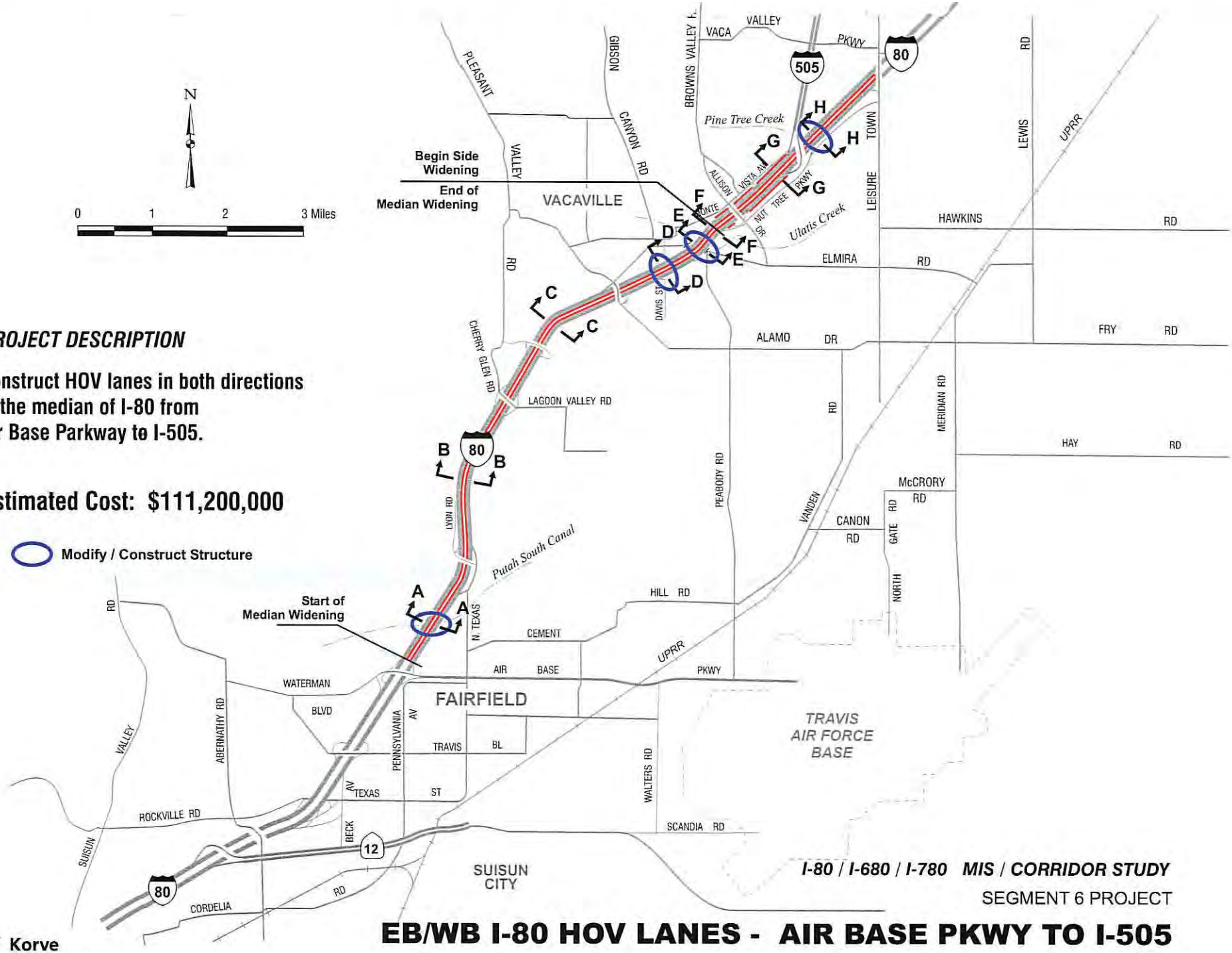
Korve Engineering

Project 18.cdr

June 5, 2003

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-47



PROJECT DESCRIPTION

Construct HOV lanes in both directions in the median of I-80 from Air Base Parkway to I-505.

Estimated Cost: $111,200,000

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

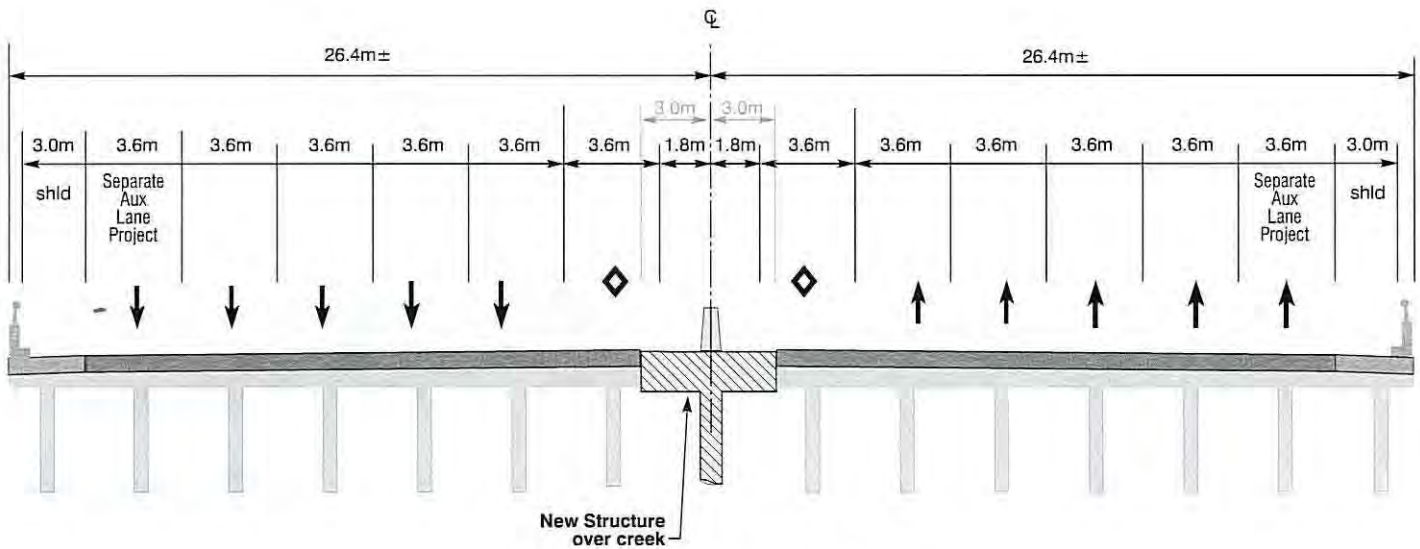
EB/WB I-80 HOV LANES - AIR BASE PKWY TO I-505

Figure 5-48

Korve Engineering

September 2003
Revised 11-4-03
Revised 3-4-04

Segment 6 HOV.cdr



Typical Section A-A
Putah South Canal (Fairfield)

NOT TO SCALE

Sections-Typ Rev 4.cdr

Korve Engineering

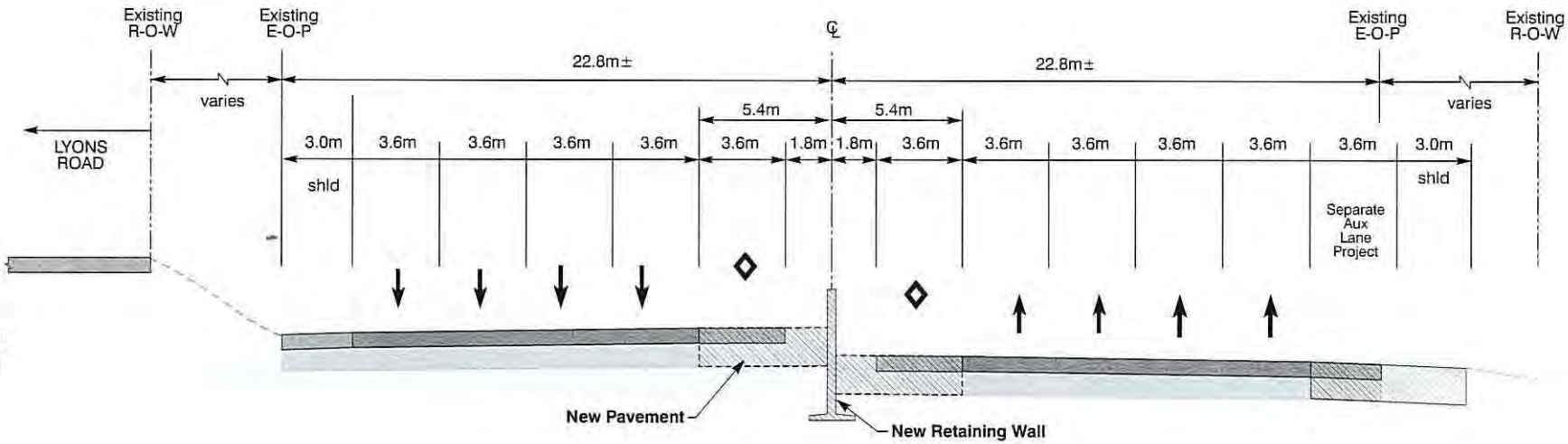
5-21-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

EB/WB I-80 HOV Lanes: Air Base Pkwy to I-505

Figure 5-49



Typical Section B-B
North Texas Street to Upper Cherry Glen Road
NOT TO SCALE

Sections-Typ Rev 4.cdr

Korve Engineering

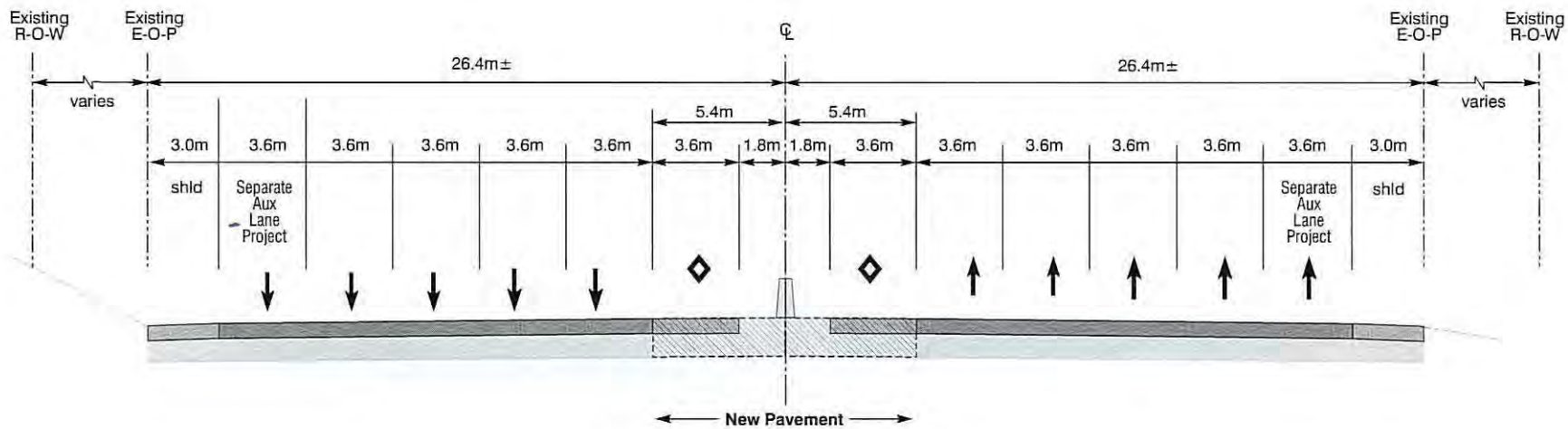
5-21-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

EB/WB I-80 HOV Lanes: Air Base Pkwy to I-505

Figure 5-50



Typical Section C-C
Upper Cherry Glen Road to Alamo Drive
NOT TO SCALE

Korve Engineering

5-21-04

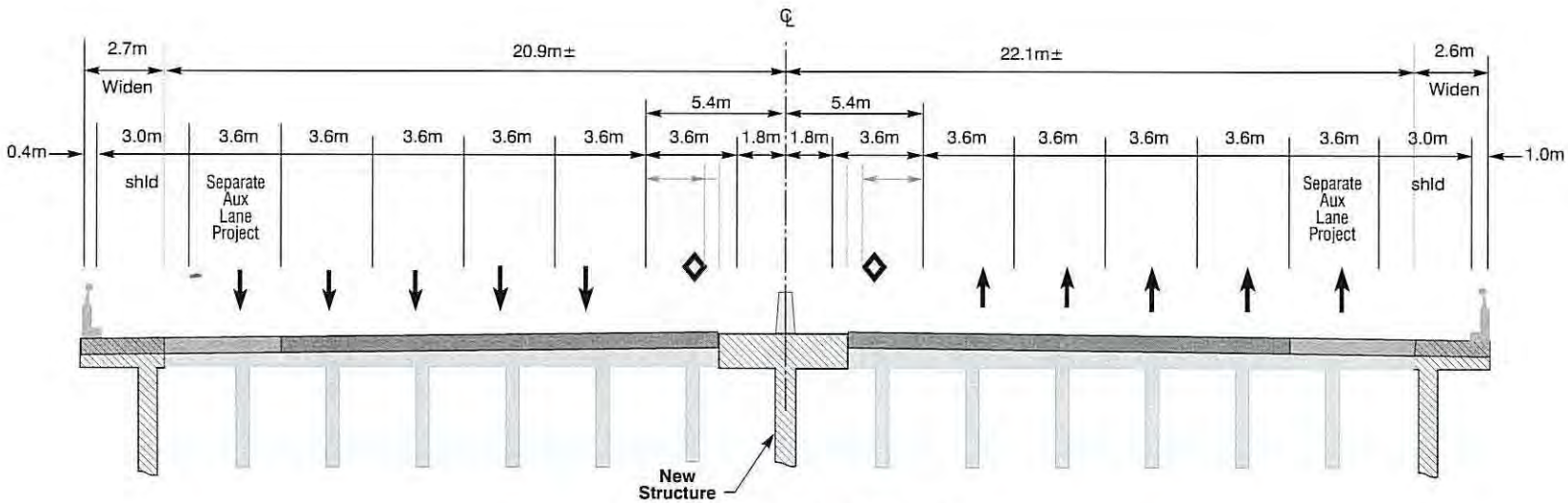
Sections-Typ Rev 4.cdr

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

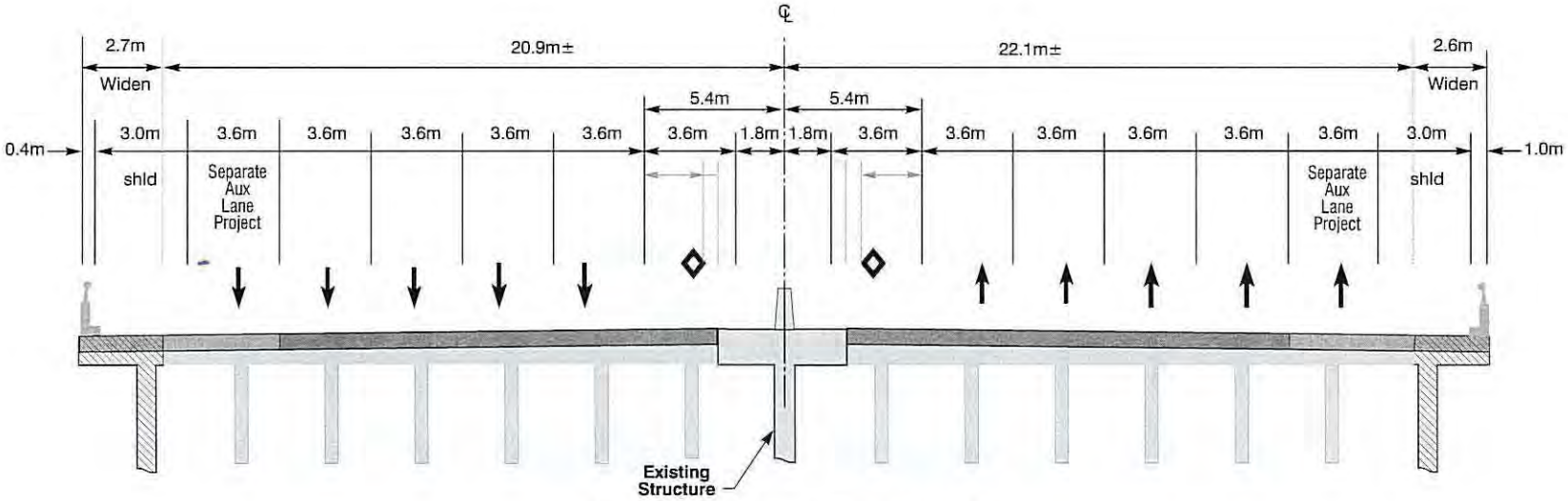
EB/WB I-80 HOV Lanes: Air Base Pkwy to I-505

Figure 5-51



Typical Section D-D
Davis Street
NOT TO SCALE

Figure 5-52

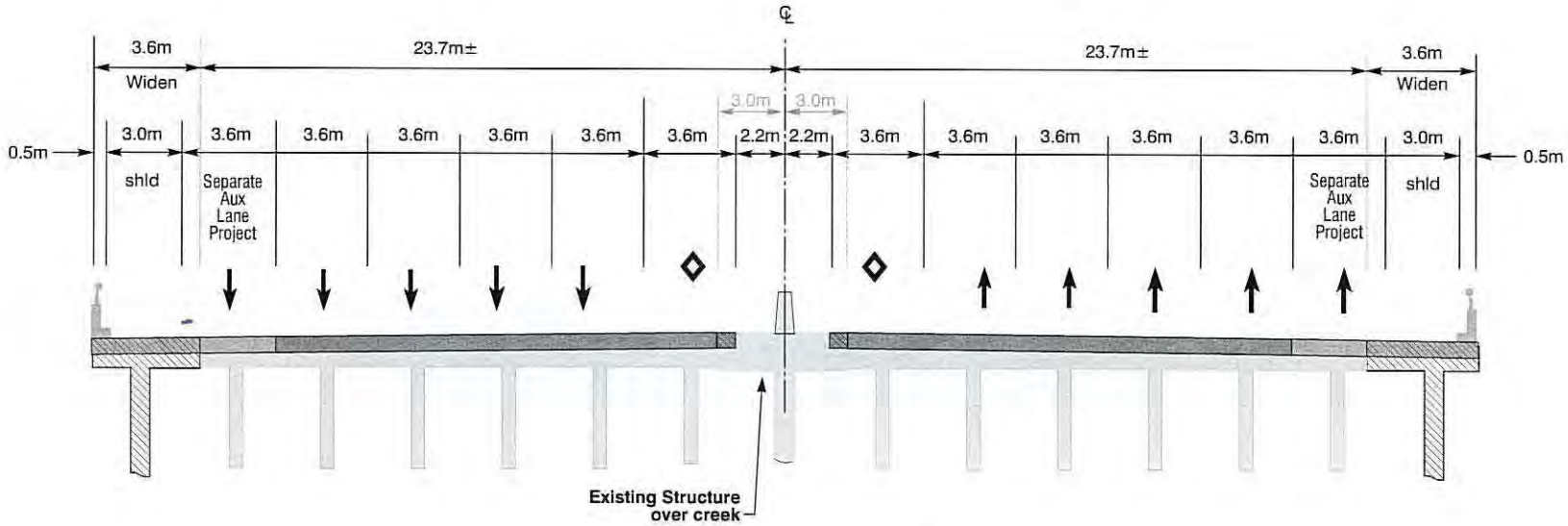


Typical Section E-E

Elmira Road / Mason Street

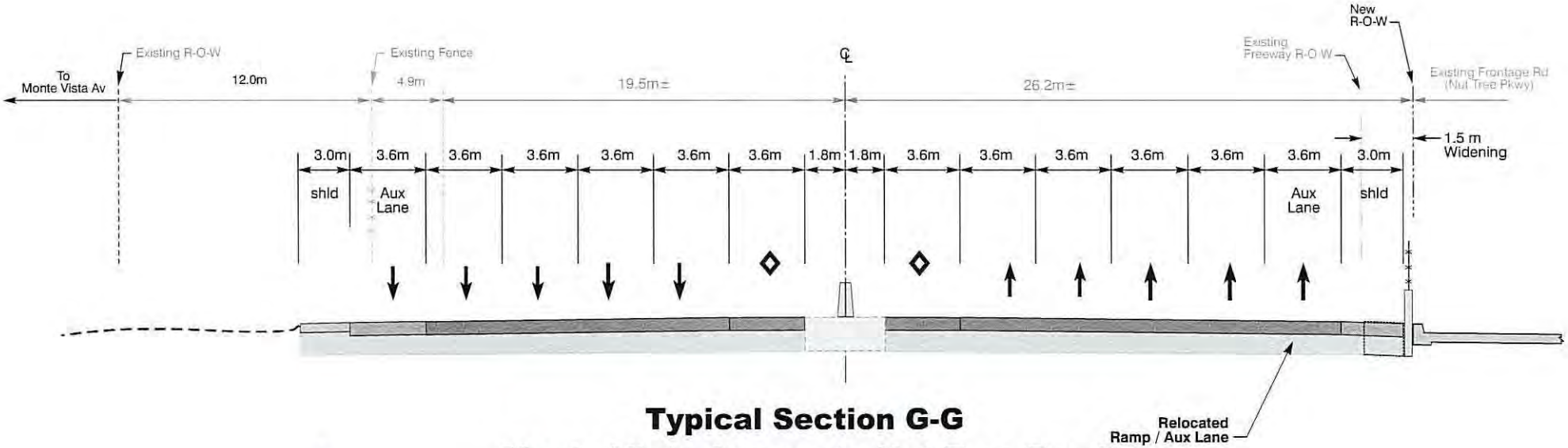
NOT TO SCALE

Figure 5-53



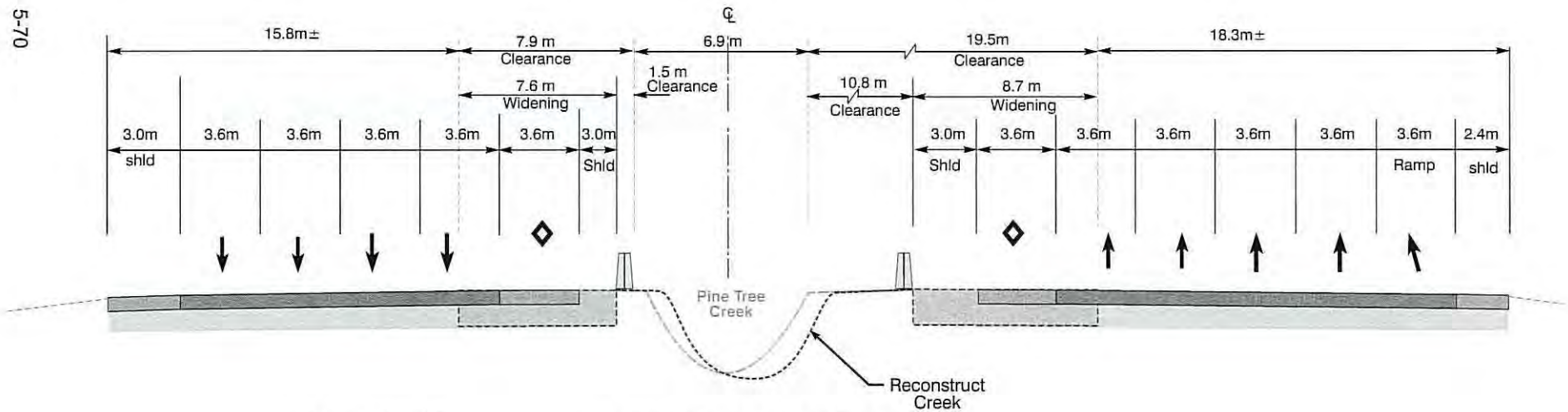
Typical Section F-F
Ulatis Creek
NOT TO SCALE

Figure 5-54



Typical Section G-G
Monte Vista Avenue to Nut Tree Road

NOT TO SCALE



NOT TO SCALE

Typical Section H-H
Pine Tree Creek

Sections-Typ Rev 4.cdr

Korve
Engineering

5-21-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

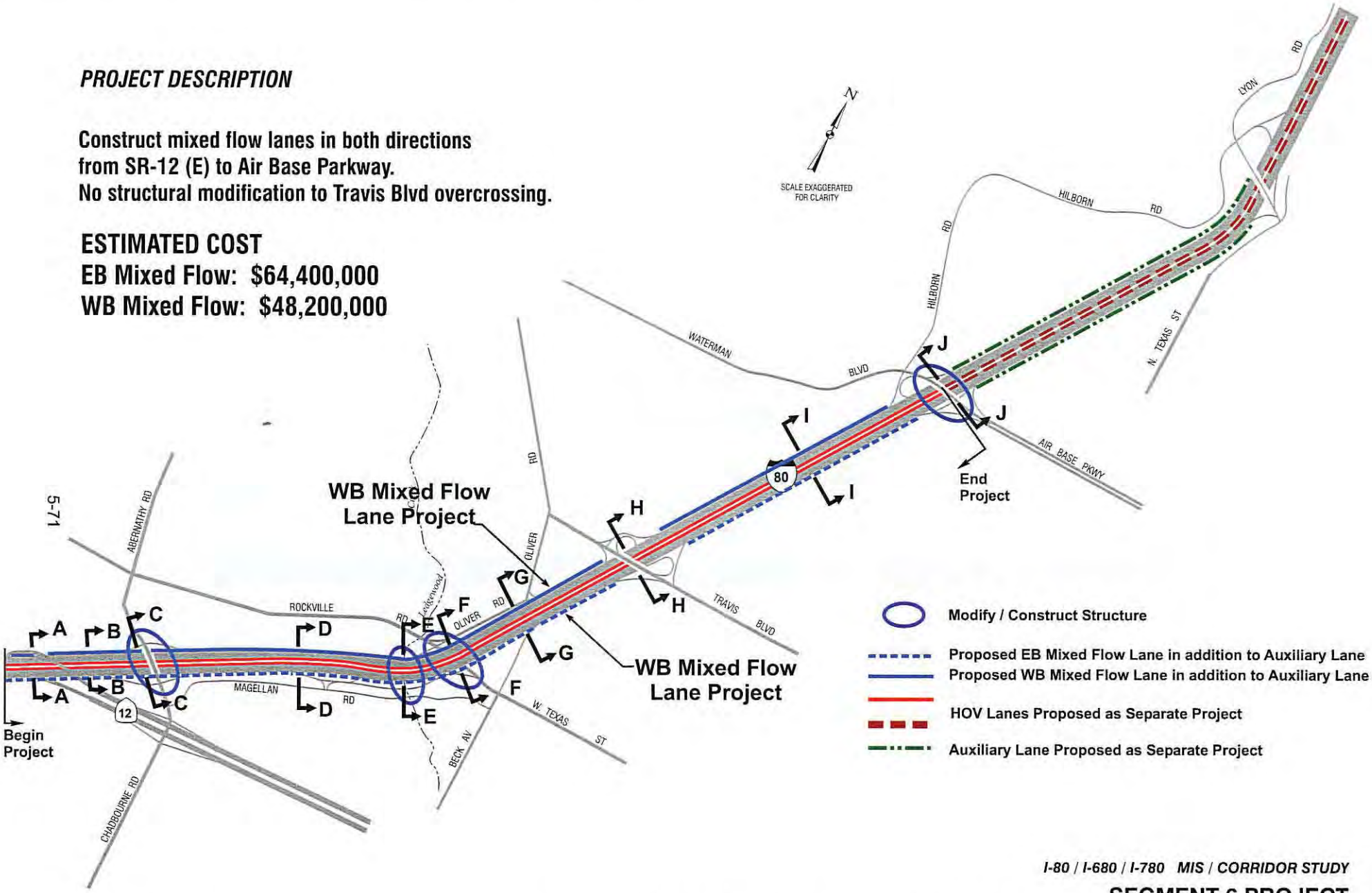
EB/WB I-80 HOV Lanes: Air Base Pkwy to I-505

Figure 5-55

PROJECT DESCRIPTION

Construct mixed flow lanes in both directions from SR-12 (E) to Air Base Parkway.
No structural modification to Travis Blvd overcrossing.

ESTIMATED COST
EB Mixed Flow: $64,400,000
WB Mixed Flow: $48,200,000



I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

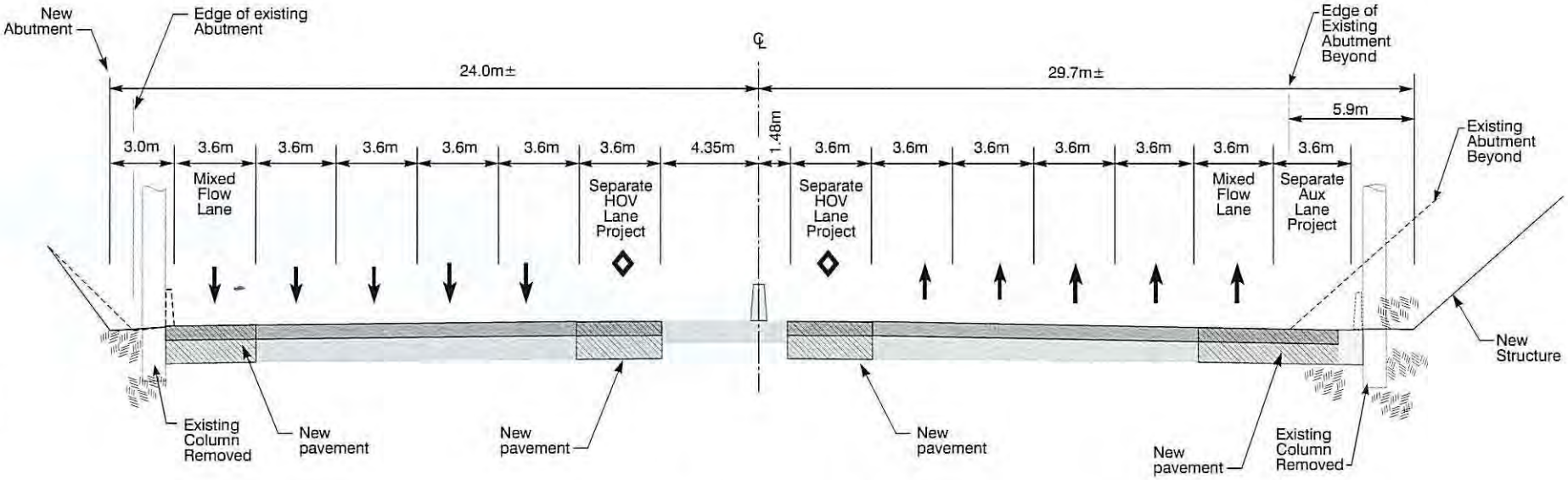
SEGMENT 6 PROJECT

EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy
WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Figure 5-56

Korve Engineering

Mixed Flow Rev 2.cdr
December 3, 2003
Rev 2-11-04
Rev 5-21-04



Section A-A
SR 12 Connector
(New Structure)

NOT TO SCALE

Sections-Typ Rev 3.cdr

Korve Engineering

5-20-04

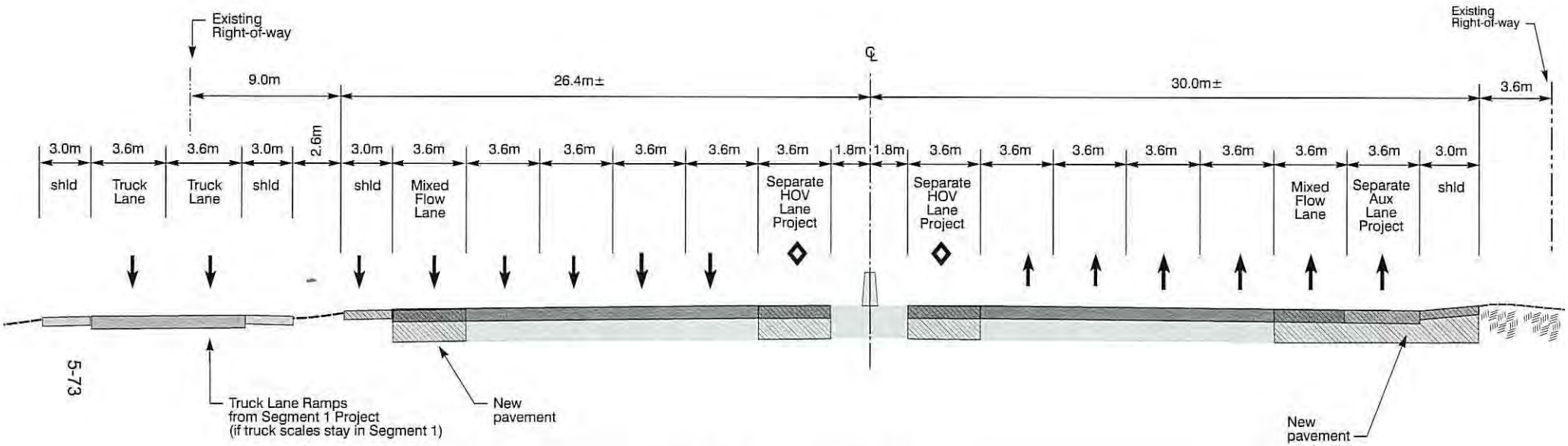
I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy

WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Figure 5-57



Typical Section B-B
SR 12 to Abernathy

NOT TO SCALE

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

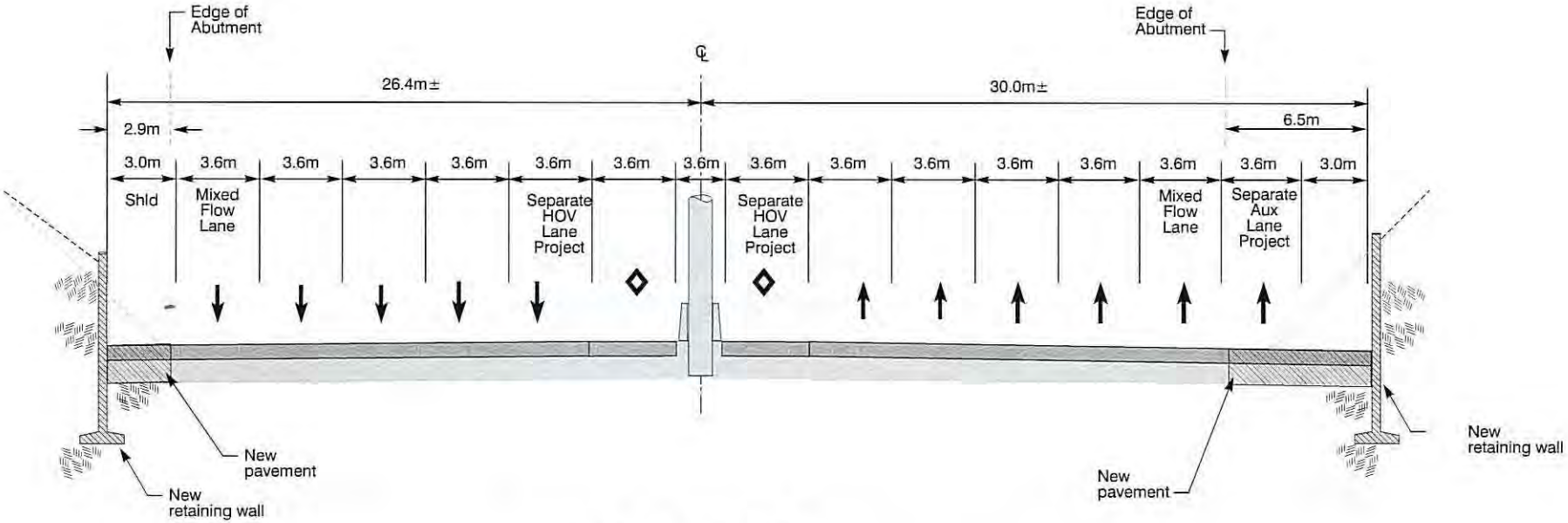
EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy
WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Korve Engineering

Sections-Typ Rev 3.cdr

5-20-04

Figure 5-58



Section C-C
Abernathy Overcrossing

NOT TO SCALE

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

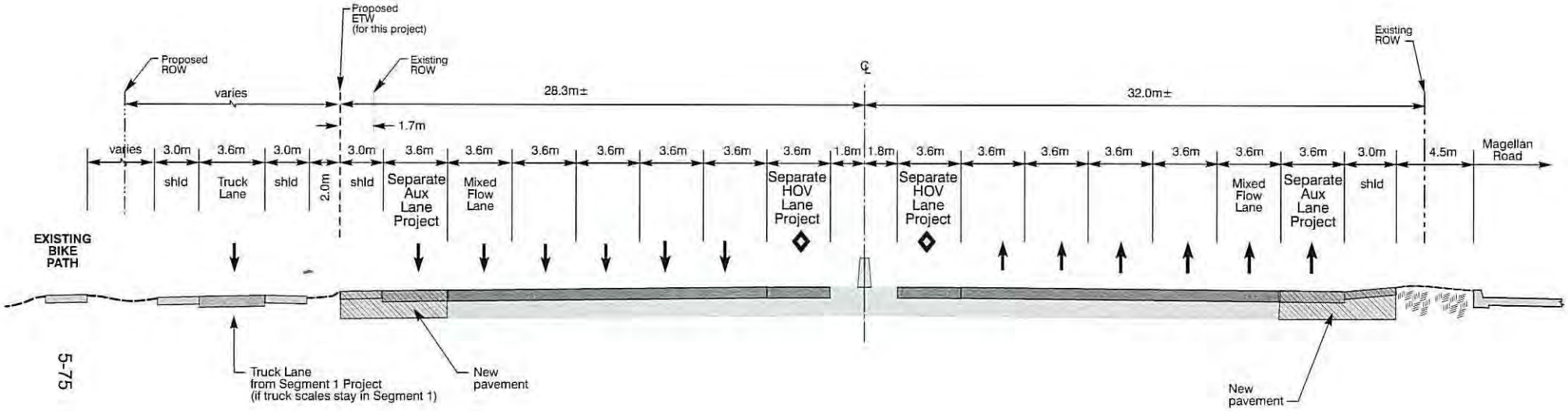
EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy
WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Korve Engineering

5-20-04

Sections-Typ Rev 3.cdr

Figure 5-59



Typical Section D-D
Abernathy to West Texas

NOT TO SCALE

Sections-Typ Rev 3.cdr

Korve Engineering

5-20-04

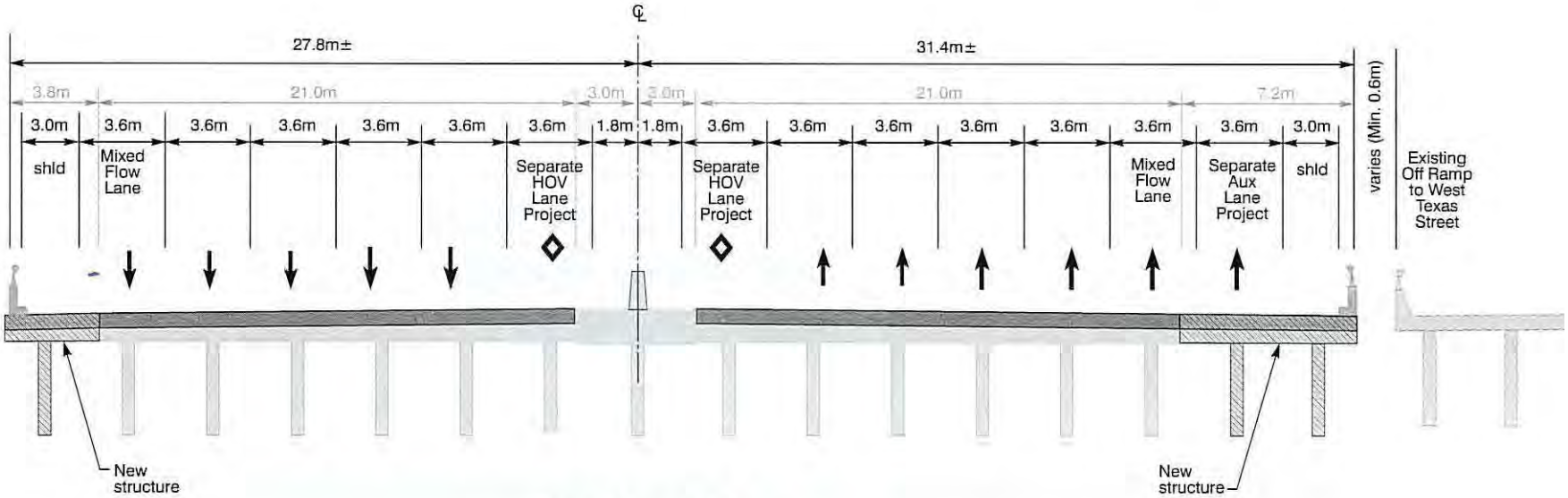
I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy

WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Figure 5-60



Section E-E
Ledgewood Creek Crossing

NOT TO SCALE

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy

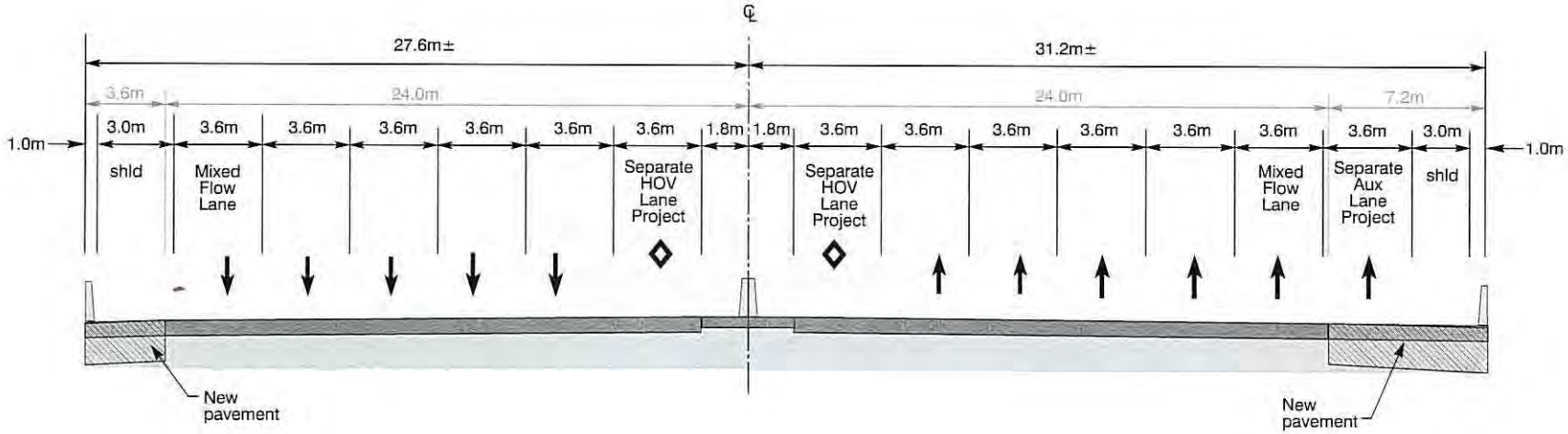
WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Korve Engineering

Sections-Typ Rev 3.cdr

5-20-04

Figure 5-61



Section F-F
West Texas Street Undercrossing

NOT TO SCALE

PROJECT 6a and 6b

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy

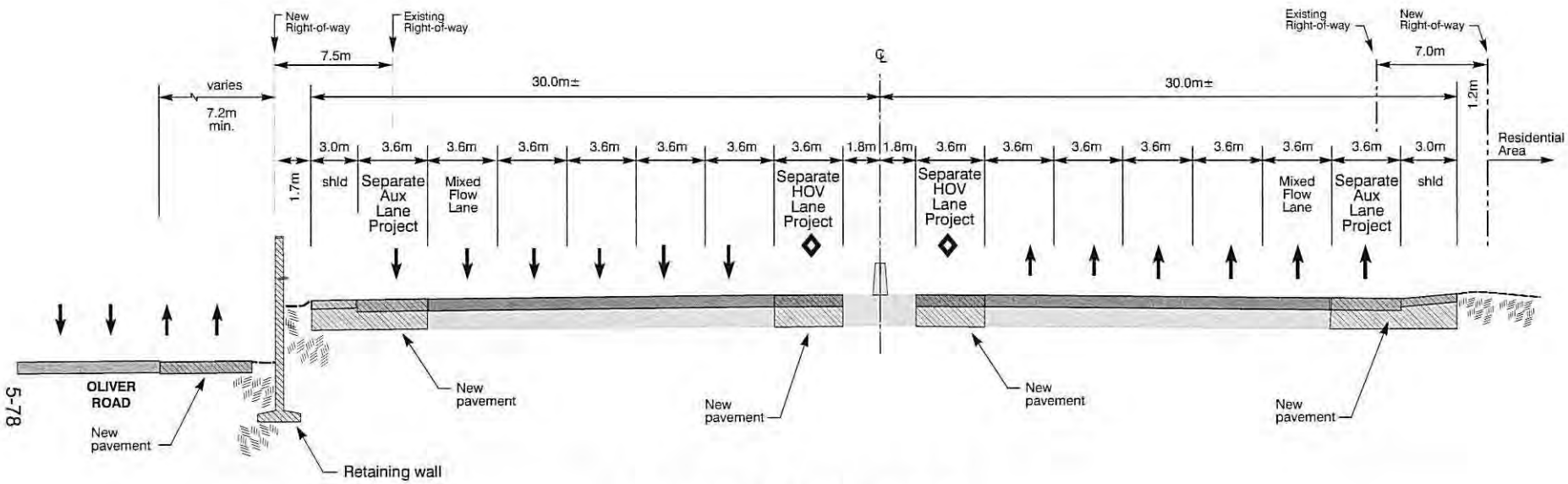
WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Korve Engineering

5-20-04

Sections-Typ Rev 3.cdr

Figure 5-62



Typical Section G-G
West Texas to Travis

NOT TO SCALE

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

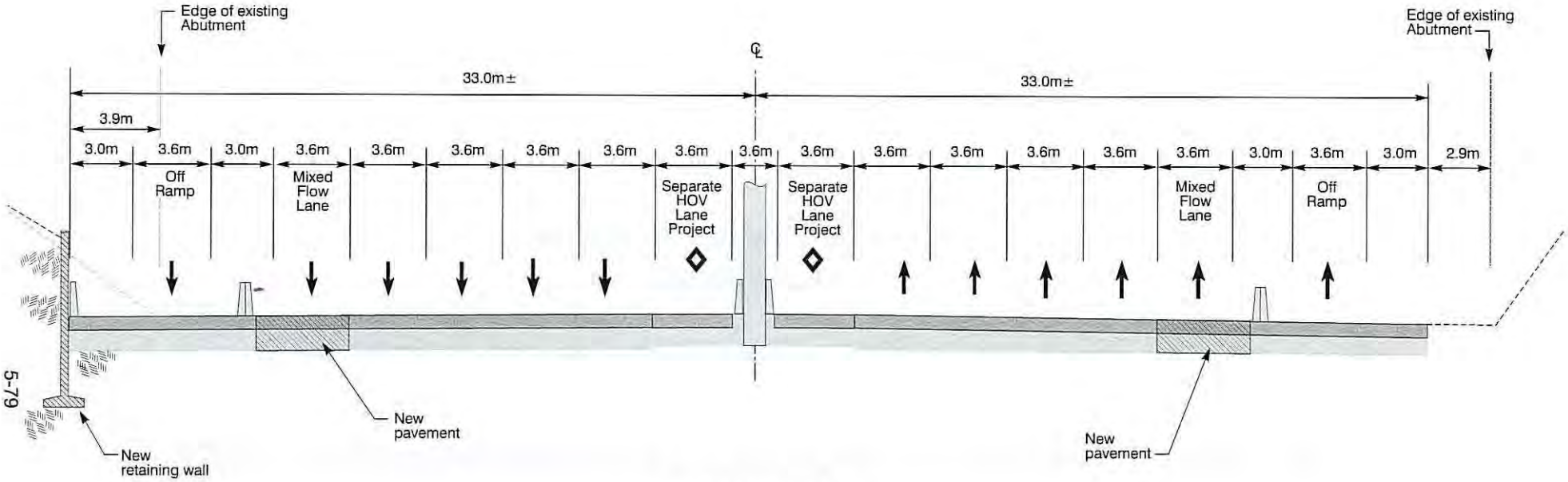
EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy
WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Korve Engineering

5-20-04

Sections-Typ Rev 3.cdr

Figure 5-63



Section H-H
Travis Boulevard Overcrossing

NOT TO SCALE

Sections-Typ Rev 3.cdr

Korve Engineering

5-20-04

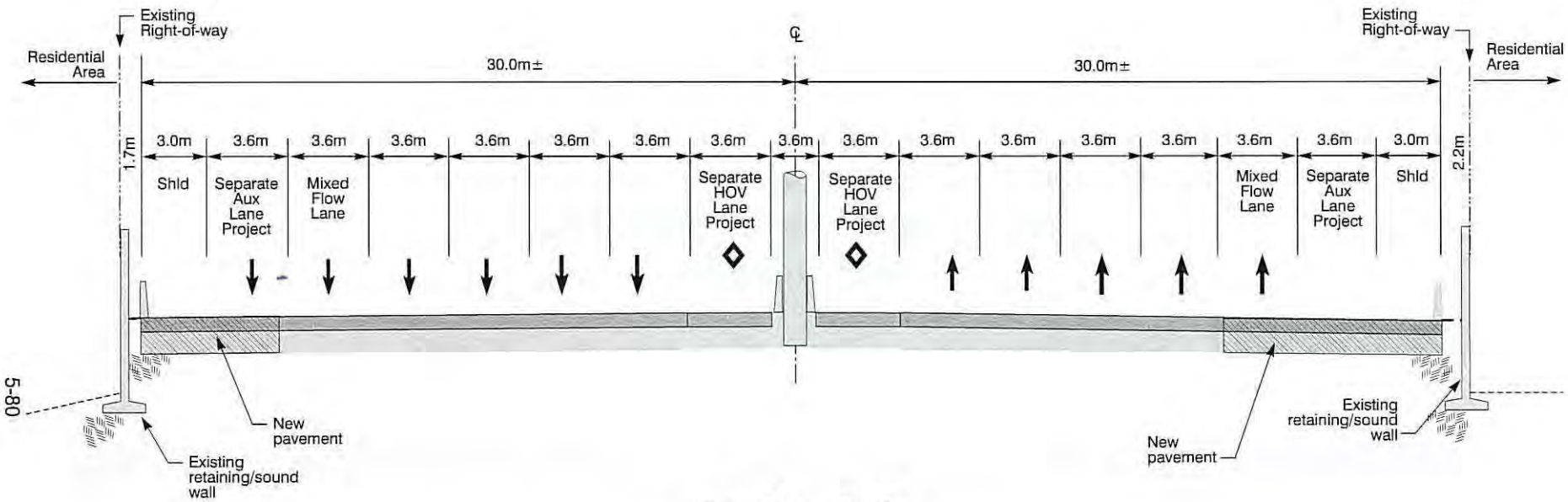
I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy

WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Figure 5-64



Section I - I
Travis to Air Base Parkway

NOT TO SCALE

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

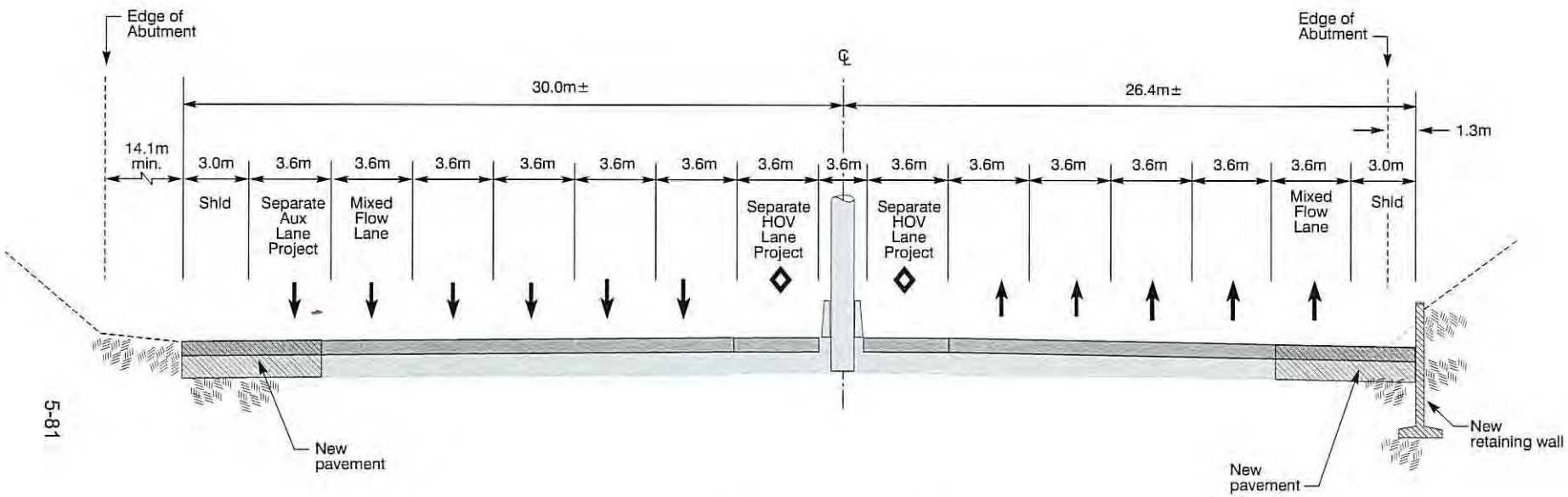
EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy
WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Korve Engineering

5-20-04

Sections-Typ Rev 3.cdr

Figure 5-65



Section J-J
Air Base Parkway Overcrossing

NOT TO SCALE

PROJECT 6a and 6b

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

EB I-80 Mixed Flow Lane: SR-12 (E) to Air Base Pkwy

WB I-80 Mixed Flow Lane: Air Base Pkwy to SR-12 (E)

Korve Engineering

5-20-04

Sections-Typ Rev 3.cdr

Figure 5-66

SEGMENT 6 PROJECT

WB I-80 Auxiliary Lane – North Texas Street to Waterman Boulevard

PROJECT DESCRIPTION

Construct an auxiliary lane between N. Texas Street and Waterman Boulevard
Estimated Cost: $28,400,000

Source: Wilbur Smith

Korve Engineering

Project 61.cdr

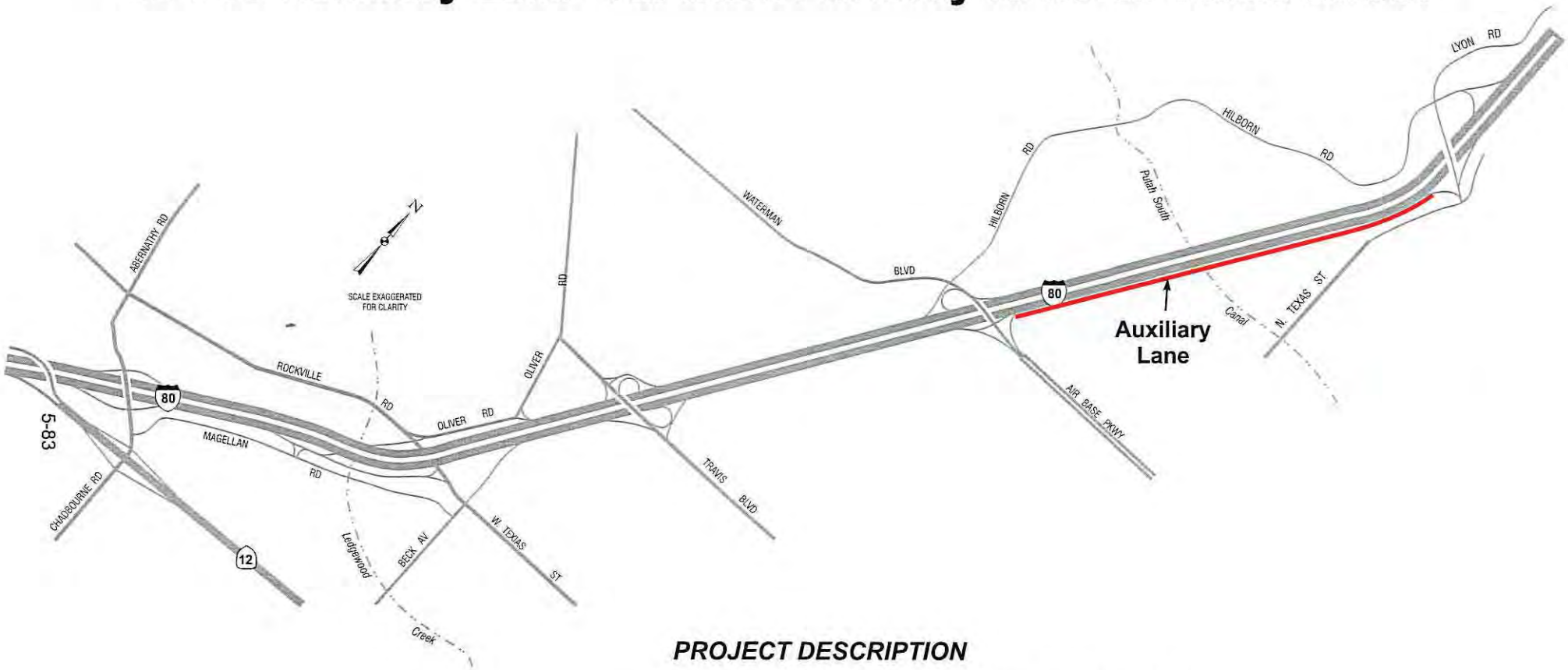
June 5, 2003
Rev 2-27-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-67

SEGMENT 6 PROJECT

EB I-80 Auxiliary Lane - Air Base Parkway to North Texas Street



New Auxiliary Lane

PROJECT DESCRIPTION

Construct an auxiliary lane between Air Base Parkway and North Texas Street

Estimated Cost: $24,500,000

Korve Engineering

Project 135.cdr

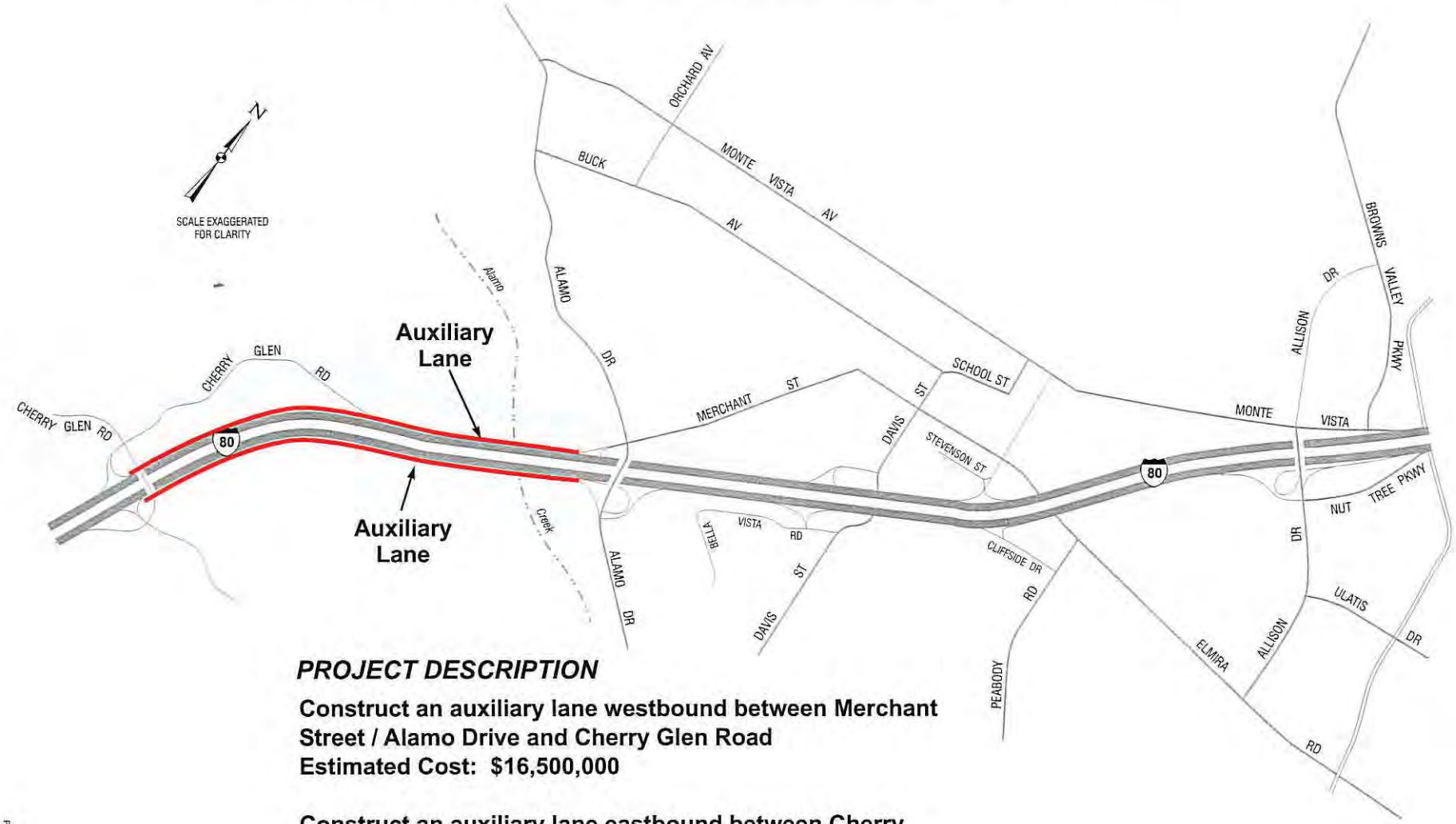
June 5, 2003
Rev 1-12-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-68

SEGMENT 6 PROJECT

WB I-80 Auxiliary Lane - Merchant Street to Cherry Glen Road
EB I-80 Auxiliary Lane - Cherry Glen Road to Alamo Drive



PROJECT DESCRIPTION

Construct an auxiliary lane westbound between Merchant Street / Alamo Drive and Cherry Glen Road
Estimated Cost: $16,500,000

Construct an auxiliary lane eastbound between Cherry Glen Road and Merchant Street / Alamo Drive
Estimated Cost: $7,900,000

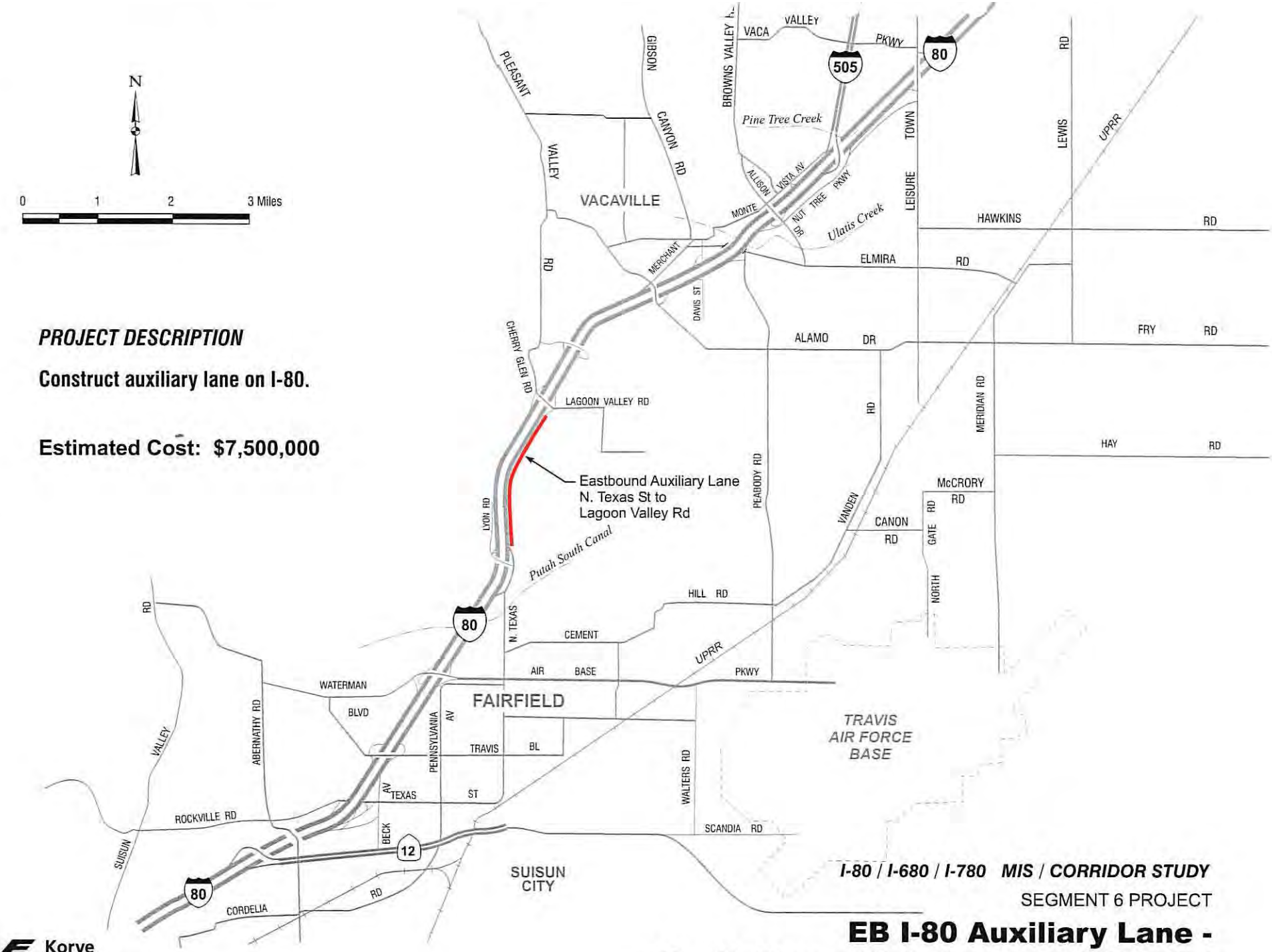
Project 13C&D Rev.cdr

Korve Engineering

June 5, 2003
Rev 2-6-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-69



I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

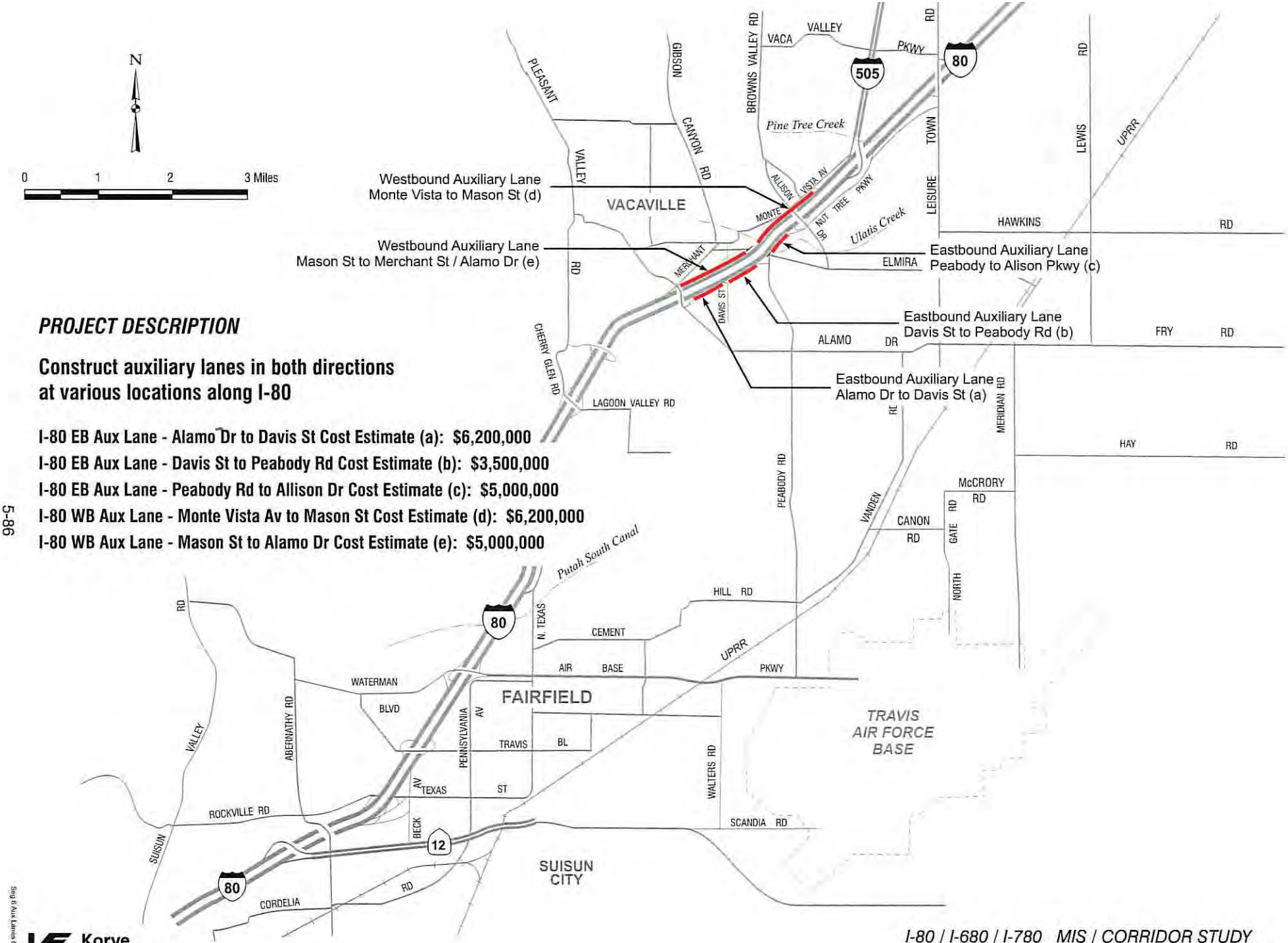
EB I-80 Auxiliary Lane - North Texas St to Lagoon Valley Rd

Figure 5-70

Korve Engineering

November 5, 2003
Rev 3-4-04

Seg 6 Aux Lanes 6th.dgn



PROJECT DESCRIPTION

Construct auxiliary lanes in both directions at various locations along I-80

I-80 EB Aux Lane - Alamo Dr to Davis St Cost Estimate (a): $6,200,000
I-80 EB Aux Lane - Davis St to Peabody Rd Cost Estimate (b): $3,500,000
I-80 EB Aux Lane - Peabody Rd to Allison Dr Cost Estimate (c): $5,000,000
I-80 WB Aux Lane - Monte Vista Av to Mason St Cost Estimate (d): $6,200,000
I-80 WB Aux Lane - Mason St to Alamo Dr Cost Estimate (e): $5,000,000

Korve Engineering

November 5, 2003
Rev 1-21-04
Rev 5-13-04
Rev 8-12-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

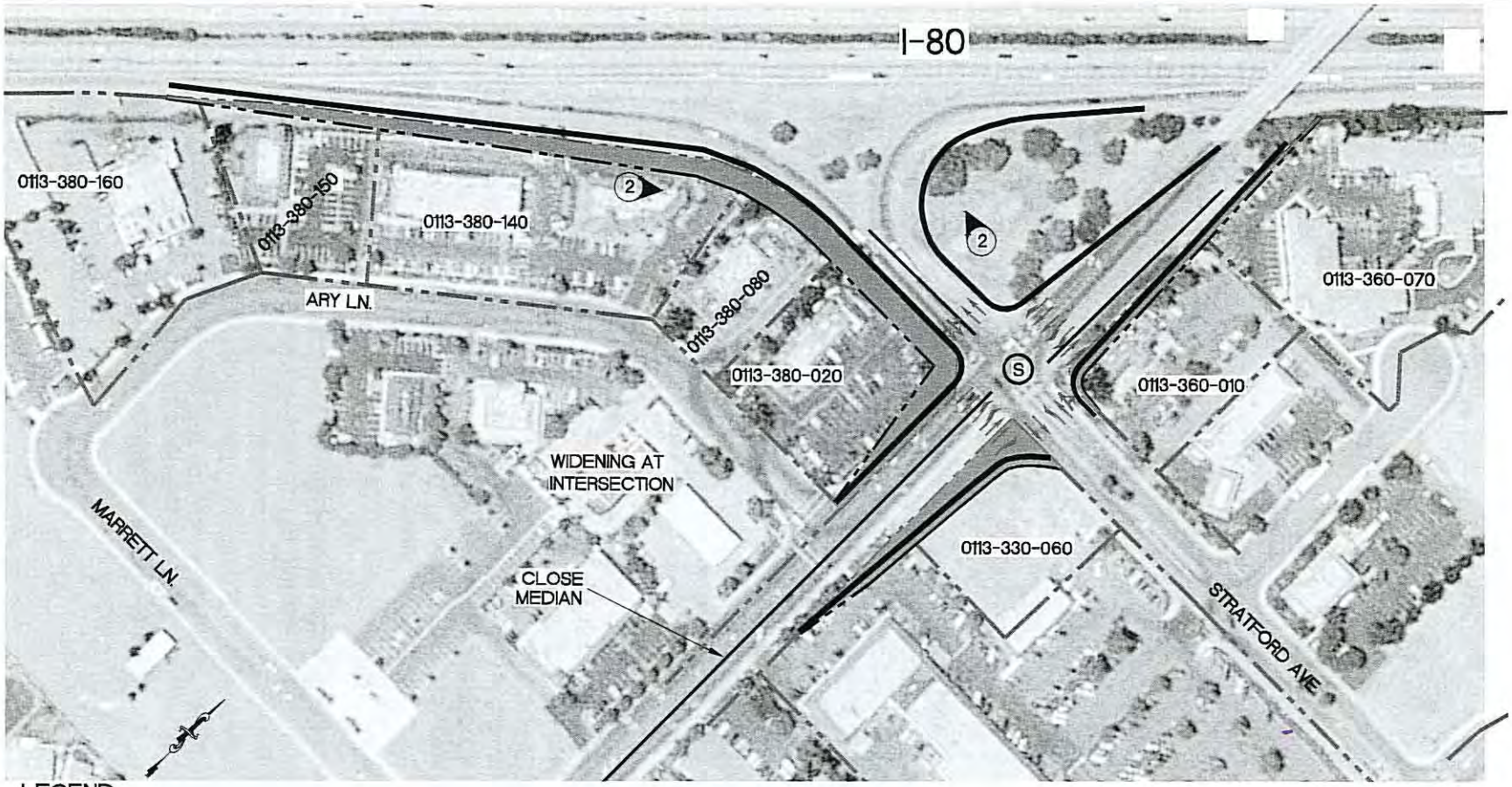
Figure 5-71

5.3.7 Segment 7

I-80/Pitt School Road Interchange Improvement
This project, as illustrated in Figure 5-72, would improve the Pitt School Road interchange by widening the Stratford Avenue/Pitt School Road intersection. The purpose of the improvement is to signalize and improve the Stratford Avenue/Pitt School Road intersection, which currently operates poorly during peak hours, queuing vehicles on the eastbound I-80 off-ramp to Pitt School Road. On the northwest side of I-80, a Type L-9 interchange would be installed to add a direct on-ramp to westbound I-80 from Pitt School Road.

SR-113/I-80 Interchange Improvement
This project, illustrated in Figure 5-73, would reconstruct this interchange into a Caltrans standard Type L-9 design. The new interchange would improve the ramp geometry, thereby increasing safety and capacity. All on-ramps would be one lane and all off-ramps would be two lanes. In order to fulfill Caltrans' 165-meter intersection spacing requirement, Milk Farm Road would be relocated to the new intersection of Currey Road and Milk Farm Road. Extensive right-of-way acquisition would be needed to reconstruct the interchange to current design standards, as reflected in Figure 5-73.

Complete I-80 Widening – Meridian Road to Kidwell Road
This project, illustrated in Figures Figure 5-74 and Figure 5-75, would widen I-80 from six to eight lanes between the Meridian Road and Kidwell Road interchanges. Caltrans prepared a Project Study Report for this project in 1991. That study's design and cost estimates have been updated and incorporated into the Corridor Study. Under the Caltrans design, all widening would be done in the shoulder area, leaving the median for a potential future HOV lane installation. This would require ramp realignments at six interchanges. A total of 26 ramps would need to be modified. The right-of-way impacts of this project would be minimal between interchanges. The project would complete the last segment of eight lane I-80 between Vallejo and Davis.



LEGEND

- (2) NUMBER OF LANES IN INDICATED DIRECTION
- RIGHT OF WAY TAKE
- (S) SIGNALIZED INTERSECTION
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

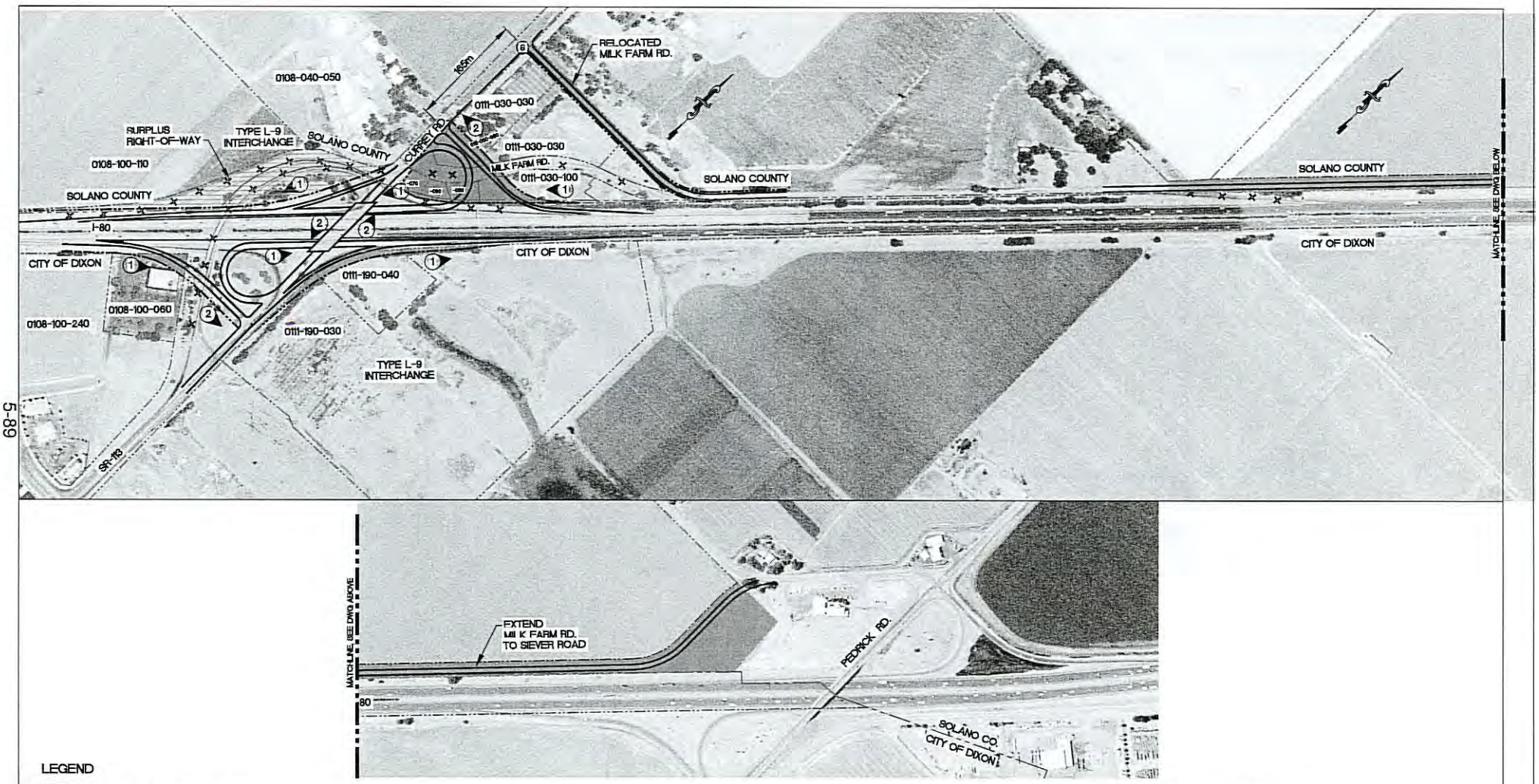
Scale: 1:5000

ESTIMATED COST: $4,100,000

I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

I-80/PITT SCHOOL RD. INTERCHANGE IMPROVEMENT

Figure 5-72



LEGEND

- RIGHT OF WAY TAKE
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 23, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $22,700,000

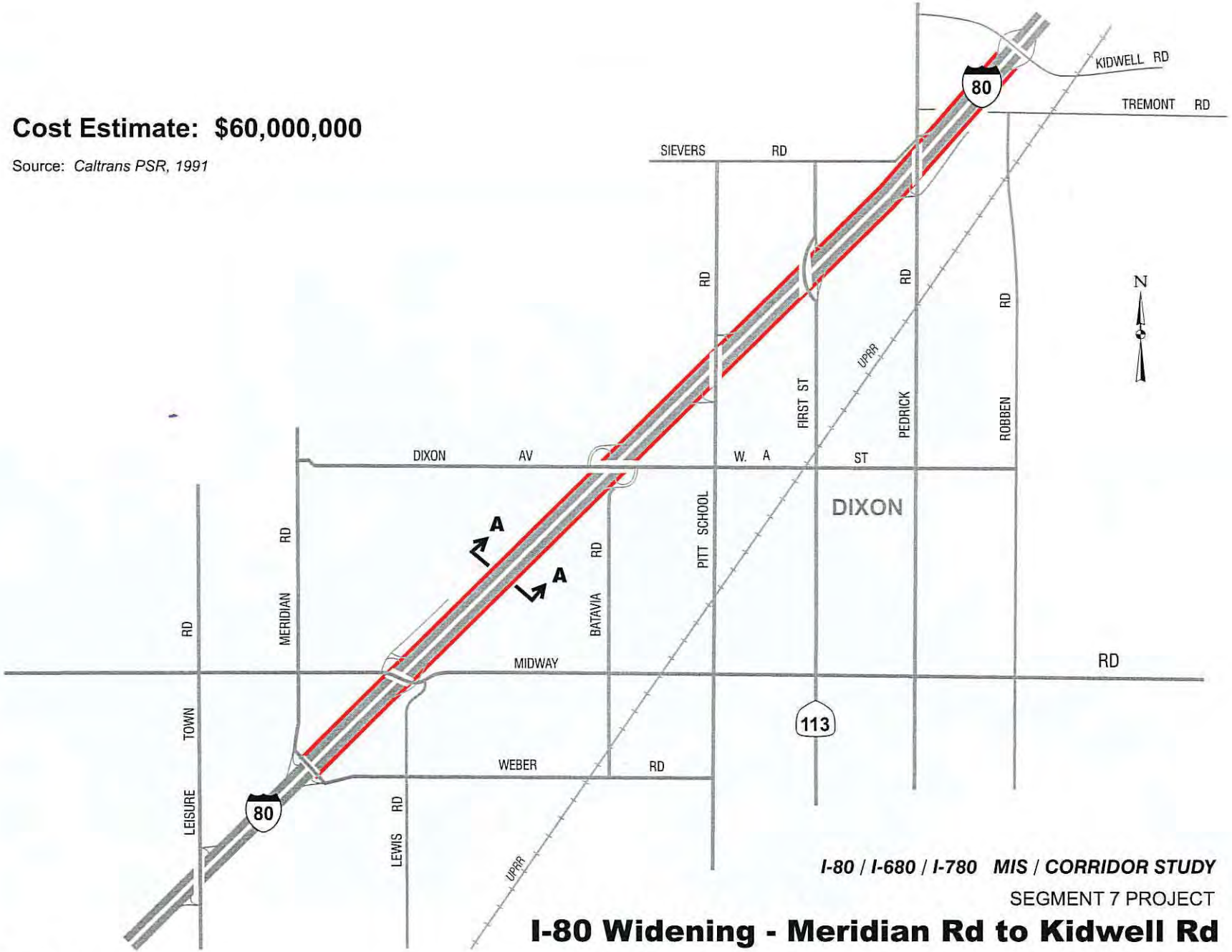
I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

SR-113/I-80 INTERCHANGE IMPROVEMENT

Figure 5-73

Cost Estimate: $60,000,000

Source: *Caltrans PSR, 1991*



I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

SEGMENT 7 PROJECT

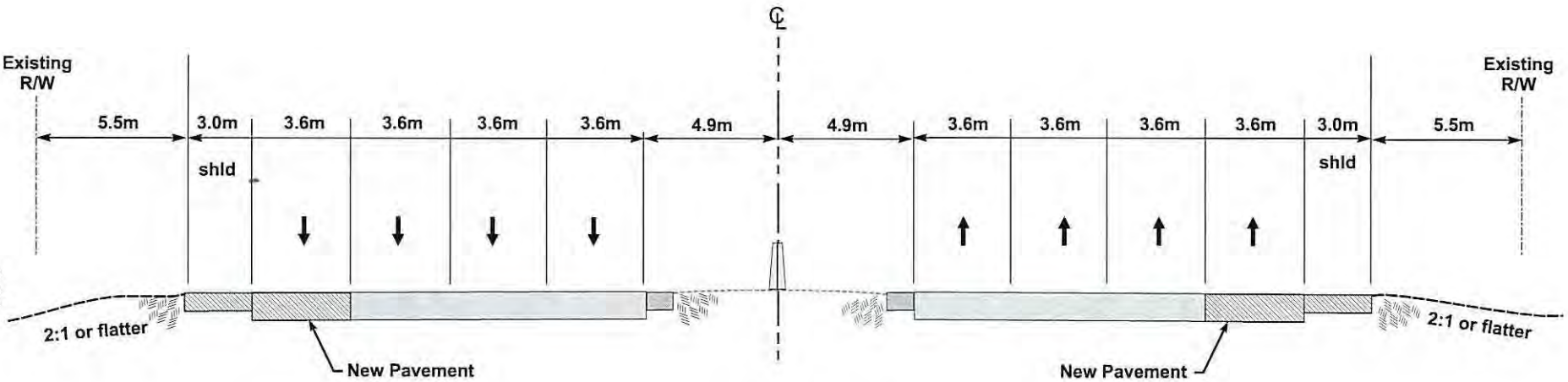
I-80 Widening - Meridian Rd to Kidwell Rd

Figure 5-74

Korve Engineering

June 2, 2004

Meridian to Kidwell cdr



TYPICAL SECTION A-A

Not to Scale

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 5-75

SEGMENT 7 PROJECT

I-80 Widening - Meridian Rd to Kidwell Rd

Typical Cross Section from Meridian Interchange to Kidwell Interchange

Section AA.cdr

Korve Engineering

November 5, 2003
June 2, 2004

5.4 Local Interchange Improvements

Local interchange improvements are proposed to improve freeway interchange facilities located within the jurisdiction of Solano County and five cities within the County. These projects are intended to provide adequate long-term access to freeway facilities and accommodate anticipated growth in traffic demand. These plans have been developed to assist local jurisdictions in the protection of right of way for future interchange improvements. All local interchange improvement projects would be constructed to full Caltrans standards (including 3.6-meter ramp lanes and 2.4-meter shoulders) unless noted otherwise below. All local interchange projects assume ramp metering, and the costs of ramp metering are included in the estimates for all projects. The local interchange projects are organized by jurisdiction below.

5.4.1 Benicia

Rose Drive/Columbus Parkway/I-780 Bike Path
Improvements to this interchange would include the addition of a new bike path crossing I-780. The new bike path would require a new and separate structure north of the existing Rose Drive over-crossing of I-780. Minor widening and the addition of left turn lanes to some approaches at the Rose Drive/Columbus Parkway intersection are also included. Minor right-of-way acquisition would be required for this improvement, which is illustrated in Figure 5-76.

Southhampton Road/West 7th Street/I-780
This project, illustrated in Figure 5-77, would add an additional lane to provide dual left turns on the eastbound off-ramp approach to the ramp terminal intersection. An additional lane is also required on the westbound off-ramp to improve operations at the westbound ramp terminal intersection. Minor right-of-way acquisition would be required.

Industrial Way/Bayshore Road/I-680
This project, illustrated in Figure 5-78, would construct a two-lane frontage road connecting the northbound off-ramp at Bayshore Road to the Industrial Way northbound on-ramp. The frontage road would increase capacity at this interchange and improve access between Bayshore Road and Industrial Way and eliminate difficult left/right turns for trucks. Right-of-way acquisition would be required to construct the frontage road. An existing creek crossing and oil pipeline represent additional challenges, which would need to be included in further project development. A new railroad grade crossing and traffic signal would be required at Bayshore Road. Signal would also be installed at the I-80 ramps on Bayshore Road and Industrial Way.

Lake Herman Road/I-680
As illustrated in Figure 5-79, this project includes the construction of new hook ramps in the northbound direction, with the closure of the existing northbound ramps. Gateway Plaza Drive would be realigned south of its existing location to provide clearance with the new ramps. The existing over-crossing of I-680 would be widened to provide a left turn lane from Lake Herman Road to the southbound I-680 on-ramp. A small amount of right-of-way acquisition would be required under this project. This project would

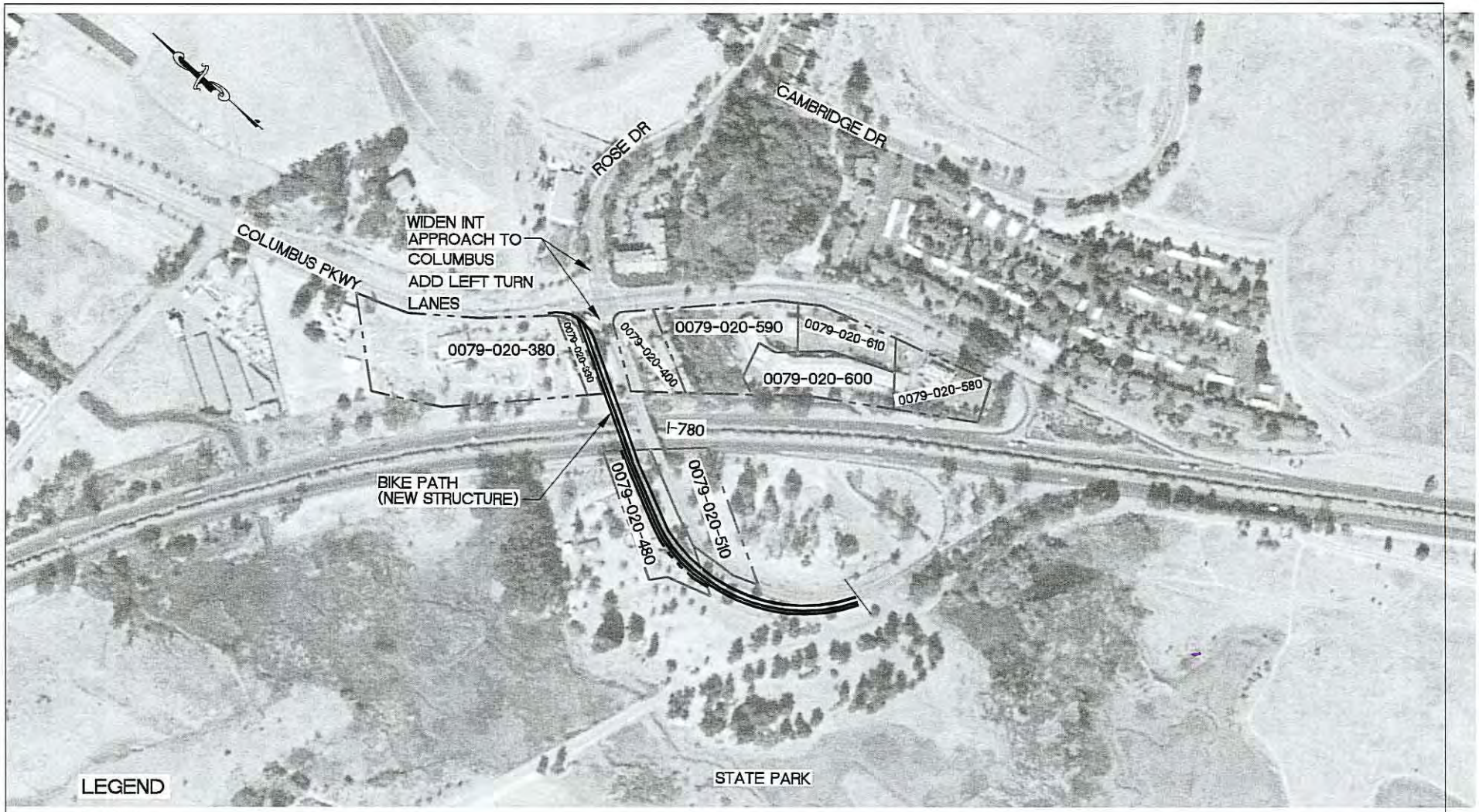
significantly improve intersection spacing and would be necessary to serve the future intermodal station to the north.

2nd Street/5th Street/I-780

As discussed in the previous section and illustrated in Figure 5-80, a mainline improvement to stripe auxiliary lanes between the 2nd and 5th Street interchanges is proposed to serve heavy on and off-ramp volumes at this location. Additional improvements at these locations include the widening of the westbound I-780 off-ramps at 2nd Street and 5th Street and the eastbound I-780 off-ramp at 5th Street to provide additional turn lanes. Traffic signals would also be installed at the I-780 ramp intersections at 5th Street.

Military West Street/I-780

As illustrated in Figure 5-81, the eastbound I-780 off-ramp at Military West Street would be widened to provide an additional turn lane. A traffic signal would also be installed at the eastbound I-780 off-ramp/Military West Street intersection.



LEGEND

- RIGHT OF WAY TAKE
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

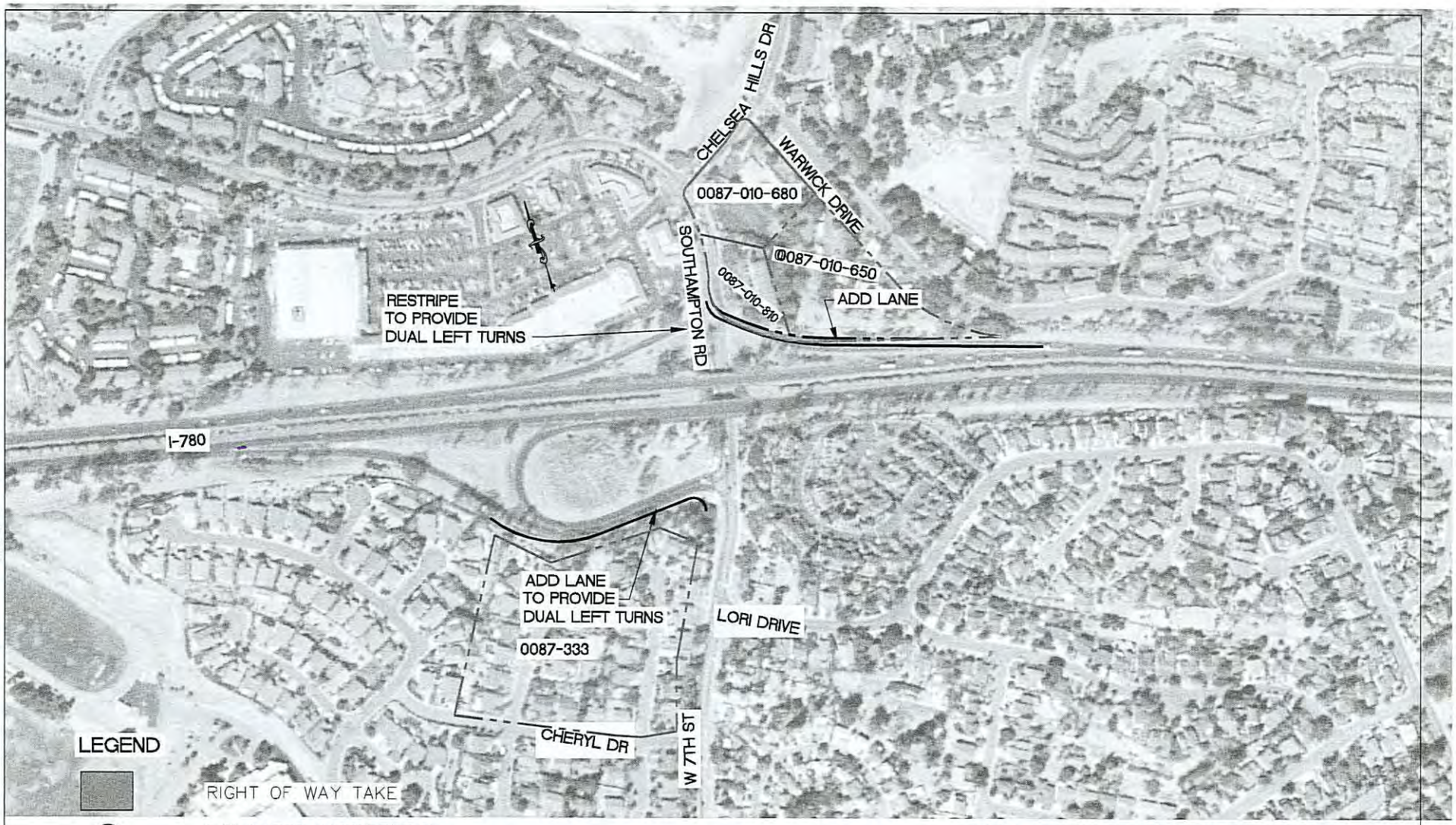
ESTIMATED COST: $4,300,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 3

CITY OF BENICIA
ROSE DR/COLUMBUS PKWY
INTERCHANGE IMPROVEMENT

Figure 5-76



(S) SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $3,200,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 3

CITY OF BENICIA
SOUTHAMPTON/7TH ST INTERCHANGE IMPROVEMENT

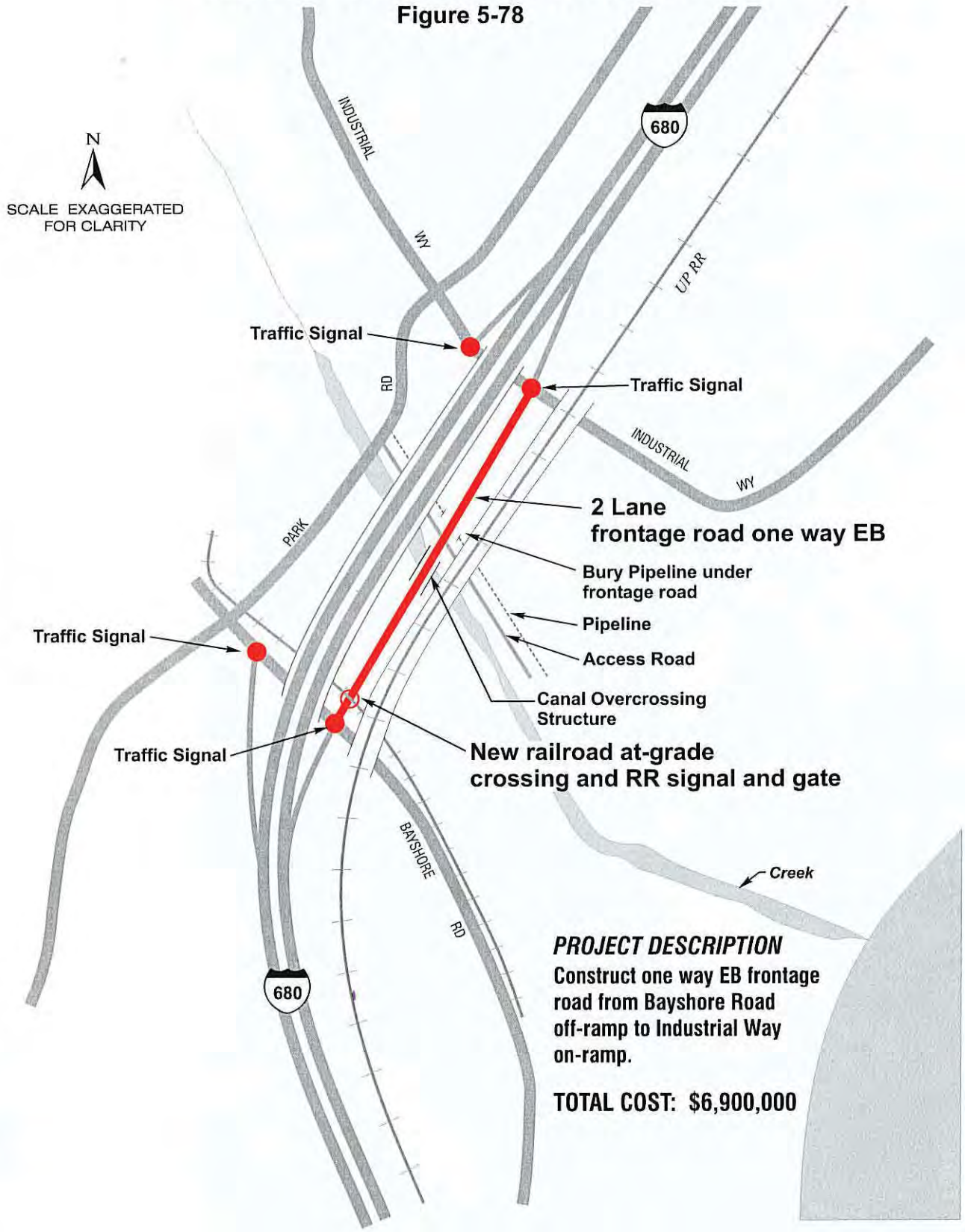
Figure 5-77

SEGMENT 4 PROJECT

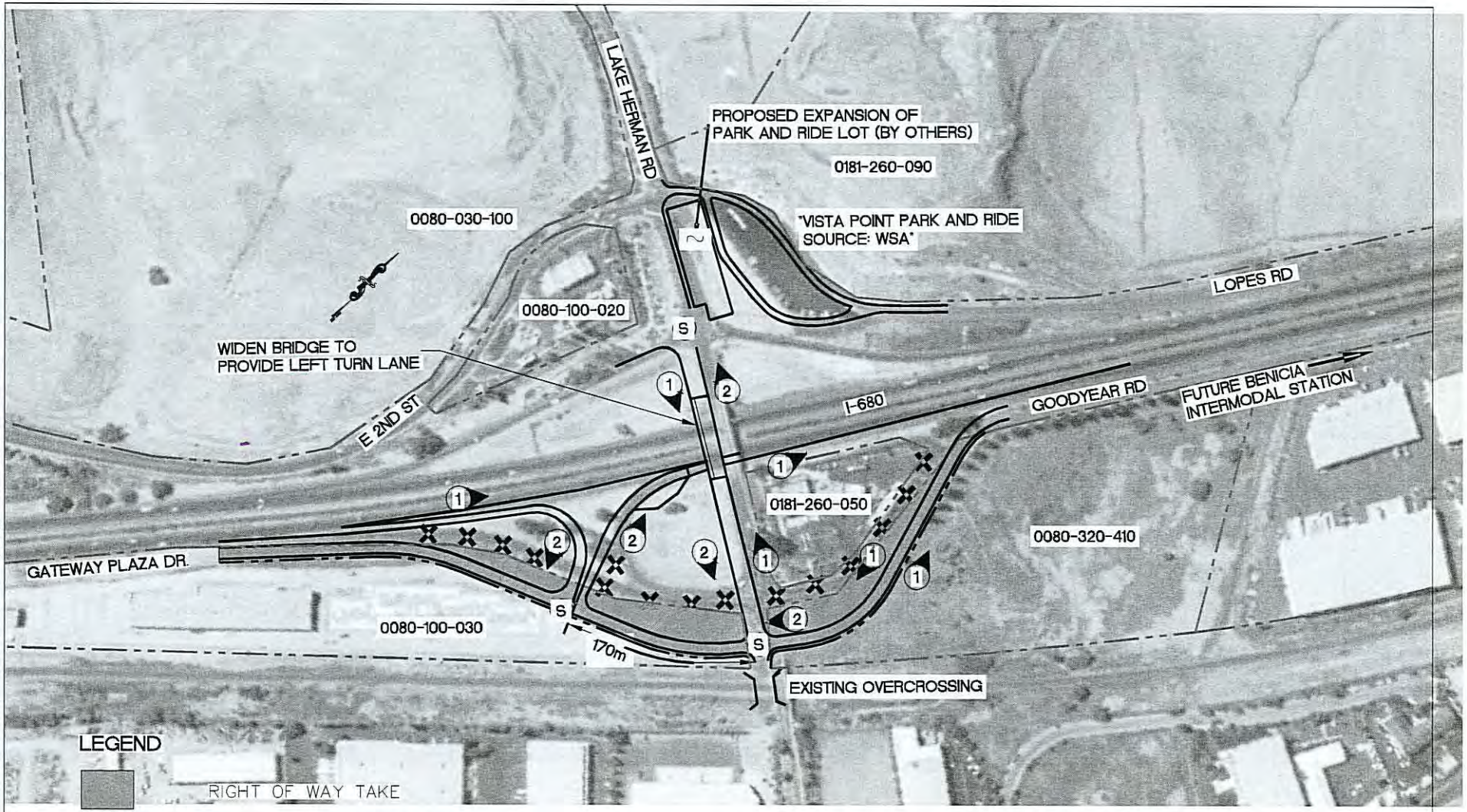
LOCAL INTERCHANGE IMPROVEMENT – CITY OF BENICIA

I-680 / Industrial Way / Bayshore Interchange Improvement

Figure 5-78



Industrial IC Rev 5.cdr



SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

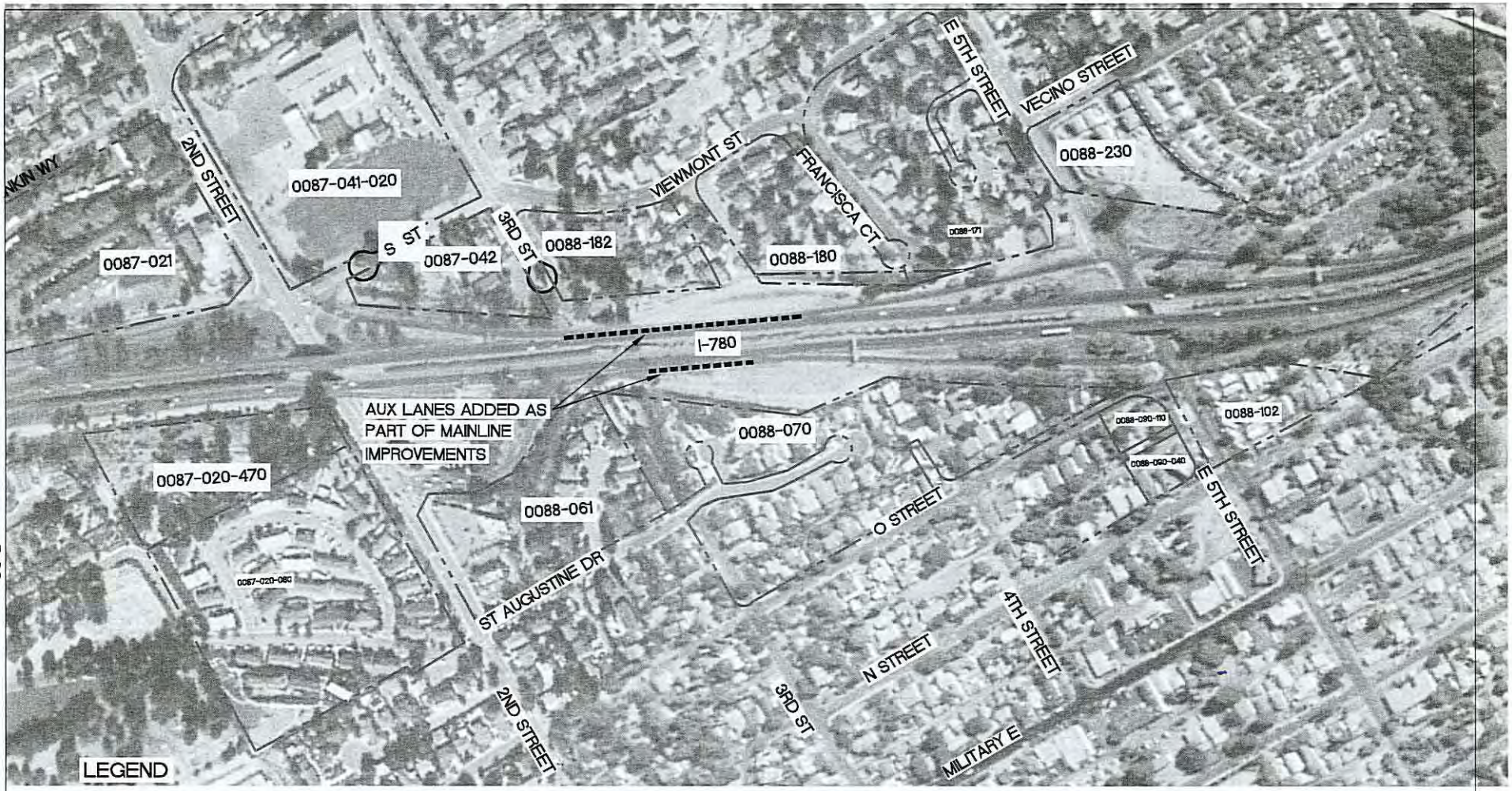
ESTIMATED COST: $14,800,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 4

CITY OF BENICIA LAKE HERMAN ROAD INTERCHANGE IMPROVEMENT

Figure 5-79



RIGHT OF WAY TAKE

SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

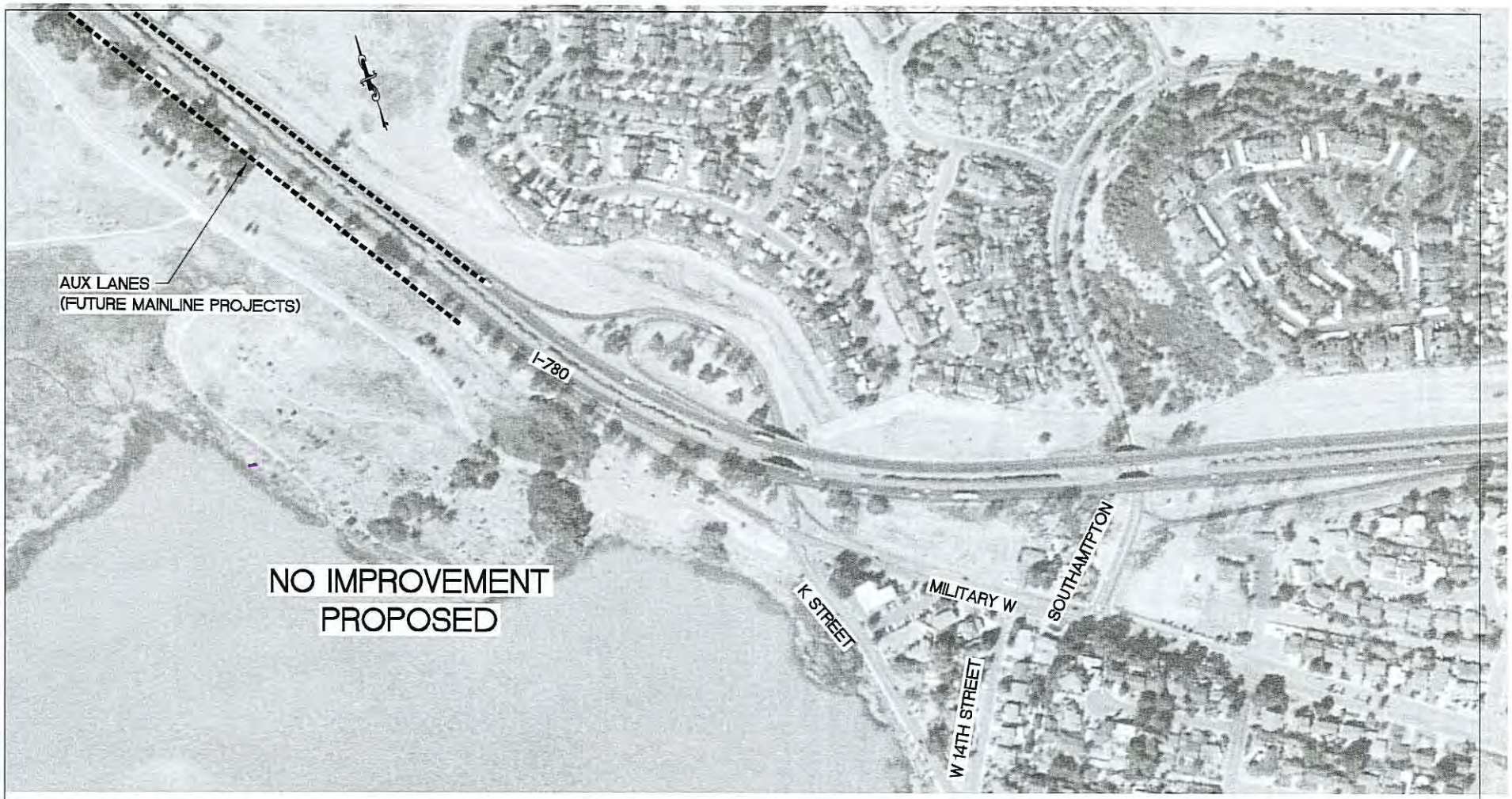
NO IMPROVEMENTS PROPOSED

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 3

CITY OF BENICIA 2ND AND 5TH ST INTERCHANGE

Figure 5-80



LEGEND

- RIGHT OF WAY TAKE
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 3

CITY OF BENICIA
MILITARY WEST INTERCHANGE

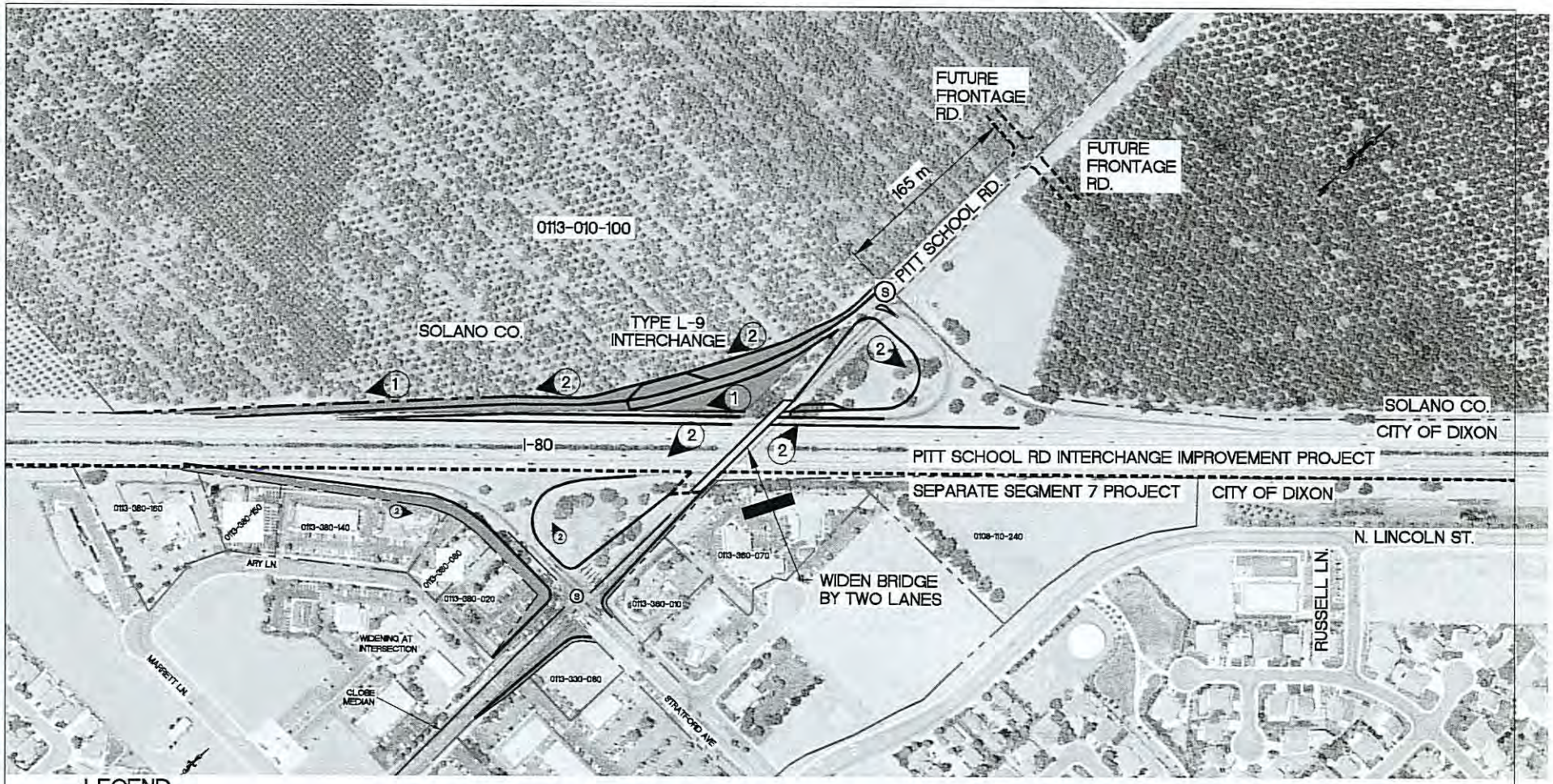
Figure 5-81

5.4.2 Dixon

Pitt School Road/I-80
This project, illustrated in Figure 5-82, would improve the existing intersection of Pitt School Road and Stratford Avenue, at the I-80 eastbound off-ramp terminal. The project also includes the reconfiguration of the existing westbound on and off-ramps to a Caltrans standard Type L-9 interchange and widening of the overcrossing by two lanes. Minor right-of-way acquisition would be required for this improvement.

West A Street/Dixon Avenue/I-80
This project, illustrated in Figure 5-83, would convert this interchange into a Type L-9 design in both the eastbound and westbound directions. The relocation of both Batavia Road and Schroeder Road would be required to satisfy Caltrans intersection spacing requirements. Right-of-way acquisition would be required for the relocated Batavia Road and Schroeder Road and the new ramps.

Pedrick Road/I-80
This project, illustrated in Figure 5-84, would convert this interchange into a Type L-9 design in both the eastbound and westbound directions. The relocation of both Starling Lane and Severs Road would be required to satisfy Caltrans intersection spacing requirements. Right-of-way acquisition would be required for the relocated Starling Lane and Severs Road and the new ramps.



LEGEND

- RIGHT OF WAY TAKE
- (S) SIGNALIZED INTERSECTION
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

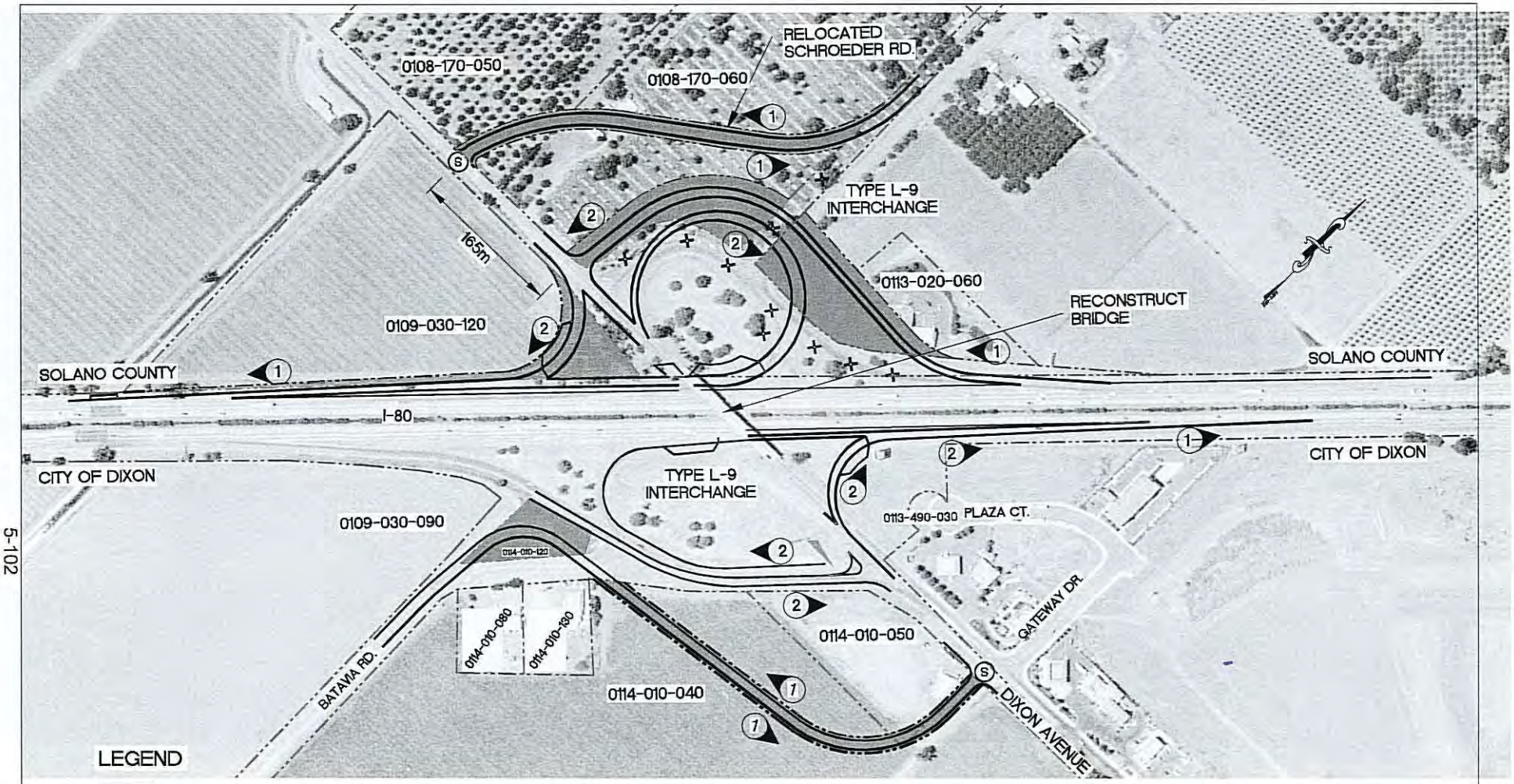
ESTIMATED COST: $13,200,000

I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

SEGMENT 7 PROJECT

CITY OF DIXON PITT SCHOOL RD. INTERCHANGE IMPROVEMENT

Figure 5-82



LEGEND

- RIGHT OF WAY TAKE
- (S) SIGNALIZED INTERSECTION
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

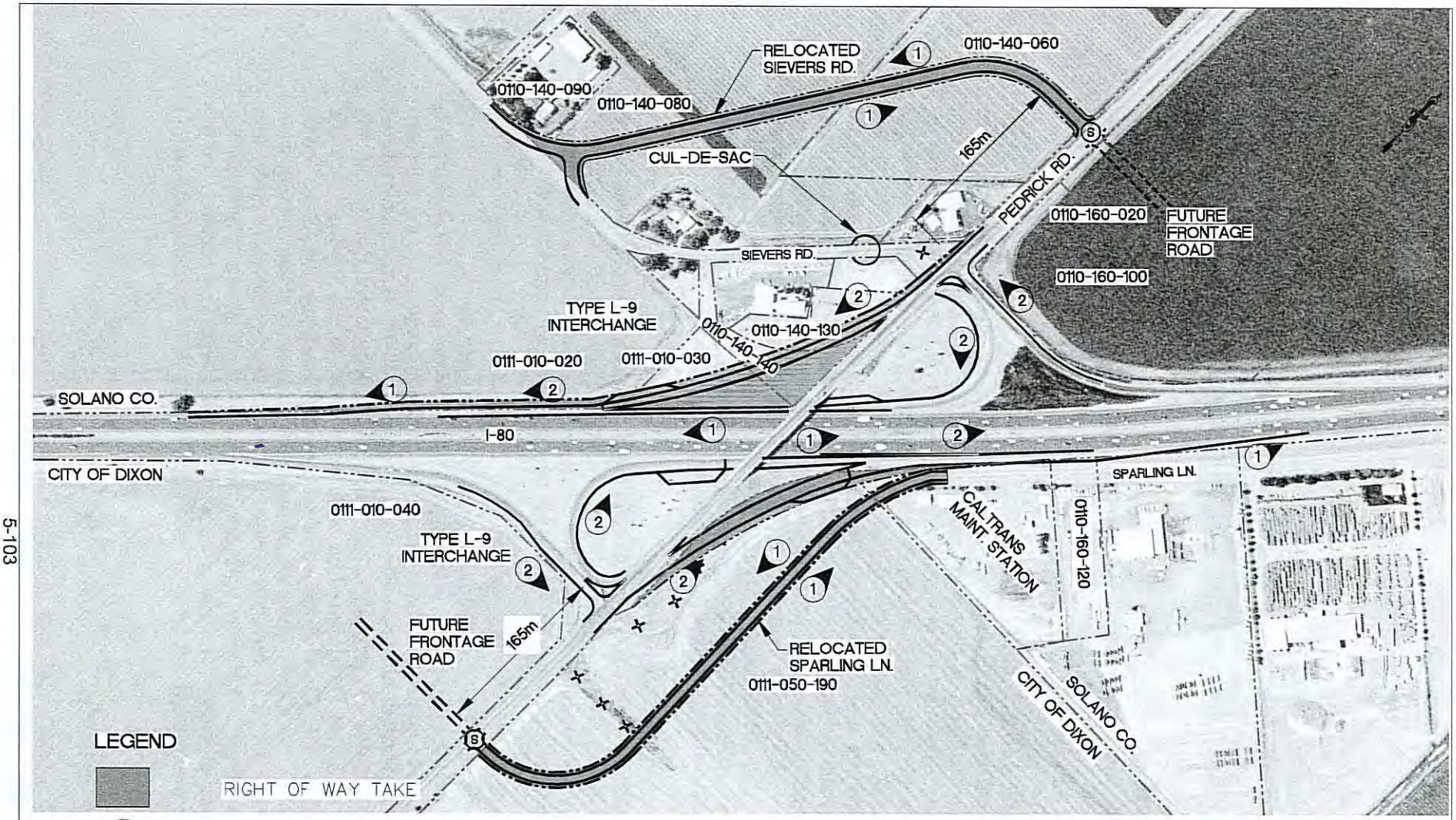
ESTIMATED COST: $22,800,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 7

CITY OF DIXON WEST A ST INTERCHANGE IMPROVEMENT

Figure 5-83



LEGEND

RIGHT OF WAY TAKE

S SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $18,800,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 7

CITY OF DIXON PEDRICK RD. INTERCHANGE IMPROVEMENT

Figure 5-84

5.4.3 Fairfield

Suisun Valley Road/I-80
Improvement at this interchange is incorporated in the Segment 1 mainline projects "Braid EB I-80 Ramps – I-680 to Suisun Valley Road with Improvements on I-680 including Red Top Road Interchange" and "Braid WB I-80 Ramps – Suisun Valley Road to SR 12 West".

Green Valley Road/I-80
Improvement at this interchange is incorporated in the Segment 1 mainline project "Braid EB I-80 Ramps – SR-12 (W) to Green Valley Road" and "Braid WB I-80 Ramps – Suisun Valley Road to SR 12 West".

North Texas Street/Lyon Road/I-80
A Project Study Report (PSR) is currently being prepared for this interchange. Two alternatives for improvements to this interchange are under consideration in the PSR. Figure 5-85 illustrates the currently preferred alternative. Either alternative accounts for the eventual extension of Manuel Campos Parkway from the east to intersect with North Texas Street and I-80, with the realignment of North Texas Street to be parallel to the freeway. The currently preferred alternative includes a new eastbound hook ramp connection to the realigned North Texas Street. The intersection of the ramps and North Texas Street would provide the required minimum spacing to the North Texas Street/Manuel Campos Parkway intersection. Neither alternative includes improvement to the existing ramps on the west side of I-80. The relocation of Nelson Road would be required for both alternatives. Both alternatives would include widening at the Hilborn Road/North Texas Street/Lyon Road intersection west of the freeway.

Magellan Road (Auto Mall Parkway)/I-80
This project, illustrated in Figure 5-86, would relocate the existing Magellan Road (Auto Mall Parkway) to the south to provide additional space between I-80 and Auto Mall Parkway. Currently, inadequate storage space exists between the freeway and frontage road. The new intersection would be signalized, and right-of-way acquisition would be required.

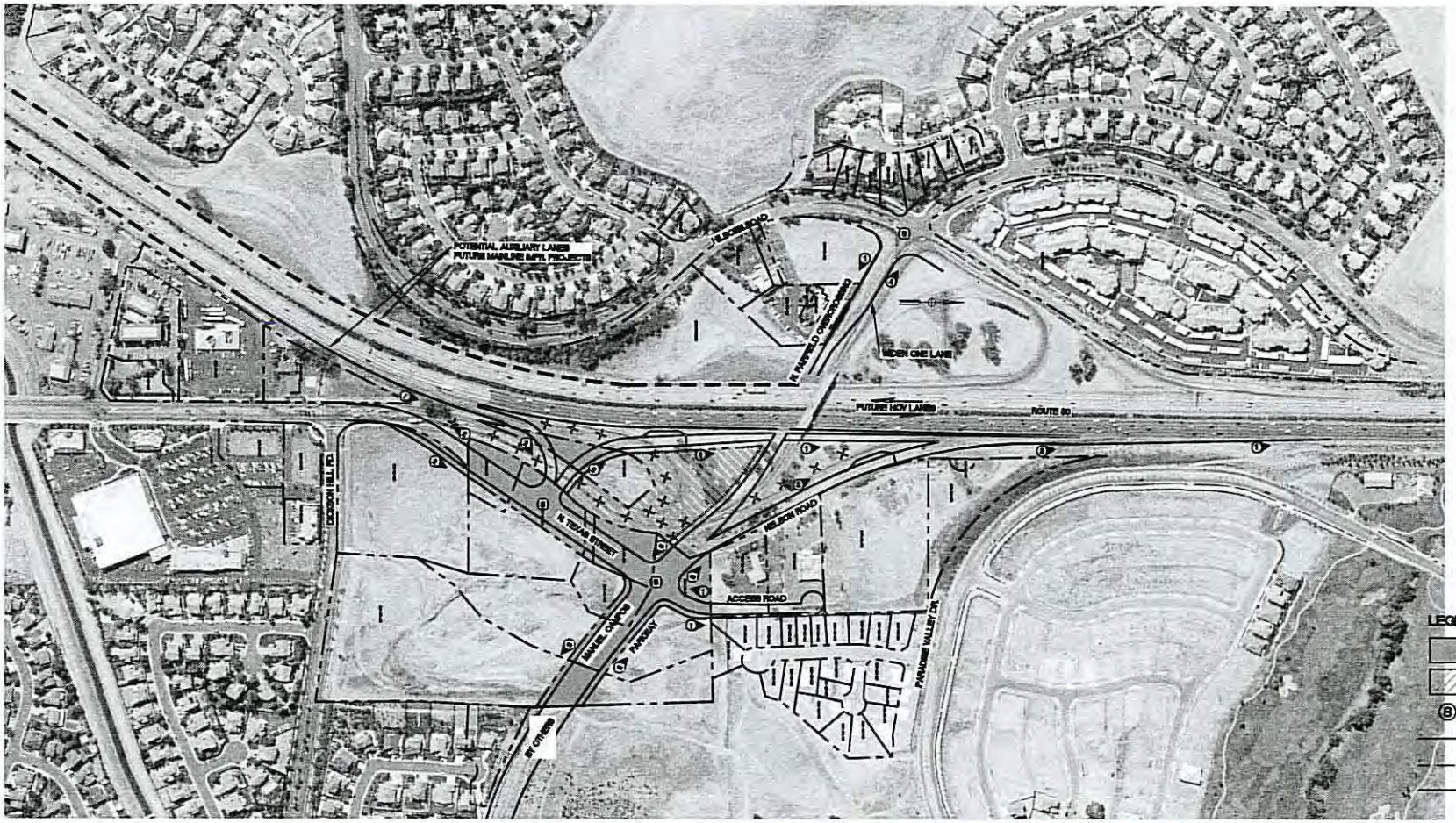
West Texas Street/Rockville Road/Beck Avenue/Oliver Road/I-80
This project, illustrated in Figure 5-87, involves the closure of the existing free right turn from the I-80 off-ramp to eastbound West Texas Street. With this closure, the right turn would be made at the signalized ramp terminal intersection, and the space gained would be used to provide direct bus access to the Fairfield Transportation Center. In the westbound direction, Oliver Road would be widened parallel to the freeway, and the existing isolated off-ramp to Oliver Road would be closed. New westbound hook ramps to and from Rockville Road/Oliver Road would be constructed west of the existing over-crossing. Oliver Road would be rerouted to meet the intersection of Rockville Road with the new proposed ramps. Right-of-way acquisition would be required to provide the recommended improvements. The new westbound on-ramps would be braided with the future truck scale westbound off-ramp if the truck scales are reconstructed within Segment 1.

Travis Boulevard/I-80

As illustrated in Figure 5-88 no additional improvements to this interchange are proposed at this time.

Air Base Parkway/I-80

As illustrated in Figure 5-89, no additional improvements to this interchange are proposed at this time.



LEGEND

- RIGHT OF WAY TAKE
- RIGHT OF WAY EXCESS
- SIGNALIZED INTERSECTION
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

ESTIMATED COST: $25,300,000

Korve Engineering
155 Grand Avenue, Suite 400
Oakland, CA 94612
(510) 763-2929

ALTERNATIVE NUMBER 3C

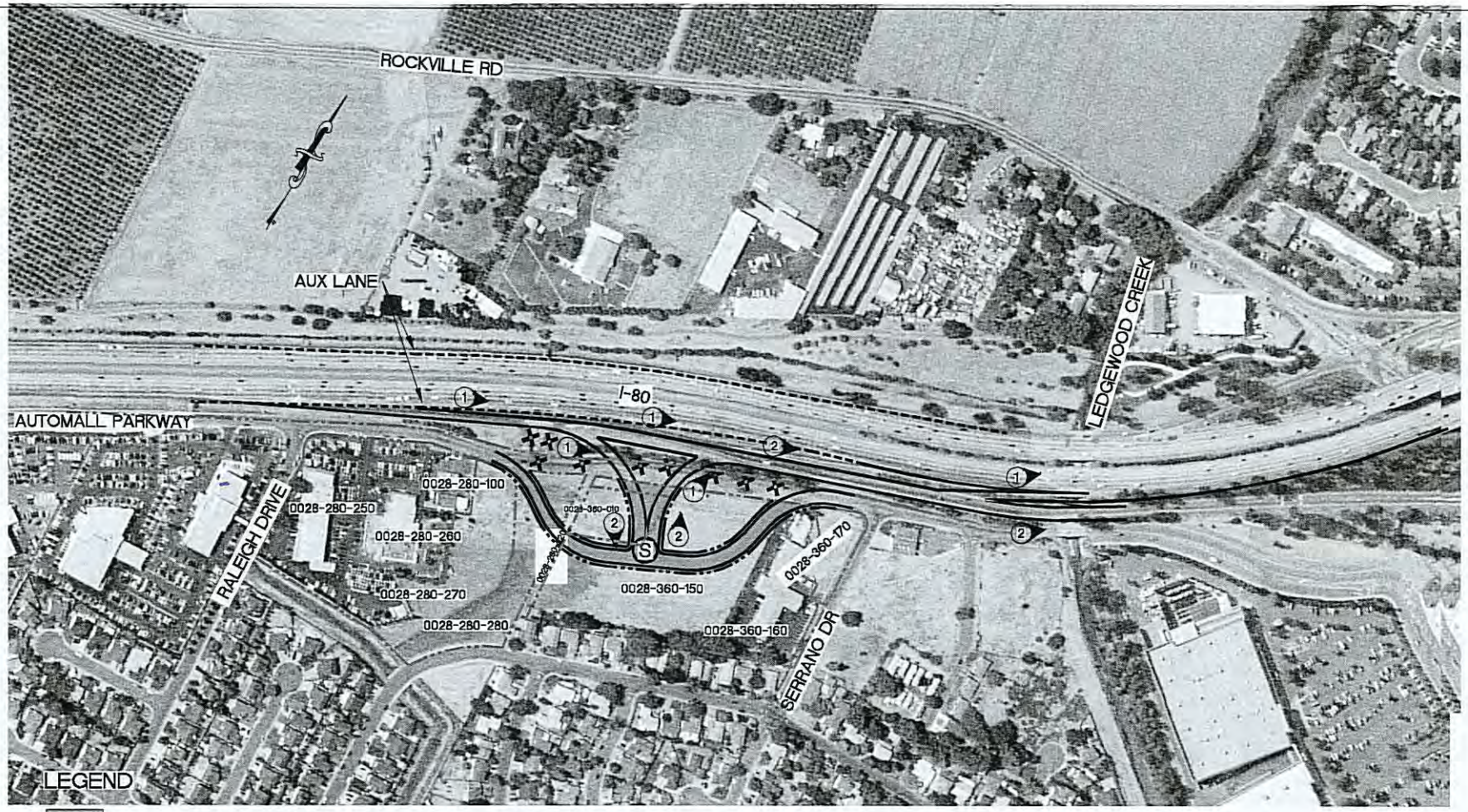
EXISTING NORTH FAIRFIELD AVENUE OVERCROSSING BRIDGE WITH HOOK RAMP AT TEXAS

I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

SEGMENT 6

CITY OF FAIRFIELD N. TEXAS ST/LYON RD INTERCHANGE IMPROVEMENT

Figure 5-85



LEGEND

RIGHT OF WAY TAKE

SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $7,800,000

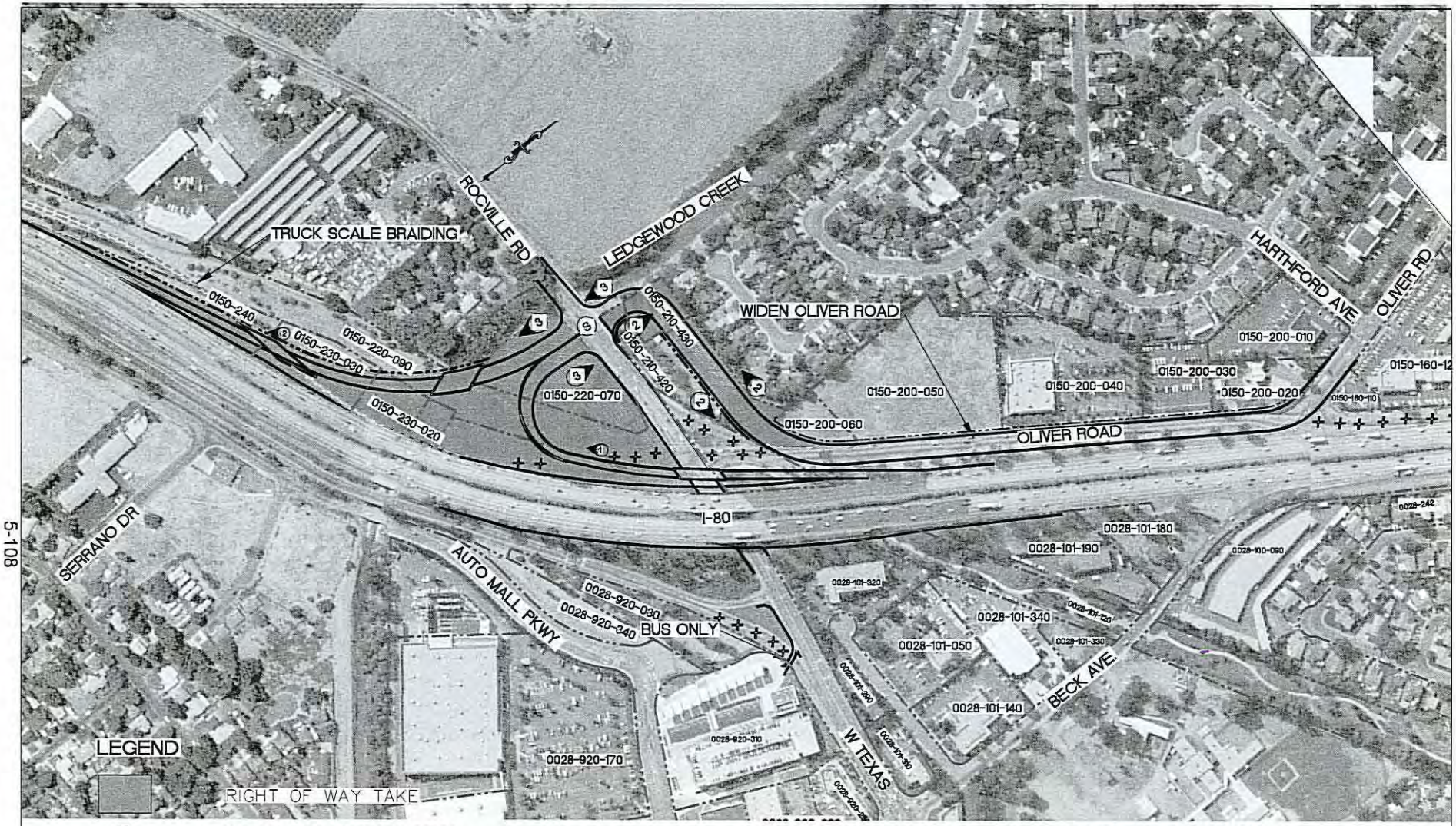
I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF FAIRFIELD MAGELLAN RD

MAGELLAN RD / AUTOMALL PARKWAY

INTERCHANGE IMPROVEMENT Figure 5-86



Ⓢ SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $34,300,000

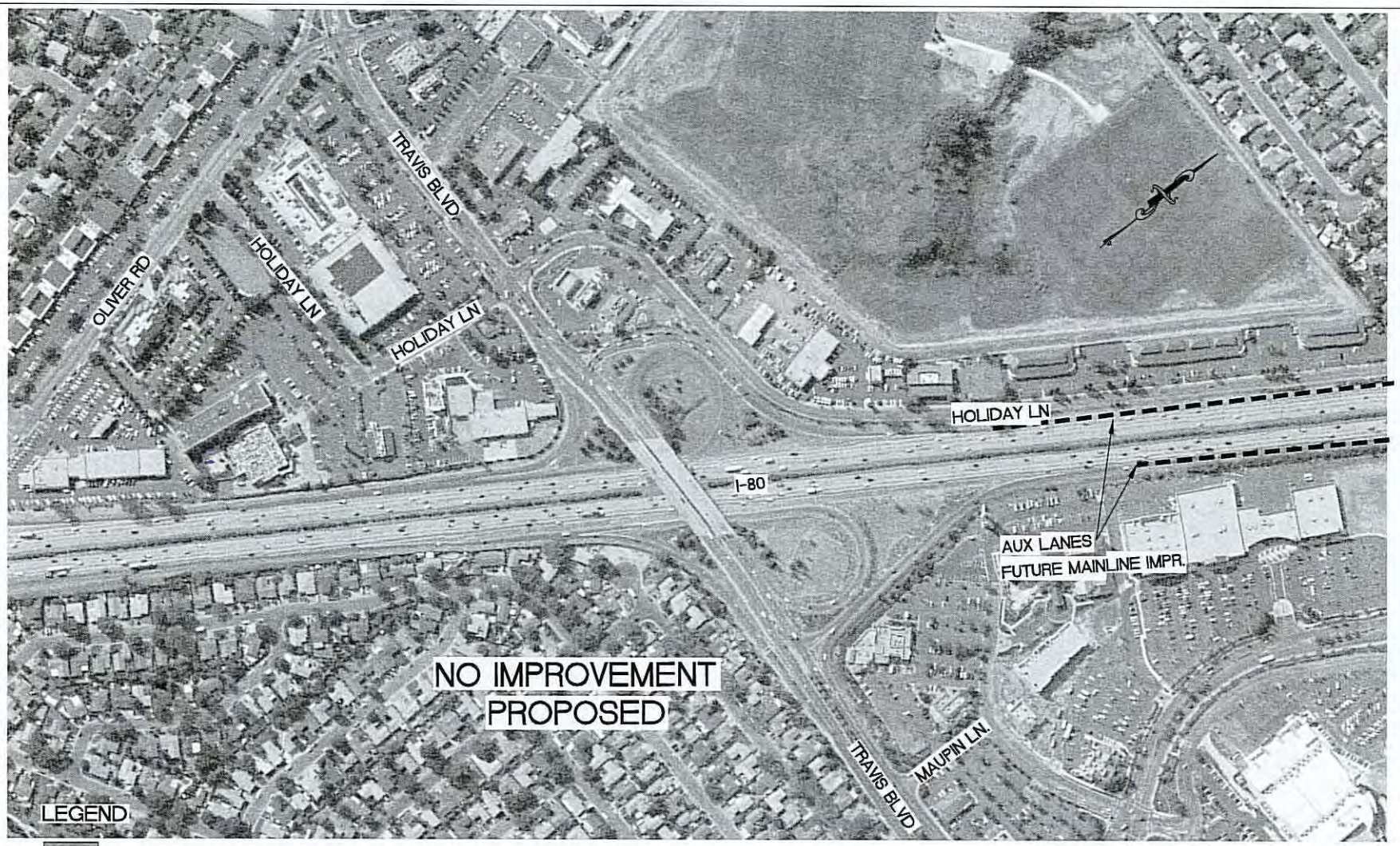
I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF FAIRFIELD

W TEXAS/ROCKVILLE/BECK/OLIVER INTERCHANGE IMPROVEMENT

Figure 5-87



LEGEND

- RIGHT OF WAY TAKE
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF FAIRFIELD TRAVIS BLVD.

INTERCHANGE IMPROVEMENT

Figure 5-88

LEGEND

- RIGHT OF WAY TAKE
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF FAIRFIELD
AIRBASE PKWY/WATERMAN BLVD
INTERCHANGE

Figure 5-89

5.4.4 Vacaville

Alamo Drive/Merchant Street/I-80
This project, illustrated in Figure 5-90, would improve the existing eastbound off-ramp and westbound on-ramp. The eastbound off-ramp would be reconstructed to directly intersect with Alamo Drive. This improvement would require the reconfiguration of Butcher Road to accommodate the new ramp geometry. The westbound on-ramp would be widened to two lanes, with the addition of an auxiliary lane from the Alamo Drive westbound on-ramp to the Pena Adobe westbound off-ramp.

California Drive Over-crossing and Cherry Glen Road Off-Ramp
This improvement, illustrated in Figure 5-91, would construct a new over-crossing of I-80 connecting California Drive with Cherry Glen Road on the north side of I-80. The new roadway would cross Laguna Creek once with the proposed alignment. The primary purpose of the new over-crossing would be to provide much needed traffic relief to the I-80/Alamo Drive/Merchant Street interchange and an additional crossing of I-80. The existing isolated westbound off-ramp to Cherry Glen Road would be closed as a result of this project.

Lagoon Valley Road/Cherry Glen Road/I-80
Interchange improvements in this area, illustrated in Figure 5-92, would pivot off of the traffic analysis prepared for the recently proposed Lower Lagoon Valley commercial and residential development (*Lower Lagoon Valley Mixed-Use Development Traffic Impact Analysis* by Korve Engineering, Inc., February 2004). The eastbound I-80 on and off-ramps would be elongated to intersect Lagoon Valley Road south of their existing location, with the provision of a free right turn from the eastbound I-80 off-ramp to eastbound Lagoon Valley Road. Nelson Road would be vacated and converted into a Class I bike path west of Lagoon Valley Road. On the north side of the interchange, the westbound on and off-ramps would be converted into a standard Caltrans Type L-9 interchange. Both the eastbound and westbound ramp terminal intersections would be signalized, as would the Lagoon Valley Road/Rivera Road intersection. The proposed improvements would require the demolition of buildings and right-of-way acquisition.

Pena Adobe Road/Cherry Glen Road/I-80
This project, illustrated in Figure 5-93, relocates Rivera Road south of its current location. The interchange would be converted into a Caltrans standard Type L-9 interchange in both directions. The intersection of Cherry Glen Road, Pena Adobe Road, and Rivera Road on the south side of the freeway would be signalized. Cherry Glen Road would need to be relocated westward to provide standard Caltrans intersection spacing. Modifications to the existing over-crossing structure would be required to accommodate the new westbound loop on-ramp. Right-of-way acquisition would be necessary on both sides of I-80 to implement the improvement described in Figure 5-93.

Davis Street/I-80
As illustrated in Figure 5-94, no additional improvements to this interchange are proposed at this time. The addition of an eastbound auxiliary lane from the Davis Street on-ramp to the off-ramp to Peabody Road is included as a main-line improvement project.

Peabody Road/Mason Street/Elmira Road/I-80
As illustrated in Figure 5-95, no additional improvements to this interchange are proposed at this time.

Midway Road/I-80
This project, as illustrated in Figure 5-96, would improve the geometry of the existing Midway Road interchange with I-80 by converting it into a Caltrans standard Type L-9 interchange. The new loop ramps, illustrated in Figure 5-96, would require the demolition of the existing on and off-ramps on the north side and the off-ramp on the south side of the freeway. The relocation of Oday Road would be necessary to satisfy intersection spacing requirements. Acquisition of right-of-way would be required to relocate Oday Road and construct the new on and off-ramps.

Meridian/Weber Road/I-80
This project, as illustrated in Figure 5-97, would improve the geometry of the existing I-80/Meridian/Weber Road interchange to a standard design. The interchange is proposed to be converted into a Type L-7 interchange south of the freeway and a Type L-9 interchange north of I-80. The new loop ramps would require the demolition of the existing off-ramps on both sides of the freeway and the construction of new on- and off-ramps, which would require right-of-way acquisition.

LEGEND

RIGHT OF WAY TAKE

(S) SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $10,500,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF VACAVILLE ALAMO DR/MERCHANT ST INTERCHANGE E.B. IMPROVEMENT

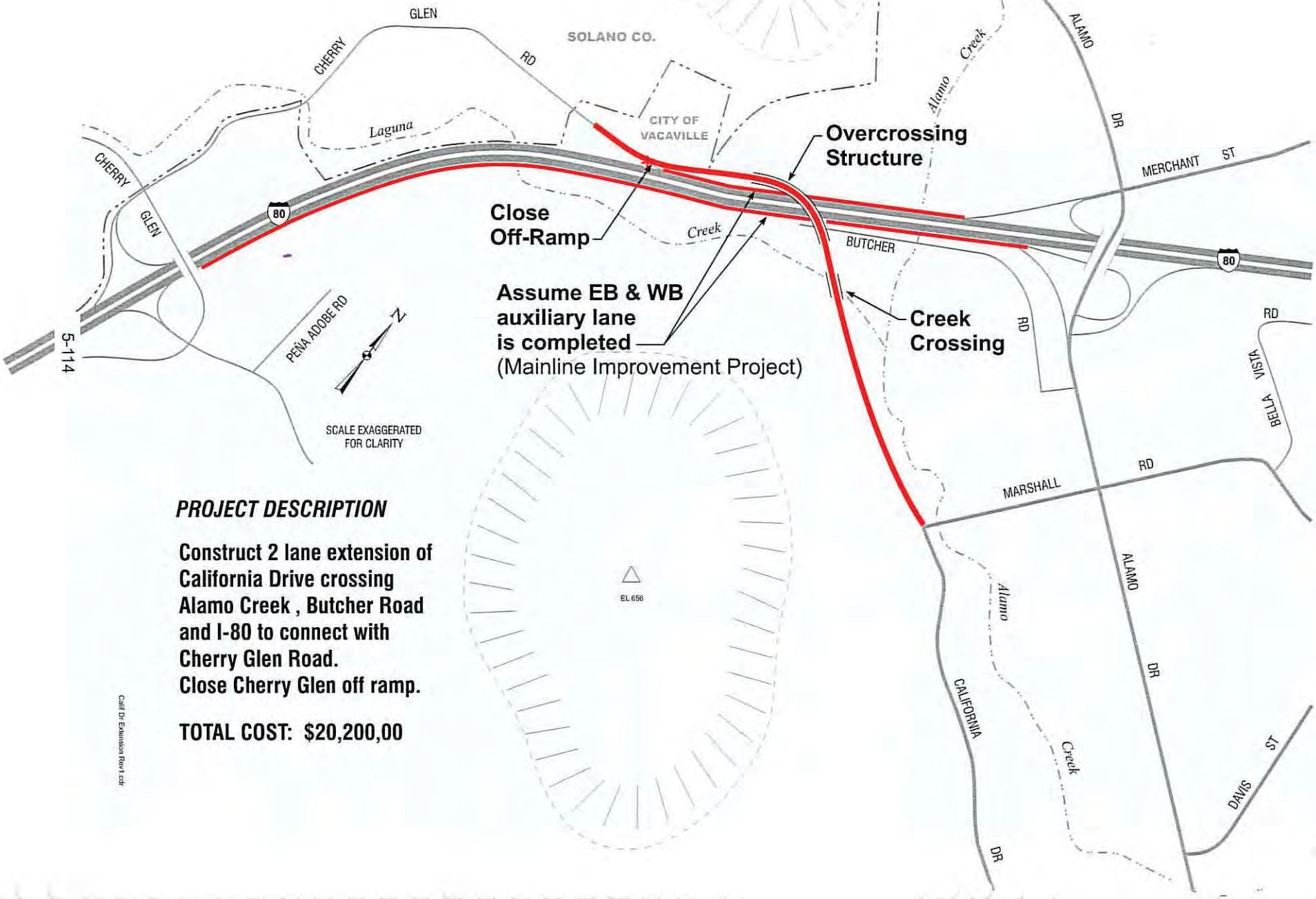
Figure 5-90

SEGMENT 6 PROJECT

LOCAL INTERCHANGE IMPROVEMENT – CITY OF VACAVILLE

CALIFORNIA DRIVE EXTENSION / CHERRY GLEN RD WB OFF-RAMP

Figure 5-91

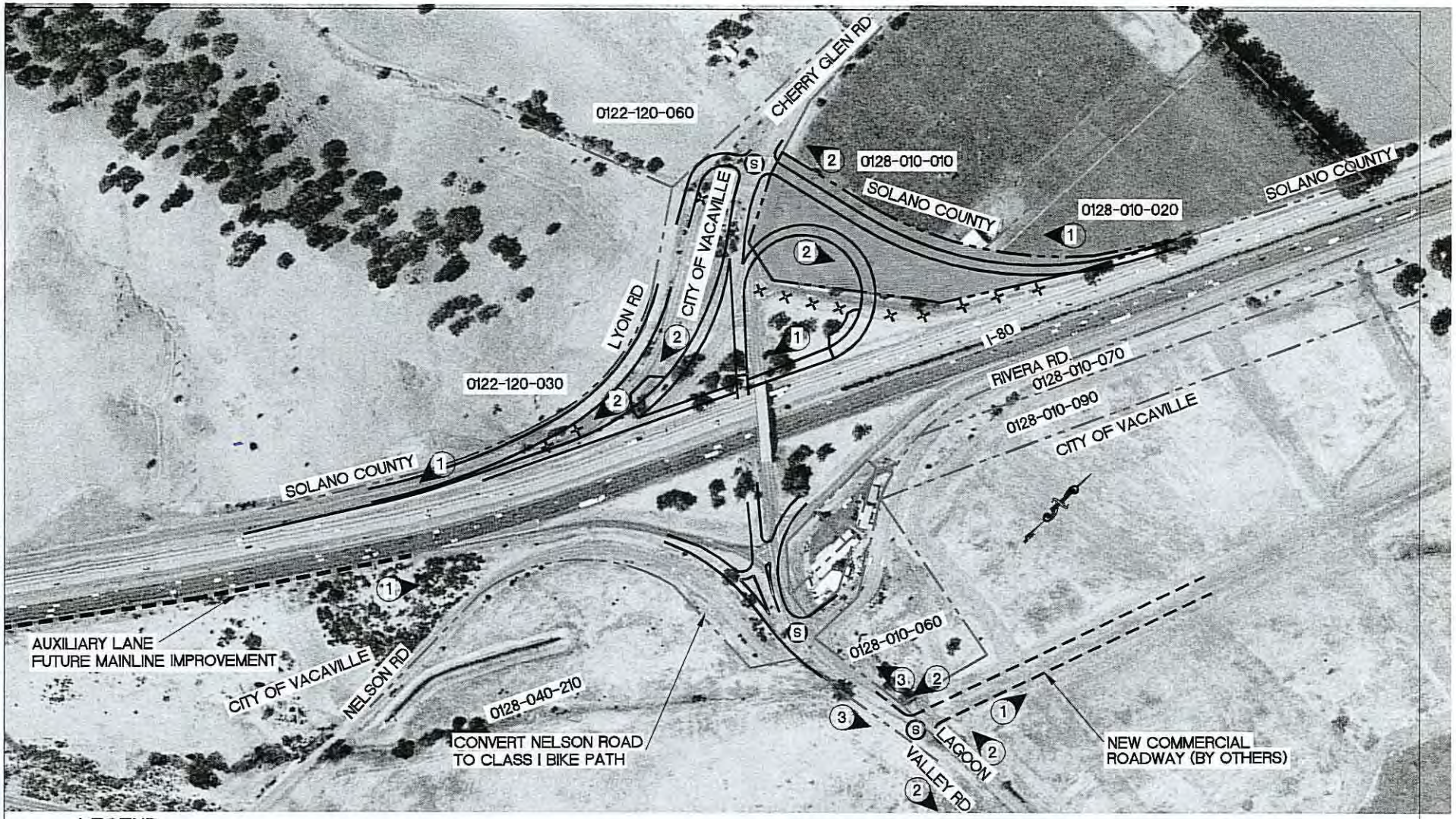


PROJECT DESCRIPTION

Construct 2 lane extension of California Drive crossing Alamo Creek , Butcher Road and I-80 to connect with Cherry Glen Road.
Close Cherry Glen off ramp.

TOTAL COST: $20,200,00

Calif Dr Extension Rev1.cdr



LEGEND

RIGHT OF WAY TAKE

SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

Korve Engineering

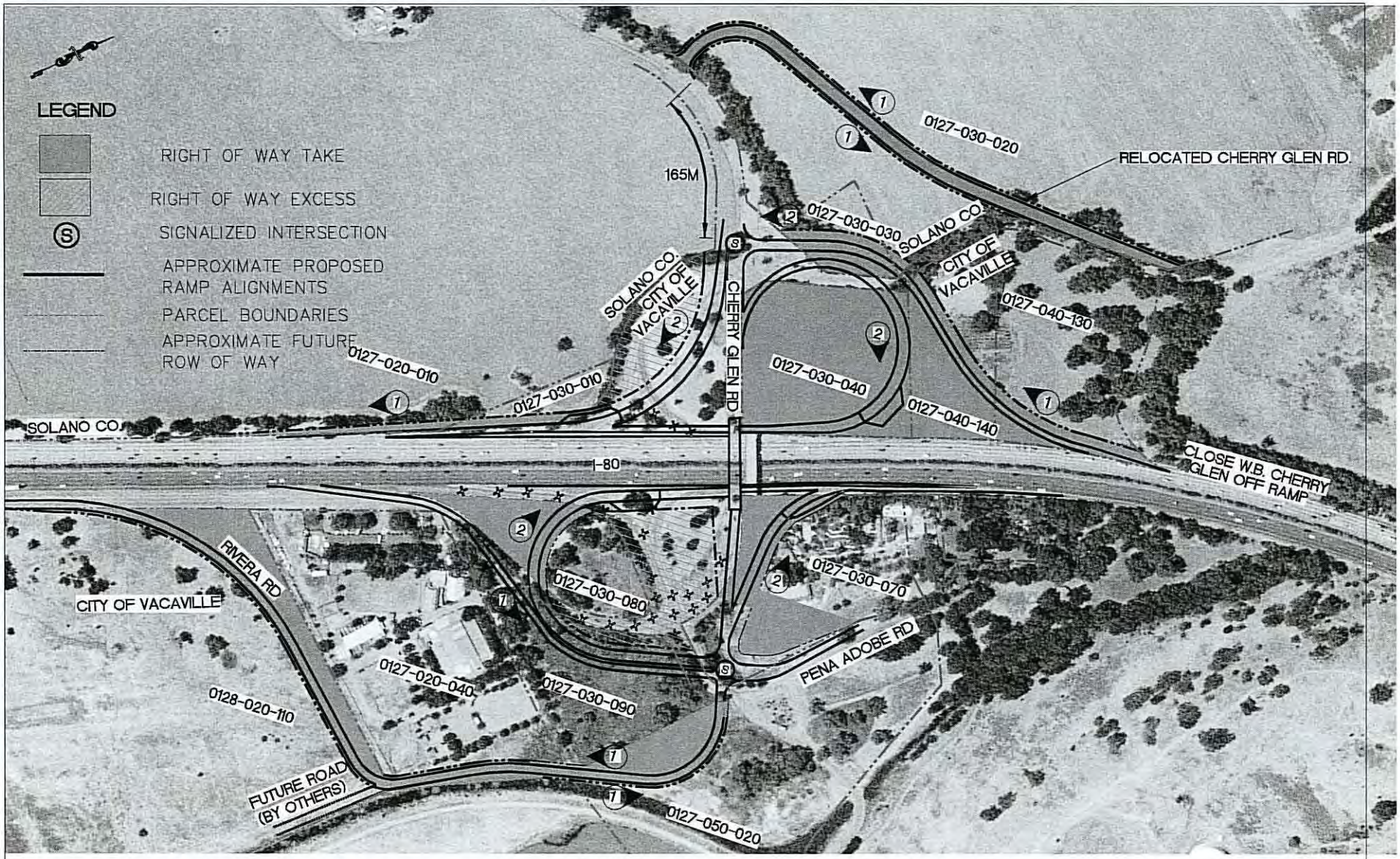
ESTIMATED COST: $14,400,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF VACAVILLE LOWER LAGOON VALLEY INTERCHANGE IMPROVEMENT

Figure 5-92



ESTIMATED COST: $30,600,000

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

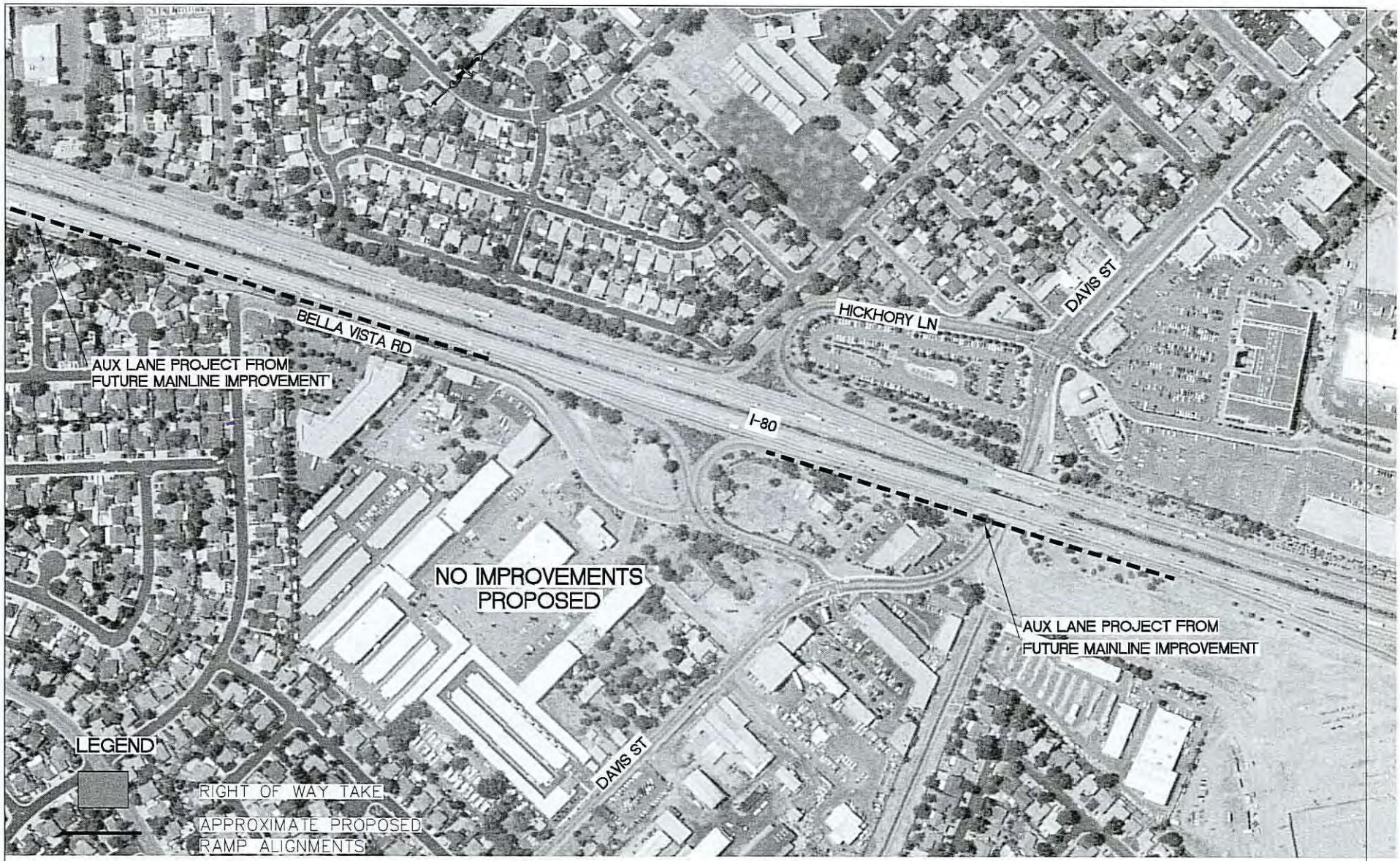
Korve Engineering

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF VACAVILLE PENA ADOBE RD/ CHERRY GLEN RD INTERCHANGE IMPROVEMENT

Figure 5-93



Korve Engineering

February 15, 2004

10000 0 5000 10000

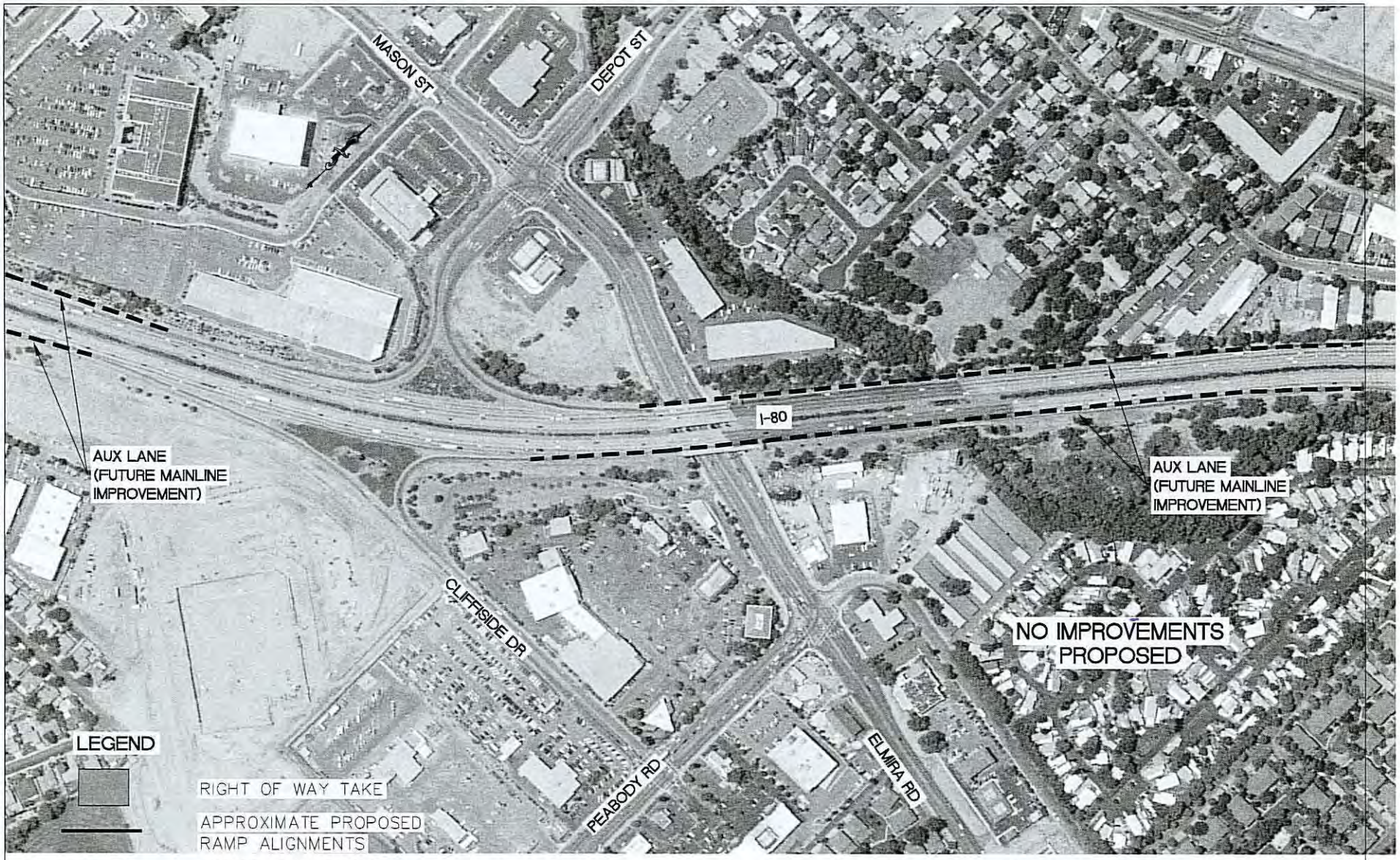
Scale: 1:5000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF VACAVILLE DAVIS ST INTERCHANGE

Figure 5-94



Korve Engineering

February 15, 2004

10000 0 5000 10000

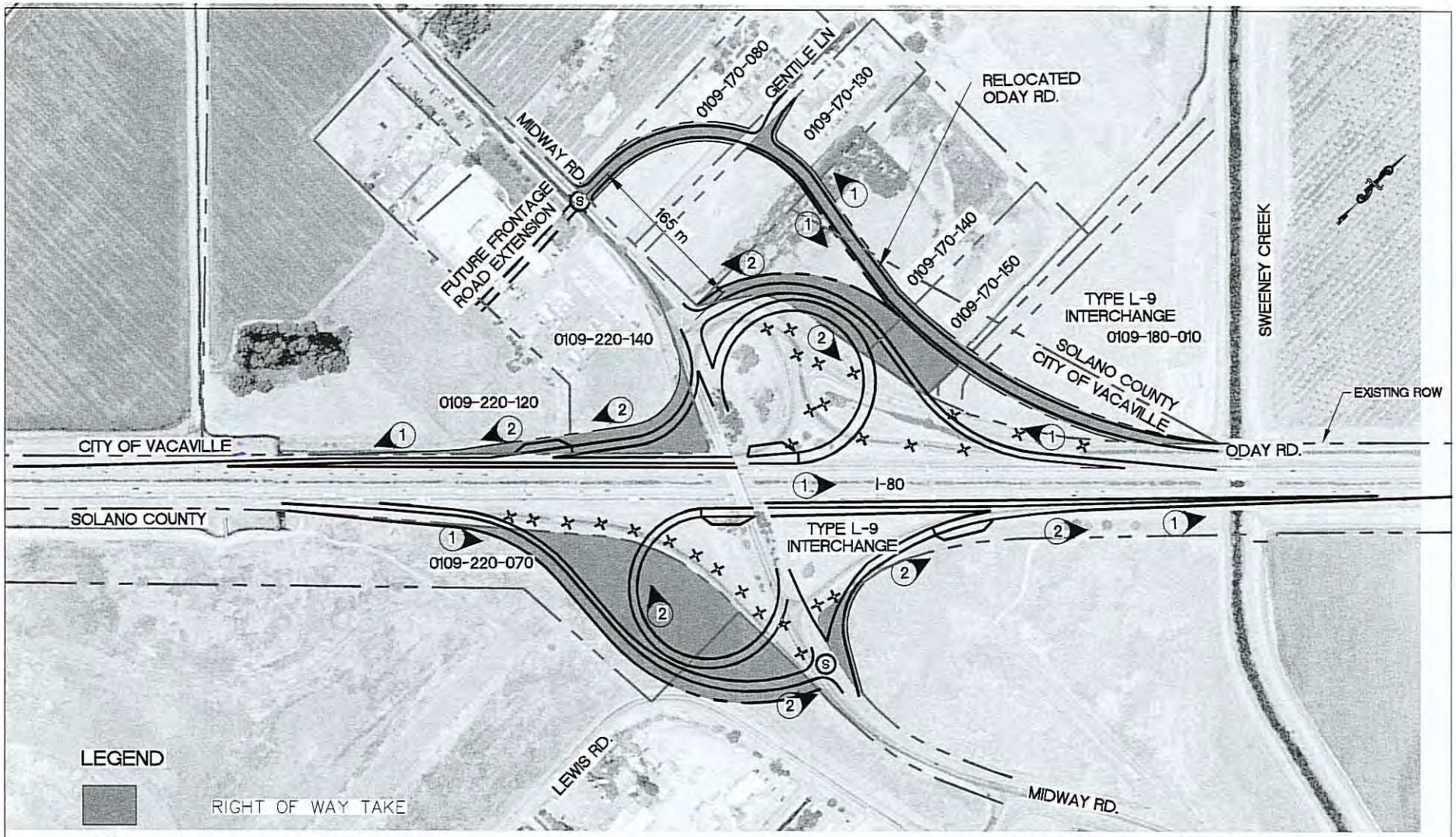
Scale: 1:5000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 6

CITY OF VACAVILLE
PEABODY RD/MASON ST INTER-
CHANGE IMPROVEMENT

Figure 5-95



SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $24,000,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 7

CITY OF VACAVILLE MIDWAY ROAD INTERCHANGE IMPROVEMENT

Figure 5-96

Febuary 15, 2004

10000 0 5000 10000

Scale: 1:5000

Korve Engineering

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 7

CITY OF VACAVILLE MERIDIAN RD/ WEBER RD INTERCHANGE IMPROVEMENT

Figure 5-97

5.4.5 Vallejo

Tennessee Street/I-80
The identified interchange improvement for Tennessee Street at I-80 would require the demolition of all four existing I-80 ramps and their subsequent replacement with a standard single point diamond (Type L-13) interchange. This new interchange, illustrated in Figure 5-98, would improve capacity and safety. A new structure and traffic signal would be required to accommodate this type of interchange. The Humboldt Street approach to Tennessee Street would be widened by one lane to provide additional turning movements to the new ramps. Admiral Callaghan Road would need to be relocated east of the freeway to allow clearance for the new eastbound on-ramp. Right-of-way acquisition would be a major item for this improvement, including an entire block from Springs Road to Tennessee Street between intersections.

Redwood Street/I-80 – Alternative 1
Two alternatives for improving the Redwood Street/I-80 interchange have been developed. The addition of HOV lanes to this section of I-80 would require the relocation of the eastbound I-80 off-ramp to Admiral Callaghan Road/Redwood Street. This relocation would necessitate the widening of the eastbound off-ramp's approach to the Redwood Street ramp terminal intersection to four lanes. In addition, the Admiral Callaghan Road approach to Redwood Street would be widened by one lane to provide for additional turning movements. To improve the operation of the Redwood Street/I-80 Ramps/Fairgrounds Drive five-legged intersection, the westbound off-ramp from I-80 would be relocated south to intersect with Fairgrounds Drive. This modification would require the widening of Fairgrounds Drive to four lanes. Right-of-way acquisition would be minimal. This alternative is shown in Figure 5-99. This improvement would complement the extension of Turner Parkway across I-80 to Fairgrounds Drive.

Redwood Street/I-80 – Alternative 2
Under this second alternative, illustrated in Figure 5-100, the existing interchange would be demolished and replaced with a standard single point diamond (Type L-13) interchange. This new interchange would improve the interchange's capacity while minimizing right-of-way acquisition. A new structure and traffic signal would be required to accommodate this interchange. As illustrated in Figure 5-100, many of the ramp improvements in Alternative 1 would also be pursued in this alternative.

Georgia Street/I-80
This project, illustrated in Figure 5-101, would widen the approaches of the westbound I-80 on- and off-ramps and the eastbound on-ramp to Georgia Street by one lane. This widening would be pursued to improve the operations of the ramp terminal intersections. Right-of-way acquisition would be minimal.

American Canyon Road/I-80 – Alternative 1
This project, illustrated in Figure 5-102, includes widening of the approach of the westbound I-80 off-ramp to the ramp terminal intersection with American Canyon Road. The intersection of the westbound ramps with American Canyon Road would also be signalized, as recommended by the *American Canyon/Hiddenbrooke Parkway Interchange Project Traffic Study* (January 2002, Scenario 2). South of the freeway, a roundabout would be installed to serve traffic moving between the eastbound on-and off-ramps, Perkins Road, McGary Road and Hiddenbrooke Parkway. Right-of-way acquisition for this improvement would be minimal.

American Canyon Road/I-80 – Alternative 2
Alternative 2 for improvements to the American Canyon Road/I-80 interchange includes the same widening and signalization of the westbound ramps included in Alternative 1. However, the alternative is different south of the freeway, as illustrated in Figure 5-103. South of the freeway the alternative would close the existing eastbound off-ramp and relocate Perkins Road to the south to provide space for new hook ramps to and from Perkins Road, to provide for a more standardized design.

Glen Cove Drive/I-780
This improvement, illustrated in Figure 5-104, would improve the intersection of Lewis Avenue and Glen Cove Drive. This improvement would be necessary with the closure of the Cedar Street ramps proposed as part of improvements to the I-780/I-80 interchange. Those improvements would put additional traffic burden on the Lewis Road/Glen Cove Drive intersection. The existing median on Glen Cove Drive would be restriped to accommodate a northbound left turn lane to Lewis Avenue. Lewis Avenue would be widened by one lane to provide a left turn to Glen Cove Drive, and the intersection would be signalized.

LEGEND

RIGHT OF WAY TAKE

(S) SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

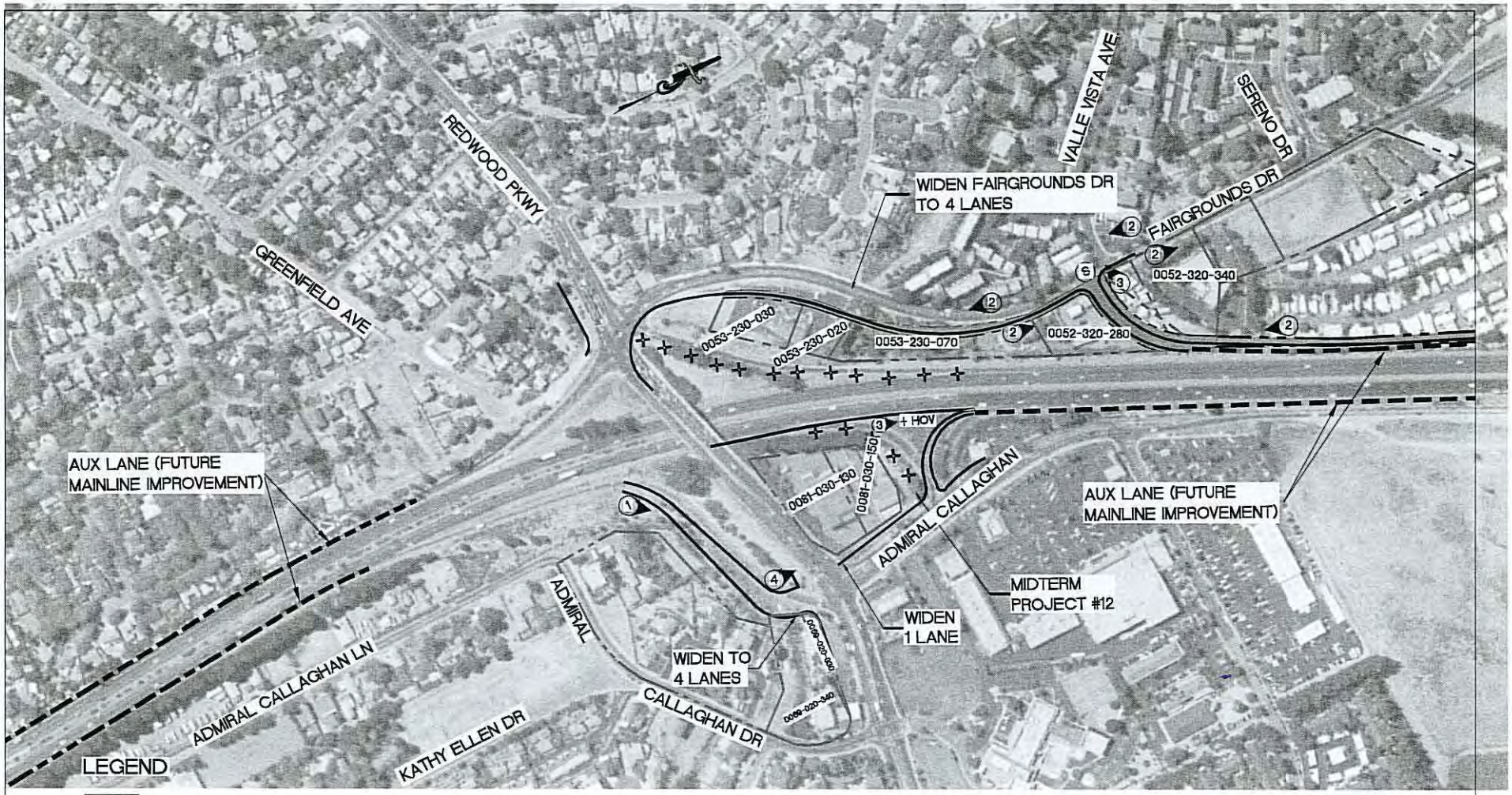
ESTIMATED COST: $66,400,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 2

CITY OF VALLEJO TENNESSE STREET INTERCHANGE IMPROVEMENT

Figure 5-98



RIGHT OF WAY TAKE

SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

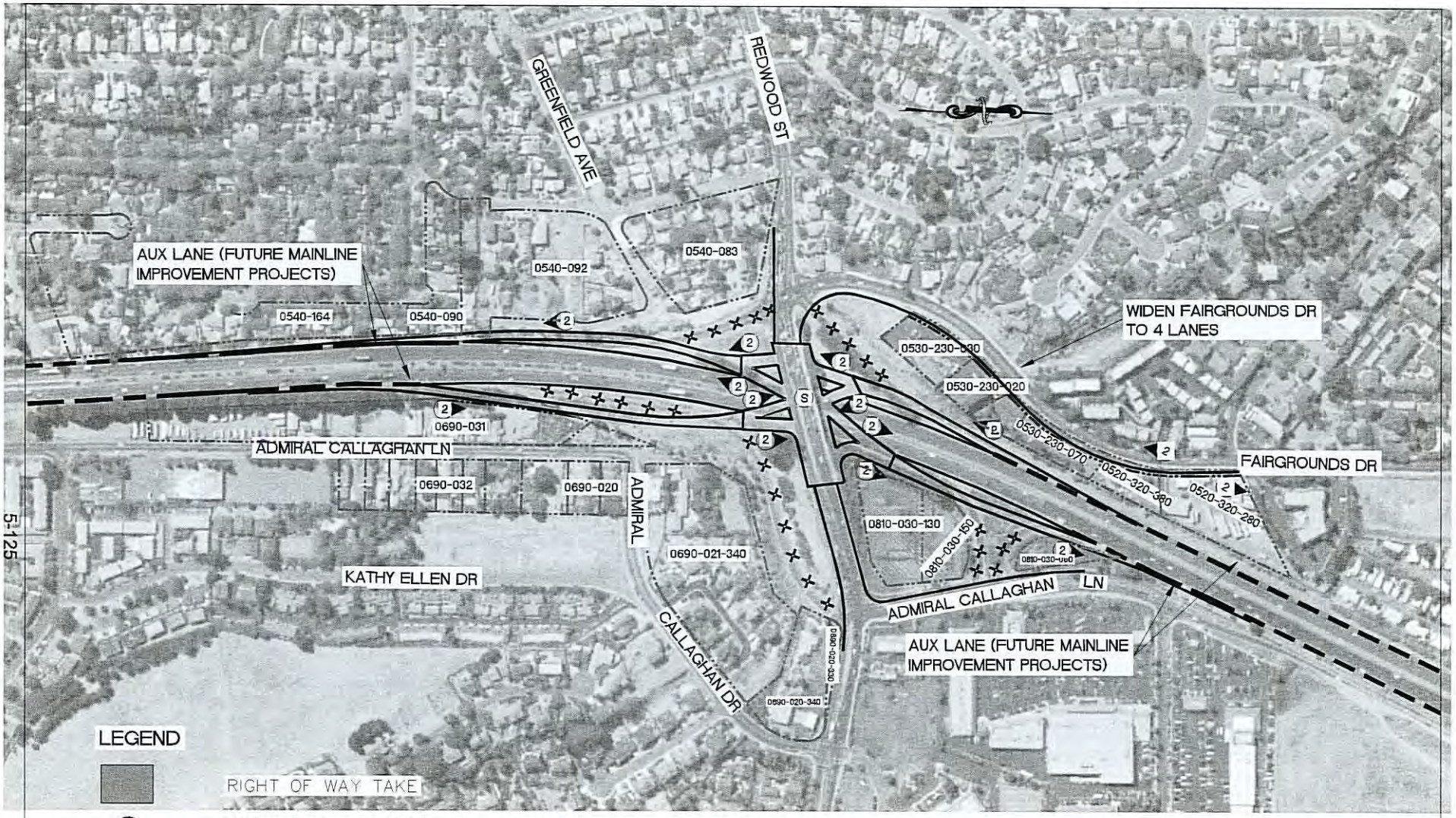
ESTIMATED COST: $12,800,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 2

CITY OF VALLEJO REDWOOD PKWY INTERCHANGE IMPROVEMENT (ALT 1)

Figure 5-99



LEGEND

RIGHT OF WAY TAKE

SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

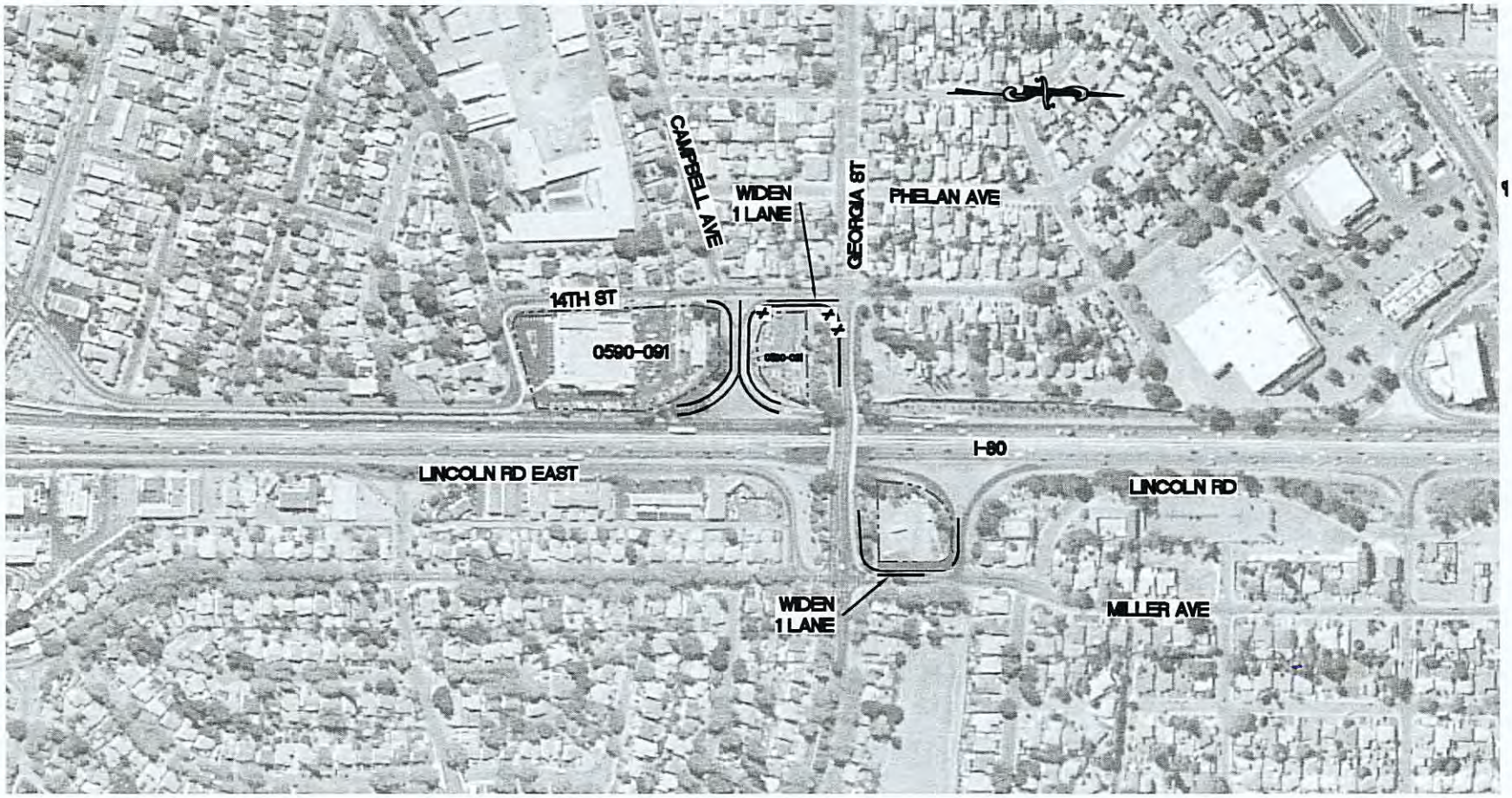
ESTIMATED COST: $52,100,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 2

CITY OF VALLEJO REDWOOD PKWY INTERCHANGE IMPROVEMENT (ALT 2)

Figure 5-100



LEGEND

- RIGHT OF WAY TAKE
- APPROXIMATE PRESENT RIGHT OF WAY
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15 2004

10000 0 5000 10000

Scale: 1:5000

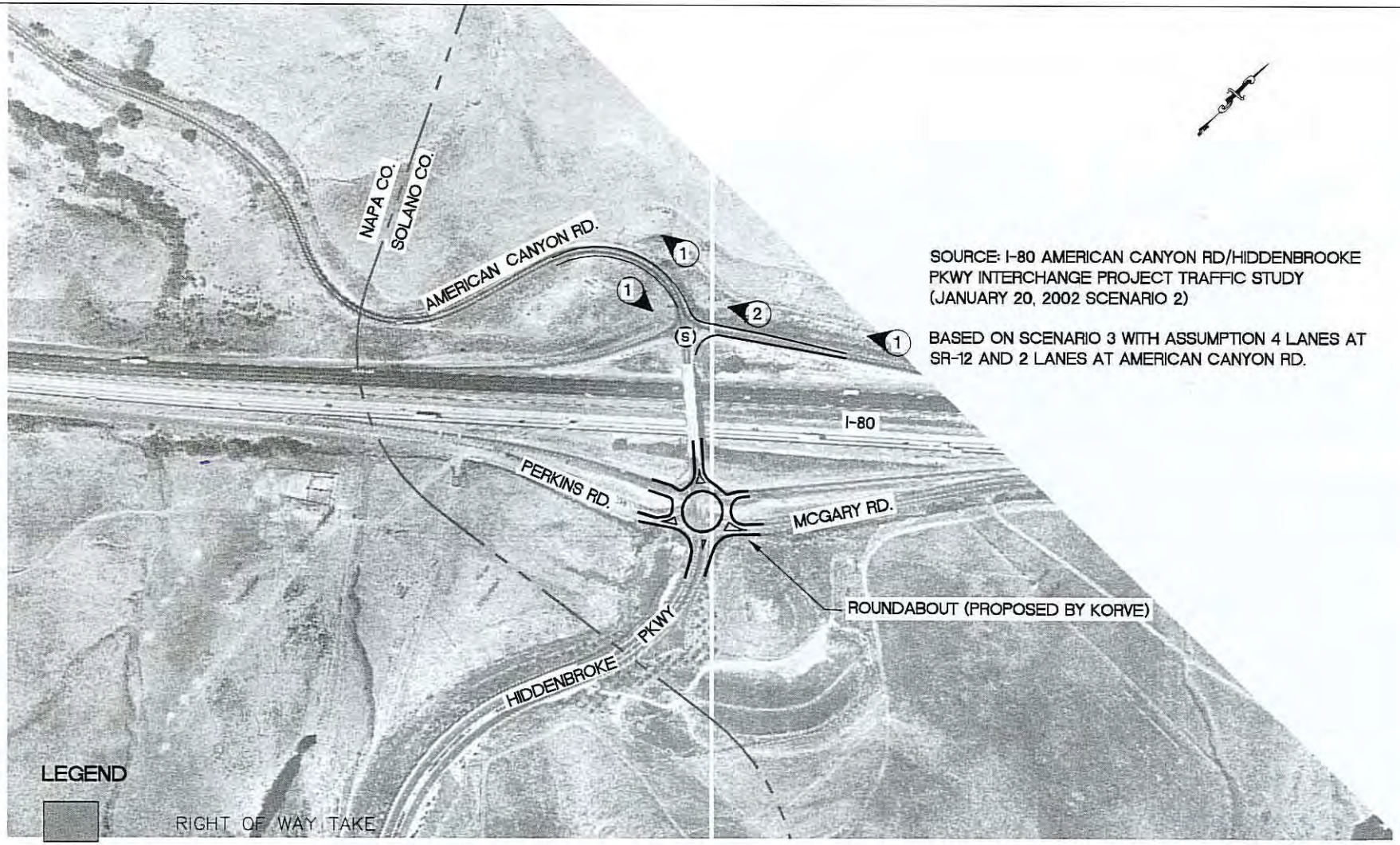
ESTIMATED COST: $1,500,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 2

CITY OF VALLEJO GEORGIA ST INTERCHANGE IMPROVEMENT

Figure 5-101



LEGEND

RIGHT OF WAY TAKE

(S) SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

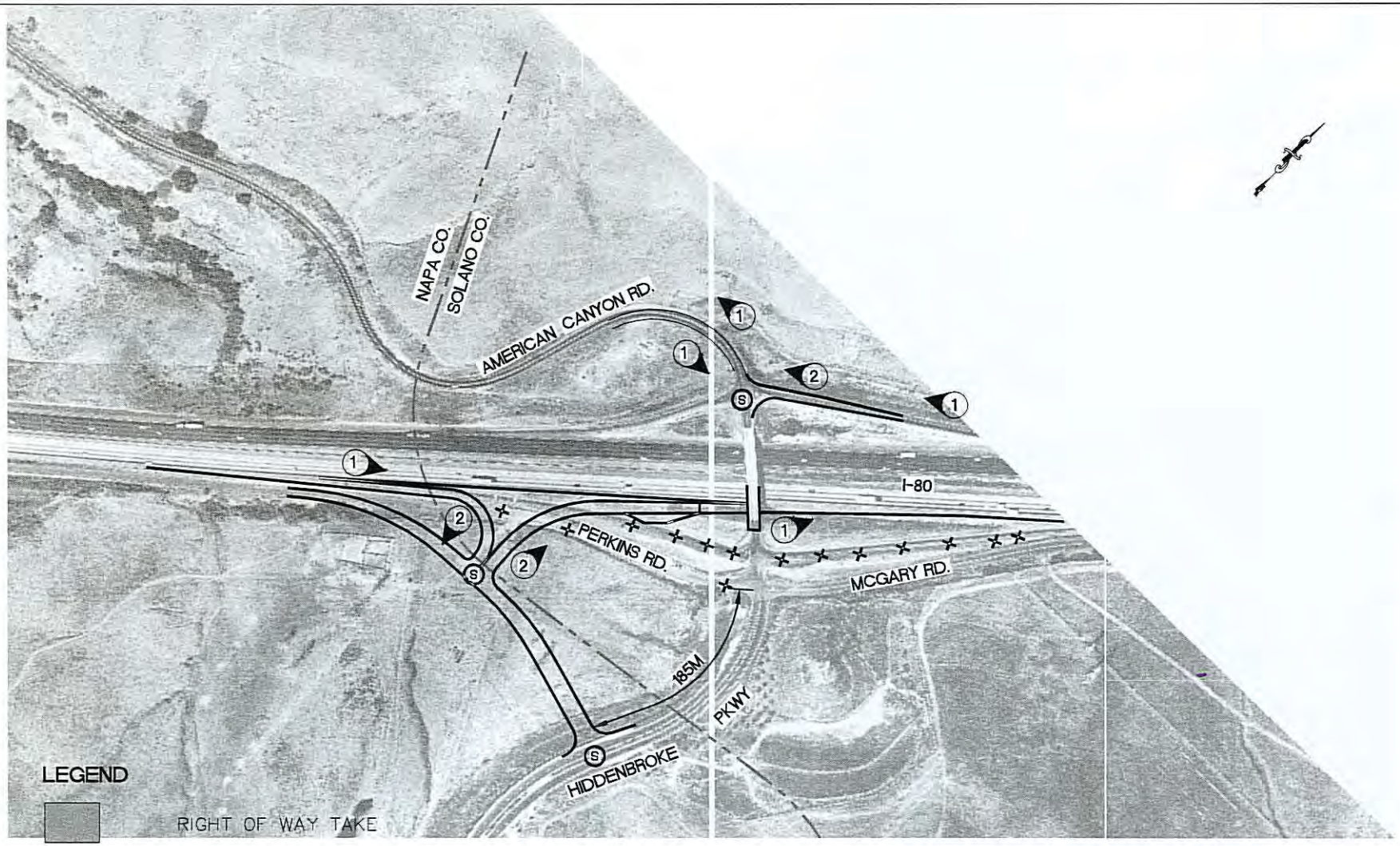
ESTIMATED COST: $2,200,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 5

CITY OF VALLEJO AMERICAN CANYON INTERCHANGE IMPROVEMENT (ALT 1)

Figure 5-102



LEGEND

RIGHT OF WAY TAKE

SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

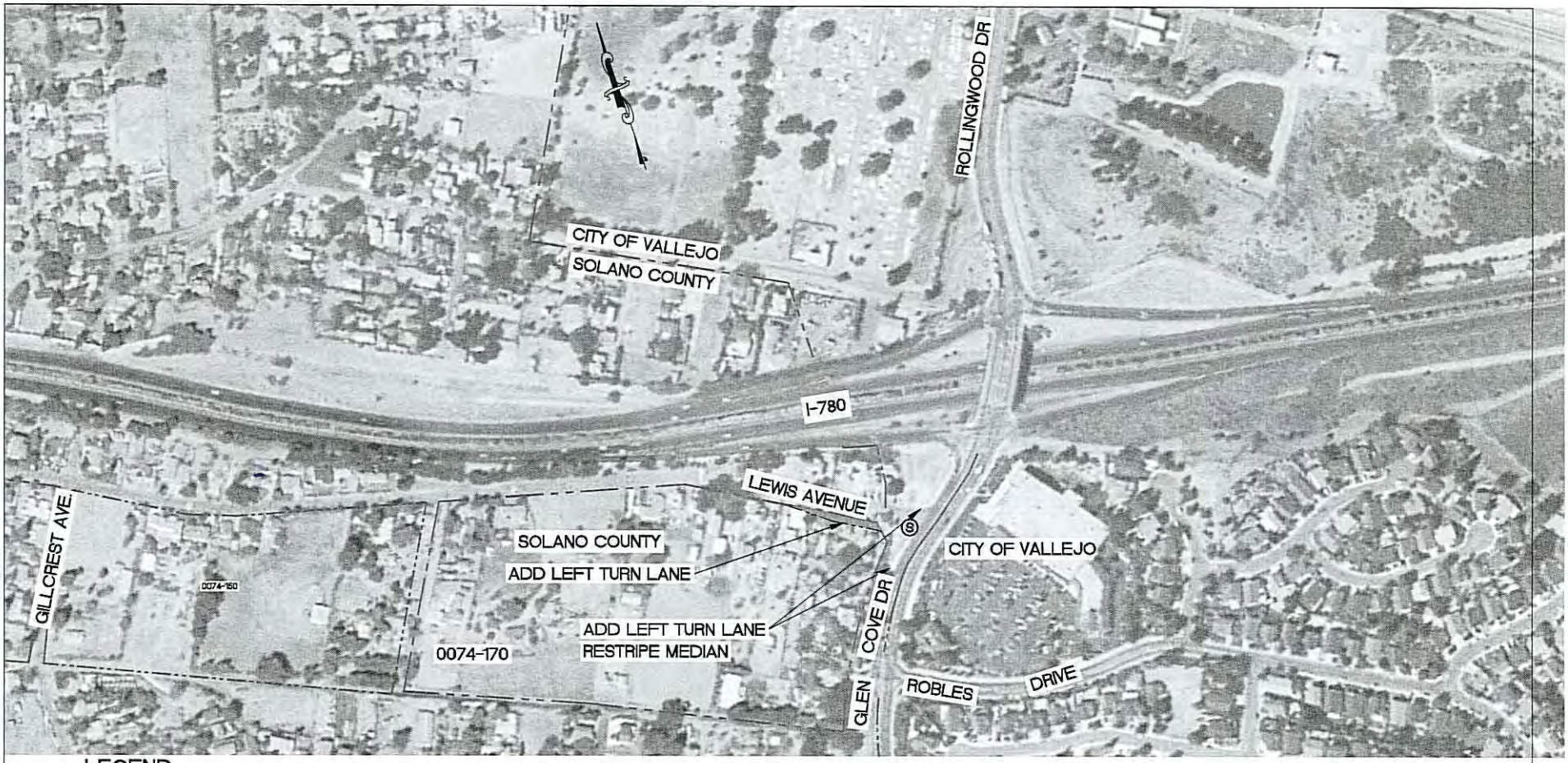
ESTIMATED COST: $8,400,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 5

CITY OF VALLEJO AMERICAN CANYON INTERCHANGE IMPROVEMENT (ALT 2)

Figure 5-103



LEGEND

RIGHT OF WAY TAKE

(S) SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $1,300,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 3

CITY OF VALLEJO
GLEN COVE INTERCHANGE IMPROVEMENT

Figure 5-104

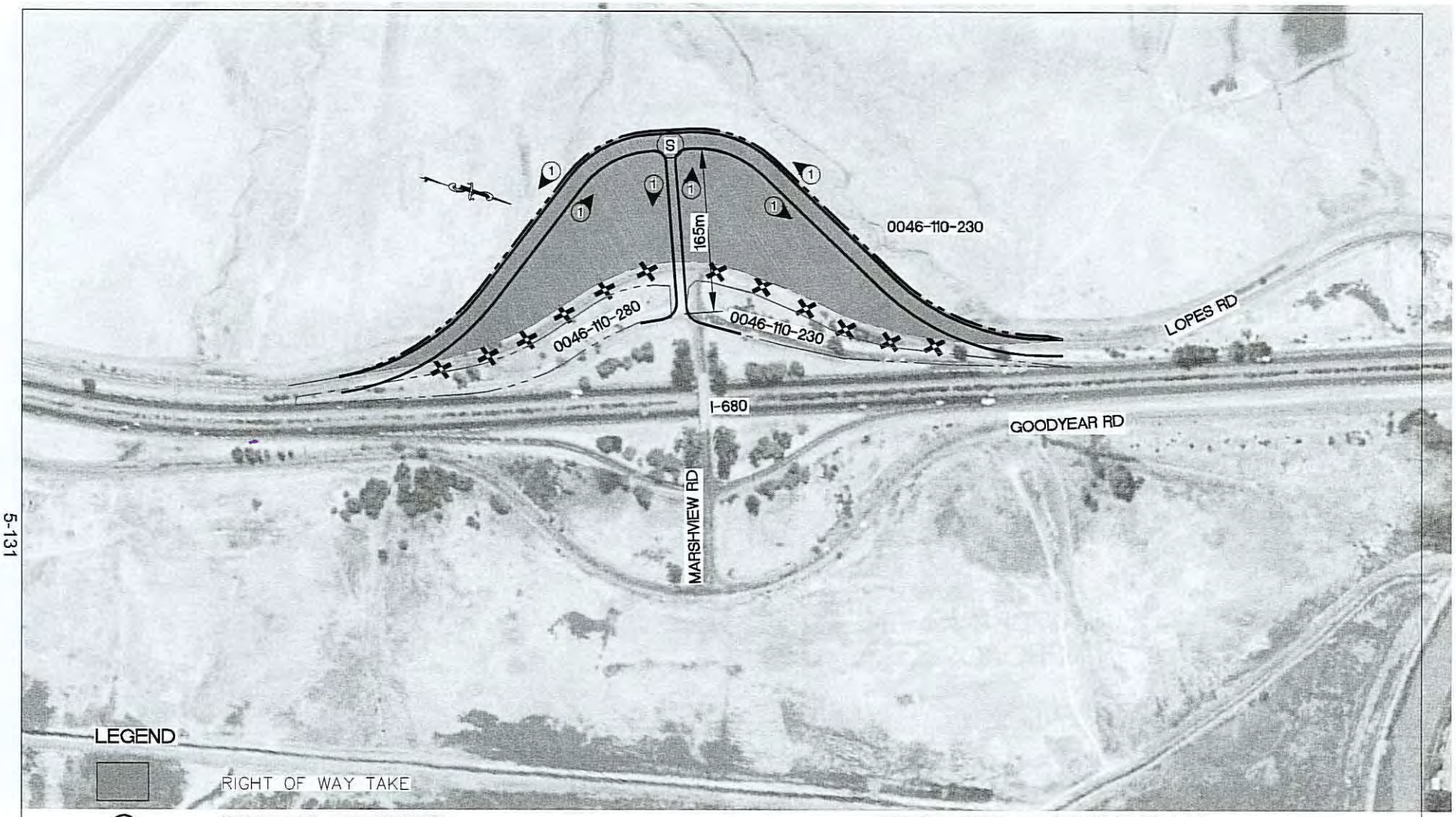
5.4.6 Solano County

Marshview Road/Goodyear Road/I-680
This project, illustrated in Figure 5-105, would relocate Lopes Road to satisfy Caltrans minimum intersection spacing criteria. The new intersection would be signalized and would require the elongation of Marshview Road to intersect at this new location. Additional right-of-way would be required for this improvement.

Kidwell Road/Sparling Lane/I-80
As illustrated in Figure 5-106, no additional improvements to this interchange are proposed at this time.

Parish Road/Goodyear Road/I-680
This project, illustrated in Figure 5-107, would relocate Lopes Road to satisfy Caltrans minimum intersection spacing criteria. The new intersection would be signalized and would require the elongation of Parish Road to intersect at this new location. Additional right-of-way would be required for this improvement.

SR-113 (North)/I-80
No additional improvements to this interchange are proposed at this time.



LEGEND

RIGHT OF WAY TAKE

(S) SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $7,800,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 4

SOLANO COUNTY MARSHVIEW RD/GOODYEAR RD INTERCHANGE IMPROVEMENT

Figure 5-105

LEGEND

- RIGHT OF WAY TAKE
- APPROXIMATE PROPOSED RAMP ALIGNMENTS
- PARCEL BOUNDARIES
- APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

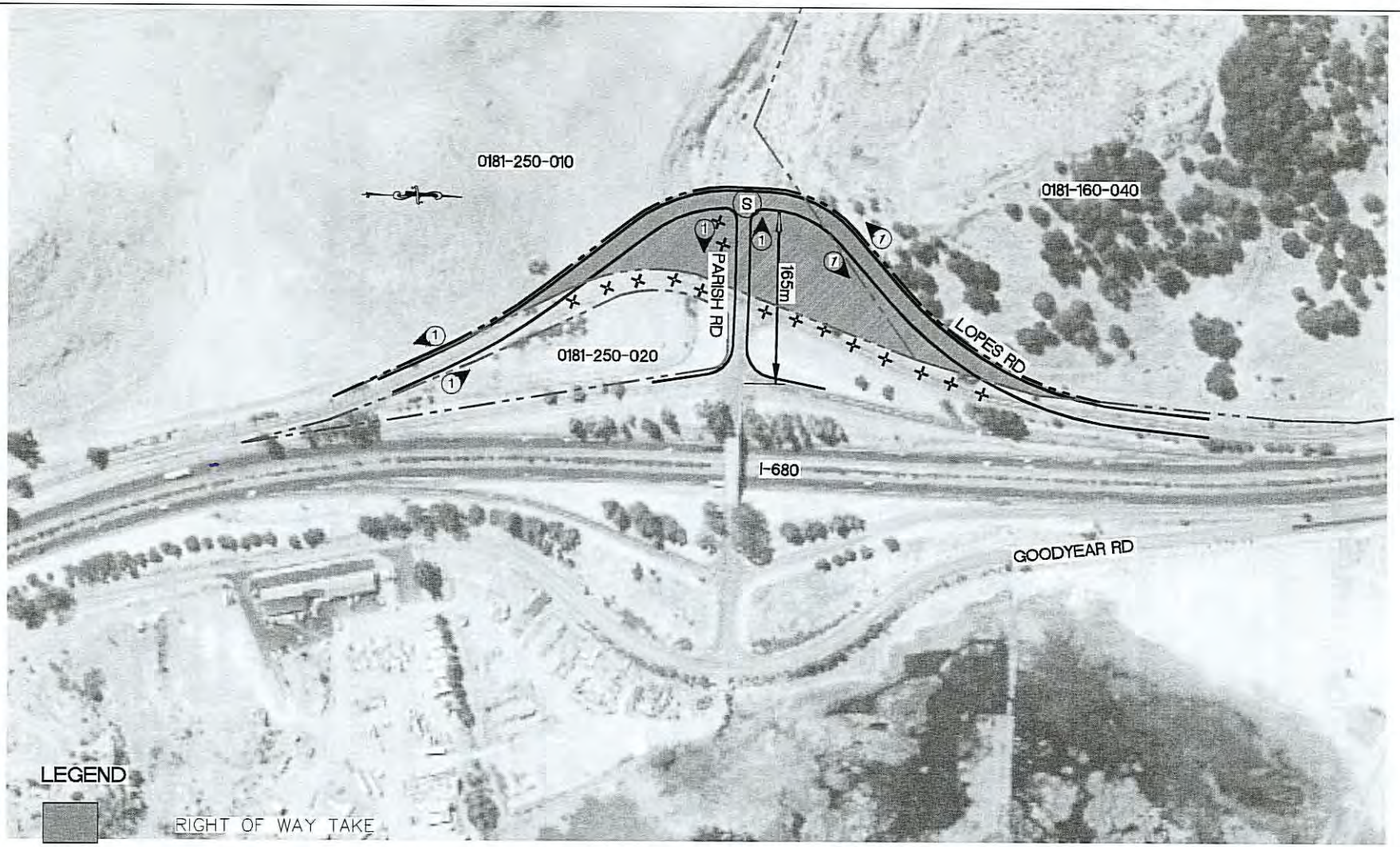
Scale: 1:5000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 7

SOLANO COUNTY
KIDWELL RD/SPARLING LN
INTERCHANGE

Figure 5-106



LEGEND

RIGHT OF WAY TAKE

(S) SIGNALIZED INTERSECTION

APPROXIMATE PROPOSED RAMP ALIGNMENTS

PARCEL BOUNDARIES

APPROXIMATE FUTURE ROW OF WAY

Korve Engineering

February 15, 2004

10000 0 5000 10000

Scale: 1:5000

ESTIMATED COST: $5,800,000

I-80 / I-680 / I-780 CORRIDOR STUDY

SEGMENT 4

SOLANO COUNTY
PARISH RD/GOODYEAR RD INTER
INTERCHANGE IMPROVEMENT

Figure 5-107

5.5 Future Transit Improvements

Although an estimated 75 percent of planned development in Solano County is within two miles of the three county freeways (I-80, I-680, I-780), the provision of direct, frequent bus connections between all major origins and destinations is not financially feasible. The current intercity bus services recognize this challenge and are dependent on patrons independently arriving at major pickup points. The Express Bus Service Plan and other transit-related improvements discussed in this section are a product of the I-80/I-680/I-780 Transit Corridor Study prepared by Wilbur Smith & Associates for the Solano Transportation Authority.

5.5.1 Express Bus Service Plan

5.5.1.1 Background

In 2002, STA adopted the Comprehensive Transportation Plan (CTP) that provided a solid framework for the Express Bus Service Plan developed as part of the I-80/I-680/I-780 Transit Corridor Study prepared by Wilbur Smith & Associates. The CTP presented a financially unconstrained Vision Plan for express bus services, along with tiered investment levels intended to guide implementation of the Vision Service Plan.

Figure 5-108 illustrates the year 2025 intercity bus element of the CTP. In addition to increasing service frequencies on current routes and extending/refining current bus routes, the *Vision Plan* proposes new service on SR 12. The CTP adopted the following five transit objectives, which were key inputs to the I-80/I-680/I-780 Transit Corridor Study.

1. Provide service with convenient access to developed areas.
2. Maximize transit usage and minimize congestion.
3. Maximize ridership and system cost effectiveness.
4. Provide a seamless multimodal system.
5. Support environmental justice goals.

5.5.1.2 Intercity Express Bus Service Plan Principles

In crafting the *Intercity Express Bus Service Plan* to meet the defined CTP objectives, the following proven planning principles were employed for the CTP and were used as the guiding principles for the I-80/I-680/I-780 Transit Corridor Study.

1. Link residential areas to job centers.
2. Serve major Solano County activity centers.
3. Balance access versus speed.
4. Link with regional transportation hubs.
5. Serve all downtowns in the corridor.
6. Minimize passenger transfer needs.
7. Achieve a minimum 20 percent farebox recovery ratio.
8. Make the system simple for passengers to understand.

Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-108

Comprehensive Transportation Plan
2025 Vision Intercity Bus Service Plan

Korve Engineering

5.5.1.3 The Service Vision Plan for 2030

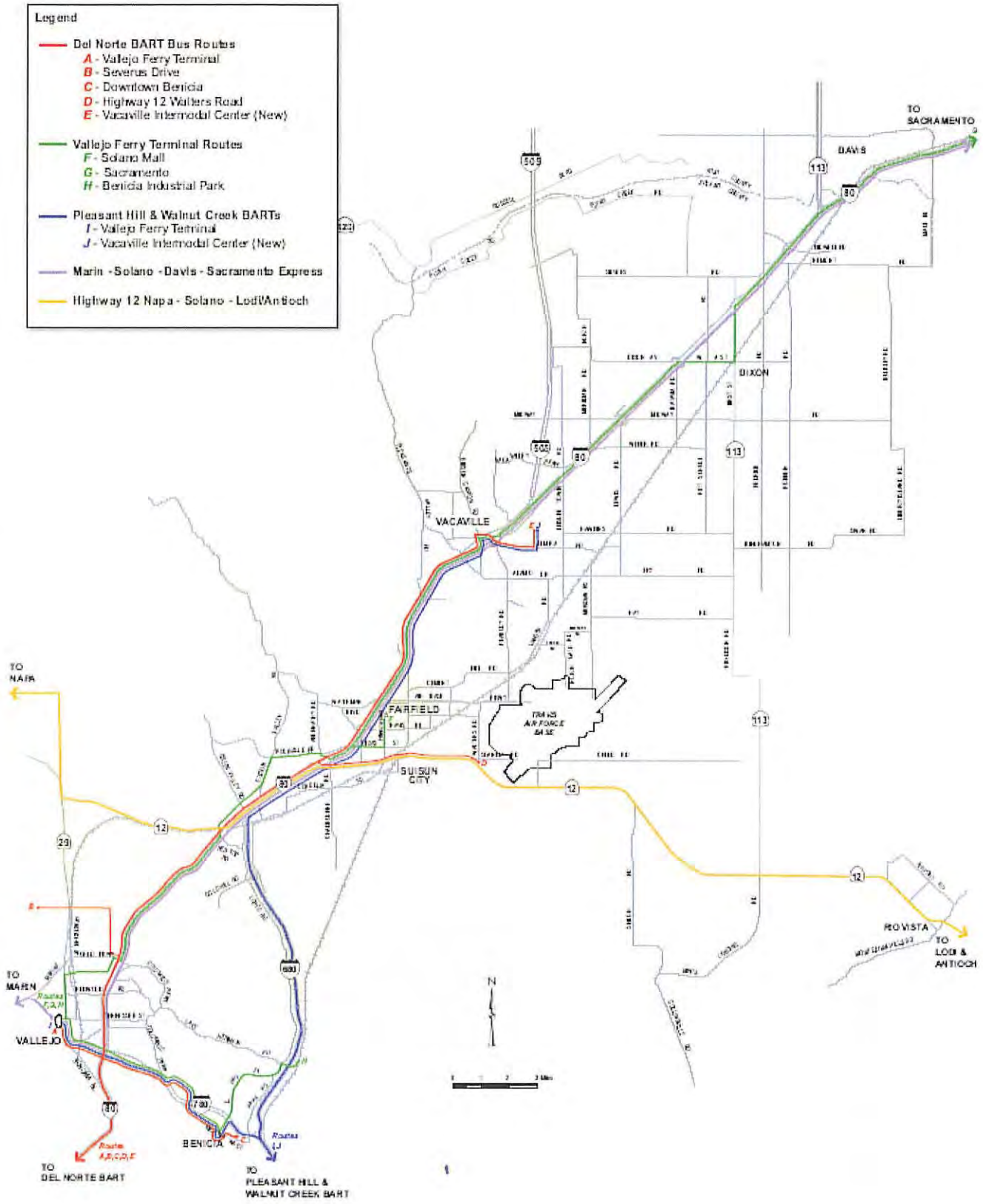
The I-80/I-680/I-780 Transit Corridor Study expanded on the Transit Element of the CTP. Figure 5-109 describes the I-80/I-680/I-780 intercity bus service refinements to the CTP and is an overview of the Vision Service Plan that serves the intercity transit needs in Solano County through 2030. Figure 5-110, Figure 5-111 and Figure 5-112 describe this plan in terms of services oriented to the El Cerrito del Norte BART station, the Vallejo Ferry Terminal and the Pleasant Hill BART station. The illustrations are intended to simplify the interwoven system of routes. Operationally, the strategic plan is to use the Fairfield Transportation Center as the schedule coordination point for intercity services.

El Cerrito del Norte BART Station Routes (Figure 5-110)
Five bus routes are envisioned to serve the El Cerrito del Norte BART station. Route 80 would remain unchanged except to include more frequent service. A new branch is also proposed from the current line. The branch would connect to Benicia from the Curtola Park and Ride lot, rather than going to the Ferry Terminal. The future Route 80A is similar to the current northern extension of Route 80 to Severs Drive and Mini Drive, except that it would bypass the Curtola Park and Ride lot and connect directly with El Cerrito del Norte BART. The future Route 90 is essentially an extension of the current Route 90 to better serve Suisun City residents. The future Route 91 is an extension of the current Route 91 that would better serve eastern Vacaville. The new Benicia Route would connect downtown Benicia with El Cerrito del Norte BART.

Route 80 – Route 80 has a one-way running time from York-Marin of approximately 25 minutes during peak commute hours. The planned completion of the HOV lane in Contra Costa County to reach the Carquinez Bridge should provide for more reliable running time, and reducing it to about 20 minutes. The HOV lanes on I-80 serve both directions and therefore cover both peak commute periods, so the off-peak direction buses should also have reliable service times. The trip length of this route would be short enough to allow more than one peak direction trip in each of the peak commute periods.

Some Route 80 trips would continue service north of the Sereno Transit Center; other Route 80 trips would "branch" to Benicia to provide direct service between Benicia and the El Cerrito del Norte BART station. Benicia-bound buses would use the Curtola Park and Ride stop until the Route 80 service frequencies are improved to less than 8 minutes during the peak hours. During off-peak hours, the Benicia variation of the Route 80 service would continue to use the Curtola Parkway stop.

Route 80A – Only a few Route 80 trips currently travel north to Mini Drive and Severs Drive. Passengers boarding in northern Vallejo take 25 minutes to get to the York-Marin Transit Center on their way to the El Cerrito del Norte BART Station. The Vision Plan proposes to provide a more direct service in bypassing York-Marin and going directly to El Cerrito del Norte BART from the Vallejo fairgrounds.



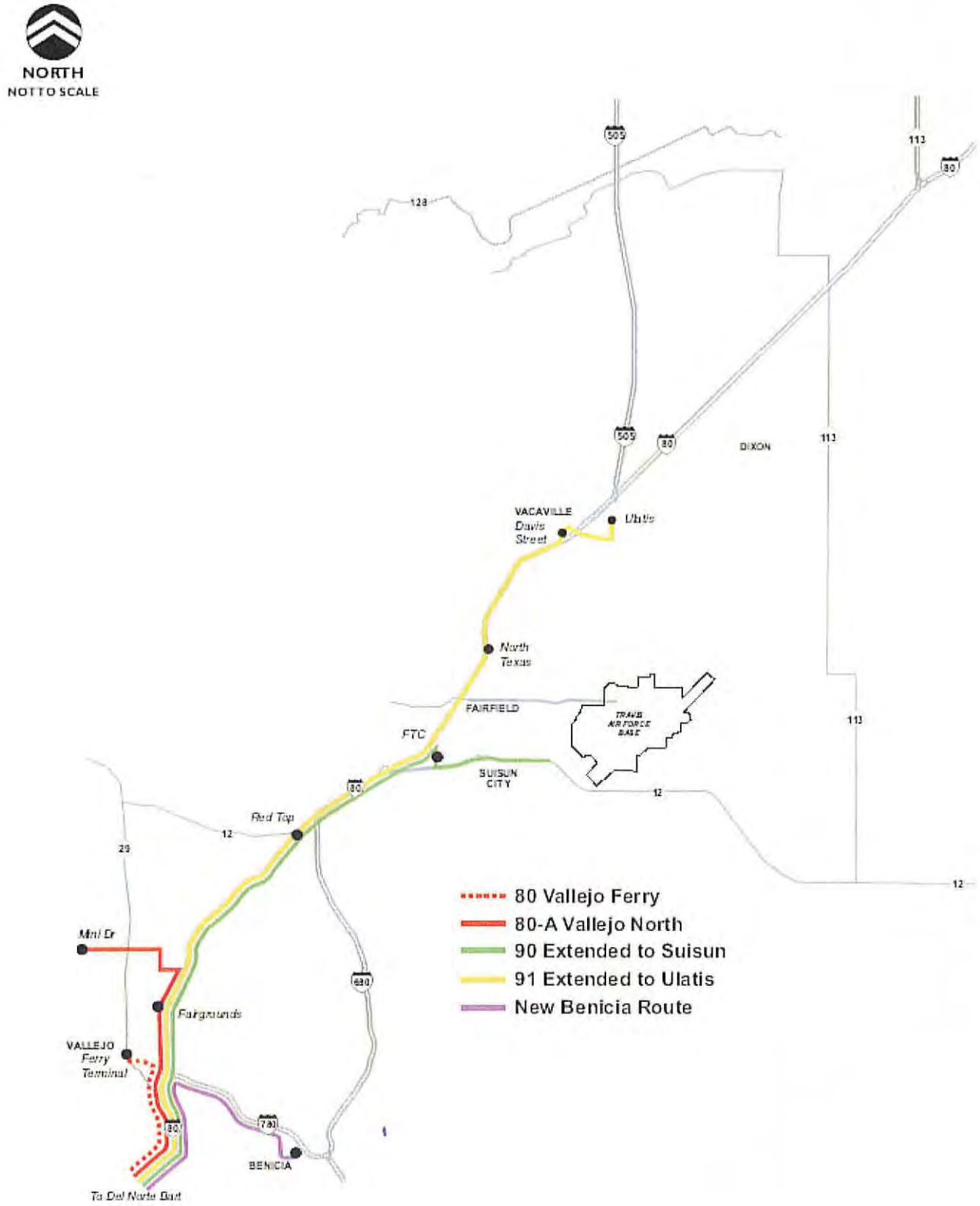
Source: Wilbur Smith

I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-109

Service Vision Plan Overview

Korve Engineering



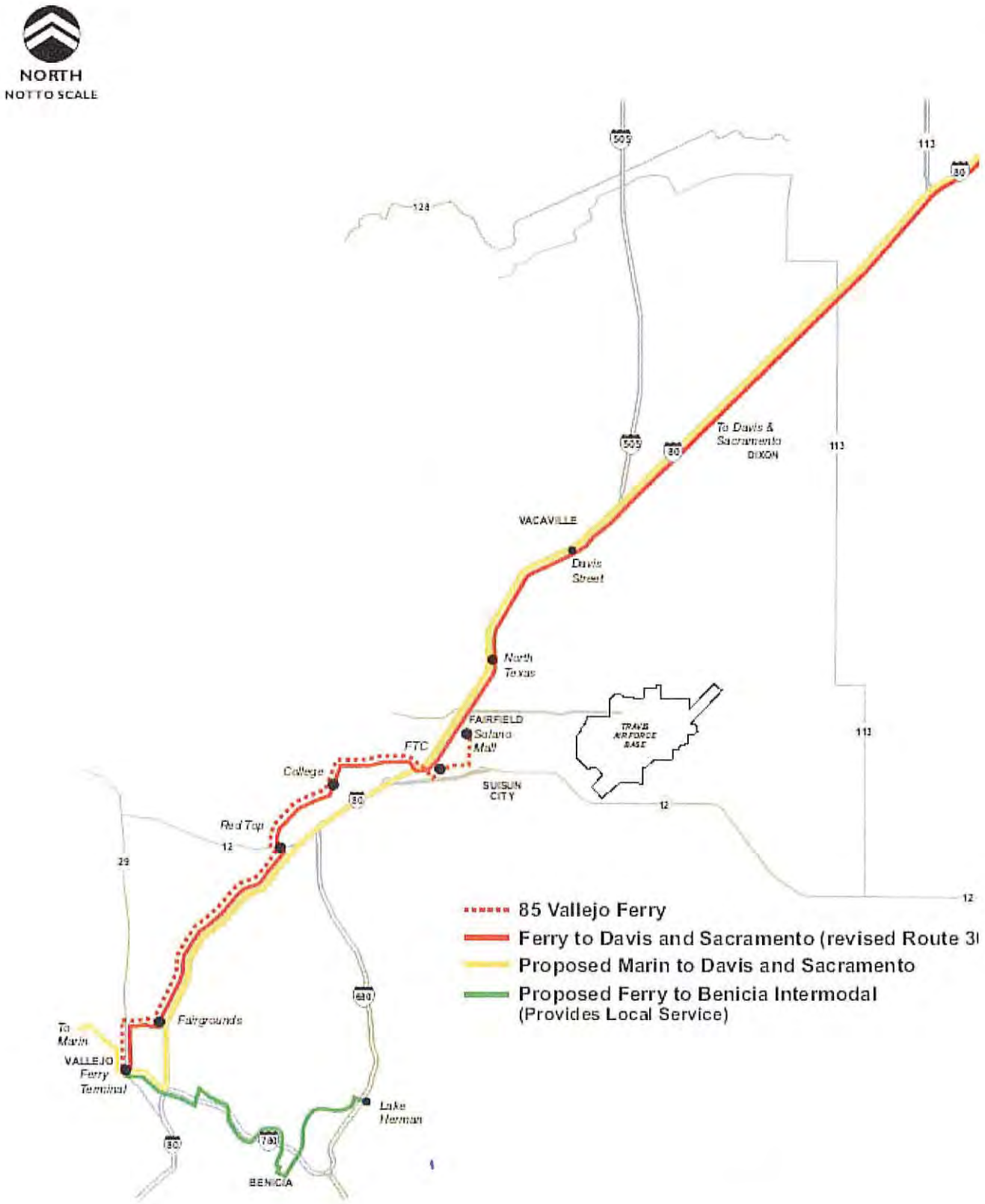
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-110

El Cerrito del Norte BART Bus Service

Korve Engineering



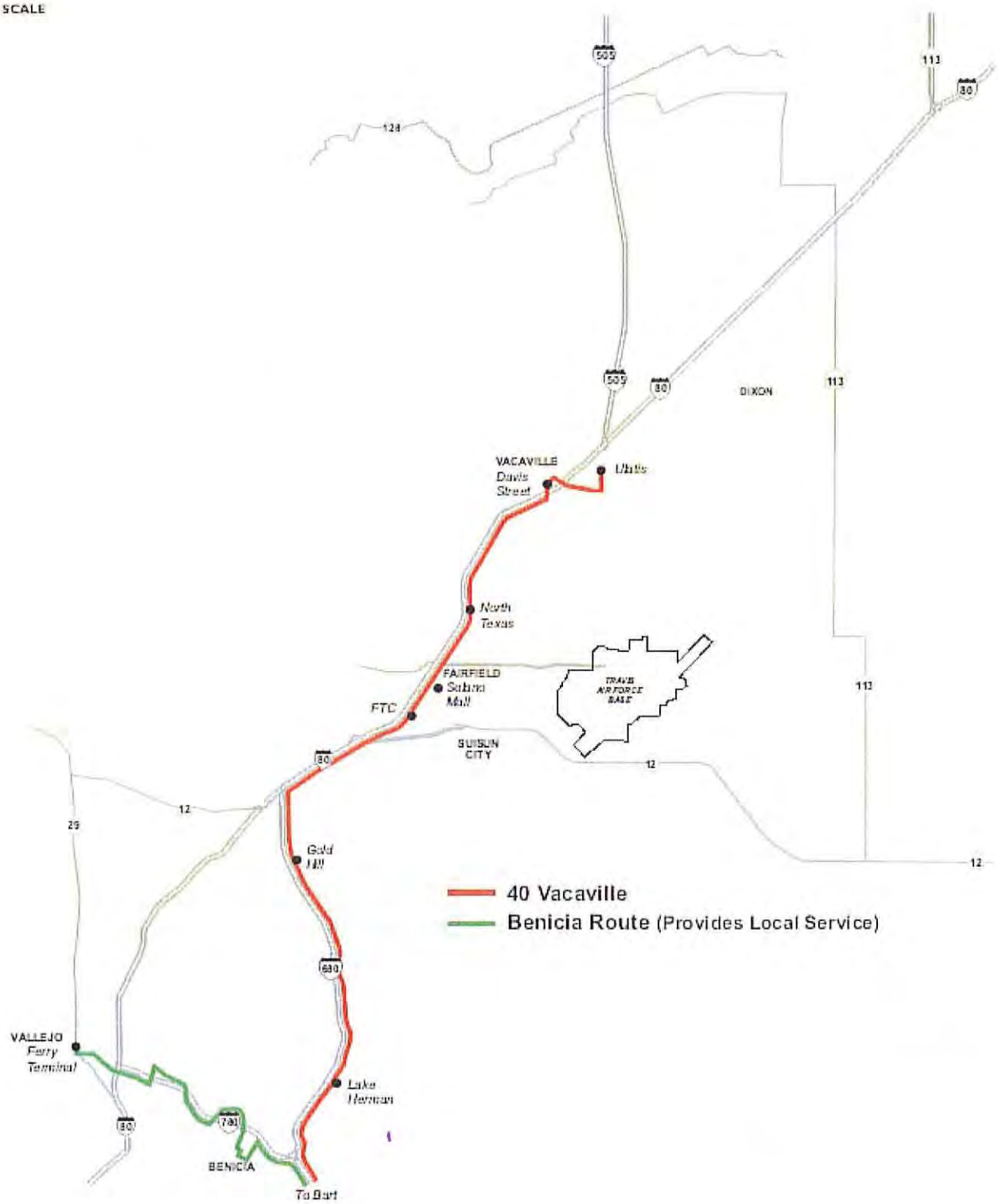
Source: Wilbur Smith

I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-111

Vallejo Ferry Bus Service

Korve Engineering



I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-112

Pleasant Hill BART Bus Service

Korve Engineering

Route 90 – The existing Route 90 operates between the El Cerrito del Norte BART Station and Solano Mall in Fairfield. Buses on this route make a stop at the Fairfield Transportation Center, with some buses continuing past Solano Mall to the Suisun City Amtrak Station. As the one-way run time for this route is about one hour, Route 90 is limited to one peak direction trip. The Vision Plan includes extending Route 90 buses eastward past Amtrak on SR 12 to a new Walters Road Park and Ride lot, providing more convenient access to Route 90 buses, and increasing access to the Capitol Corridor train service. An additional stop at the Solano County Fairgrounds in Vallejo is also a possibility.

Route 91 – The existing Route 91 operates between the El Cerrito del Norte BART Station and the Davis Street Park and Ride lot in Vacaville. As the one-way run time for this route is about one hour, Route 91 is limited to one peak direction trip. The Vision Plan includes extending the eastern terminus of Route 91 to a new Vacaville Intermodal Transportation Center, located near the intersection of Allison Drive and Ulatis Drive in eastern Vacaville. Additional stops at the Fairfield Transportation Center and the Solano County Fairgrounds in Vallejo are also a possibility.

New Benicia Route – Direct express bus service is proposed between Benicia and the El Cerrito del Norte BART station. The service would originate in Downtown Benicia and travel via East 5th Street, H Street, East 2nd Street, B Street, 1st Street, West Military Street, West 7th Street, Southampton Road, I-780, Columbus Parkway, Benicia Road, Glen Cove Road, I-780, Curtola Park and Ride Lot, and I-80 to the El Cerrito del Norte BART station. This routing would give the opportunity to "interline" buses with the Benicia-to-Pleasant Hill BART Station service.

Vallejo Ferry Terminal Routes (Figure 5-111)

Four routes are proposed to feed the ferry terminal and downtown Vallejo. Route 85 is similar to the existing Route 85, but would be routed differently near Solano College in Fairfield. Route 30 to Sacramento would be extended to the Vallejo Ferry Terminal along the same path as Route 85. A new "Rapid Bus" express route is proposed along I-80 between Sacramento and Vallejo. This Rapid Bus route would ultimately continue west to connect with Golden Gate Transit and the planned Sonoma Marin Rail transit system in the North Bay. The fourth proposed bus route would operate along the I-780 corridor to the Benicia Industrial Park near Lake Herman Road.

The Vallejo-oriented intercity bus service to Sacramento would be the best option, as compared to the El Cerrito del Norte or Pleasant Hill BART-oriented service. The El Cerrito del Norte connection to Sacramento is currently provided by the Capitol Corridor rail service connecting with the BART trains at the Richmond BART station. This connection would be further strengthened by commuter rail service in the corridor. The Pleasant Hill BART connection includes a Capitol Corridor stop at Martinez only. The planned intermodal transportation center at Benicia would strengthen the connection to the I-680 corridor. Vallejo does not have a good connection to the Capitol Corridor services. To connect Sacramento to the Vallejo Ferry Terminal would complement ferry services. The bus link to Marin County may also appeal to North Bay-to-Sacramento travelers.

Route 85 – For the segment between the Vallejo Ferry Terminal and Red Top Road, the proposed Route 85 would follow its existing path. At Red Top Road the route would exit I-80, serve the new Red Top Road park and ride lot, and continue to Solano Mall via the new Business Center Drive extension, Suisun Valley Road (stopping at the college), Rockville Road, Abernathy Road, Magellan/Auto Mall Drive (stopping at the Fairfield Transportation Center), West Texas Street and Pennsylvania Street.

Route 30 (Vallejo Ferry Terminal to Davis and Sacramento) – This route would be identical to Route 85 and the two routes would alternate schedules west of Air Base Parkway. This route would continue east to Sacramento via I-80 to the Davis Street Park and Ride lot, Pitt School Road (Market Lane Park and Ride lot), West A Street, North First Street (Dixon Station), and UC Davis. This route would include Saturday/Sunday service, which currently is unavailable. Stops would be added at Dixon Downs for special events.

Marin to Davis and Sacramento - This Rapid Bus route would make very few stops between Sacramento and Vallejo. It is envisioned to stop at UC Davis, Pitt School Road, Davis Street, Fairfield Transportation Center and the Curtola Parkway Park and Ride lot. The service would continue past Mare Island to the Sonoma-Marin Area Rail Station in Novato.

Vallejo Ferry Terminal to Benicia Intermodal Center – This route would increase service frequency between Benicia and the Vallejo Ferry Terminal. With development of the second phase of the Benicia Industrial Park, the route would be extended to Lake Herman Road and the Benicia Intermodal Center planned for Goodyear Road. The Benicia Intermodal Center extension would require a good pedestrian system along 2nd Street to support pedestrian access to bus stops.

Pleasant Hill BART Station Routes (Figure 5-112)
Two intercity bus routes are proposed to link with the Pleasant Hill BART station. Route 40 is similar to the existing Route 40 service, but would include an extension to eastern Vacaville. The Benicia intercity route is similar to the existing Benicia bus route, except that it would add local service to increase passenger access.

When compared to other BART stations in Concord and Walnut Creek, the Pleasant Hill BART Station appears to be the best link in terms of door-to-door travel time for BART connections, passenger fare cost (Concord is the most expensive), and the likelihood of getting a seat on the train. It was concluded that the Solano County buses should continue to connect to BART at the Pleasant Hill station. Extension of some bus trips to Walnut Creek BART would also be desirable, so long as a minimum of one peak direction run per bus were maintained during commute peaks. On Saturdays and Sundays (currently unavailable), a stop at Willow Pass Road should also be considered.

Route 40 – Route 40 would follow its existing route between the Pleasant Hill BART station and Davis Street. At Davis Street it would continue east on Elmira Road and connect at Allison Drive to a new Vacaville Intermodal Transportation Center located near Ulatis Drive and Nut Tree Parkway. Route 40 would make stops at the Davis Street Park and Ride lot, the Fairfield Transportation Center, and Gold Hill Road on its way to BART. The benefits of extending some service to Leisure Town Road in order to directly serve the Kaiser Medical Center might be considered. Some commute period

Route 40 buses would be extended to connect with the Walnut Creek BART station, after first stopping at the Pleasant Hill BART station. Selected trips would make a stop at Willow Pass Road to provide direct connections to employment centers and the Sun Valley Mall in Concord.

Benicia BART – This route would be similar to the existing Benicia service to BART, except that it would travel on Benicia Road between Glen Cove and Rose Drive. Few opportunities exist to develop a park-and-ride lot along the existing freeway route, and this local street diversion would provide such opportunities with little effect on run time.

5.5.1.4 Patronage

The eight intercity bus routes that currently serve Solano County average a combined total of 3,540 daily passenger trips. The proposed transit plan for the corridor is projected to carry 5,080 daily passenger trips.

5.5.2 Highway Interface Plan

5.5.2.1 Background

Intercity express bus service access in the study corridors is currently enhanced by a system of transit centers and park-and-ride facilities. Patron access demand exceeds available capacity at several of the existing facilities. Development of new park-and-ride sites would more conveniently serve patrons. Opportunities for buses to directly and safely access planned HOV facilities need to be pursued. Actions to address these needs are described in this section.

5.5.2.2 Planning Principles for Improved Access to Median HOV Lanes

The HOV lanes planned as part of the corridor's highway study would be located in the freeway median, adjacent to general purpose lanes. Carpools, vanpools and buses would weave across the general purpose lanes in order to access/exit the HOV lanes. The highway improvements would increase the number of total lanes so that vehicles would be weaving across four or more lanes to access the HOV lanes. At times when the general purpose lane traffic is moving smoothly (50 mph or better), the time lost making these weaves would be minimal. When traffic slows to 40 to 50 mph, weave delay increases and the difficulty transitioning from the general traffic lane to the higher speed HOV lane becomes more difficult, particularly if the HOV volumes are high and the gaps between vehicles are short. At traffic speeds less than 40 mph, the transitions into and out of the HOV lanes becomes much more difficult and accident risks increase, particularly for large buses. At 15 to 25 mph, buses would have a very difficult time finding a safe gap in traffic to merge.

In addition to concerns of safety and increased travel time, buses weaving into and out of the median HOV lanes across congested traffic adversely impacts schedule adherence. A key strength of express buses operating in HOV lanes is that commuters would be able to depend on a reliable commute time. Otherwise, commuters tend to schedule their trip based on worst-case times. This worst-case time approach to

commute decision-making significantly undermines the attractiveness of public transit as a commute mode.

In summary, direct access to HOV lanes is important for express buses because:

- Bus running times are reduced which help to reduce operating costs;
- Passengers reach their destinations faster;
- Bus and rideshare weaving movements are eliminated, thereby improving safety for buses and general traffic; and
- Weave-related delays are eliminated and reliability is significantly improved.

Bus schedule adherence is affected by varying levels of congestion, delays and incidents on the highway. In addition, traffic levels can vary by day of the week, with Friday's typically being worse than other days.

Recognizing that direct access ramps to HOV facilities are very expensive ($20 to $40 million each), a set of planning principles have been set to balance benefits with investment cost. The best places to invest in direct HOV access are those locations with:

1. Projected general traffic lane congestion.
2. Significant bus and rideshare access volumes.
3. Significant potential passenger transfer traffic.

Current Conditions – As described in Section 2.1, current freeway operating conditions are relatively good with a few major exceptions. During the a.m. commute period, southbound approaches to the Carquinez and Benicia Bridges experience traffic backups, as does the westbound section of I-80 from SR 12 East to SR 12 West. In the p.m. peak, eastbound traffic backs up on I-80 from Red Top Road to Air Base Parkway, and northbound traffic backs up on I-680 from Gold Hill Road to its junction with I-80. Since there are no current HOV lanes, buses are delayed along with general traffic on these segments during these times.

Direct Access to Center Median HOV Facilities - A range of concepts exist to provide direct access to center median HOV facilities for buses and for rideshare vehicles. They are the ideal way to ensure that transit buses do not experience weaving delays and help to minimize the risk of accidents. The most common type of connection to median HOV lanes is the approach used on I-80 at Richmond Parkway and also at Cutting Boulevard. Mainline traffic lanes are bowed out to make room for acceleration and deceleration ramp lanes. These concepts are expensive and require substantial right-of-way acquisition. Figure 5-113 shows the proposed direct HOV access points.

The most common direct ramp HOV access facilities are designed to handle traffic in one direction only rather than being bi-directional. Directional ramps are good for rideshare users who do not need to get on and off of the HOV lanes at a single interchange. They are also useful for express buses that do not make station stops along the freeway corridor. However, bi-directional ramps perform better in allowing buses to operate along the corridor in the center HOV lanes and make "station stops" at specially designed interchanges.

On-Line Bus Stops - Facilities can be designed that allow buses to stop along the side of the freeway or even in the center median. However, these types of stops are challenging because of the difficulty of providing pedestrian access and connections to cross-street local bus service. Side-of-the-freeway bus stops, such as those located along US-101 in Marin County, do not meet current Caltrans Standards, and new bus stops located along the side of the freeway are no longer being approved and built. On-line bus stops located in the freeway median consume a lot of space and are rarely built. These median bus stops necessitate buses crossing opposing bus movements to load and unload passengers. Operation of buses with left- and right-side doors could, however, eliminate the need for this crossover movement. Because of the extreme challenges to effectively implement on-line bus stops, this option was discarded as a viable freeway improvement.

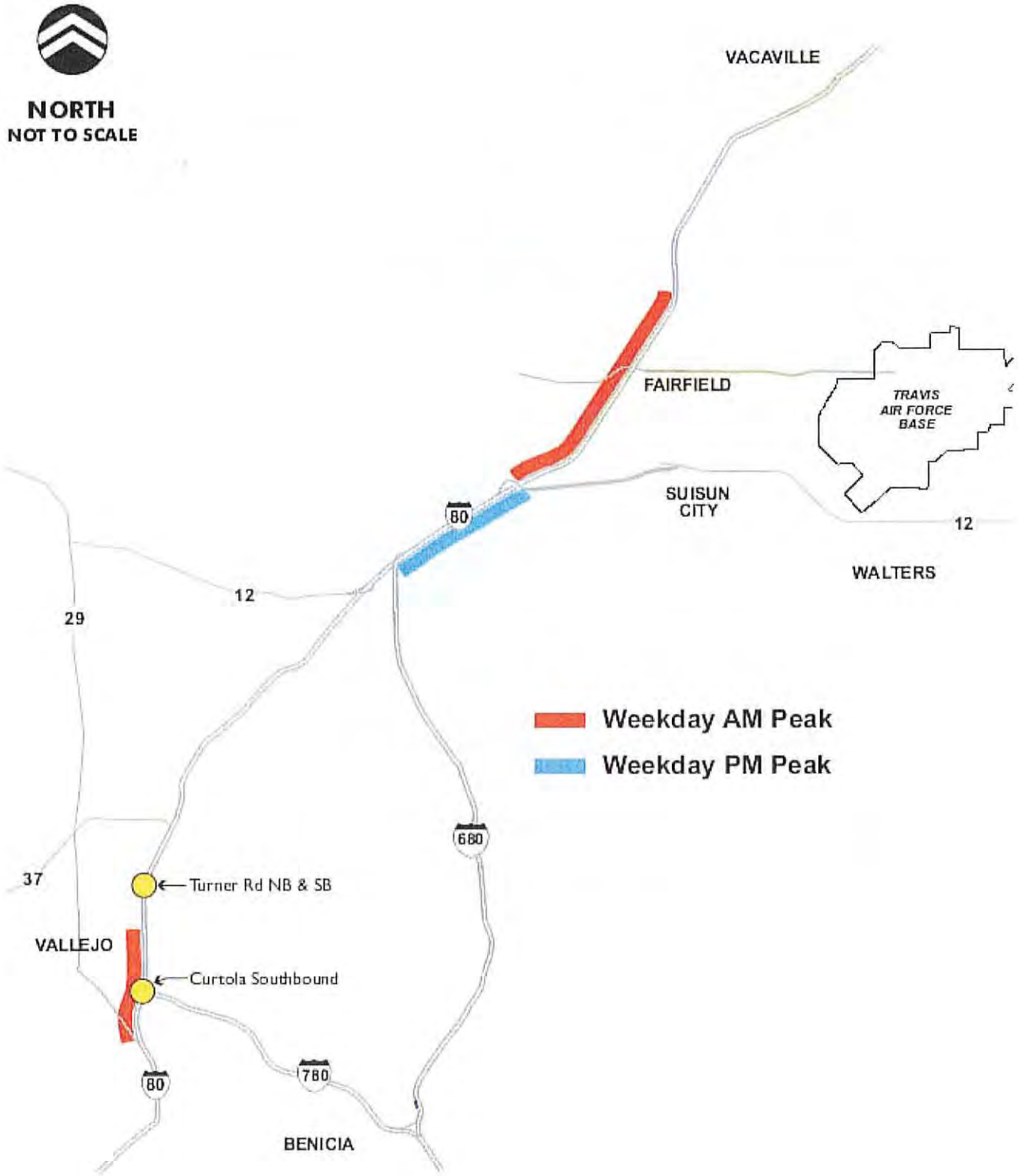
5.5.2.3 Improvement Alternatives

Curtola Parkway Direct Access Ramp

The intercity express bus plan for the I-80 Corridor provides for frequent Route 80 service between Curtola Parkway and I-80 to the Carquinez Bridge. Some Route 80 bus trips might originate from Benicia and pass through the Curtola Transportation Center. In addition to the bus trips, a significant increase in rideshare traffic is also forecast for this pathway. The increase in bridge tolls, the Bay Bridge-to-Vallejo continuous HOV lanes and expansion of parking at Curtola all favor increased rideshare and transit patronage for this access ramp. As discussed previously, traffic backups are forecast for typical conditions extending north to Turner Road. Buses would have a difficult time safely weaving to the HOV lane. The stop-and-go general traffic flow conditions would add delays to bus running times and adversely impact schedule reliability.

Figure 5-114A illustrates a concept for providing westbound buses and rideshare vehicles with direct access to the westbound median HOV lane. The proposal is for a single-direction access for the following three reasons:

1. Traffic queues are only forecast for the westbound movement.
2. Right-of-way availability is very limited.
3. An eastbound on-ramp connected into the Curtola Parkway/Lemon Street intersection would complicate operation and impair capacity of the intersection.



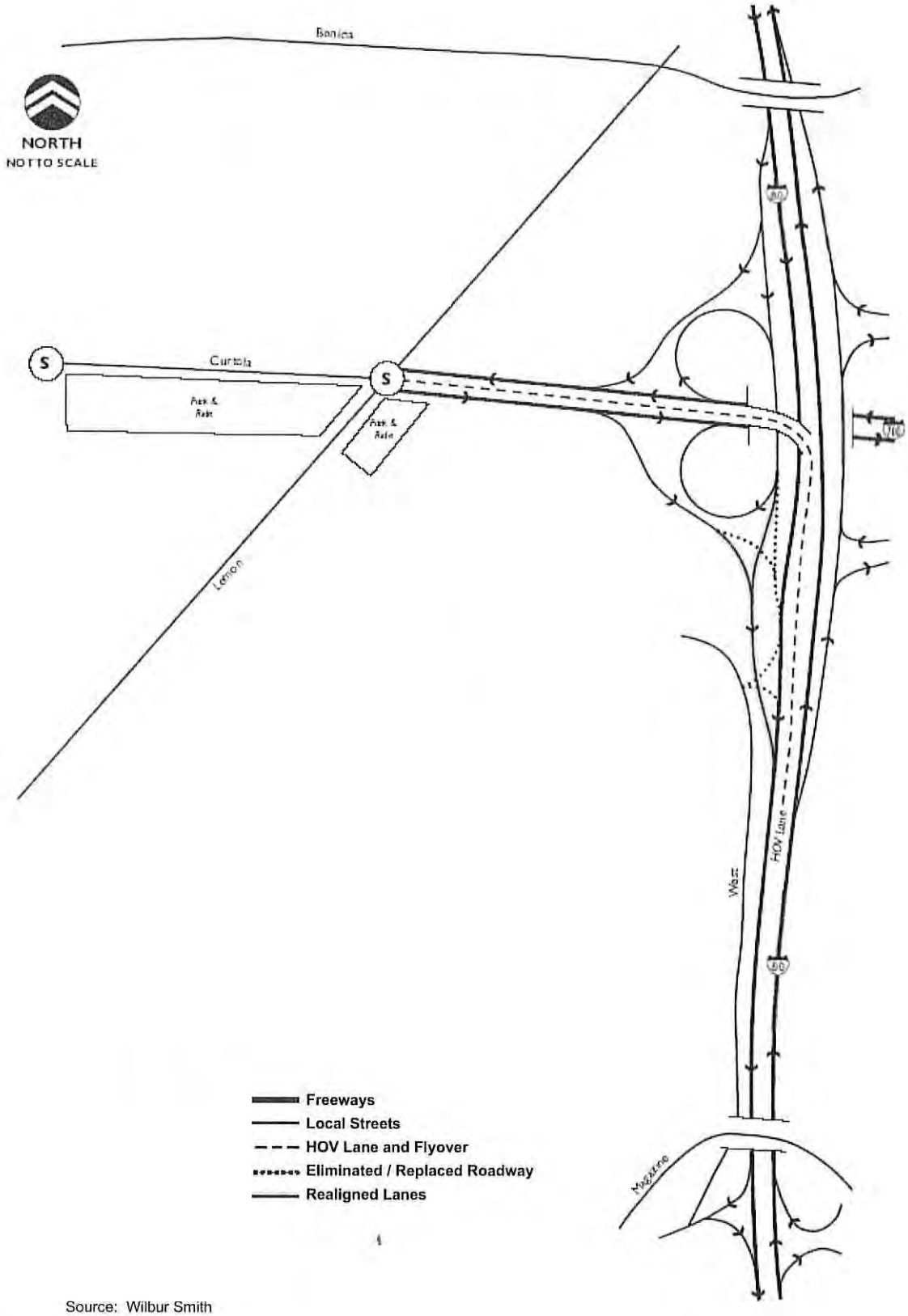
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-113

Proposed Direct Access
2010 Weekday Traffic Congestion Queues

Korve Engineering



Source: Wilbur Smith

Korve Engineering

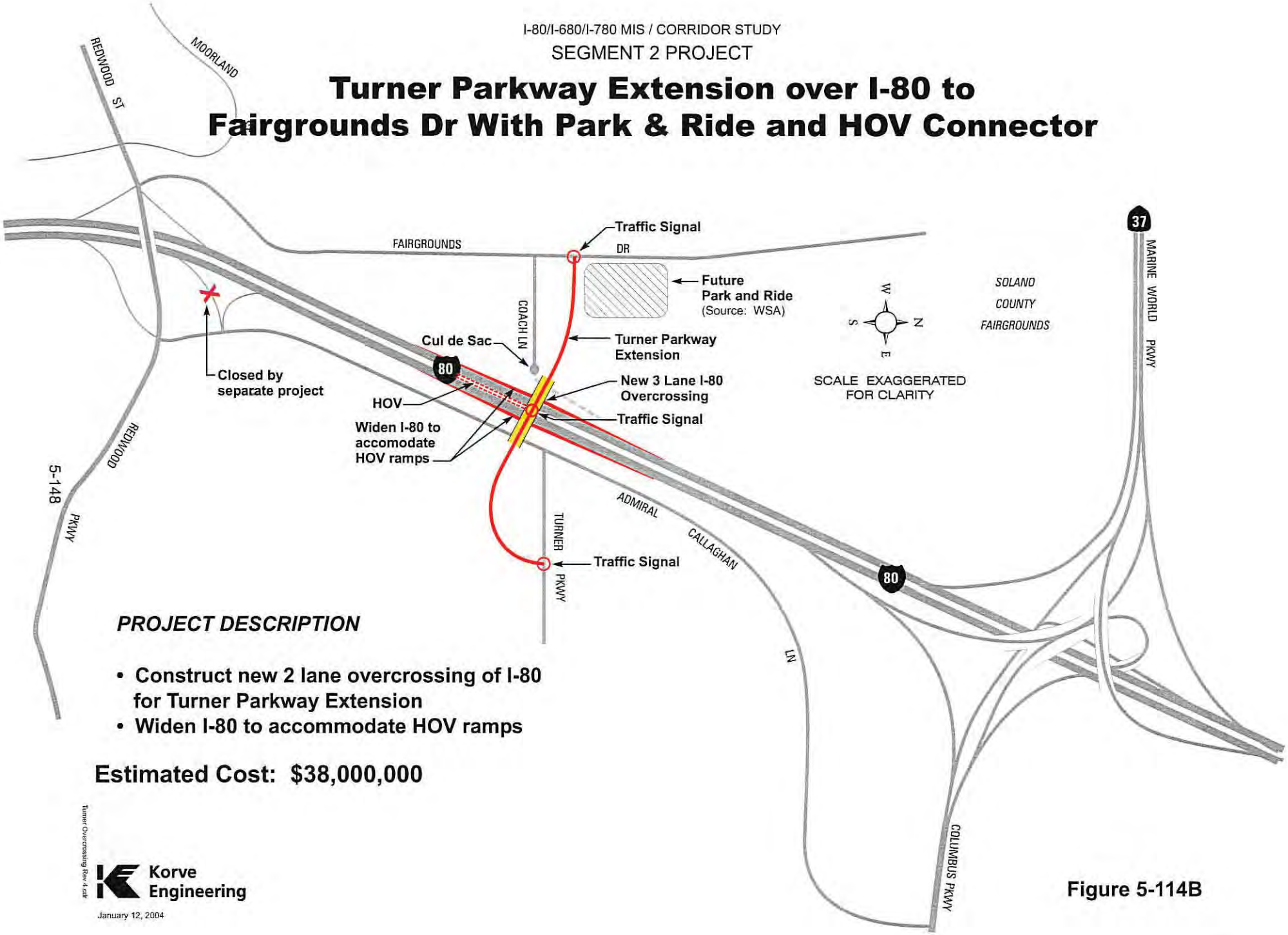
I-80/I-680/I-780 MIS/CORRIDOR STUDY

Figure 5-114A

Curtola Direct HOV Ramp

Curtola Direct HOV Ramp.cdr

Turner Parkway Extension over I-80 to Fairgrounds Dr With Park & Ride and HOV Connector



PROJECT DESCRIPTION

- **Construct new 2 lane overcrossing of I-80 for Turner Parkway Extension**
- **Widen I-80 to accommodate HOV ramps**

Estimated Cost: $38,000,000

Korve Engineering

January 12, 2004

Turner Overcrossing Rev 4.cdr

Figure 5-114B

The concept would require pushing the westbound I-80 lanes over to allow for the drop-down ramp and some modifications to the freeway ramps associated with moving the main-line lanes. The access ramp would be located either in the median of Curtola Parkway or alongside the southern curb face.

During the a.m. peak 90-minute commute period, approximately 22 buses carrying 600 passengers are forecast to use the direct ramp in 2030. In addition, another 200 rideshare vehicles with 700 passengers are projected to use the ramp. In total, the direct ramp would serve 222 vehicles and 1,300 persons during the 90-minute commute peak (about 165 vehicles and 900 people during the 60-minute peak). It is estimated that a typical commute period traffic condition savings of 11.5 minutes per person yields a savings of 250 person-hours each weekday, or 62,000 person-hours annually. These are conservative estimates because traffic conditions are often worse than the typical day.

Turner Parkway Direct Access Ramps

Discussions are underway for commercial development of part of the Solano County Fairgrounds and to extend Turner Parkway over I-80 to connect with Fairgrounds Drive. Turner Parkway presently tees into Admiral Callaghan Road on the east side of I-80. Construction of the new overpass of I-80 would provide the opportunity to integrate direct HOV ramps into the overpass construction. Figure 5-114B describes the proposed concept.

Turner Parkway is located at the northeastern edge of the forecast 2030 a.m. peak westbound traffic queue. Since it requires one mile to weave safely across many lanes of traffic, this westbound ramp would allow buses and rideshare patrons to safely reach the median HOV lanes. The Turner Road Direct HOV Ramps are envisioned to serve Vallejo Intercity Bus routes and rideshare patrons. Approximately nine buses are estimated to use the direct ramps during the 90-minute peak a.m. commute period, and are anticipated to carry 270 patrons. A rideshare estimate of 150 rideshare vehicles are estimated to carry 500 persons, based on a required three-person HOV occupancy. The most critical direct HOV connections are located in the west areas where congestion is forecast.

Since the HOV ramps would only be needed on weekdays, they could be used to augment general traffic access to the Fairgrounds development on weekends and during off peak periods.

Fairfield Transportation Center

The segment of I-80 near West Texas Street is expected to be congested during commute periods. Even though many buses serve the Fairfield Transportation Center, provision of a direct ramp to median HOV lanes appears to be difficult. Recommended access improvements (Figure 5-115) to the Fairfield Transportation Center include:

- Modification of the traffic control for the eastbound off-ramp and Auto Mall Drive to three-way stop control in order to reduce delays for buses using this off ramp.
- Addition of a second westbound approach lane on Oliver Road at the West Texas Street intersection at I-80, to allow buses to turn left onto West Texas Street from the new through lane. The new lane would begin just west of the

Chuck E. Cheese restaurant. Only buses would be allowed to make this dual left turn movement from the through traffic lane.

- Signalize the eastbound off-ramp "free" right turn movement, to control right turns and provide space to allow a direct entry driveway for buses from West Texas Street into the transit island.

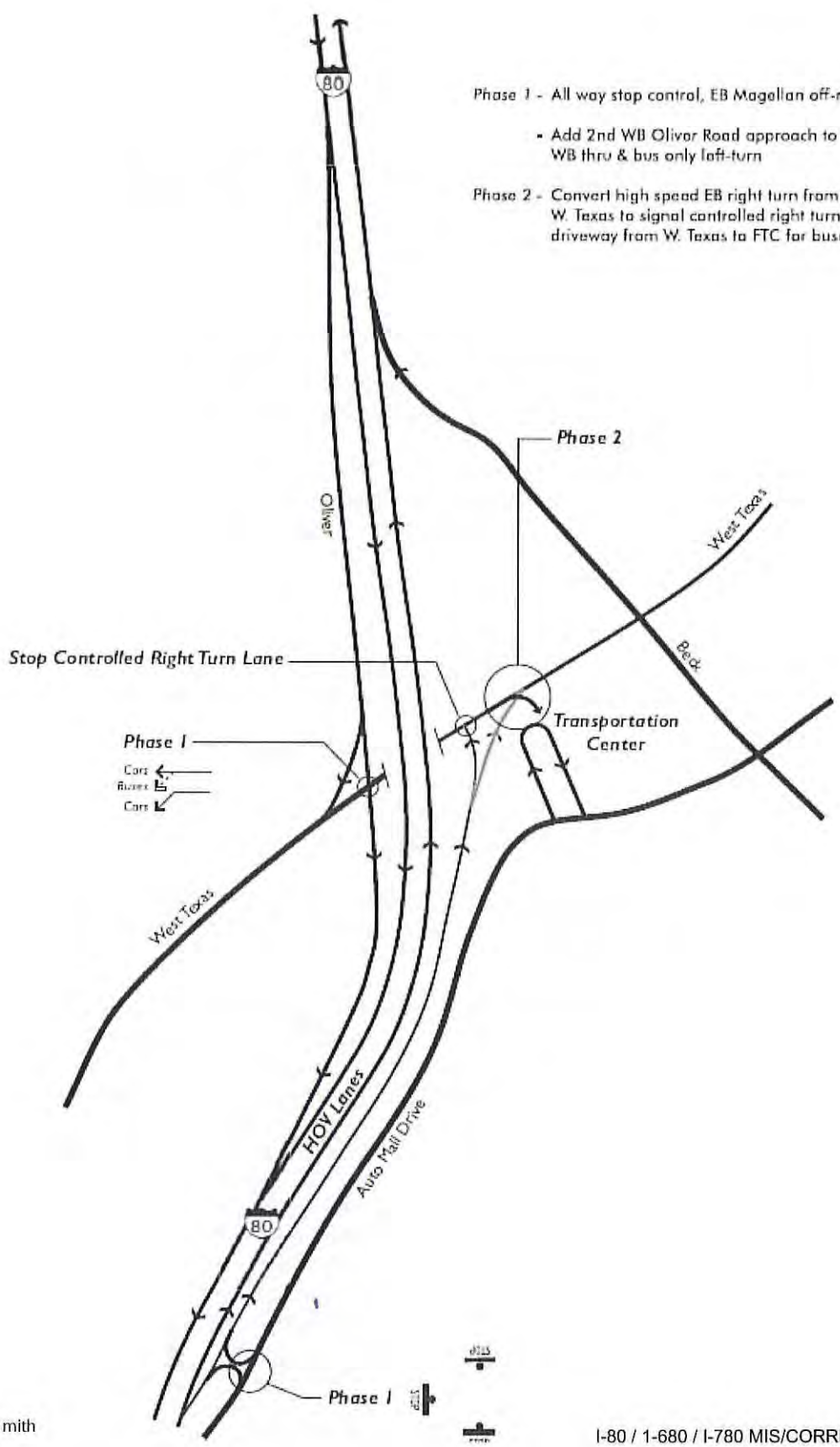
Direct HOV lane ramps, such as those proposed for Curtola Parkway and Turner Parkway, were explored for the Fairfield Transportation Center interchange, but would conflict with expansion plans for the Fairfield Transportation Center parking garage. Direct access ramps to the I-80 center median HOV lanes near the West Texas Street interchange would facilitate bus and rideshare access to and from the Fairfield Transportation Center. Some congestion is projected to remain during peak commute periods near the interchange through 2030. This further makes a case for direct HOV access ramps. However, provision of direct access ramps does not appear possible at the West Texas Street interchange. If the I-80/I-680/SR 12 West interchange EIS process shows that the Abernathy Road interchange needs to be rebuilt, an opportunity might exist to provide a direct ramp to and from the west to HOV lanes.

5.5.2.4 Park and Ride Siting and Planning Principles

Most intermodal facilities are publicly owned, while a number of park-and-ride facilities are either ad hoc facilities or constitute shared use of private parking resources. Most park-and-ride facilities are surface lots, which are less expensive to construct, operate, and maintain than parking structures.

The following principles are applied to intermodal centers and park-and-ride facilities:

- Location along primary commute paths;
- Location close to residential commute markets;
- Location upstream of congestion;
- Location upstream of HOV facility access points;
- Location convenient to bus routes;
- Location adjacent to compatible land uses;
- Opportunities for commercial joint use;
- Location in high-visibility areas to enhance security; and
- Convenient and safe access.



Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-115

Fairfield Transportation Center

Korve Engineering

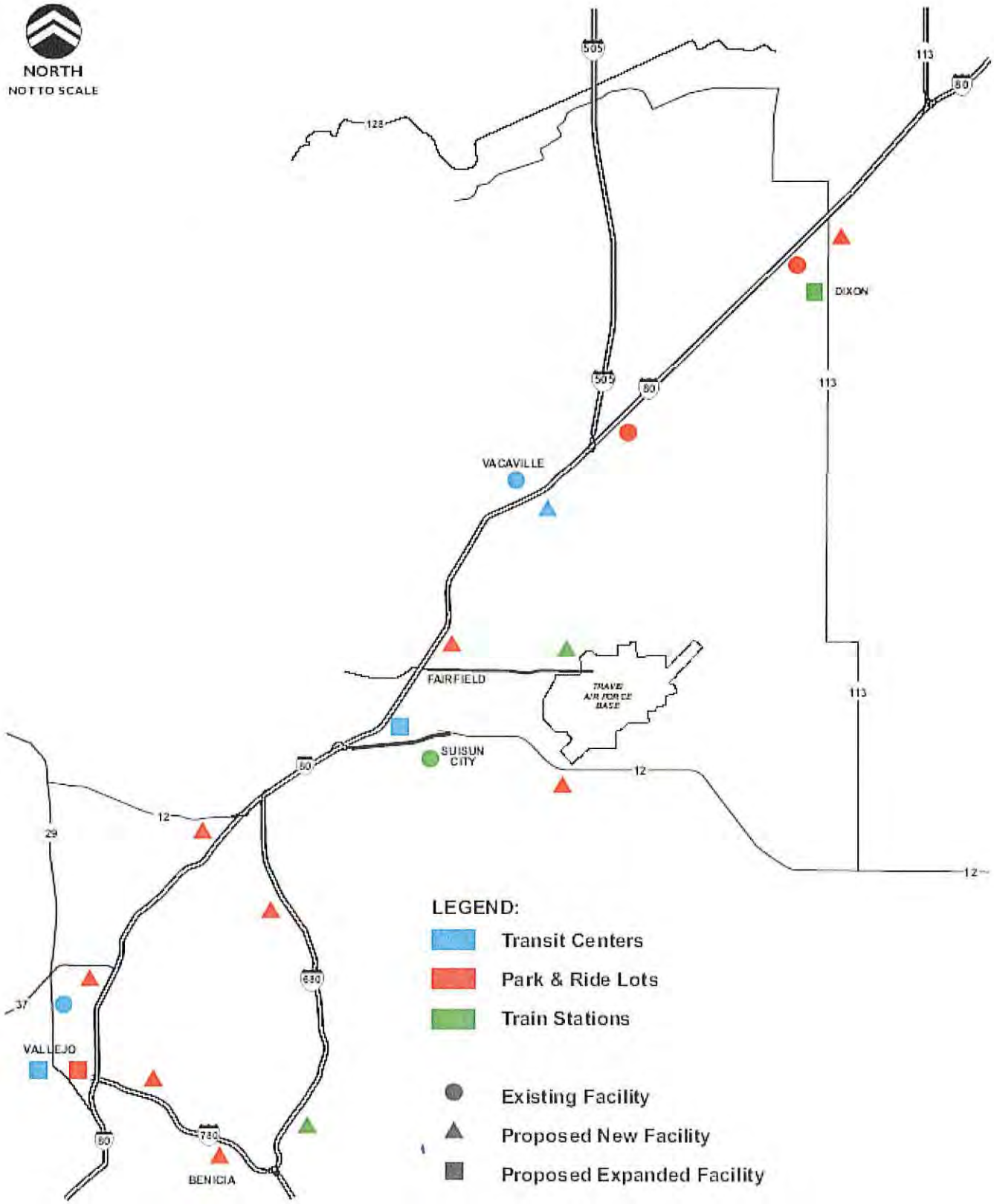
5.5.2.5 Improvement Alternatives

Figure 5-116 describes the location of current and future transit centers and park-and-ride facilities serving the I-80/I-680/I-780 Corridor. The transit centers, park-and-ride lots, and train stations will provide comprehensive coverage of the corridor. Recommended improvements to these facilities include (in sequential order, generally west to east and south to north):

- Capacity expansion at the Curtola Parkway Park and Ride lot.
- Development of a new park-and-ride lot at Turner Road (Fairgrounds).
- Improvement of the Hiddenbrooke Parkway Park and Ride lot.
- Development of a new park-and-ride facility at Red Top Road to replace the Green Valley Road Park and Ride lot.
- Expansion of the Fairfield Transportation Center facility.
- Development of a new park-and-ride lot at North Texas Street.
- Development of park-and-ride and transit facilities for the Vacaville Intermodal Transportation Center project.
- Development of park-and-ride lots in Dixon at North First Street and at West A Street.
- Development of a park-and-ride lot on East H Street.
- Development of a park-and-ride lot at Gold Hill Road at I-680.
- Development of park-and-ride facilities at Vista Point and the Benicia Intermodal Center.
- Development of a new park-and-ride lot at West Military Street and Southampton Road on I-780.
- Development of a new park-and-ride lot at Columbus Parkway and Rose Drive.
- Development of a new park-and-ride lot at Walters Road/SR 12.

Park and ride improvements are prioritized in Section 6 which follows. These facilities were prioritized in level of importance, demand and as they complement the extension and construction of HOV facilities.

Vallejo: Curtola Transportation Center – As reported in Section 2.2, the existing facility has a major shortfall in parking and poor access and circulation features. The recommended plan would be to construct a 1,200-space parking structure on the west end of the site and to consolidate the bus loading at the eastern end of the site (see Figure 5-117). A new traffic signal would be installed on Curtola Parkway to improve access and to allow buses destined to downtown Vallejo to exit directly onto Curtola Parkway; currently, these buses must double back to Lemon Street. The increased parking supply would require increased driveway access. Location of the bus loading facilities at the eastern end of the site would enhance pedestrian accessibility and increase visibility. The transit center element of the project is intended to serve both Greyhound buses, which can have long dwell times, and intercity express buses, which generally stop only long enough to load and unload passengers. Prepayment of fares could be considered for this high passenger-activity location. Real time passenger information would also be recommended. The parking structure would include four levels and would be constructed in two phases to minimize parking loss during construction. Access to the PG&E yard would be maintained. During construction of the garage, an interim replacement facility should be identified. One possible site is the south side of Curtola Parkway at Sonoma Boulevard.



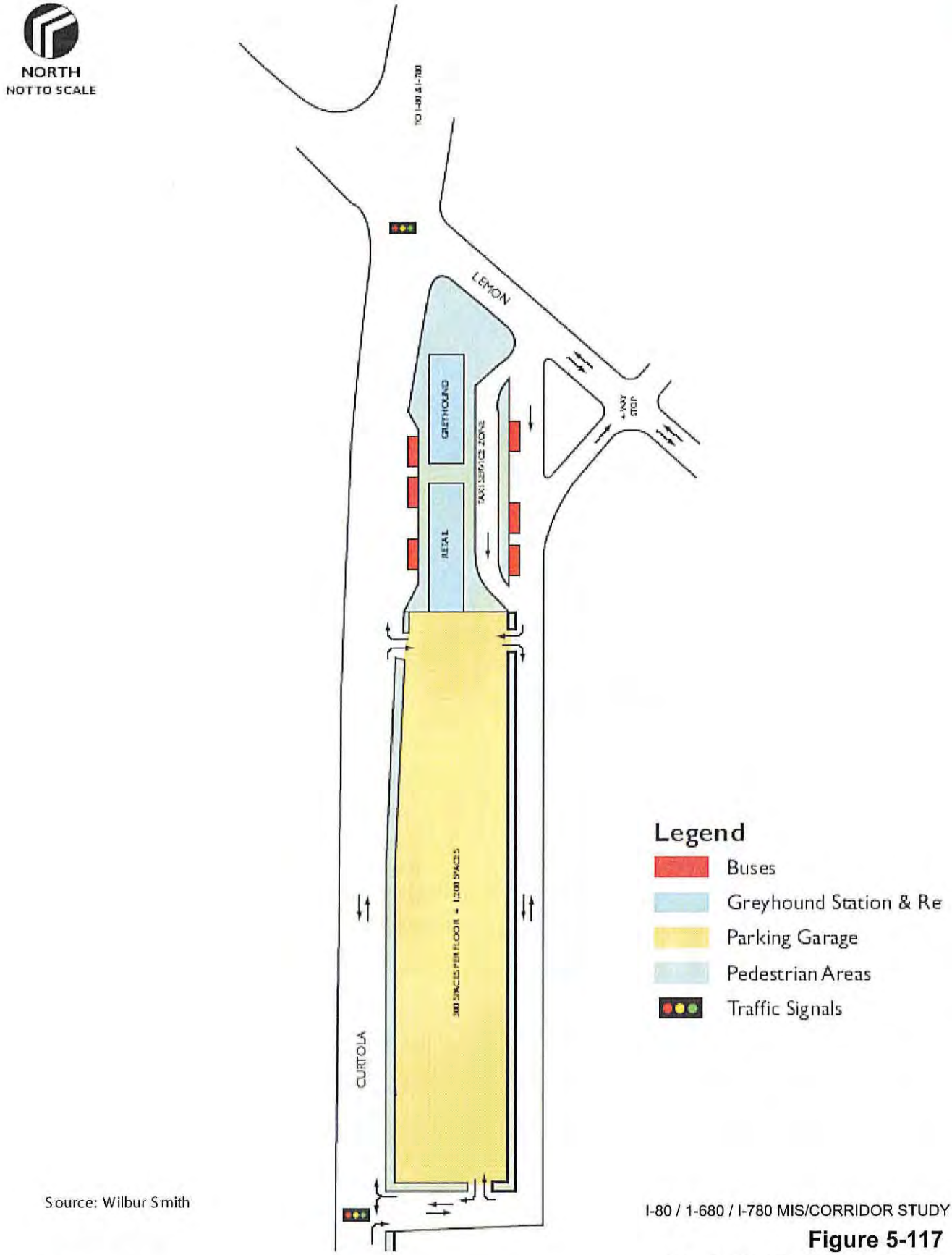
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-116

Transportation Hubs

Korve Engineering



Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-117

Curtola Park and Ride

Parking Structure / Transportation Center

Korve Engineering

Vallejo: Turner Road Park and Ride – The Turner Road Park and Ride facility could be constructed before direct HOV ramps are installed. It would be best to construct them in coordination with the proposed commercial redevelopment of the Fairgrounds site. A 400-space lot is proposed (Figure 114B).

Vallejo: Hiddenbrooke Parkway Park and Ride – The current parking lot is graveled. This project would provide paving for 50 spaces (Figure 5-118).

Fairfield: Red Top Road Park and Ride –The I-80/I-680/SR 12 West interchange upgrade (Segment 1) would displace the current Green Valley Road 61-space park-and-ride lot. This project would provide a new 418-space park-and-ride lot adjacent to the railroad crossing (Figure 5-119) on Red Top Road near SR 12 West. This park-and-ride site is envisioned to ultimately allow shared use with future commuter rail service. Initially, it would serve rideshare patrons and intercity Route 85 bus service. In the future it would also serve the extended version of Route 30 to the Vallejo Ferry Terminal and new bus service along SR 12 West. These buses would make quick passenger stops but not use the lot as a major transfer point.

The design challenge for this site is the need to ramp up Red Top Road to cross over the railroad tracks. It is possible for the project to be constructed in two phases, matching capacity with the growth in demand (initially it replaces a 61-space Green Valley Road lot). Figure 5-120 illustrates the current concept for this park-and-ride facility and Figure 5-121 shows the proposed revision to this plan that reflects the proposed bus service to the site. The revised site development concept shows buses loading along the curbside of Red Top Road near the signalized driveway at the park-and-ride site. This development approach minimizes delays to through-routed bus passengers and also minimizes site space required to load and turn large buses. Location of the bus stops on/near Red Top Road would result in a more secure waiting area for passengers.

NORTH
NOT TO SCALE

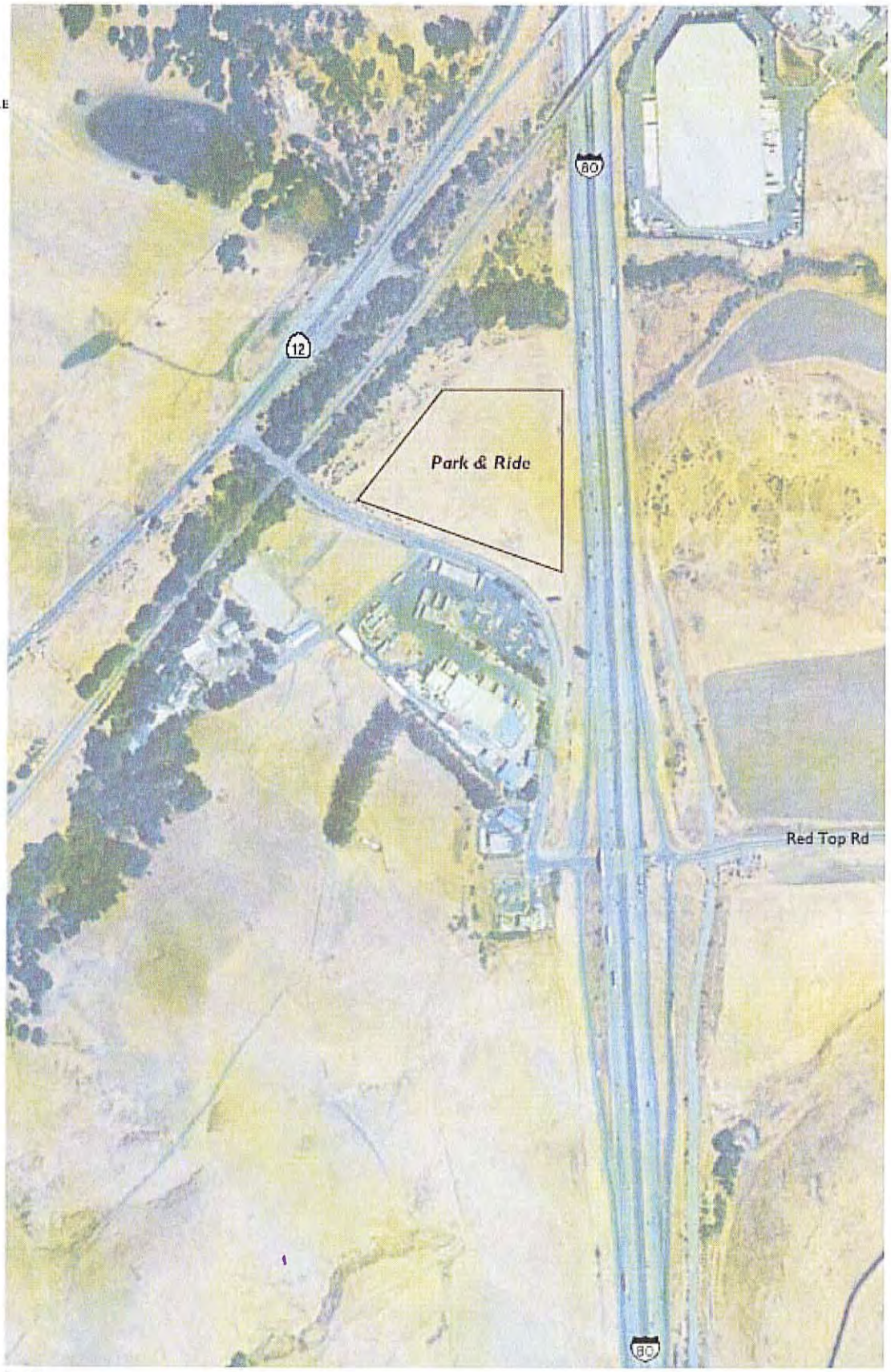
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-118

Hiddenbrooke Park and Ride Lot Site

Korve Engineering



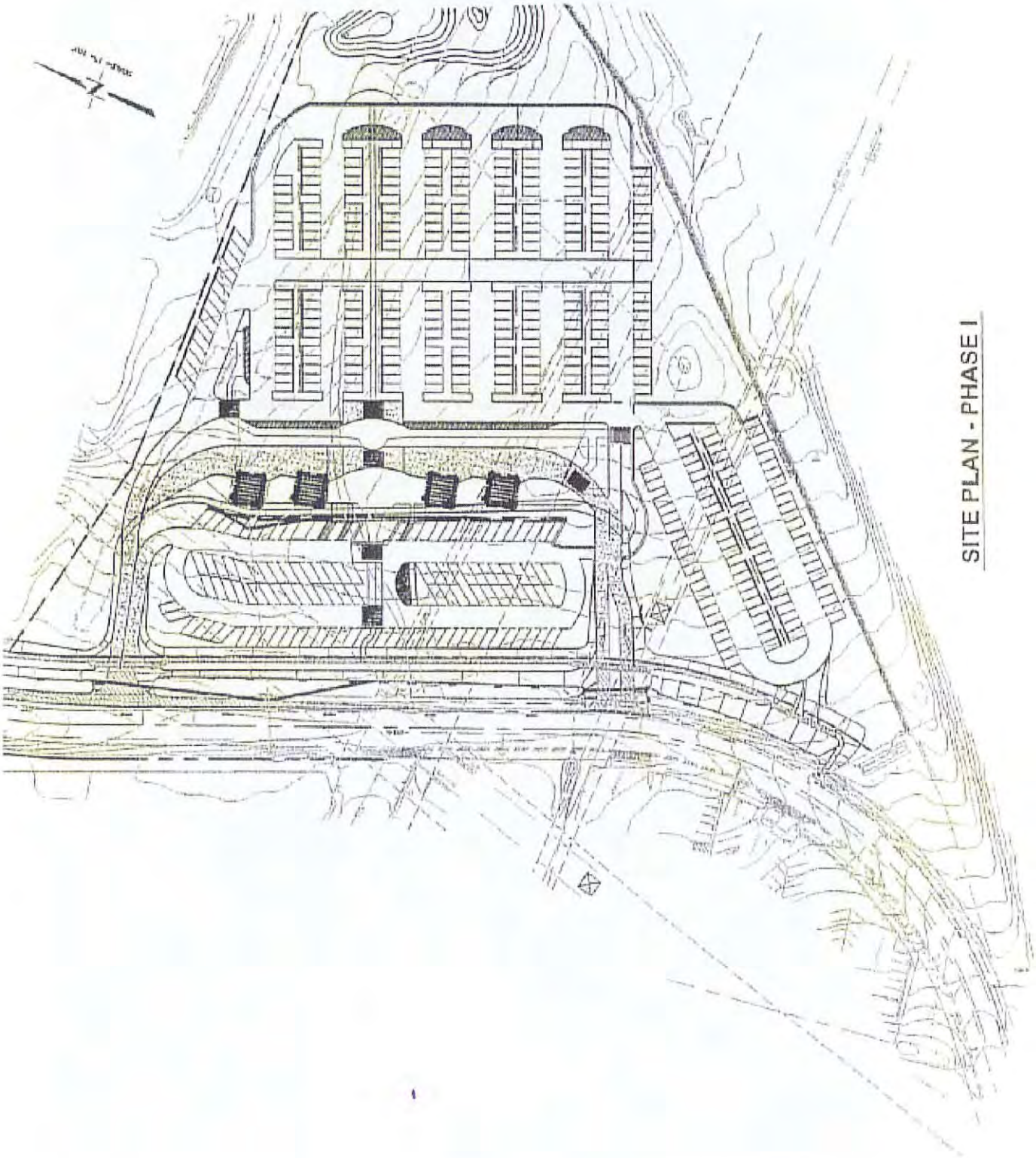
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-119

Red Top Road Park and Ride Lot Site

Korve Engineering



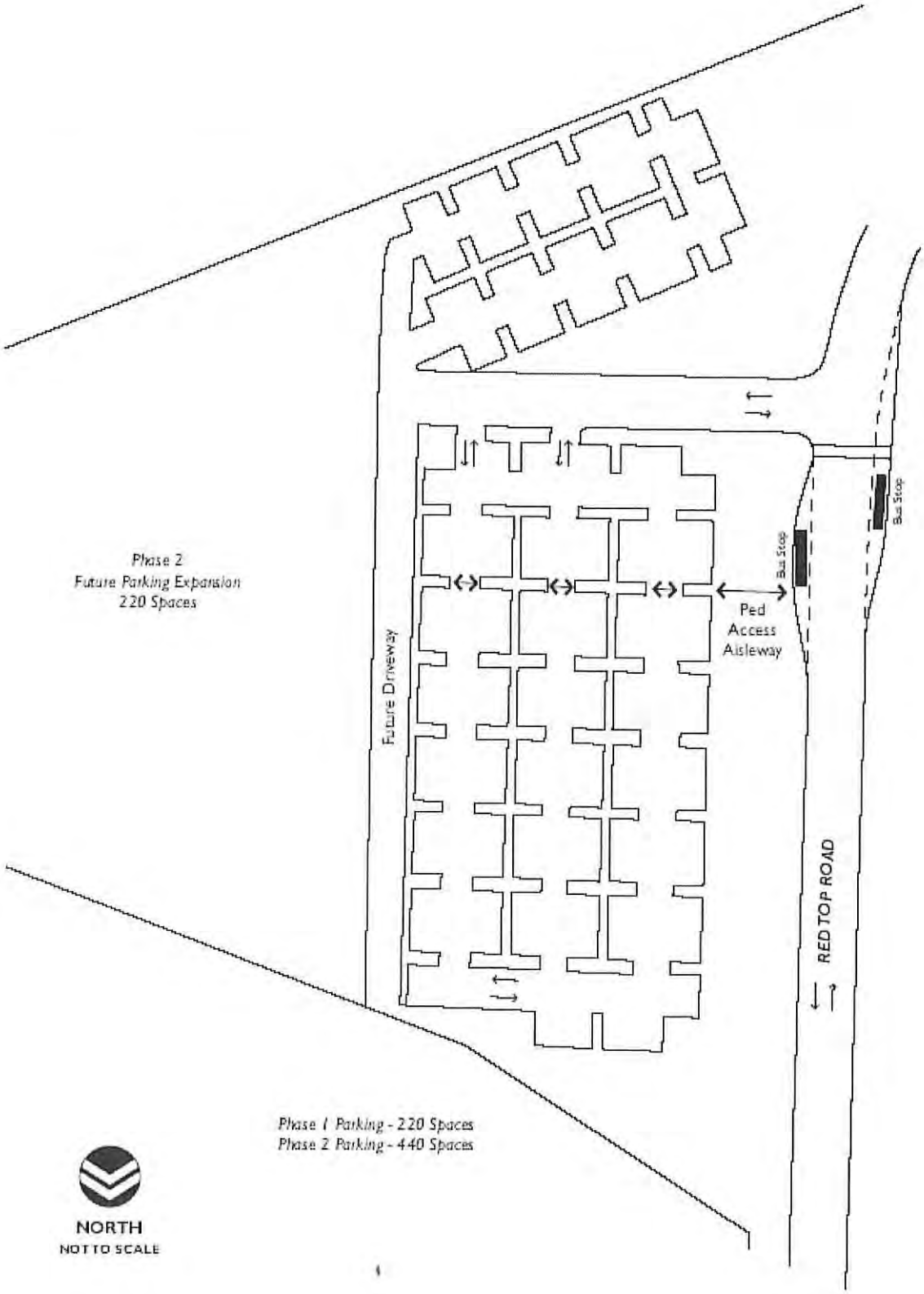
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-120

Red Top Road Park and Ride Facility Concept

Korve Engineering



Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-121

Red Top Road Park and Ride Lot
Illustrative Site Development Concept

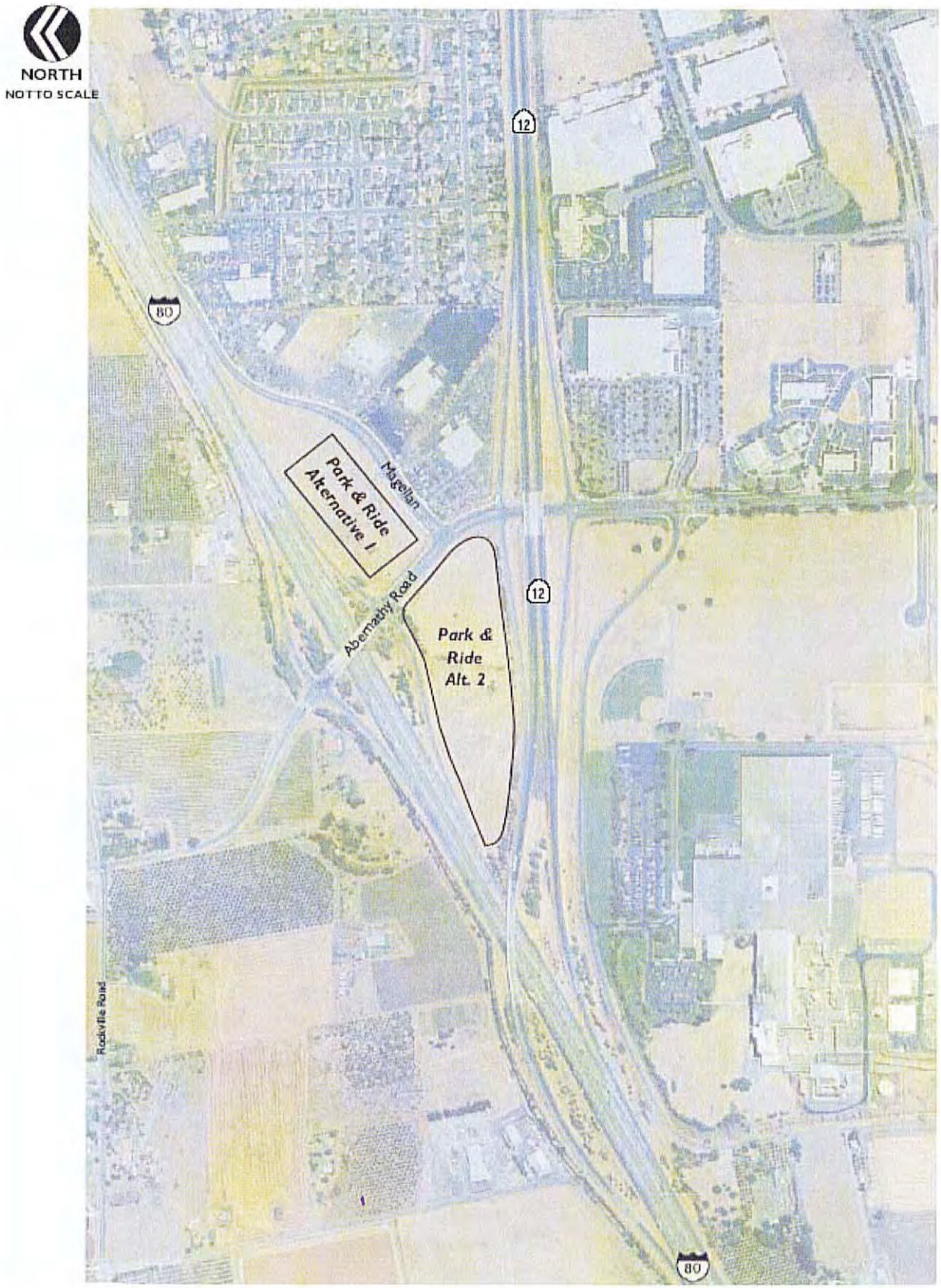
Korve Engineering

Fairfield Transportation Center – The second phase of this project to provide 234 surface spaces is in progress. The long term forecast, however, exceeds the Phase 2 supply of new spaces. The recommended improvement plan for this site is to construct a 600 space parking garage on the site occupied by the Phase 2 surface parking lot. This expansion is estimated to cost $6 million. As noted earlier, the FTC is the logical place to schedule coordinated intercity express buses.

Alternatively, the capacity expansion could be accomplished as a surface park and ride lot near Abernathy Road (Figure 5-122). This would require eastbound buses on I-80 to exit at Abernathy.

Fairfield: North Texas Street Park and Ride – The City of Fairfield plans to extend Manuel Campos Parkway to the I-80 North Texas Street interchange and to rebuild the interchange. North Texas Street would be realigned to intersect Manuel Campos Parkway on the east side of the existing Chevron Gas Station. The park-and-ride concept recommended for this site would be to use the right-of-way currently used for North Texas Street as shown in Figure 5-123. If the Chevron Gas Station would need to be rebuilt to accommodate interchange improvements, its design should be integrated into the park-and-ride lot. Figure 5-124A describes the recommended site development concept. It is strongly recommended that the new interchange include a park-and-ride lot.

Vacaville Intermodal Transportation Center – The City of Vacaville has plans for an Intermodal Transportation Center near the Vacaville Cultural Center (Figure 124B). It would provide 400-500 parking spaces and retail space. The Center would also be the terminal facility for bus Routes 40 and 91.



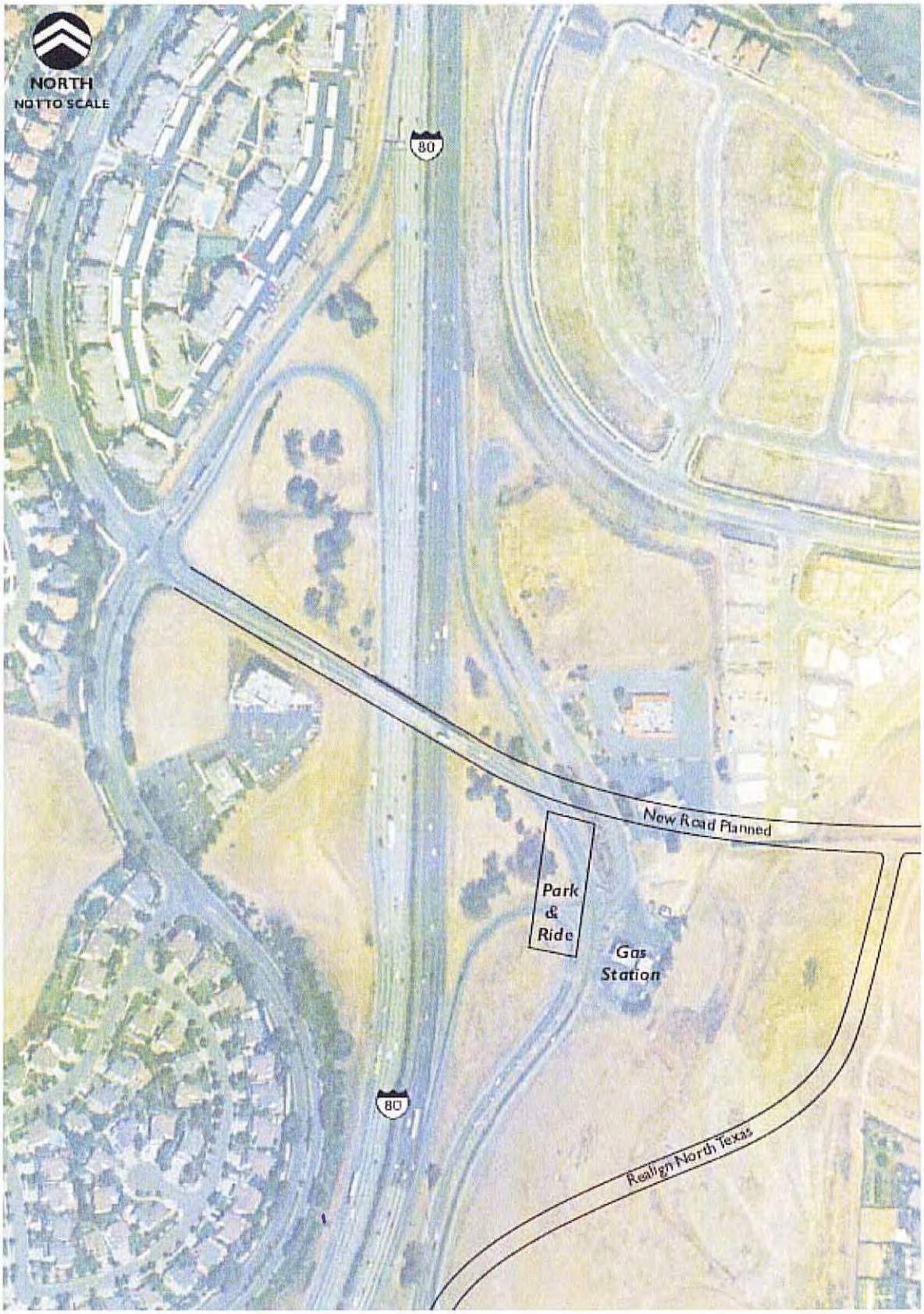
Source: Wilbur Smith

I-80 / I-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-122

Potential Abernathy Road Park & Ride Lot Site Opportunities

Korve Engineering



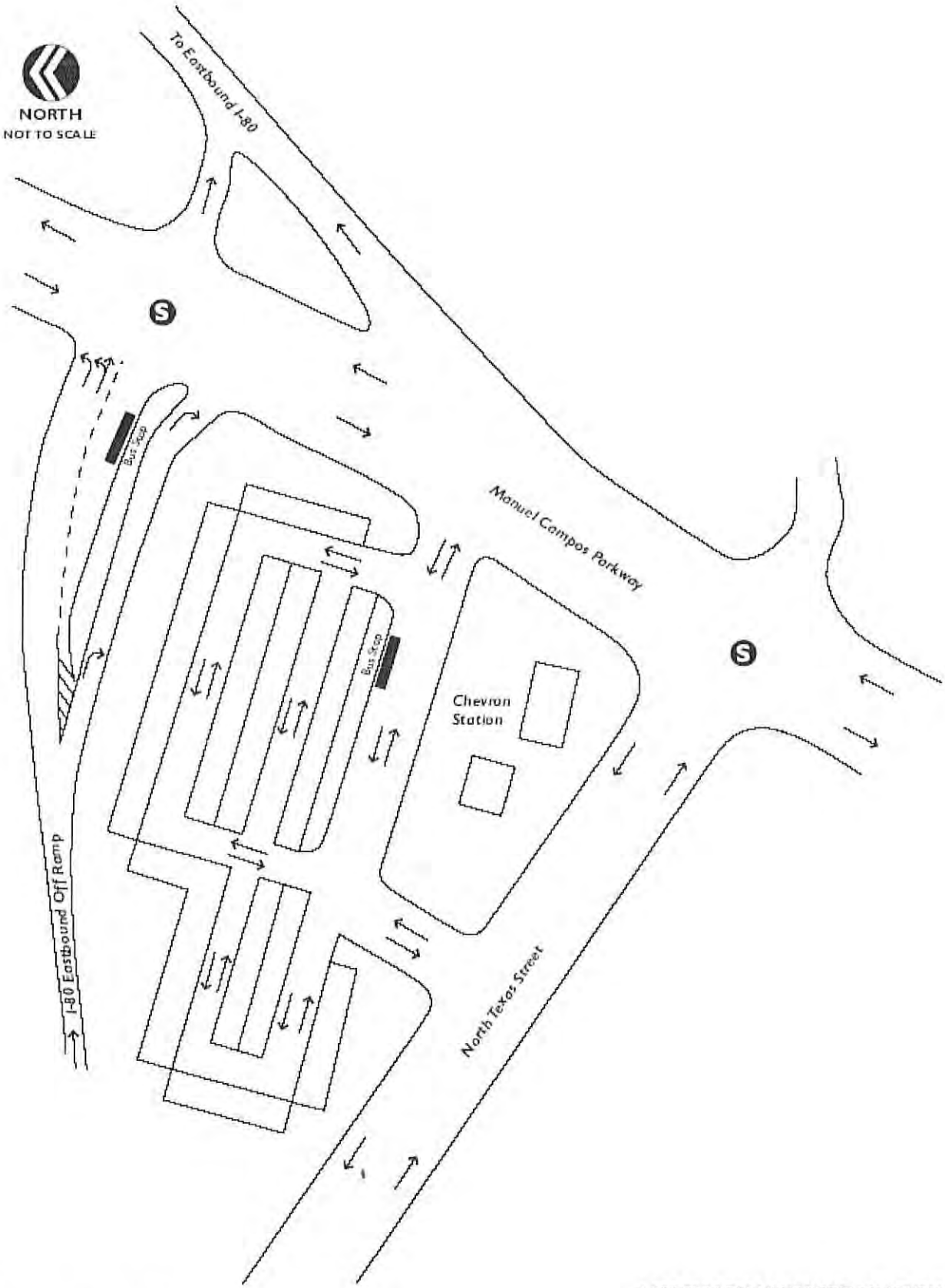
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-123

North Texas Street Park and Ride Lot Site

Korve Engineering



Source: Wilbur Smith

N Texas Park n Ride.cdr

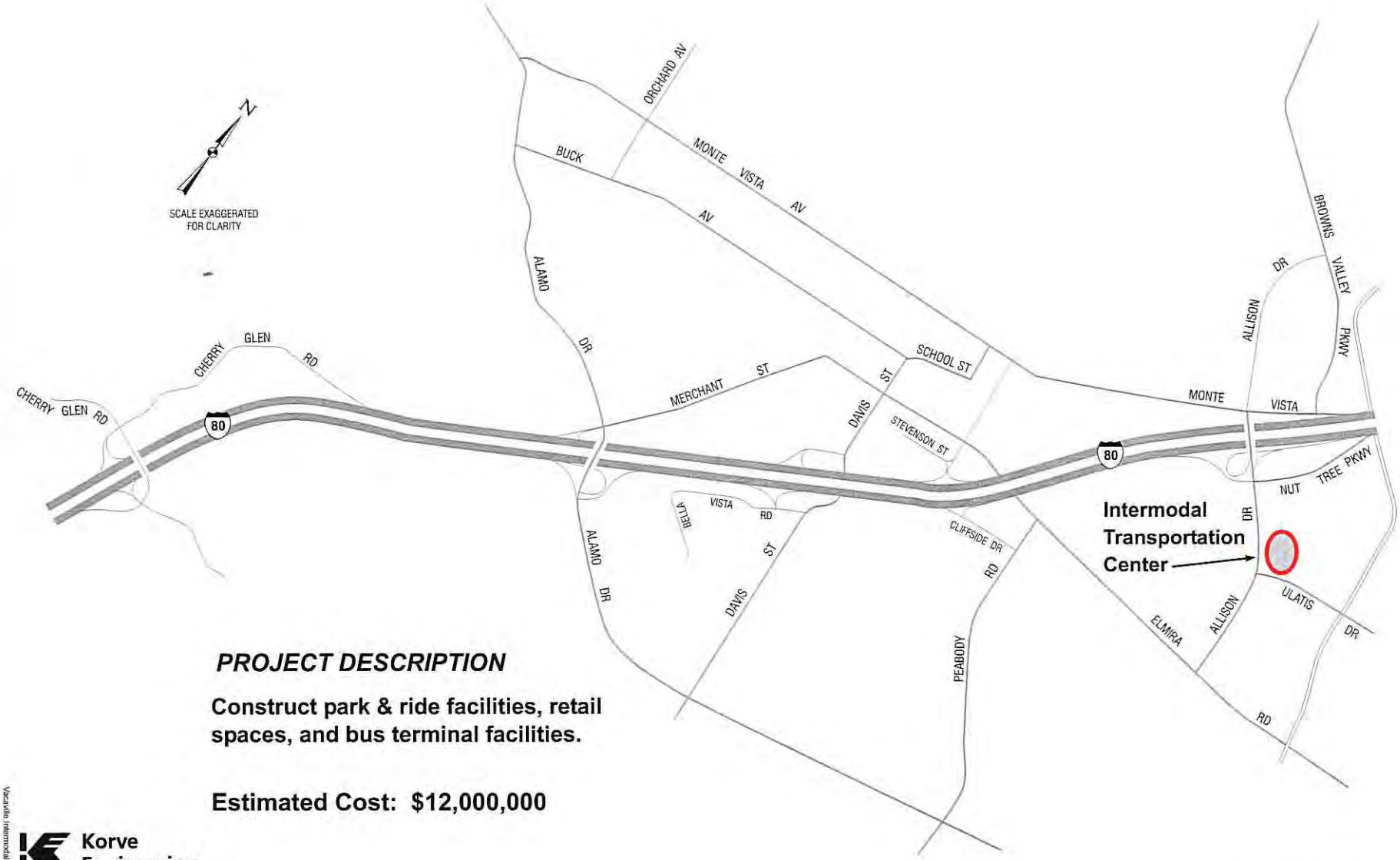
Korve Engineering

I-80/I-680/I-780 MIS/CORRIDOR STUDY

Figure 5-124A

North Texas Street Park & Ride Lot
Illustrative Site Development Concept

Vacaville Intermodal Transportation Center



PROJECT DESCRIPTION

Construct park & ride facilities, retail spaces, and bus terminal facilities.

Estimated Cost: $12,000,000

Korve Engineering

Vacaville Intermodal.cdr

8-12-04

Figure 5-124B

Dixon: West A Street Park and Ride – Low demand is forecast for this location. When the I-80 interchange is upgraded or when local development proposals surface, provision for a small park-and-ride lot would be useful. The best strategy is to integrate the lot with a local development project, rather than build a stand-alone project. The interchange area is currently undeveloped, which provides a range of siting opportunities. The ideal location for a lot at this location is the southwest quadrant of the interchange, as shown in Figure 5-125.

Dixon: North First Street Park and Ride - Similar to West A Street, forecast demands are low for this site. It should be pursued in conjunction with interchange reconstruction and private development proposals. About 50 spaces should suffice at this location, which is proposed to be served by the extended version of bus Route 30 (Vallejo Ferry Terminal to Sacramento). Figure 5-126 shows that the interchange area is not fully developed and thus offers a range of siting opportunities for park-and-ride lots. Ideally, the lot should be located on the southeast quadrant of the interchange. This location would intercept commuters before they pass the interchange and would serve as a good pedestrian interface with a future commuter bus stop.

Dixon: East H Street Park and Ride – Rearranging parking on East H Street to angled parking would provide added parking capacity for bus riders. Since this project is primarily restriping, it is not included as a corridor project.

Fairfield: Gold Hill Road Park and Ride – A significant demand for park-and-ride is forecast for the Gold Hill Road area once it receives intercity bus service (Route 40). The recommended project includes the construction of a 200-space park-and-ride lot on the southwest quadrant of the interchange (Figure 5-127). It should be integrated into joint-use commercial, if possible, for enhanced security. Ideally, the southbound buses should make a stop at a pullout on the southbound on-ramp in order to minimize delay (morning commute times tend to be more important to passengers than evening times); however, Caltrans approval of this concept could be problematic. Figure 5-128 describes the proposed site development concept. Northbound buses would enter the park-and-ride site to board passengers.

Benicia: Vista Point and Benicia Intermodal Center – Development of about 50 parking spaces appears possible for park-and-ride use at the Vista Point site near Lake Herman Road. Figure 5-129 shows the concept plan.

In the long range future, construction of the Benicia Intermodal Center would serve commuter rail passengers and Capitol Corridor passengers, as well as provide added park-and-ride spaces. Patronage estimates for the rail services indicate that only 200 spaces would be required for its passengers. Provision of 300 spaces would provide additional spaces for the park-and-ride component. As currently envisioned, this facility would be constructed northeast of the Lake Herman Road/I-680 interchange, and west of the railroad trackage.

Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-125

West A Street Park and Ride Lot Site

Korve Engineering

Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-126

North First Street Park and Ride Lot Site

Korve Engineering

Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-127

Gold Hill Road Park and Ride Lot Site

Korve Engineering

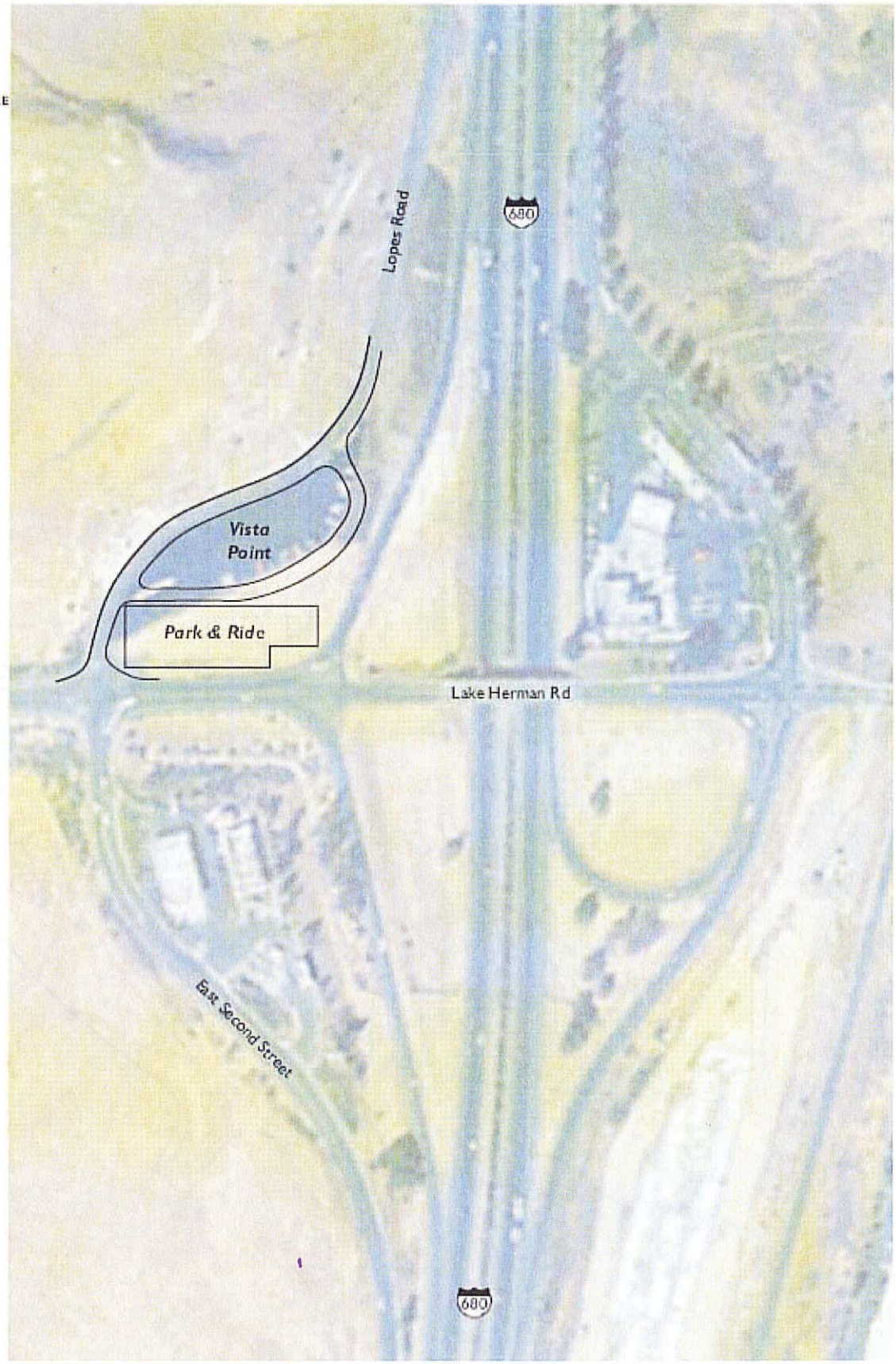
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-128

Gold Hill Road Park and Ride Lot Site
Illustrative Site Development Concept

Korve Engineering



Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-129

Vista Point Road Park and Ride Lot Site

Korve Engineering

Benicia: Downtown Area Park and Ride – Sites for potential park-and-ride lots are difficult to find along the I-780 corridor. Development of a potential park-and-ride lot at the northeast corner of West Military Street and Southampton Road would involve a partnership with the Calvary Church, which owns the vacant corner lot. In exchange for weekday use of the lot by park-and-ride patrons, churchgoers would have increased parking availability on Sunday. Ideally, access to the expanded lot would be at a common church driveway. Benicia buses pass the lot directly by turning from West Military Street onto Southampton Road. Figure 5-130 describes the proposed park-and-ride lot site.

Other park and ride sites in downtown Benicia could also address the need for park and ride spaces in the I-780 corridor. Other possible locations include the First Street area and the East H Street area, which are both on the Benicia Transit route which provides service to Pleasant Hill BART and the Vallejo Ferry Terminal.

Benicia: Columbus Parkway and Rose Drive Park and Ride – A development plan has been proposed for the corner of Columbus Parkway and Rose Drive. The commercial development design should be coordinated with the park-and-ride lot plan for improved access to both and better security. Figure 5-131 describes the proposed site location and Figure 5-132 shows the site development concept.

Suisun City: Walters Road/SR 12 Park and Ride – The northeast quadrant of the intersection is currently undeveloped and would be a good location for a park-and-ride lot (Figure 133). This facility would function as the eastern terminus of the proposed extension of bus Route 90 to the El Cerrito del Norte BART Station. The park-and-ride facilities should be coordinated with and integrated into future development of this site.

El Cerrito del Norte BART Station – Even though this station is outside of Solano County, improvements would be needed to support the expanded routes and increased frequencies proposed for Solano County bus connections. In addition to improved passenger shelters, an enhanced system for managing passenger queues would be required. Coordination with BART needs to be pursued with regard to improvements for processing buses and managing passenger loading. This project is not included as part of this study.

Source: Wilbur Smith

I-80/I-680/I-780 MIS/CORRIDOR STUDY

Figure 5-130

Downtown Benicia

Park & Ride Lot Site

Korve Engineering

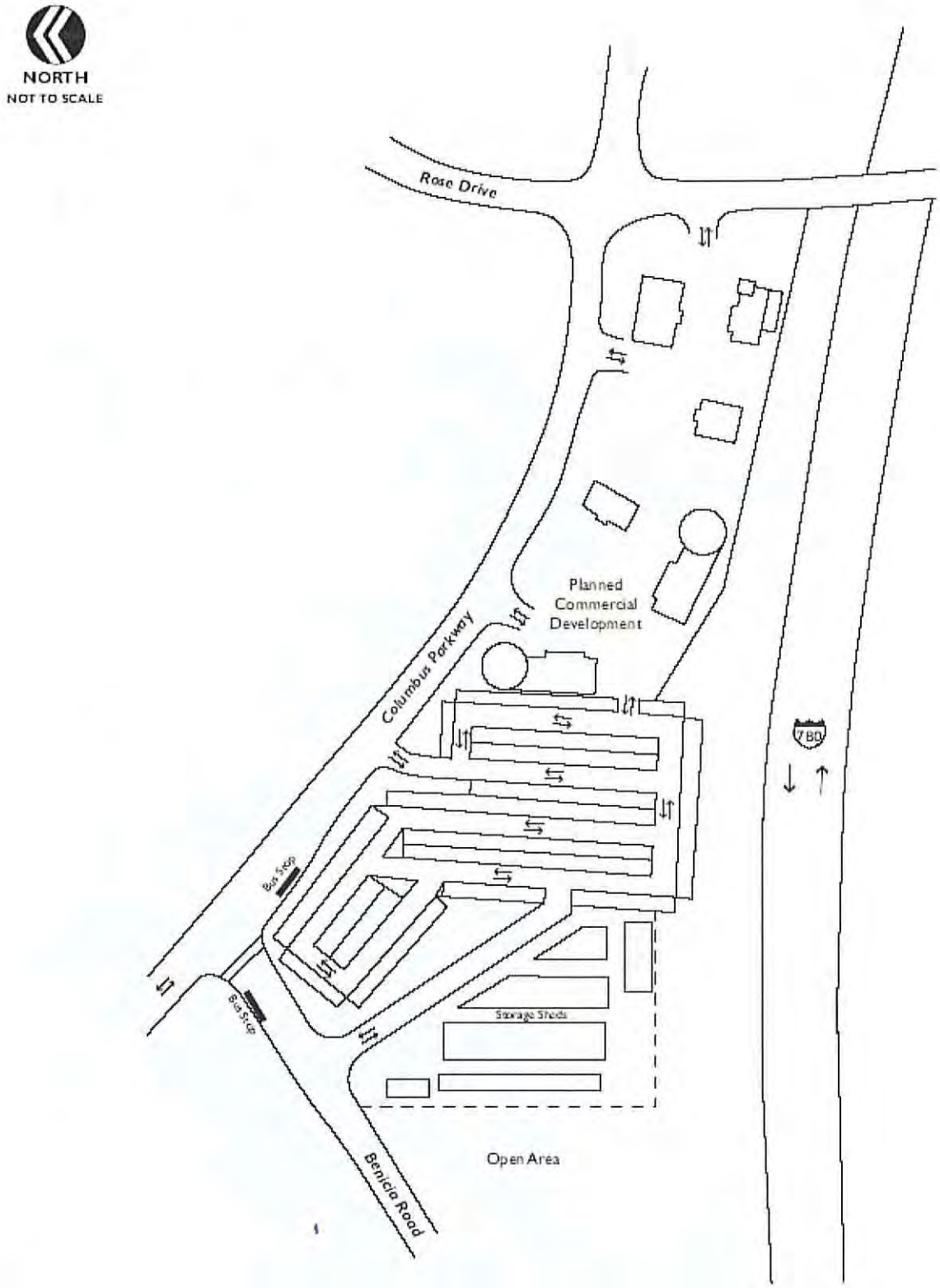
Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-131

Columbus Parkway and Rose Drive Park and Ride Lot Site

Korve Engineering



Source: Wilbur Smith

I-80 / 1-680 / I-780 MIS/CORRIDOR STUDY

Figure 5-132

Columbus Parkway and Rose Drive Park & Ride Lot
Illustrative Site Development Concept

Korve Engineering

I-80/I-680/I-780 MIS / CORRIDOR STUDY

SEGMENT 6 PROJECT

Walters Road Park & Ride

PROJECT DESCRIPTION

Construct a park and ride facility at Walters Road and SR-12.

Estimated Cost: $2,000,000

Walters Rd Park n Ride.cdr

Korve Engineering

January 23, 2004
Rev 2-6-04
Rev 3-4-04
Rev 8-12-04

Figure 5-133

5.6 Truck Scales Relocation

5.6.1 Introduction

The *Cordelia Truck Scale Relocation Study* was initiated in October 2002 and the Draft Study released in October 2003. The purpose of the study was to identify potential sites along I-80, I-505, SR 12 and SR-113 that could satisfactorily accommodate the relocation of the scale facilities. The current scale facility at Cordelia is located on I-80 between the Suisun Valley Road and SR 12 East interchanges. It is undersized, inefficient, and contributes significantly to the traffic congestion on I-80. The study identified a need to relocate and expand the truck scales to accommodate an estimated 115 percent growth in truck traffic in the corridor by the year 2040, and to allow for the expansion of I-80 in this segment.

5.6.2 Existing and Future Conditions

Currently, truck traffic in the I-80 corridor ranges from 6.1 percent of the average annual daily traffic (AADT) near SR 12 East to 13.5 percent near SR-113 North. The truck traffic volume does not actually decrease near SR 12 East. It simply comprises a lesser percentage of the total traffic because of the higher overall vehicular traffic near SR 12 East. Truck scales and inspection facilities are in place for the eastbound and westbound directions of I-80 between I-680 and SR 12 East. Currently, all trucks are required to pull into the truck scale for weighing except the ones with pre-pass equipment installed.

During peak truck traffic at the Cordelia facility, truck queues are frequently observed back to the gore area of the facility entrance ramp because the existing facility cannot process the trucks fast enough. When this occurs, the California Highway Patrol (CHP) temporarily closes the scale facility for safety reasons to avoid stopped trucks from impeding freeway operation. The CHP indicates that the existing inspection facility is undersized and outdated with regard to the number of inspection bays and the length of truck ramps. This is evident by the frequency at which the scales must be temporarily closed during peak periods.

Year 2025 truck volume forecasts were developed from MTC and Caltrans data. A 70 percent increase in truck volumes from 2000 to 2025 was identified. This growth rate for 2025 volumes was approved by MTC and Caltrans in July 2001 as part of the referenced *Segment 1: I-80/I-680/SR 12 MIS*. Forecasts for year 2040 were calculated as a 115 percent increase from year 2000. The increase in truck volume is expected to worsen the traffic conditions in the vicinity of the existing truck scale.

5.6.3 Initial Site Selection and Description of Options

Potential sites for the truck scales relocation were limited to Segments 1, 6 and 7. As concluded in the Draft Cordelia Truck Scale Relocation Study, three options were evaluated for relocating the truck scales. Brief descriptions of each option are as follows:

Option 1 – Relocate the scales within the I-80/I-680/SR 12 interchange area, east of the current location.

Option 2 – Locate a set of scales on I-80 between Fairfield and Vacaville and locate a set of scales on SR 12 between Suisun City and SR 113.

Option 3 – Locate a set of scales on I-80 between Vacaville and Dixon, locate a set of scales on SR 12 between Suisun City and SR 113, and locate a set of scales on I-505 between Vacaville and the County line.

Table 5-1 summarizes how each site and each option performed under the evaluation criteria.

Table 5-1 Evaluation Summary Table by Option

Option / Facility Location	Capital Cost ($M)[1]	35-yr Oand M Cost ($M)[1]	Total Option Cost ($M)[1]	Right-of-Way Requirements (Acres)	Environmental Consideration Ranking	Traffic Operations Ranking
Option 1						
WB I-80 in I-80/I-680/SR 12 IC	145	167		46	+	-
EB I-80 in I-80/I-680/SR 12 IC	270		***$582***	86		
Subtotal	*$415*	*$167*		***132***		
Option 2						
WB I-80 Fairfield to Vacaville	64	130		60	0	0
EB I-80 Fairfield to Vacaville	114			69		
WB SR-12 Suisun City to SR 113	25	77	***$437***	30		
EB SR-12 Suisun City to SR 113	27			34		
Subtotal	*$230*	*$207*		***193***		
Option 3						
WB I-80 Vacaville to Dixon	38	125		34	-	+
EB I-80 Vacaville to Dixon	36			32	-	
NB I-505 Vacaville to County Line	25	77		24	0	
SB I-505 Vacaville to County Line	27		***$457***	30		
WB SR 12 (E) Suisun City to SR 113	25	77		30		
EB SR 12 (E) Suisun City to SR 113	27			34	-	
Subtotal	*$178*	*$279*		***184***		

[1] Present Value (2003 dollars)
Source: Cordelia Truck Scale Relocation Study.

For evaluation criteria that were measured as a relative ranking between each of the option alternatives, the following indicators were used: "+" means relatively positive when compared to other option alternatives, "0" means relatively neutral when compared to other option alternatives, and "–" means relatively negative when compared to other option alternatives.

5.6.4 Public Comments on Initial Options

On October 8, 2003, the STA Board of Directors released the Draft Cordelia Truck Scales Relocation Study for public review and comment. The public review helped shape a reevaluation of potential options for relocating the Cordelia Truck Scales. The public comments are summarized below.

Option 1

Significant concerns were identified regarding Option 1. These concerns are summarized below:

- Initial capital costs of $415 million makes relocating the scales within the Interchange extremely difficult;
- Future negative traffic impacts on local interchanges and freeway traffic operations; and
- Potential need to close the Abernathy interchange.

The CHP has consistently preferred keeping the truck scales within the I-80/I-680/SR-12 interchange because of the following:

- No other location on I-80 is more ideally suited for "capturing" truck traffic from the Port of Oakland and other major Bay Area generators due to the confluence of I-80, I-680 and SR-12 at this one location.
- Bypassing the truck scales at Cordelia is difficult because of the limited number of potential bypass routes; other locations offer additional bypass opportunities.
- Staffing more than one set of scales would be difficult.

Option 2

The STA Board of Directors removed Option 2 from further consideration since a location on I-80 at Lagoon Valley does not provide significant traffic operations improvements over Option 1 and would require an additional set of scales on SR 12.

Option 3

During the public input process, several recurring major concerns were expressed regarding Option 3. These concerns are summarized below:

- Trucks bypassing the scales by using local county roads and city streets;
- Incompatibility of truck scales with Vacaville-Dixon Greenbelt;
- Increase in air pollution in the Sacramento air basin (non-attainment area);
- Safety of scales on a two-lane roadway (SR-12);
- Significant increases in operations costs for three sets of scales and the ability of the California Highway Patrol (CHP) to staff more than one set of scales; and
- Long-term operations costs (beyond 35 year study period).

5.6.5 Revised Site Selection and Description of Revised Options

Option 1

Through the joint efforts of staff from CHP, Caltrans, STA and STA consultants, a new conceptual design was developed and evaluated for relocating the truck scales within the I-80/I-680/SR-12 Interchange. The new design provided significantly shorter ramps leading to the truck scales by providing two inspection facilities within the truck scales complex, thus providing the capability to inspect over 1,000 trucks per hour during peak periods. The new design reduces the initial capital costs from $415 million to $226 million, eliminates most of the braided structures (bridges) needed for the original design, retains "staged" construction of relocated facilities, and provides improved traffic operations within the interchange. Although this is a modification from current Caltrans/CHP design standards for truck scales, both CHP and Caltrans staff support this new design concept although specific details of the design must be more fully developed.

Option 3

STA staff and consultants reevaluated the potential locations for truck scales on SR-12 and determined that both truck scales facilities could be located east of Branscome Road by relocating SR-12 to the north in this area and constructing a four-lane roadway in the vicinity of the truck scales facilities. Potential problems with the terrain near Olsen Road, and the close proximity to the SR-12/SR-113 intersection, are eliminated by locating both scales near Branscome Road. A four-lane roadway extending beyond the entry and exit ramps to the truck scales facilities provides increased traffic safety in this area. The additional costs for relocating SR-12 near the proposed truck scales and constructing SR-12 as a four-lane roadway in this area is approximately $12 million. Extending the four-lane roadway to the SR-12/Walters Road intersection in Suisun City would further increase traffic safety.

On I-80, a potential location for truck scales facilities east of the City of Dixon was evaluated. The location between Pedrick Road and Kidwell Road provides a potential location for a set of scales, although ramp braiding would be required for at least one, and possibly both, of the Pedrick and Kidwell interchanges, thus increasing costs. Constructing I-80 westbound truck scales facilities on the north side of I-80 would be relatively uncomplicated since most of this area exists as agricultural land. However, on the south side of I-80, the presence of a large trucking company and a heavily-used frontage road would present challenges for the construction of a truck scales facility. The costs for constructing truck scales between Pedrick and Kidwell have not been estimated; however, the costs will increase substantially from the original Option 3 site on I-80. Additionally, the Cities of Dixon and Davis are proposing a Dixon-Davis greenbelt, similar to the Vacaville-Dixon Greenbelt that would potentially be seen as incompatible with truck scales facilities.

Closing the Cordelia Truck Scales

In addition to reevaluating the potential truck scales facilities for both Options 1 and 3, STA staff recently consulted with CHP about potentially closing the Cordelia Truck scales. CHP staff was not in favor of closing the scales for two specific reasons. In locations without truck scales, as many as 75 percent of all trucks have been shown to

be overweight creating significant potential damage to both freeway and local roadway infrastructure. In locations with truck scales, less than 10 percent of trucks are overweight due to the deterrent factor of all trucks being weighed. Additionally, CHP staff at truck scales provides a visual "screening" of all vehicles and drivers for safety violations (e.g., uneven loads, "hot" brakes, damaged tires, tired or impaired drivers, etc.) to help ensure freeway safety. As a major truck route from the Port of Oakland to northern California and other parts of the United States, the Cordelia Truck Scales CHP staff are increasingly challenged with homeland security issues that could not be adequately addressed with the closure of the Cordelia Truck Scales facilities.

5.6.6 Effects on Highway Improvements

At the time of Corridor Study preparation, options which would reconstruct the truck scales within Segment 1 (option 1) and relocate the truck scales outside of Segment 1 (option 3) were still under consideration. Because of this, the phasing of main-line corridor improvements take into account both the traffic and geometric improvements necessary to support the truck scales either outside or inside of Segment 1. The details and results of this analysis are presented in more detail in Section 6.

Some of the major effects of the truck scales project on the corridor improvement projects are as follows:

- Project 6A and 6B are early mid-term projects. Because Project 1F would eliminate the truck scale auxiliary lanes, these projects are highly desirable in the early mid-term to prevent truck queues in freeway main-line lanes until the scales are relocated or reconstructed. With the potential pending relocation of the truck scales to a site to the east within the interchange, these lanes should be extended to the new scales.
- Project 7 is assumed to occur prior to the relocation or reconstruction of the scales. This is possible with the approval of a design exception for substandard shoulders in the vicinity of the scales.
- Project 10B would upgrade Project 7 to full standard shoulders, and should be implemented soon after Project 10A (truck scale relocation/reconstruction).
- From a traffic perspective, the improvements would follow their current proposed prioritization list after project 10B irrespective of the truck scale option chosen. However, the costs and specific project designs in segment 1 are dependent on the truck scale decision.

5.6.7 Findings/Conclusions/Recommendations

The shorter ramp design for relocating the scales within the I-80/I-680/SR 12 Interchange area is the most viable since it significantly reduces the capital costs for Option 1 making it comparable to the capital costs for Option 3, addresses the CHP position that the I-80/I-680/SR-12 Interchanger provides the "ideal" location for enforcement, and significantly reduces the potential long-term operations costs when compared to Option 3.

By "replacing" the Option 1 original truck scales design with the $226 million shorter ramp design and identifying the SR-12 location in Option 3 as the Branscome Road location only ($12M added costs), the revised estimated costs for options 1 and 3 are as follows:

	Capital Costs	35-year Operations and Maintenance Costs	Total
Option 1	$226M	$167M	$393M
Option 3	$190M	$279M	$469M

However, major negative impacts on traffic operations and safety within the I-80/I-680/SR-12 Interchanges will continue until the existing Cordelia Truck Scales are relocated with adequate ramp spacing between the entry/exit ramps to the scales and the adjacent interchanges and better separation of truck traffic from other vehicles is established. Due to these current problems, closing the scales or closing the scales during peak commute periods may be warranted until new scales can be constructed.

On July 14, 2004 the STA Board of Directors unanimously voted to recommend the following to the State of California regarding the relocation of the Cordelia Truck Scales.

Recommendations:

1. Investigate the feasibility of closure of the existing Cordelia Truck Scales, or closure of the scales during peak commute periods, until the scales can be relocated/reconstructed in a location that ensures safe traffic operations on I-80.
2. Relocate the Cordelia Truck Scales as identified in Revised Option 1 of the Cordelia Truck Scales Relocation Study.

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6 EVALUATION OF IMPROVEMENT ALTERNATIVES

6.1 Mid-Term Improvements

Several levels of analysis were undertaken to evaluate and prioritize the improvement alternatives described in Section 5. Those improvements which have been funded, and are currently underway in one form or another, have been categorized as "near-term" improvements. These near-term improvements are prioritized collectively as Project Number 1:

- 1A – Leisure Town Road Park-and-ride
- 1B – Bella Vista Park-and-ride
- 1C – Fairfield Transportation Center - Phase 2
- 1D – Red Top Road Park-and-ride – Phase 1
- 1E – Leisure Town Road Interchange Improvement
- 1F – "Aux Lane Project" – Widen I-80 to 10 Lanes from I-680 to SR-12 East

After the identification of near-term improvements, those improvements of immediate need were identified and are classified as "mid-term" improvements. Their analysis is described in Section 6.1.1. Improvements which work to solve future travel deficiencies, in the year 2025 and beyond, have been classified as "long-term" improvements and are evaluated in Section 6.2.

The mid-term improvement projects have been prioritized through a detailed corridor traffic operations analysis, taking into account bottlenecks, queues and delays during different time horizons. Those improvements which work to solve existing bottlenecks and congestion through the study corridors are given the highest priority. With the implementation of these initial improvement projects, existing bottlenecks will be removed, generating additional throughput through currently congested areas. As traffic demand rises over time, this additional throughput will result in new downstream bottlenecks. Improvement projects whose purpose is to solve these secondary downstream bottlenecks are prioritized in the second level of mid-term projects.

HOV lane projects are prioritized by HOV travel time savings and the provision of additional freeway capacity. The mid-term park-and-ride lot and transit improvements are first prioritized to solve areas of immediate need. After the areas of immediate need have been resolved, park-and-ride improvements are prioritized in a manner which supports the recommended highway improvements (i.e. park-and-ride lots developed in concert with HOV improvements). Those park-and-ride improvements which work to resolve future, post 2025 deficiencies, are classified as long-term improvements, and are discussed in Section 6.2.

6.1.1 Traffic Operations

As documented in Section 1.2 "Purpose and Need" and Section 2 "Existing Conditions", considerable peak hour congestion currently occurs at the WB I-80/SR 29 merge, on I-80 between SR-12 West and SR-12 East, on northbound I-680 approaching I-80, and on I-80 through Fairfield. Figure 6-1 illustrates the existing bottlenecks, queues and delays in the study corridors. Mid-term improvement Projects 2 through 7 work to resolve these

areas of congestion. Subsequent mid-term improvement projects work to resolve future bottlenecks brought about by the elimination of these corridor constraints, or through the general increase in corridor travel demand.

Project 2 – Extend I-80 WB HOV Lane Eastward from SR 29 Merge (Figure 5-19)

The SR 29 merge with WB I-80 is a major existing bottleneck. In the morning peak hour, weekday queues from this merge currently extend eastward to the Georgia Street interchange. The current Carquinez Bridge project will install a HOV lane on the bridge which would end several hundred feet west of the SR 29 merge. In this configuration, HOVs will have to wait through approximately two miles of queue prior to entering the HOV lane. This project (Project 2) would extend the proposed HOV lane eastward so that HOVs could enter the HOV lane earlier, at the back of the mixed flow congestion.

Existing Configuration – I-80 at SR 29 merge, AM Peak

- Demand = 6,320 vph
- Output = 5,700 vph
- Stored Vehicles = 620 vph
- Total Delay = 6.7 minutes
- Queue Length (freeway) = 2.2 miles (existing measurement)

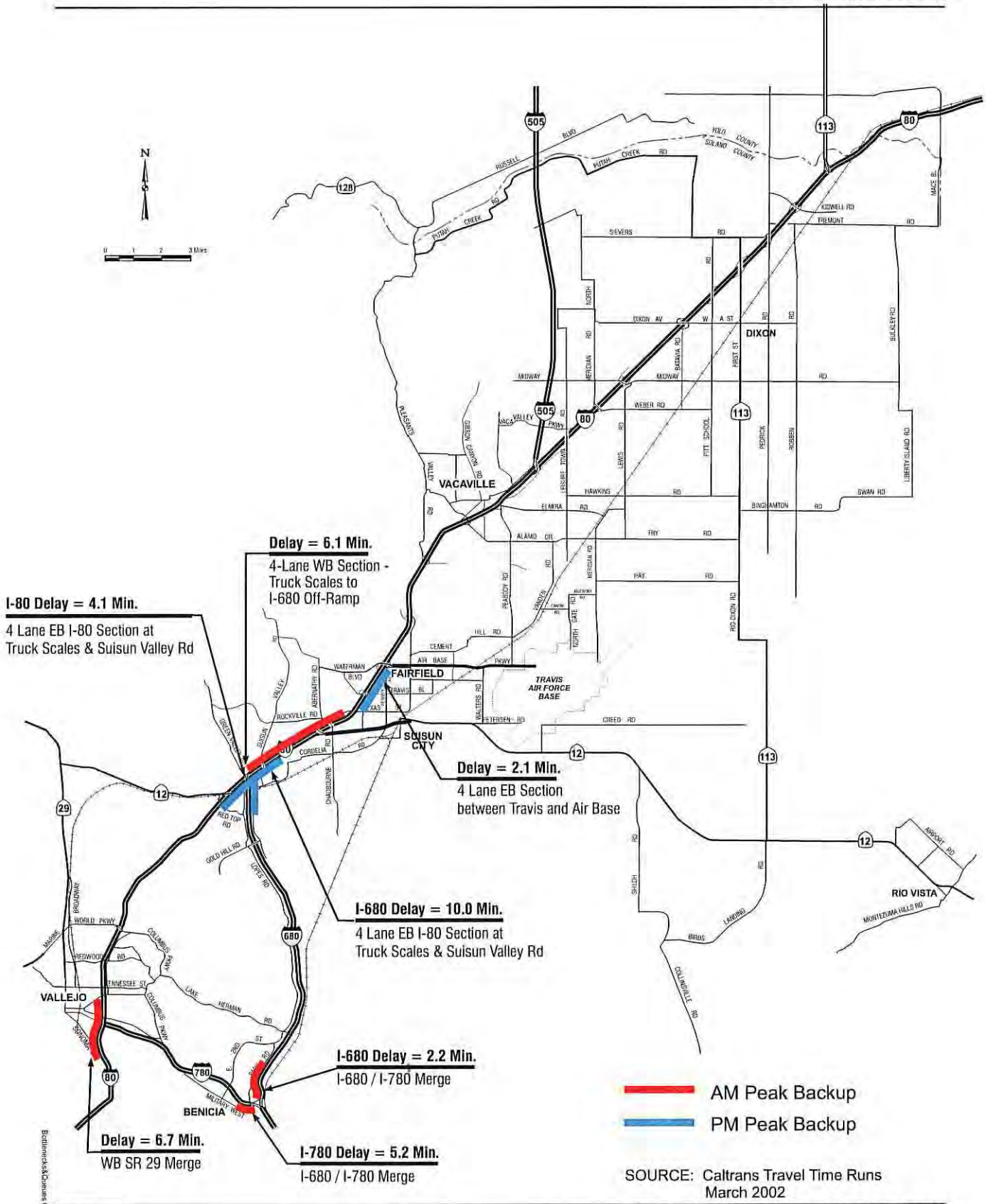
With HOV Lane Extension – I-80 at SR 29 merge, AM Peak

- Demand = 6,320 vph
- Output = 6,050 vph
- Stored Vehicles = 270 (310 on freeway, 60 on ramp)
- Total Delay = 2.8 minutes (2.3 minutes on freeway, 0.5 on ramp)
- HOV Travel Time Savings = 2.3 minutes
- Queue Length = 0.8 miles (on freeway)

With the HOV lane extension, the queue would extend 0.8 miles upstream from the SR 29 merge. This length of queue would not reach the I-780 westbound on ramp. To function most effectively, the HOV lane would be extended 0.8 miles upstream from the SR 29 merge.

It should be noted that in the year 2010, this westbound queue would extend further eastward, to the Solano interchange, if Projects 1 through 7 are completed and upstream bottlenecks in Segment 1 are removed. Westbound delay on I-80 in this scenario (year 2010 with improvements) would be more than five minutes, with significant delays on the SR 29 and I-780 westbound on ramps.

Estimated Cost = $1.5 M (substandard shoulder) to $5.7 M (full standards)



SOURCE: Caltrans Travel Time Runs March 2002

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Figure 6-1

EXISTING WEEKDAY BOTTLENECKS AND QUEUES

Project 3 – Install EB I-80 Signage for SR 29 – West of Toll Plaza (Figure 5-20)

Currently, during the evening peak hour high numbers of peak hour weaving vehicles create congestion just downstream of the Carquinez Bridge toll plaza. This occurs because of the presence of the off-ramp to northbound SR 29, less than one-half mile downstream of the toll plaza. Since trucks primarily use the right-most lanes and vehicles primarily use the left-most lanes, a heavily congested weaving section exists just downstream of the toll plaza. This improvement would install signage west of the toll plaza, notifying vehicles of the upcoming off-ramp to northbound SR 29, and advising them to use the right lanes.

Estimated Cost = $160,000

Project 4 – Expand Lemon and Curtola Park-and-ride Lot (Figure 5-117)

The project would eradicate the shortfall in parking and the poor access and circulation features of the existing facility, as described in Section 2.2. This site was identified by the transit study as the most important mid-term project for implementation. It would be achieved by constructing a 1,200-space parking structure on the west end of the site and consolidating the bus loading at the eastern end of the site. A new traffic signal installed on Curtola Parkway would also improve access and allow buses destined to downtown Vallejo to directly exit onto Curtola Parkway. The proposed location of the bus loading facilities (eastern end of the site) would enhance pedestrian accessibility and increase visibility. The project would require an interim replacement lot identified to accommodate demands during construction.

Estimated Cost = $30 M

Project 5 – North Connector (Figure 5-7)

As described in detail in Section 5, the North Connector would construct a two to four-lane signalized arterial roadway north of I-80, from SR-12 East to SR-12 West. Many detailed traffic and environmental studies of the benefits and impacts of the North Connector Project have been, and are currently being conducted. By removing a high number of existing and future local trips, the roadway would provide much needed relief to the heavily congested section of I-80 between SR-12 East and SR-12 West. Depending on the section in question, the North Connector would serve 2,000 to 3,500 peak hour vehicles, with the majority of these trips being removed from Interstate 80.

It should be noted that construction of the western end of the North Connector (the piece which would connect to SR 12 West at Red Top Road) would allow additional traffic, over and above current demands, to reach westbound SR 12 West. Queues on westbound SR 12 West are anticipated to occur at the end of the truck climbing lane where the facility will narrow from two to one westbound lanes. If the North Connector were to be constructed prior to the widening of SR 12 West to two westbound lanes, these queues would be exacerbated by the additional traffic which would access westbound SR 12 West due to the North Connector.

Estimated Cost = $68 M

Project 6A – EB I-80 Auxiliary Lane – Suisun Valley to Truck Scales (Figure 5-8)

Currently, an auxiliary lane exists between Suisun Valley Road and the truck scales. As part of the current "aux lane" project (Project 1F) to widen I-80 from I-680 to SR-12 West, this auxiliary lane will be removed. With this removal, trucks which currently queue in the auxiliary lane will queue in the new main-line eastbound freeway lane. Project 6A would restore this lane between Suisun Valley Road and the existing truck scales. It should be noted that the CHP's current policy is to close the scales when queues extend into the neighborhood of the gore point. If this policy is continued, and enforced, the capacity provided by Project 1F would be realized.

The widening of I-80 with Project 1G will increase traffic through this segment. The amount of the increase is approximately 700 vehicles eastbound during the PM peak hour.

From I-80 (EB)

- Delay = 4.1 minutes (existing measurement)
- Stored Vehicles = 400

From I-680 (NB)

- Delay = 10.0 minutes (existing measurement)
- Stored Vehicles = 300

Service levels on the section of EB I-80 from Suisun Valley to the truck scales will be LOS C/D with 5 lanes and additional traffic pushed through the section from the removal of the upstream bottleneck. The merge movement from Suisun Valley Road will function at LOS C. Project 6A is necessary to keep queued trucks entering the truck scales from stopping traffic in the outside lane. With the outside lane blocked by stopped trucks, the I-80 EB mainline LOS would be F and the additional capacity of the I-80 widening project (Project 1F) would not be realized.

Estimated Cost = $2.4 M

Project 6B – WB I-80 Auxiliary Lane – Truck Scales to Suisun Valley (Figure 5-9)

As described above, Project 1F (Aux Lane Project) will widen I-80 between SR-12 E and I-680 by one lane. This widening will increase the vehicular throughput of this section. In the westbound direction in the morning peak hour, this additional throughput is expected to be approximately 740 vehicles.

I-80 WB at I-680, AM Peak

- Delay = 6.1 min (existing measurement)
- Stored Vehicles = 740

This additional traffic will result in the failure (LOS F) of the westbound on-ramp from the truck scales. The large number of slow moving, merging trucks from the truck scales, combined with the heavy down-stream off-ramp movement to Suisun Valley Road will result in LOS F at the truck scale on-ramp merge point. Project 6B would add an auxiliary lane between the existing truck scales on-ramp and the off-ramp to Suisun Valley Road. This improvement would remove the LOS F merge and diverge movements in this section.

Figure 6-2 illustrates a hypothetical condition with the completion of Projects 1 through 6 under existing traffic levels. As noted in Figure 6-2, the significant improvements in the stretch of I-80 from I-680 to SR-12 East would remove the existing bottlenecks in this section. The removal of these bottlenecks would increase the eastbound bottleneck on I-80 between Travis and Air Base Parkway.

Estimated Cost = $1.7 M

Figure 6-3 presents the bottlenecks after the completion of Projects 1 through 6, assumed to occur in the year 2010. Constrained forecasts of vehicular demand through the section in the year 2010 were used to identify the bottlenecks.

Eastbound

In the eastbound direction, in the year 2010, the bottleneck during the PM peak hour would be the four-lane section between Travis and Air Base Parkway. This existing bottleneck on I-80 between Travis and Air Base Parkway would queue vehicles westward to I-680. This analysis assumes that Projects 1 through 6 are completed to remove the currently existing upstream bottlenecks in Segment 1. The removal of these bottlenecks would increase existing traffic in Segment 1 by approximately 700 eastbound vehicles. Projections indicate that demand will increase in Segment 1 by an additional 865 eastbound PM peak hour vehicles by the year 2010. If the bottleneck between Travis and Air Base Parkway were removed, these increases would exceed the capacity of the four-lane eastbound segment on I-80 between SR-12 East and Abernathy.

Westbound

As previously discussed, Project 1F (Aux Lane Project) would widen I-80 between SR-12 E and I-680, thereby increasing the westbound AM peak hour throughput in this section by approximately 740 vehicles. With this improvement and removal of the existing bottleneck, there would be no failing freeway sections on I-80 in Segments 1 or 6. However, as traffic levels increase, segments though this area will begin to exceed capacity. By 2010, the westbound segment of I-80 between West Texas and Abernathy, and the section between SR-12 East and Suisun Valley Road would both represent bottlenecks.

Project 7 – I-80 HOV Lane – SR-12 West to Air Base Parkway (Figure 5-10)

Existing counts of HOV volumes on I-80 at the Suisun Valley Road interchange identified the following percentages:

Eastbound, PM peak hour

- 18% - 2 occupant vehicles (does not include 3+ vehicles)
- 6% - 3+ occupant vehicles

Westbound, AM Peak Hour

- 17% - 2 occupant vehicles (does not include 3+ vehicles)
- 4% - 3+ occupant vehicles

Eastbound

A 3+ person occupancy HOV lane would serve between 450 and 600 vehicles per hour, depending upon the segment in question between SR-12 West and Air Base Parkway. In the year 2010, HOV travel time savings would be approximately 5.6 minutes in the eastbound direction during the PM peak hour.

Eastbound, PM Peak Hour, 2010

- HOV Travel Time Savings = 5.6 minutes (Bottleneck at EB section at 4 lane segment Travis to Air Base Parkway)
- 3+ HOV Volume = 540 vehicles at Abernathy
- Mixed Flow Bottleneck – 750 Stored Vehicles

Westbound

In the westbound direction during the morning peak hour, a 3+ person HOV lane would serve between 300 and 400 vehicles per hour, depending on the segment in question between SR-12 West and Air Base Parkway. If the HOV lane was constructed, along with improvements 1 through 6, approximately 3.5 minutes of HOV travel time savings would be realized in the year 2010. With the HOV lane, the bottlenecks at SR 12 East and West Texas would be minimized, but not eliminated.

Westbound, AM Peak Hour, 2010

- HOV Travel Time Savings = 2.7 minutes (Bottleneck at WB section at West Texas)
- Bottleneck at West Texas – 360 Stored Vehicles, Queue extends to 0.4 miles upstream of Waterman On-Ramp
- HOV Travel Time Savings = 0.8 minutes (Bottleneck at WB section at SR-12 E)
- Bottleneck at SR-12 E – 110 Stored Vehicles, Queue extends to Abernathy on-ramp (0.6 miles long)
- Total HOV Travel Time Savings = 3.1 minutes

Estimated Cost = $78 M

Figure 6-4 presents the queues, bottlenecks and delays under a year 2010 configuration with Projects 1 through 7 completed.

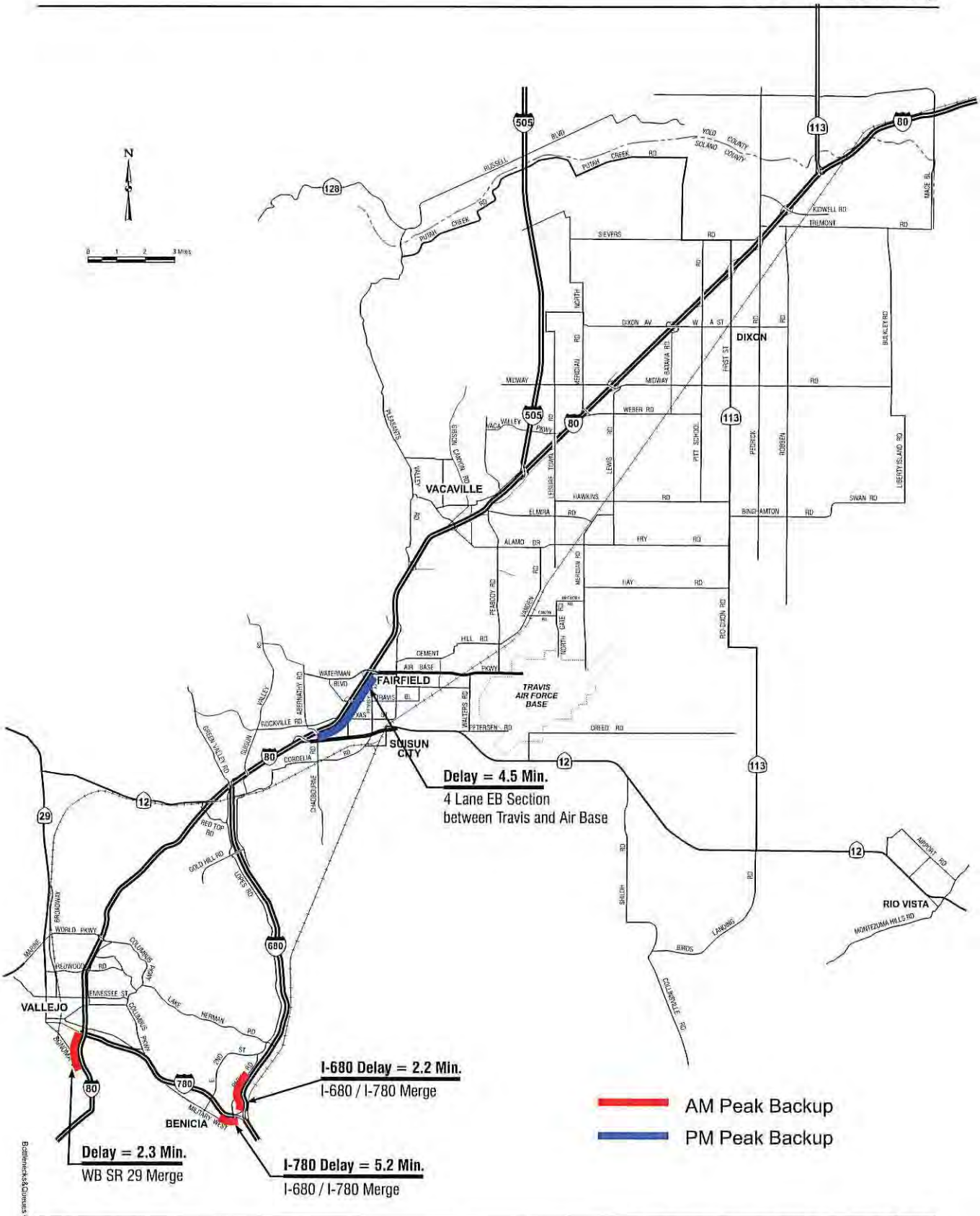

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Figure 6-2

QUEUES AFTER PROJECTS 1 - 6 – EXISTING VOLUMES

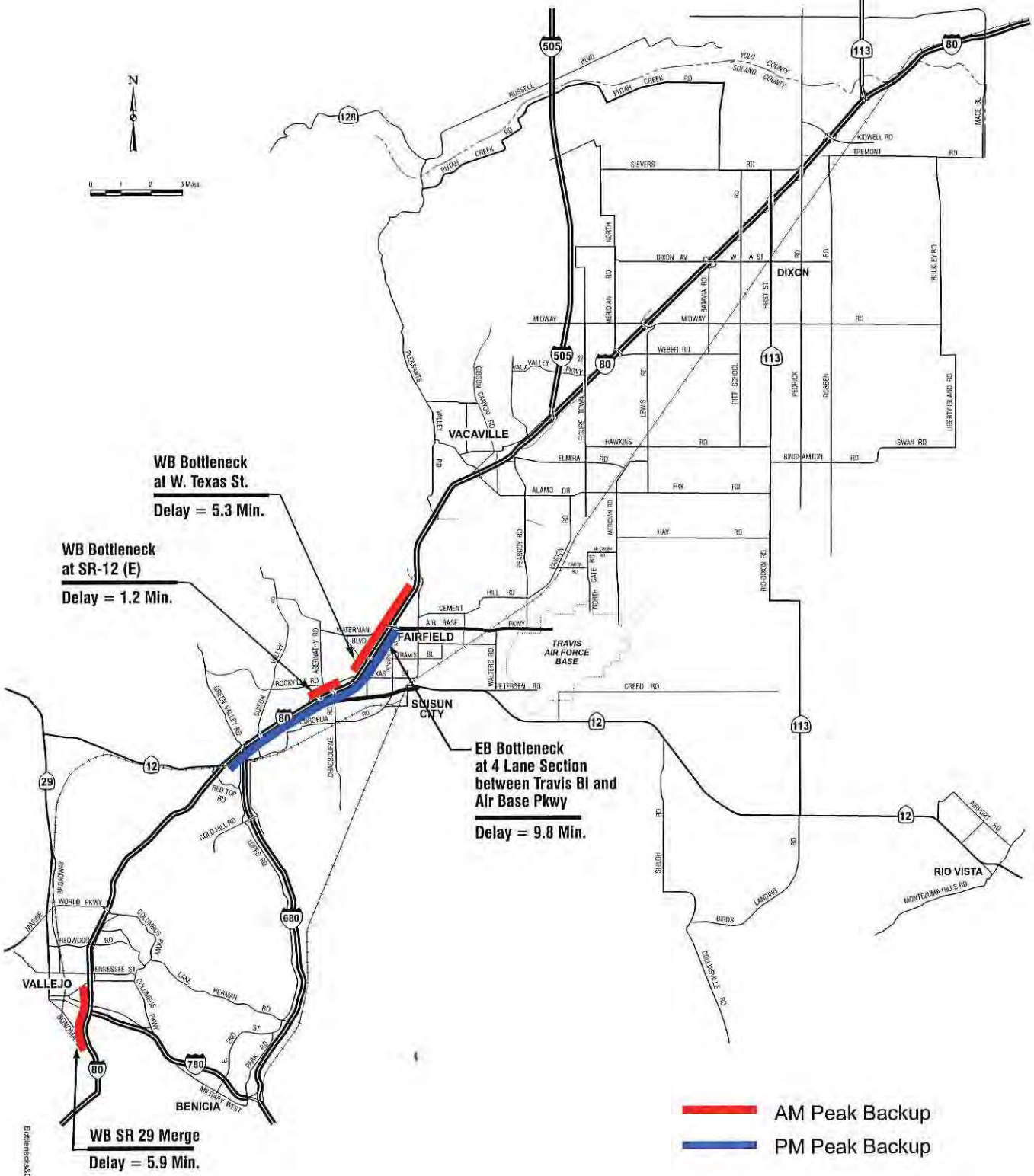

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Figure 6-3

YEAR 2010 QUEUES WITH PROJECTS 1 - 6

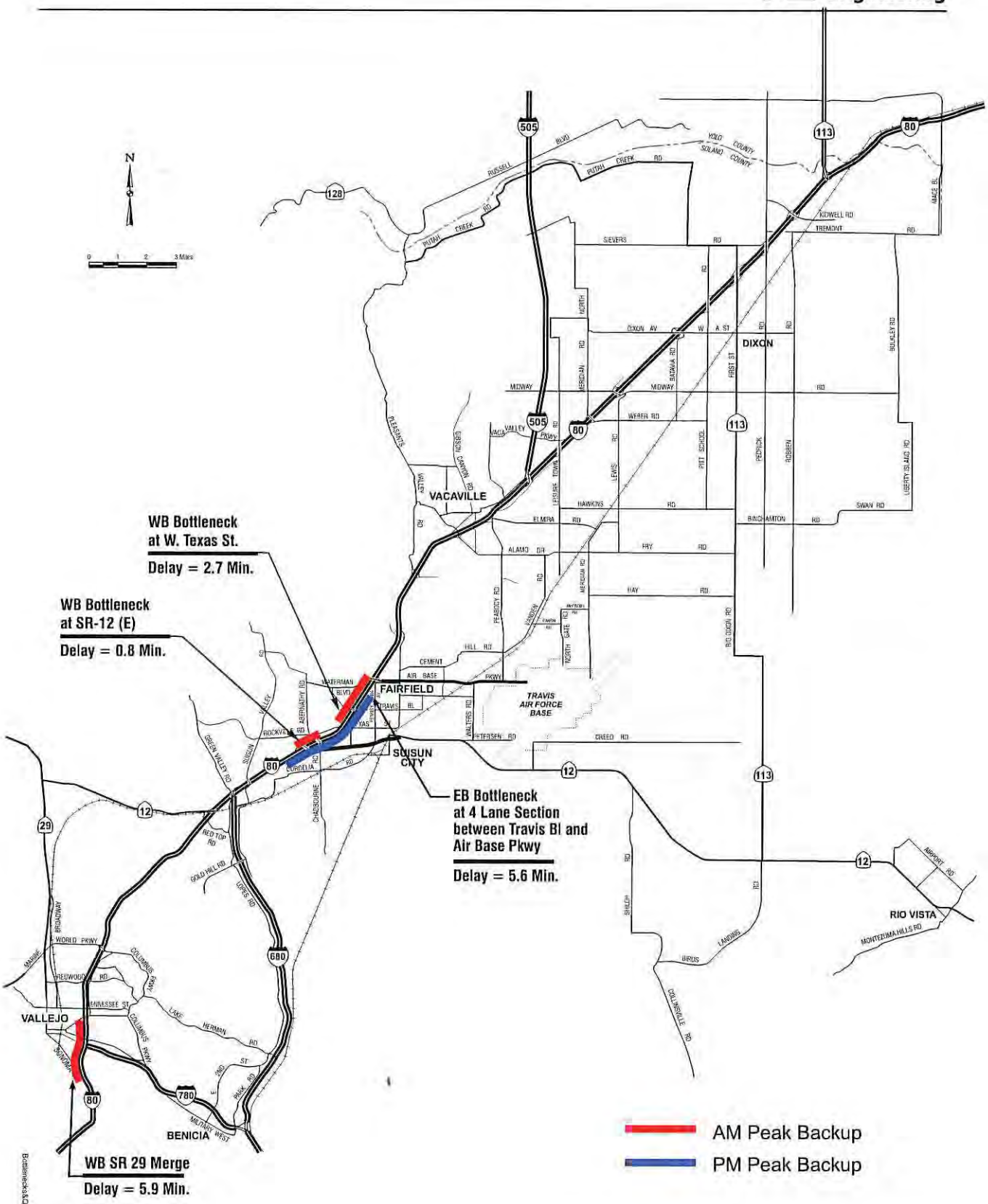

Figure 6-4

YEAR 2010 QUEUES WITH PROJECTS 1 - 7

Project 8 – Braiding EB I-80 Ramps – I-680 to Suisun Valley Road (Figure 5-11)

As described above in Project 6A, Project 1F (the Aux Lane Project) will improve capacity on I-80 between I-680 and SR-12 East. This improvement will increase vehicular throughput in this section. The project will also improve the merge movement from I-680 northbound to I-80 eastbound (i.e. the eastbound I-680 on-ramp). While the merge movement from the I-680 EB on-ramp to EB I-80 will be improved, the weaving section between the I-680 eastbound on ramp, the eastbound Green Valley Road on-ramp and the Suisun Valley Road eastbound off-ramp will remain. The increased vehicular throughput through this section will make this weaving movement more difficult to make, particularly for vehicles traveling eastbound on I-80. With project 1F, this weaving section will operate at LOS E/F and become a bottleneck for eastbound traffic during the PM peak hour. By 2010, this weaving section will fail (LOS F), queuing traffic onto northbound I-680 and the eastbound Green Valley Road on-ramp.

Project 8 would eliminate this bottleneck and remove the weaving section by braiding all of the eastbound ramps between I-680, Green Valley Road and Suisun Valley Road.

Estimated Cost = $131 M to $186 M

Project 9 – I-80 Eastbound Auxiliary Lane – Travis to Air Base Parkway (Figure 5-43)

Current observations of PM peak hour eastbound flow have identified the section of I-80 from Travis to Air Base Parkway as an existing bottleneck. This bottleneck currently produces an eastbound vehicular delay of approximately 2.1 minutes and stores approximately 290 vehicles during the PM peak hour of travel. It should be noted that with the removal of bottlenecks associated with Projects 1 through 8 and increases in travel demand by the year 2010, the delay in this section would increase to approximately 5.6 minutes. The mainline freeway in this section currently functions at LOS F. Both the eastbound on-ramp from Travis and the off-ramp to Air Base Parkway serve more than 1,100 vehicles during the PM peak hour.

I-80 EB – Travis to Air Base, PM Peak

- Delay = 2.1 min (existing measurement)
- Stored Vehicles = 290

This improvement would install an eastbound auxiliary lane between the Travis and Air Base Parkway interchanges. Figure 6-5 illustrates projected bottlenecks under a hypothetical configuration with the completion of Projects 1 through 9 and year 2010 traffic volumes.

Estimated Cost = $3.7 M

Project 10A – Truck Scales Relocation/Reconstruction (Figure 5-12)

The Cordelia Truck Scales contribute to significant congestion in Segment 1 during peak hours. The scales also constrain the widening of I-80 in Segment 1 in their current location, and need to be relocated prior to additional improvements being pursued in this section. The recommendation of the STA Board of Directors to the State is to

relocate/reconstruct the scales in a location east of Suisun Creek within Segment 1. However, at the time of this Corridor Study, no final decision by the State has been reached.

Some of the major effects of the truck scales project on the corridor improvement projects are as follows:

- Project 6A and 6B are early mid-term projects. Because Project 1F would eliminate the truck scale auxiliary lanes, these projects are highly desirable in the early mid-term to prevent truck queues in freeway main-line lanes until the scales are relocated or reconstructed.
- Project 7 is assumed to occur prior to the relocation or reconstruction of the scales. This is possible with the approval of a design exception for substandard shoulders in the vicinity of the scales.
- Project 10B would upgrade Project 7 to full standard shoulders, and should be implemented soon after Project 10A (truck scale relocation/reconstruction).
- From a traffic perspective, the improvements would follow their current proposed prioritization list after project 10B.

Estimated Cost = $226 M

Project 10B – Upgrade Project 7 to Full Caltrans Standards (Figure 5-13)

This project would upgrade the shoulder widths of the HOV Lane project between SR 12 West and Air Base Parkway (Project Priority 7) to full Caltrans standards. The section of substandard shoulders would occur between Suisun Valley Road and SR 12 East. Upon the reconstruction/relocation of the Cordelia Truck Scales Project Priority 10A, physical constraints on both sides of the freeway would no longer exist and the construction of full-standard shoulders would become possible.

Estimated Cost = $4 M

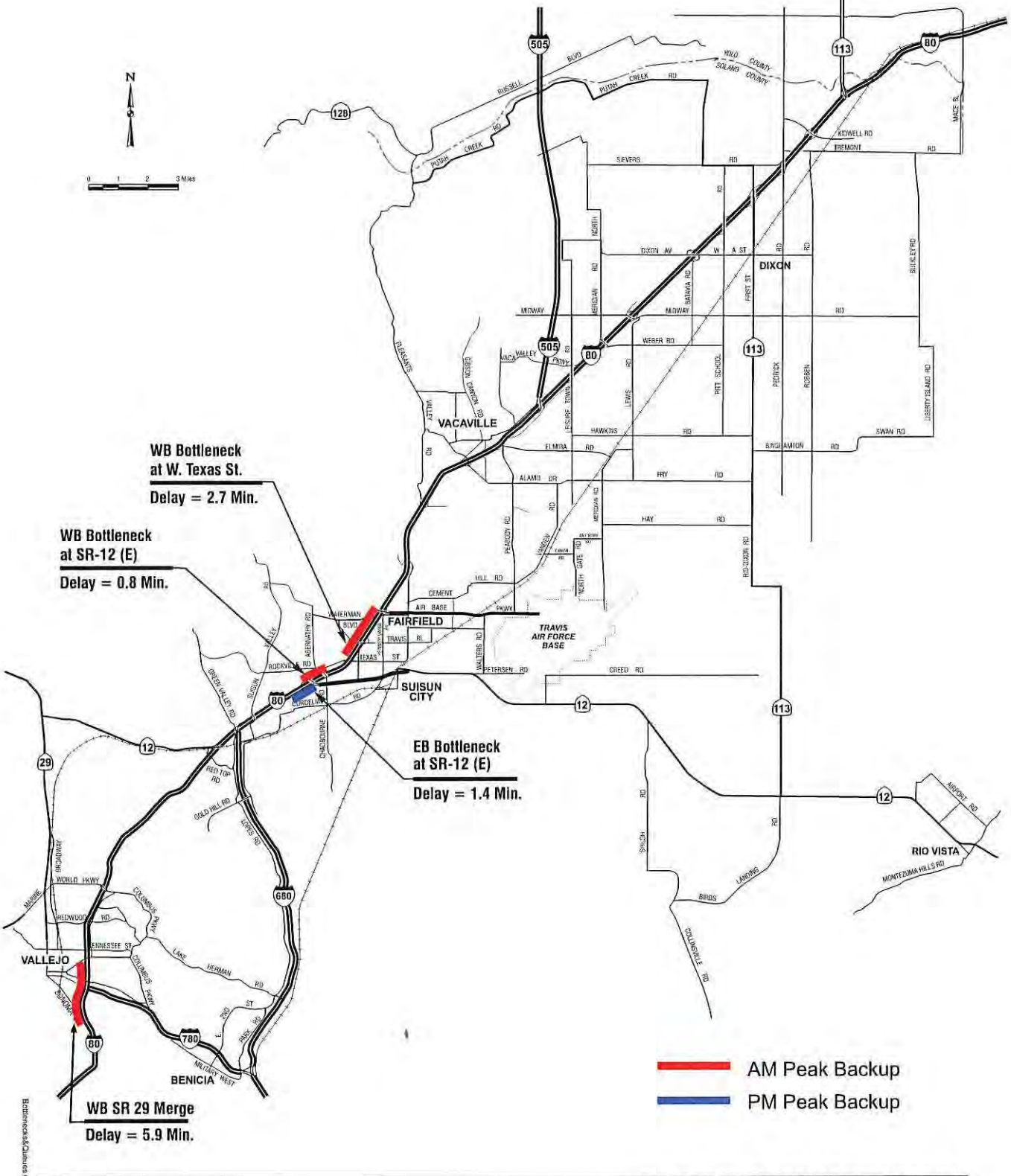

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Figure 6-5

YEAR 2010 QUEUES WITH PROJECTS 1 - 9

Project 11A – EB and WB I-80 Aux Lane – SR-12 E to Suisun Valley (Figure 5-14)

With the completion of Projects 1 through 10, the section of I-80 between Suisun Valley Road and SR-12 E will again become a bottleneck as demand through the corridor grows. Some of the projects provide additional capacity in this section, and some remove up and downstream bottlenecks, increasing demand through the section. In the eastbound direction, the Aux Lane Project (1F) and the HOV lane (Project 7) should provide sufficient capacity to serve year 2010 demands. However, as illustrated in Figure 6-5, the downstream section of I-80 east of SR 12 East will constrain in the year 2010. To preserve the necessary two-lane off-ramp to SR 12 East in the eastbound direction, this additional mixed flow lane between Suisun Valley Road and SR 12 East is necessary prior to the implementation of a fifth eastbound mixed-flow lane east of SR 12 East (Project 12). It may be desirable to complete Projects 11A and 12 simultaneously.

In the westbound direction, AM peak hour volumes are higher, and the section is forecast to be a bottleneck in the year 2010, even with the implementation of Projects 1F and 7. Figure 6-6 illustrates a year 2010 condition with the implementation of projects 1 through 11A.

Estimated Cost = $10.9 M

Project 11B – Expand Fairfield Transportation Center – Phase 3 – With Access Improvements (Figure 5-115)

As documented in Section 5, the proposed access improvements to the Fairfield Transportation Center would improve bus operations in the area and reduce the travel time of transit riders. In the Transit Corridor Study, this improvement was second in importance to the Lemon and Curtola Park and Ride expansion project. The modification of the traffic control for the eastbound off-ramp at Auto Mall Drive to three-way stop control would reduce delays for buses using the off-ramp. The addition of a second westbound approach lane on Oliver Road at the West Texas Street intersection at I-80 would allow buses to make a left turn onto West Texas Street from the new through lane. Since only buses would be allowed to make this second left turn movement from the through traffic lane, buses are expected to have reduced travel times through the area after the improvement. Conversion of the eastbound off-ramp "free" right turn movement to a signal would control right turns and provide space to allow a direct entry driveway for buses from West Texas Street into the transit island.

Estimated Cost = $6.0

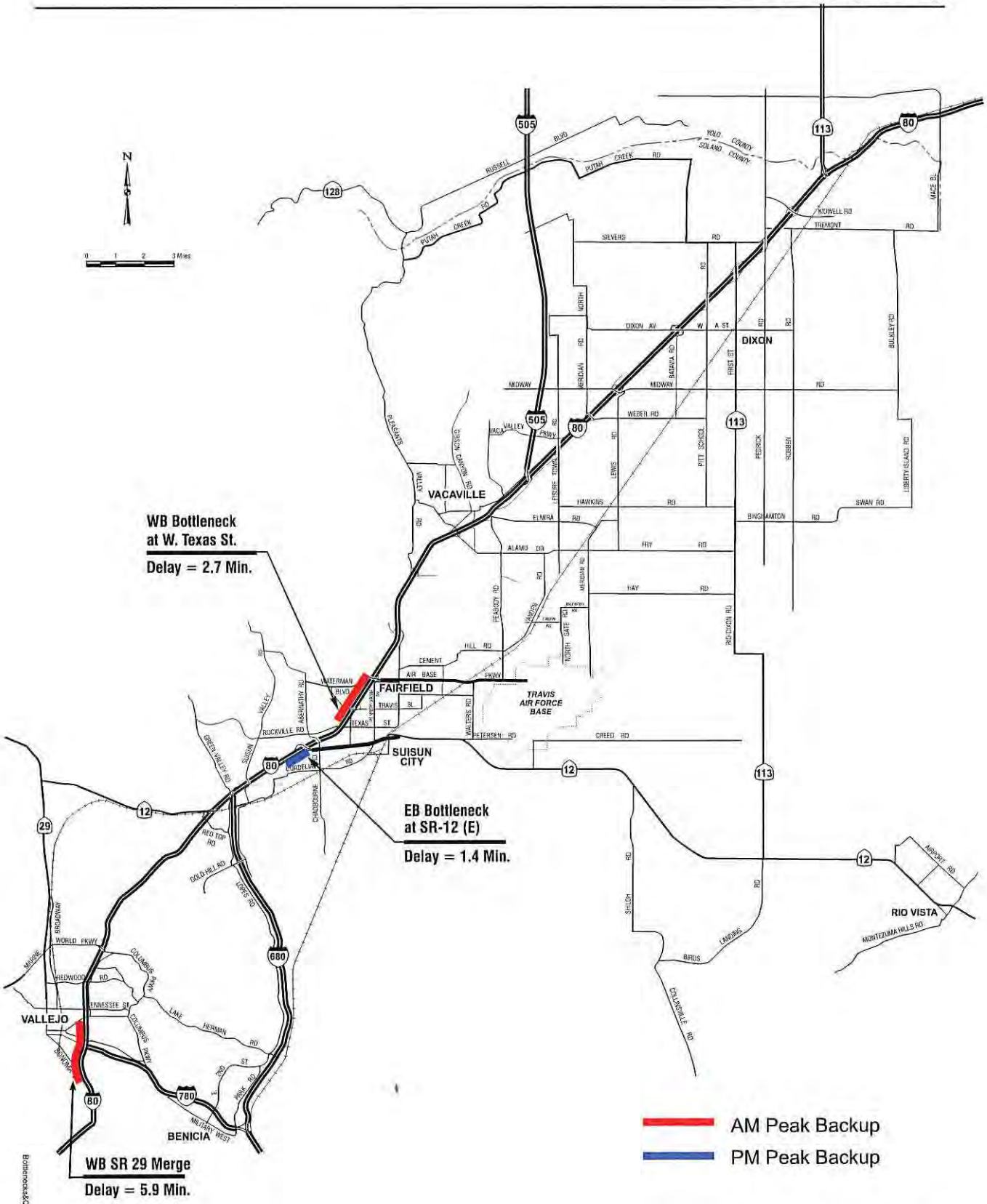

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Figure 6-6

YEAR 2010 QUEUES WITH PROJECTS 1 - 11

Project 12 – EB I-80 Mixed Flow Lane – SR 12 East to Beck Avenue Eastbound On-Ramp (Figure 5-44)

As discussed above, and illustrated in Figure 6-6, with all of the improvements to eastbound I-80 implemented in Projects 1 through 11, the four-lane section of eastbound I-80 between SR-12 E and Abernathy will become the point of constraint in the PM peak hour. If this section was widened, the section immediately downstream between Abernathy and Magellan would fail. Project 12 would construct a fifth eastbound mixed flow lane from SR 12 East to the Beck Avenue eastbound on-ramp. With this project, a fifth eastbound mixed flow lane would be provided to the eastbound Travis off-ramp, where it would drop.

This improvement would eliminate the last remaining year 2010 eastbound bottleneck in Segments 1 and 6.

Estimated Cost = $16.6 M

Project 13A – I-80 Westbound Aux Lane – West Texas to Abernathy (Figure 5-45)

As described above, after Projects 1 through 12 are implemented, under year 2010 traffic demands, an AM peak hour bottleneck in the four lane section from the West Texas Street westbound on-ramp to the Abernathy Road westbound off-ramp is anticipated. This condition is illustrated in Figure 6-6. This bottleneck is expected to store approximately 360 vehicles, generating a delay of approximately 2.7 minutes. The queue from this bottleneck would extend upstream of the Waterman westbound on-ramp. The westbound on-ramp from West Texas is forecast to have a volume of approximately 480 AM peak hour vehicles while the westbound off-ramp to Abernathy is forecast to serve approximately 750 AM peak hour vehicles.

Estimated Cost = $4.4 M

Project 13B – I-80 Westbound Aux Lane – Waterman to Travis (Figure 5-46)

With the implementation of Projects 1 through 13B, the lone year 2010 bottleneck in Segments 1 and 6 would occur in the four lane westbound segment at the westbound Waterman on-ramp. This bottleneck would store approximately 50 vehicles with a delay of approximately 0.5 minute. The westbound on-ramp from Waterman is forecast to have a volume of approximately 1,800 AM peak hour vehicles while the westbound off-ramp to Travis is forecast to serve approximately 350 AM peak hour vehicles. Without Project 13B, this section will function at LOS F and will be a westbound bottleneck. With Project 13B, adequate westbound capacity will be provided and the section will function at LOS D/E.

Estimated Cost = $5.0 M

Figure 6-7 illustrates conditions in year 2010, assuming the implementation of Projects 1 through 13.

Project 14A – Red Top Road Park-and-ride Phase 2 (Figure 5-119 to 5-121)

The I-80/I-680/SR-12(W) interchange upgrade (Segment 1) will displace the current Green Valley Road 61-space park-and-ride lot. This project would help fill the need by providing a new 418-space park-and-ride lot adjacent to the railroad crossing. This park-and-ride site is also envisioned to ultimately allow shared use with future commuter rail service. Initially, it would serve rideshare patrons and intercity Route 85 bus service. In the future it would also serve the extended version of Route 30 to the Vallejo Ferry Terminal and new bus services along SR-12 (W).

Estimated Cost = $4.0 M

Project 14B – Gold Hill Road Park-and-Ride (Figure 5-127 and 5-128)

A significant demand for park-and-ride is forecast for the Gold Hill Road area once it receives intercity bus service (Route 40). This project would construct a 200-space park-and-ride lot on the southwest quadrant of the interchange and would fulfill this anticipated increase in demand.

Estimated Cost = $3.0 M

Project 15A – Lake Herman/Vista Point Park-and-Ride (Figure 5-129)

The project would provide about 50 parking spaces for park-and-ride use at the Vista Point site near Lake Herman Road. The project's estimated construction cost is about $800,000 and the project would be relatively simple to develop.

Estimated Cost = $200,000

Project 15B – Benicia Intermodal Terminal

The construction of the Benicia Intermodal Center would serve commuter rail passengers and Capitol Corridor passengers, as well as providing added park-and-ride spaces.

Estimated Cost = $30 M

Project 16 – Braid EB Ramps – SR-12 West to Green Valley Road (Figure 5-15)

Currently, an auxiliary lane of approximately 400 meters exists between the SR-12 West eastbound on-ramp and the off ramp to Green Valley Road. In the evening peak hour, the SR-12 West on-ramp serves approximately 1,020 vehicles and the off-ramp to Green Valley Road serves approximately 500 vehicles. By 2030, demand for the SR-12 West eastbound on-ramp will grow to more than 1,780 vehicles and demand for the Green Valley Road eastbound off ramp will be approximately 1,080 vehicles. This demand, combined with heavy flow on the mainline section and truck volumes, will lead to an LOS E/F condition for the weaving section between the on and off ramps. Project 16 would braid the ramps, removing the weaving section and creating an LOS C/D merge/diverge condition. This project also widens the connector from SR 12 West to I-80 to two lanes.

Estimated Cost = $44.0 M

Project 17 – Westbound I-80 Aux Lane – Green Valley Road to SR-12 West (Figure 5-16)

Currently, the existing single lane westbound I-80 off-ramp to SR-12 West is a bottleneck in the morning peak hour. Queues from this off-ramp extend in the number four lane to the Green Valley Road westbound-on ramp. The existing single lane off-ramp functions at LOS F and serves a volume of approximately 1,460 vehicles during the morning peak hour. The westbound on-ramp from Green Valley Road currently serves approximately 470 vehicles during the morning peak hour. This project would create a two-lane off-ramp to SR-12 West through the construction of an auxiliary lane between the Green Valley Road westbound on-ramp and the SR-12 West off-ramp.

By 2030, with the implementation of Projects 1 through 16, demand for the westbound off-ramp to SR-12 west will grow to approximately 2,340 vehicles with demand for the Green Valley Road westbound on-ramp growing to approximately 800 vehicles.

Estimated Cost = $2.2 M

Project 18 – I-80/I-505 Weave Correction Project (Figure 5-47)

The construction of a westbound auxiliary lane between I-505 Southbound and the Monte Vista Avenue off-ramp would increase the capacity of I-80 by 1,800 vehicles per hour during peak commute periods. It would effectively relieve the bottleneck created by westbound merging and diverging movements at the I-80/I-505 interchange. Caltrans has already completed a detailed PSR for this project, and an appropriate solution to this bottleneck has been identified.

Estimated Cost = $8.4 M

Project 19A – Benicia Downtown Area Park-and-Ride (Figure 5-130)

Sites for potential park-and-ride lots are difficult to find along the I-780 corridor. This project would provide 50 more park-and-ride spaces to commuters in that area. As a potential location, development of a park-and-ride lot at the northeast corner of West Military Street and Southampton Road would involve a partnership with the Calvary Church, which owns the vacant corner lot. In exchange for weekday use of the lot by park-and-ride patrons, churchgoers would have more parking on Sunday. The project would require right-of-way negotiations. Other park and ride sites in downtown Benicia could also address the need for park and ride spaces in the I-780 corridor. Other possible locations include the First Street area and the East H Street area, which are both on the Benicia Transit route which provides service to Pleasant Hill BART and the Vallejo Ferry Terminal.

Estimated Cost = $2.5 M

Project 19B – Hiddenbrooke Parkway Park-and-Ride (Figure 5-118)

The current parking lot at this location is graveled. This project would provide paving for 50 spaces at the cost of $200,000. The project would be relatively simple to develop, and the demand for these spaces has been demonstrated by existing counts.

Estimated Cost = $250,000

Project 19C – North Texas Park-and-Ride (Figure 5-123 and 5-124A)

With the extension of Manuel Campos Parkway and the reconfiguration of the North Texas Street interchange, the interchange's carrying capacity would be substantially enhanced, and the number of vehicles passing through this location would significantly increase. Providing a park-and-ride facility at this location would encourage people to park their vehicles at the interchange and take public transportation. This location would be particularly attractive given the construction of the HOV lane from SR 12 West to Air Base Parkway included as Project 10. The exact phasing of the project should be linked to the timing of the Manuel Campos Parkway Extension Project.

Estimated Cost = $1.0 M

Project 19D – Columbus and Rose Park-and-Ride (Figure 5-131 and 5-132)

A development plan has been proposed for the corner of Columbus Parkway and Rose Drive. This project would provide 200 park-and-ride spaces for the development. The commercial development design can potentially be coordinated with the park-and-ride lot plan for improved access to both the park and ride and commercial use, and to provide better security. The project would also help minimize the demand on the Lemon and Curtola Park-And-Ride Lot when its expansion work is in progress.

Estimated Cost = $1.5 M

Figure 6-8 illustrates conditions in the year 2020 with Projects 1 through 19 completed. Under this configuration, bottlenecks would exist in Fairfield at the Travis Boulevard interchange in both directions. The WB SR 29 on-ramp to I-80 would continue to be a bottleneck in the year 2020 with delay growing to approximately 9 minutes. On I-780 bottlenecks would form between the East 2nd Street and East 5th Street interchanges in the eastbound and westbound directions in the morning and evening peak hours respectively.

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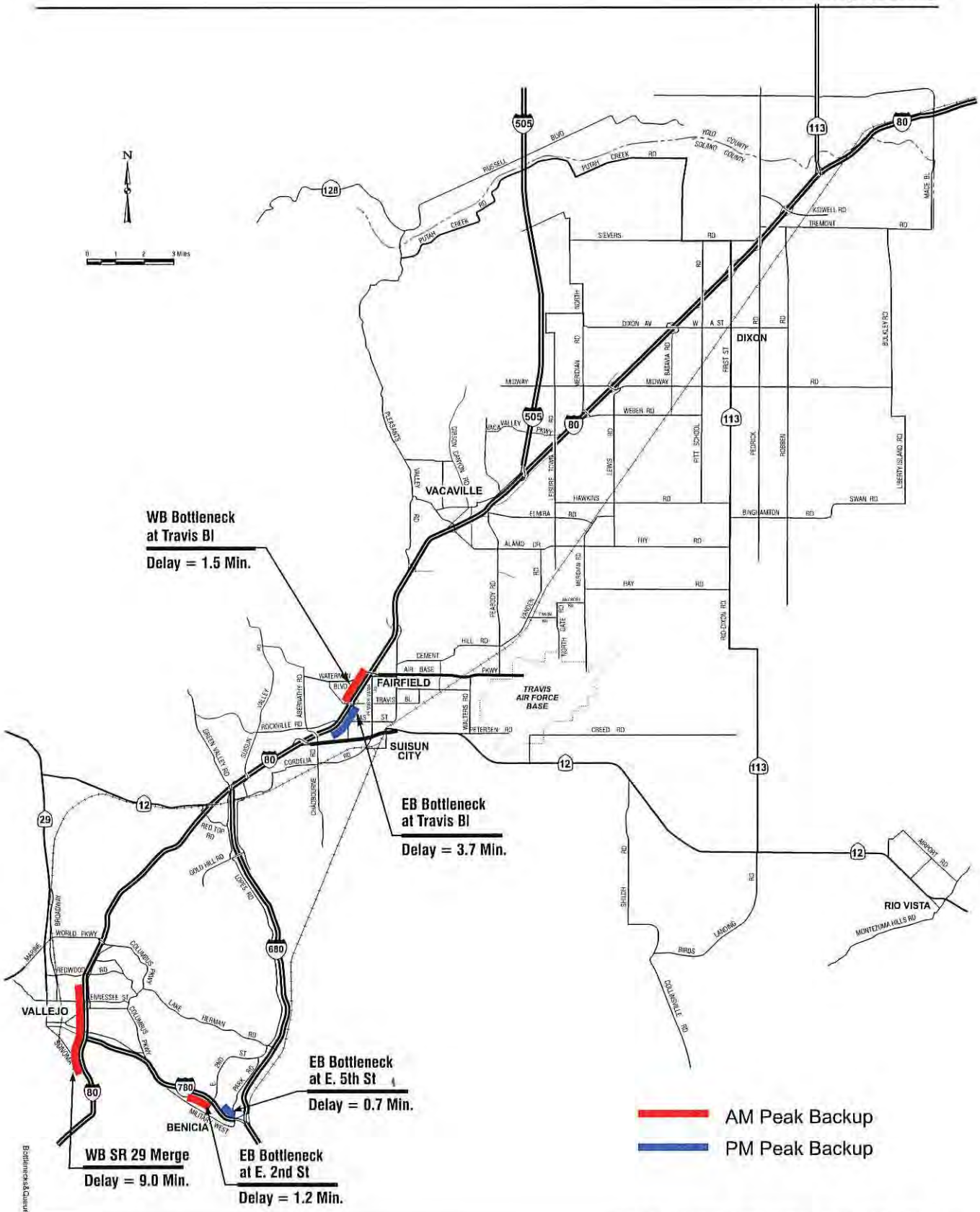
I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 6-7

YEAR 2010 QUEUES WITH PROJECTS 1 - 13



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I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 6-8

YEAR 2020 QUEUES WITH PROJECTS 1 - 19

Project 20 – EB/WB Aux Lane – I-780 East 2nd Street to East 5th Street (Figure 5-37)

This improvement could be made with relatively little capital investment. Because adequate pavement width currently exists, this auxiliary lane could be installed with simple striping. As illustrated on Figure 6-8, this section is forecast to fail by the year 2020. Forecasts also predict heavy future ramp volumes. In the PM peak hour in the westbound direction, traffic volumes are anticipated to be greater than 1,300 vehicles per hour on the on-ramp from East 5th Street and more than 900 vehicles per hour on the off-ramp to East 2nd Street. Similar ramp volumes are predicted in the AM peak hour in the eastbound direction. Since ramp volumes and traffic levels will be so severe, and this improvement can be made through simple striping, it is recommended for implementation.

Estimated Cost = $200,000

Project 21 – I-80/Pitt School Road Interchange Improvement (Figure 5-82)

This project would signalize, improve and widen the Stratford Avenue/Pitt School Road intersection to provide additional intersection capacity. This location currently functions poorly during peak commute periods, resulting in long vehicular queues on the I-80 eastbound off-ramp and the Pitt School Road approaches, and the potential for vehicle queues to back onto I-80.

Estimated Cost = $4.1 M

Project 22 – North First Street Park-and-Ride (Figure 5-126)

The project would provide 50 parking spaces, complementing the extended version of Route 30 (Vallejo Ferry Terminal to Sacramento). The project is easy to pursue since the interchange area is not fully developed and thus offers a range of siting opportunities for park-and-ride lots. This location would intercept commuters before they pass the interchange and would serve as a good pedestrian interface with a commuter bus stop.

Estimated Cost = $250,000

Project 23 and 24 – WB/EB I-80 HOV Lane – SR 37 to Carquinez Bridge (Figure 5-21 to 5-26)

These two improvements are discussed together since it is Caltrans' typical policy to construct HOV lanes in both directions at the same time. As presented in Figure 6-8, the west HOV lane will provide substantial travel time savings during the morning peak hours in the year 2020 and beyond. The eastbound HOV lane will provide less relative travel time benefit when compared to the westbound facility.

Estimated Cost = $48 M

Figure 6-9 illustrates year 2020 conditions with the implementation of Projects 1 through 24. Project 23, the eastbound HOV lane would provide approximately 5.8 minutes of HOV travel time savings in the year 2020. By the year 2030, the travel time savings would be more than 13 minutes in the westbound direction in the morning peak hour, without additional improvements beyond project 24.

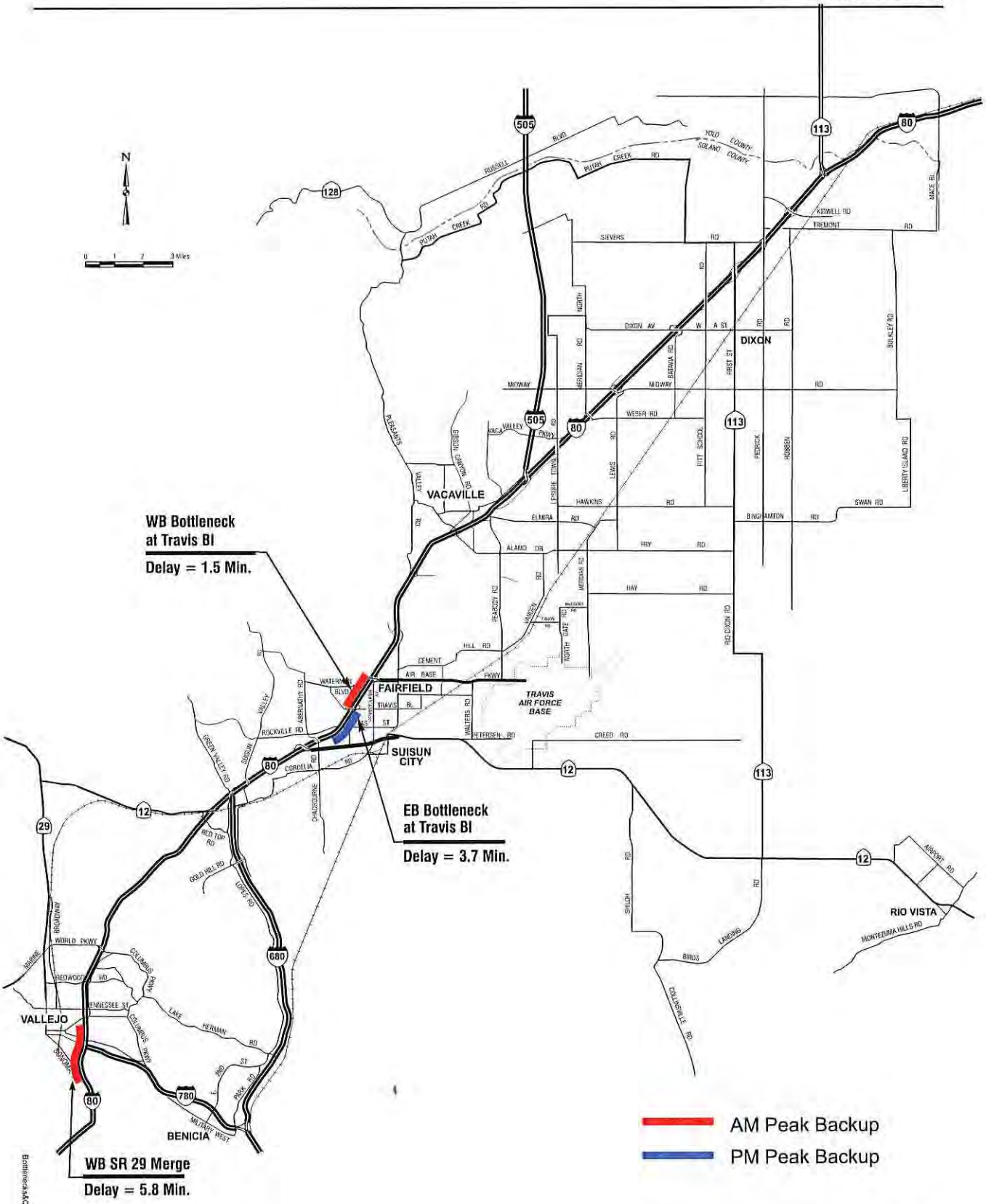

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Figure 6-9

YEAR 2020 QUEUES WITH PROJECTS 1 - 24

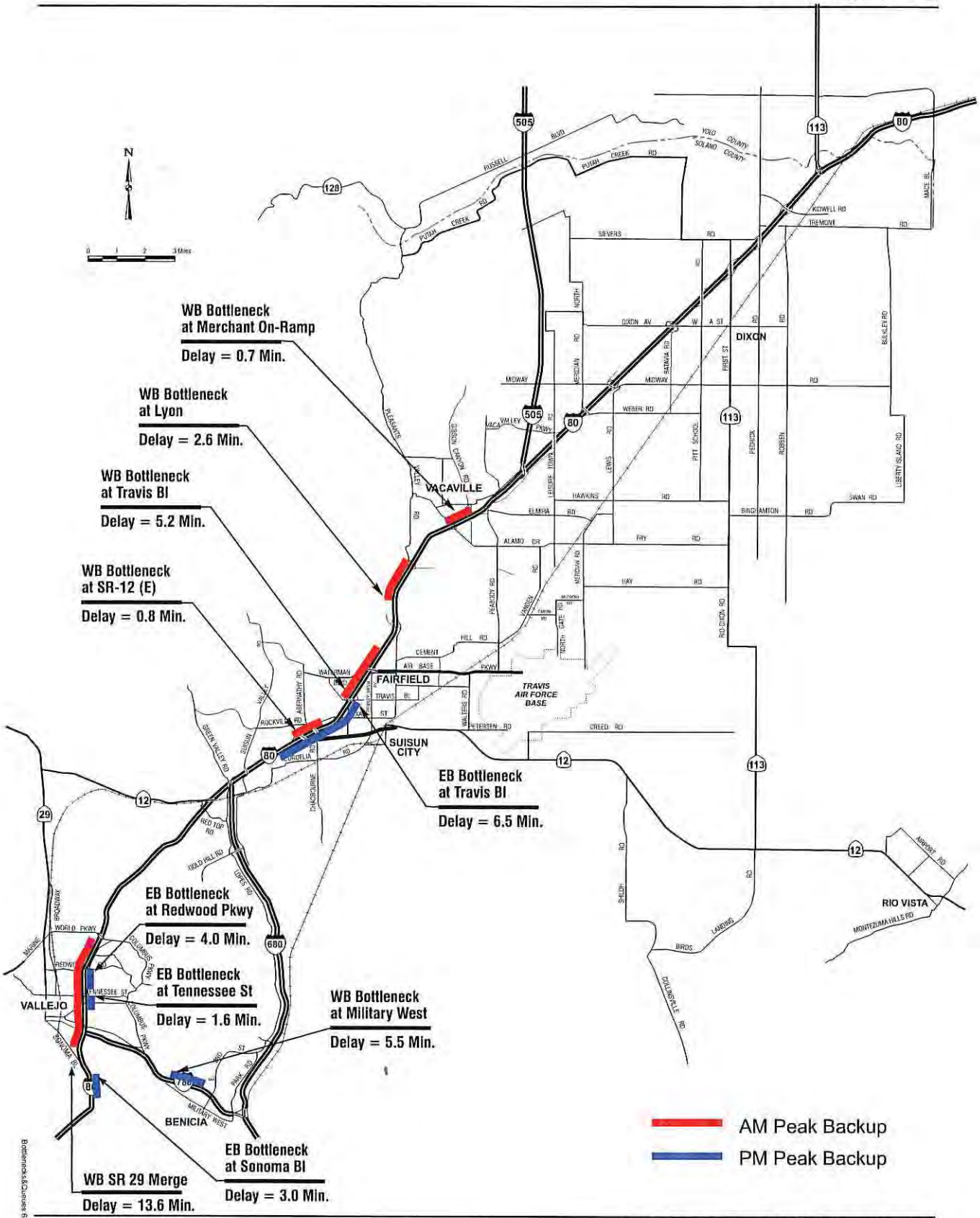

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Figure 6-10

YEAR 2030 QUEUES WITH PROJECTS 1 - 24

6.2 Long-Term Improvements

Based on the nine evaluation criteria described in Section 4.2, all of the long-term improvement projects were evaluated and compared. The results of this comparison are illustrated in the evaluation matrix summarized in Figure 6-11. The nine criteria include:

1. Traffic Operations including Link Volume/Capacity Ratio, Levels of Service, Bottlenecks, Queuing and Vehicle Delay;
2. Safety;
3. High Occupancy Vehicles (HOV) Lane Performance;
4. Preliminary Right-of-Way (ROW) Requirements;
5. Preliminary Environmental Constraints;
6. Order of Magnitude Costs;
7. Complement Transit Plan;
8. Compliance with Engineering Standards; and
9. User Benefit.

Sections 6.2.1 through 6.2.9 describe the results of each evaluation criterion in detail.

6.2.1 Traffic Operations

Figure 6-12 to 6-17 illustrate forecast year 2030 queues, bottlenecks and delays through the study corridors as Projects 25 through 36 are systematically implemented. Projects 39 through 50 would offer lower relative travel benefits between now and the year 2030. As travel demands grow after the year 2030, these projects would have substantial value.

ALTERNATIVES EVALUATION MATRIX - LONG TERM PROJECTS

EVALUATION CRITERIA

ALTERNATIVE	Traffic Operations	Safety	Compliance with Standards	HOV Lane Performance	R-O-W Requirements	Environmental Constraints	Capital Cost	Ride Share / Complement Transit Plan	User Benefit (Benefit/Cost)	PRIORITY
I-80 WB/EB HOV Lane, Air Base Pkwy to I-505	*2030*		*Full Standards*	**790-1160 vph (2+ persons)** **150-250 vph (3+ persons)**			**$111.2M**		**8.0**	**25**
I-80 EB Mixed Flow Lane - SR 12 (E) to Air Base Parkway	*2030*		*Full Standards*	**n/a**			**$64.4M**		**4.3**	**26**
I-80 EB Mixed Flow Lane - SR 12 (E) to Air Base Parkway				**n/a**			**$11.4M**		**n/a**	**27**
I-80 / I-780 Interchange Improvements	*Relieves Ramp Bottleneck*		*Full Standards*	**n/a**			**$48.0M**		**n/a**	**28**
I-780 EB / WB Auxiliary Lane - Military Way to Columbus Parkway	*Heavy ramp volumes greater than capacity in 2030*		*Full Standards*	**n/a**			**$4.3M**		**n/a**	**29**
Turner Pkwy Extension over I-80 to Fairgrounds Dr with Park & Ride and HOV Connectors	*Relief to Redwood Road*		*Full Standards*	**n/a**			**$38.0M**		**n/a**	**30**
Vacaville Intermodal Transportation Center			*Full Standards*	**n/a**			**$12.0M**		**n/a**	**31**

- **High Relative Benefit / Low Relative Cost**
- **Moderate Relative Benefit / Moderate Relative Cost**
- **Low Relative Benefit / High Relative Cost**

Figure 6-11

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Revised 5-21-04
Revised 8-12-04

ALTERNATIVES EVALUATION MATRIX - LONG TERM PROJECTS

ALTERNATIVE	EVALUATION CRITERIA: Traffic Operations	Safety	Compliance with Standards	HOV Lane Performance	R-O-W Requirements	Environmental Constraints	Capital Cost	Ride Share / Complement Transit Plan	User Benefit (Benefit/Cost)	PRIORITY
EB I-80 Aux Lane - Redwood Pkwy to SR-37 with 2 lane off-ramp	2030		Full Standards	n/a			$18.1M		n/a	32A
EB I-80 Aux Lane - Tennessee St to Redwood Pkwy	2030		Full Standards	n/a			$18.8M		n/a	32B
I-80 EB / WB Mixed-Flow Lane - SR 12 (E) to I-680	Post 2030		Full Standards	n/a			$38.0M		n/a	33
I-80 WB Mixed Flow Lane - Air Base Pkwy to SR-12 (E)	Post 2030		Full Standards	n/a			$48.2M		5.8	34
★ *I-80 Widening - Meridian Rd to Kidwell Rd*	Post 2030		Full Standards	n/a			$60.0M		0.85	35
WB I-80 Aux Lane - North Texas St to Waterman Blvd	2030		Full Standards	n/a			$28.4M		n/a	36A
EB I-80 Aux Lane - Air Base Pkwy to North Texas St	2030		Full Standards	n/a			$24.5M		n/a	36B

High Relative Benefit / Low Relative Cost

Moderate Relative Benefit / Moderate Relative Cost

Low Relative Benefit / High Relative Cost

★ Project Priority to be confirmed when new model available

Figure 6-11 (cont.)

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Revised 8-12-04

ALTERNATIVES EVALUATION MATRIX - LONG TERM PROJECTS

ALTERNATIVE	EVALUATION CRITERIA: Traffic Operations	Safety	Compliance with Standards	HOV Lane Performance	R-O-W Requirements	Environmental Constraints	Capital Cost	Ride Share / Complement Transit Plan	User Benefit (Benefit/Cost)	PRIORITY
EB I-80 Aux Lane - Cherry Glen Rd to Alamo Dr	*2030*		*Full Standards*	n/a			$7.9M		n/a	**37A**
WB I-80 Aux Lane - Merchant St to Cherry Glen Rd	*2030*		*Full Standards*	n/a			$16.5M		n/a	**37B**
Braid I-80 WB Ramps Suisun Valley to SR 12 (W)	*Post 2030*		*Full Standards*	n/a			$78.0M		n/a	**38**
I-80 / Curtola Pkwy HOV Connector			*Full Standards*	260-1320 vph (2+ person) 60-310 vph (3+ person)			$45.0M		1.2	**39A**
EB I-80 Aux Lane - I-780 to Georgia St	*Post 2030*		*Full Standards*	n/a			$13.2M		n/a	**39B**
WB I-80 Aux Lane - Georgia St to I-780	*Post 2030*		*Full Standards*	n/a			$14.0M		n/a	**39C**
WB I-80 Aux Lane - Redwood St to Tennessee St	*Post 2030*		*Full Standards*	n/a			$10.8M		n/a	**39D**

- **High Relative Benefit / Low Relative Cost**
- **Moderate Relative Benefit / Moderate Relative Cost**
- **Low Relative Benefit / High Relative Cost**

Figure 6-11 (cont.)

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Revised 8-12-04

ALTERNATIVES EVALUATION MATRIX - LONG TERM PROJECTS

ALTERNATIVE	EVALUATION CRITERIA: Traffic Operations	Safety	Compliance with Standards	HOV Lane Performance	R-O-W Requirements	Environmental Constraints	Capital Cost	Ride Share / Complement Transit Plan	User Benefit (Benefit/Cost)	PRIORITY
I-80 EB Auxiliary Lane North Texas Street to Lagoon Valley Road	Post 2030		Full Standards	n/a			$7.5M		n/a	39E
SR-113 / I-80 Interchange Improvement				n/a			$22.7M		n/a	40
I-80 EB Auxiliary Lane Alamo Drive to Davis Street	Post 2030		Full Standards	n/a			$6.2M		n/a	41
I-80 EB Auxiliary Lane Davis Street to Peabody Road	Post 2030		Full Standards	n/a			$3.5M		n/a	42
I-80 EB Auxiliary Lane Peabody Road to Alison Drive	Post 2030		Full Standards	n/a			$5.0M		n/a	43
I-80 WB Auxiliary Lane Monte Vista Avenue to Mason Street	Post 2030		Full Standards	n/a			$6.2M		n/a	44
I-80 WB Auxiliary Lane Mason Street to Alamo Drive	Post 2030		Full Standards	n/a			$5.0M		n/a	45

- **High Relative Benefit / Low Relative Cost**
- **Moderate Relative Benefit / Moderate Relative Cost**
- **Low Relative Benefit / High Relative Cost**

Figure 6-11 (cont.)

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ALTERNATIVES EVALUATION MATRIX - LONG TERM PROJECTS

ALTERNATIVE	EVALUATION CRITERIA: Traffic Operations	Safety	Compliance with Standards	HOV Lane Performance	R-O-W Requirements	Environmental Constraints	Capital Cost	Ride Share / Complement Transit Plan	User Benefit (Benefit/Cost)	PRIORITY
Ramp Improvement through Vallejo (SR-29 to Redwood Rd)	High Relative Benefit / Low Relative Cost	Moderate Relative Benefit / Moderate Relative Cost	High Relative Benefit / Low Relative Cost *Eliminates substandard ramps and spacing*	n/a	Low Relative Benefit / High Relative Cost	Moderate Relative Benefit / Moderate Relative Cost	$42.0M	Low Relative Benefit / High Relative Cost	n/a	46
West A Street Park and Ride	Low Relative Benefit / High Relative Cost *50 Parking Spaces*	Moderate Relative Benefit / Moderate Relative Cost	Moderate Relative Benefit / Moderate Relative Cost *Full Standards*	n/a	Moderate Relative Benefit / Moderate Relative Cost	Moderate Relative Benefit / Moderate Relative Cost	$0.25M	Moderate Relative Benefit / Moderate Relative Cost	n/a	47
I-680 NB / SB NOV Lane - Benicia Bridge to I-80	Low Relative Benefit / High Relative Cost *Post 2030*	Moderate Relative Benefit / Moderate Relative Cost	Moderate Relative Benefit / Moderate Relative Cost *Full Standards*	1540 vph (2+ persons) 340 vph (3+ persons)	Moderate Relative Benefit / Moderate Relative Cost	Moderate Relative Benefit / Moderate Relative Cost	$160.0M	Moderate Relative Benefit / Moderate Relative Cost	6.14	48
Walters Road Park and Ride	Moderate Relative Benefit / Moderate Relative Cost	Moderate Relative Benefit / Moderate Relative Cost	Moderate Relative Benefit / Moderate Relative Cost *Full Standards*	n/a	Moderate Relative Benefit / Moderate Relative Cost	Moderate Relative Benefit / Moderate Relative Cost	$2.0M	Moderate Relative Benefit / Moderate Relative Cost	n/a	49
I-80 / SR-37 / Columbus Pkwy Interchange Improvement	Low Relative Benefit / High Relative Cost	High Relative Benefit / Low Relative Cost	Moderate Relative Benefit / Moderate Relative Cost	n/a	Moderate Relative Benefit / Moderate Relative Cost	Moderate Relative Benefit / Moderate Relative Cost	$7.0M	Low Relative Benefit / High Relative Cost	n/a	50

- High Relative Benefit / Low Relative Cost
- Moderate Relative Benefit / Moderate Relative Cost
- Low Relative Benefit / High Relative Cost

Figure 6-11 (cont.)

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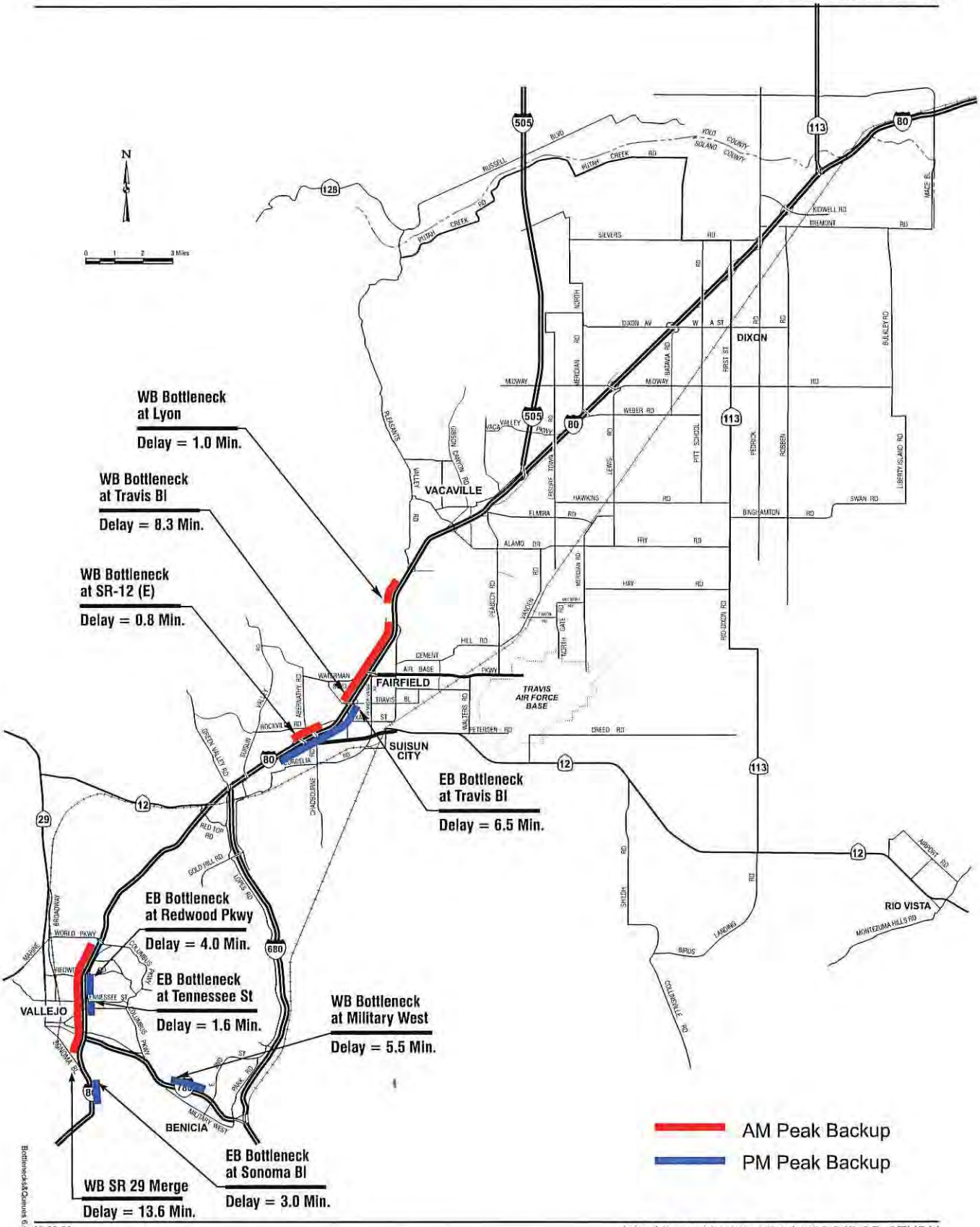

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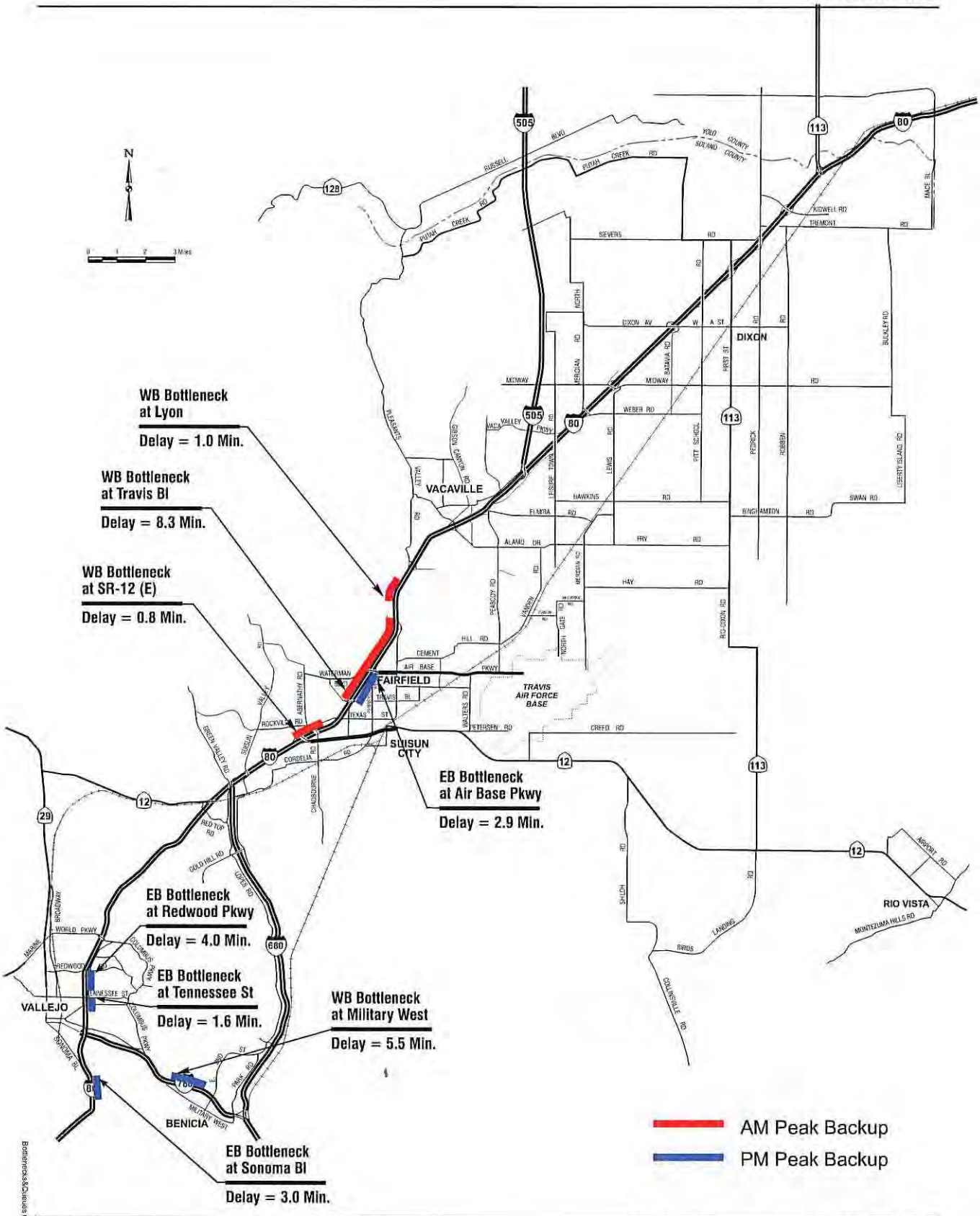
I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 6-12

YEAR 2030 QUEUES WITH PROJECTS 1 - 25



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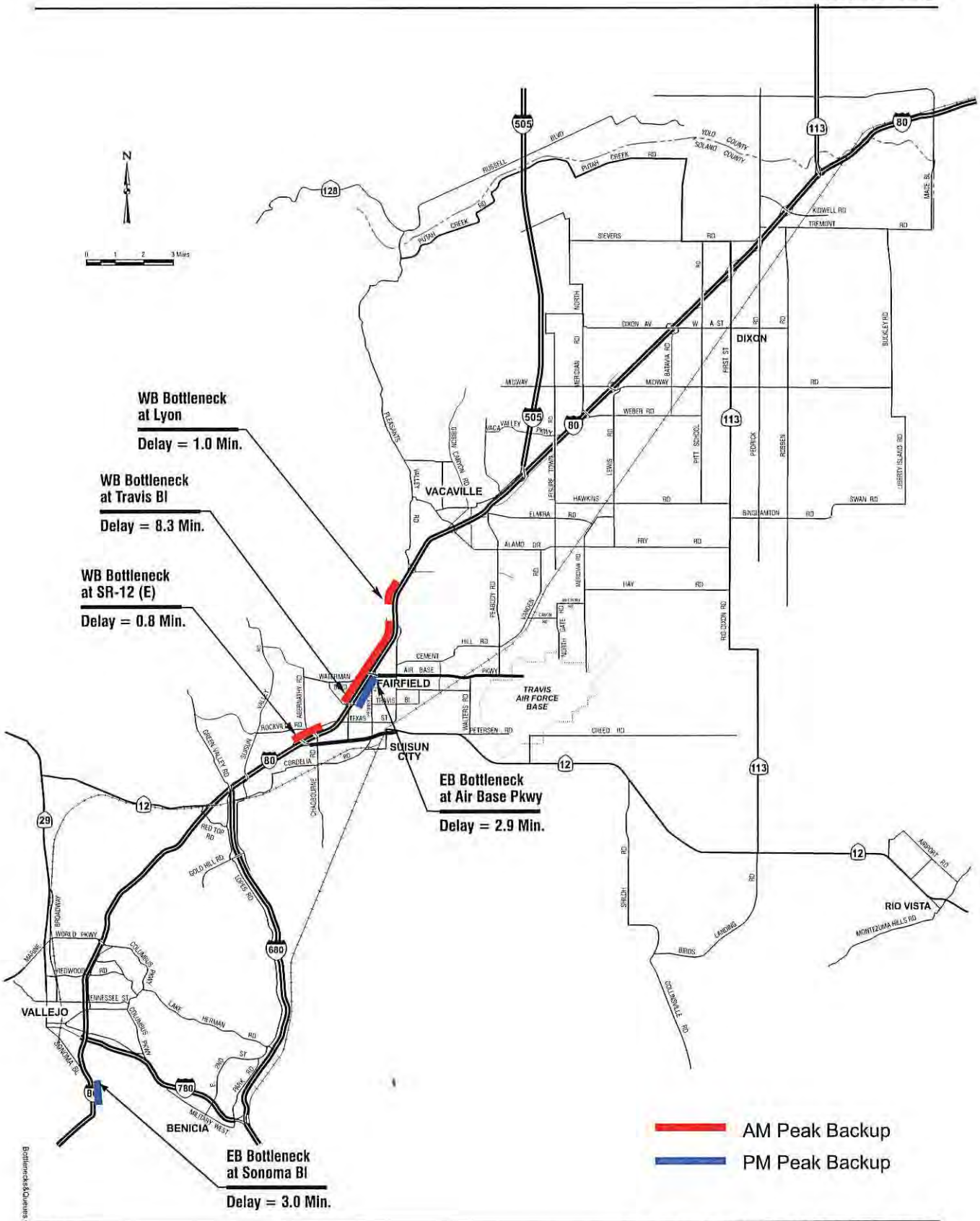
I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 6-13

YEAR 2030 QUEUES WITH PROJECTS 1 - 27



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I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 6-14

YEAR 2030 QUEUES WITH PROJECTS 1 - 32

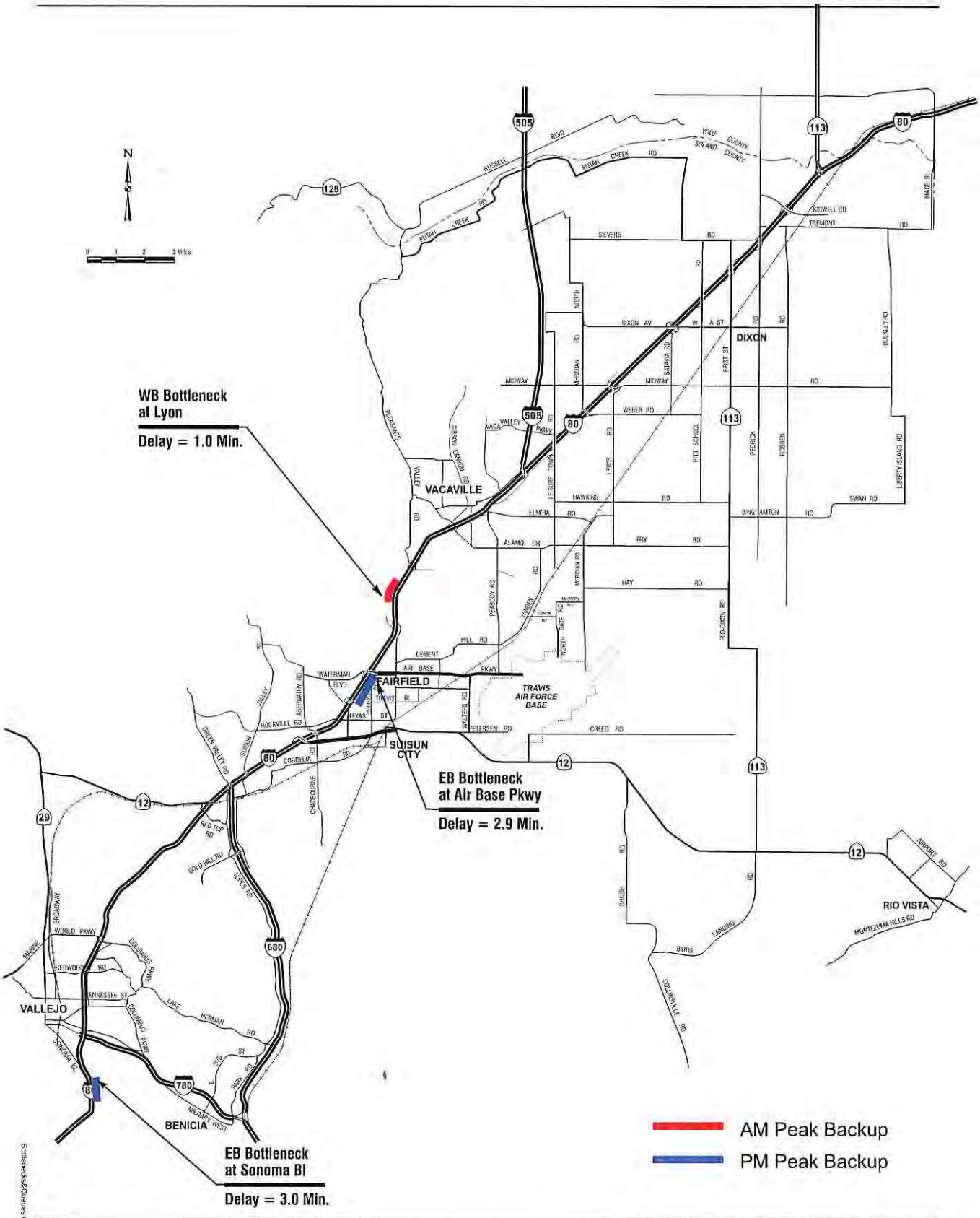

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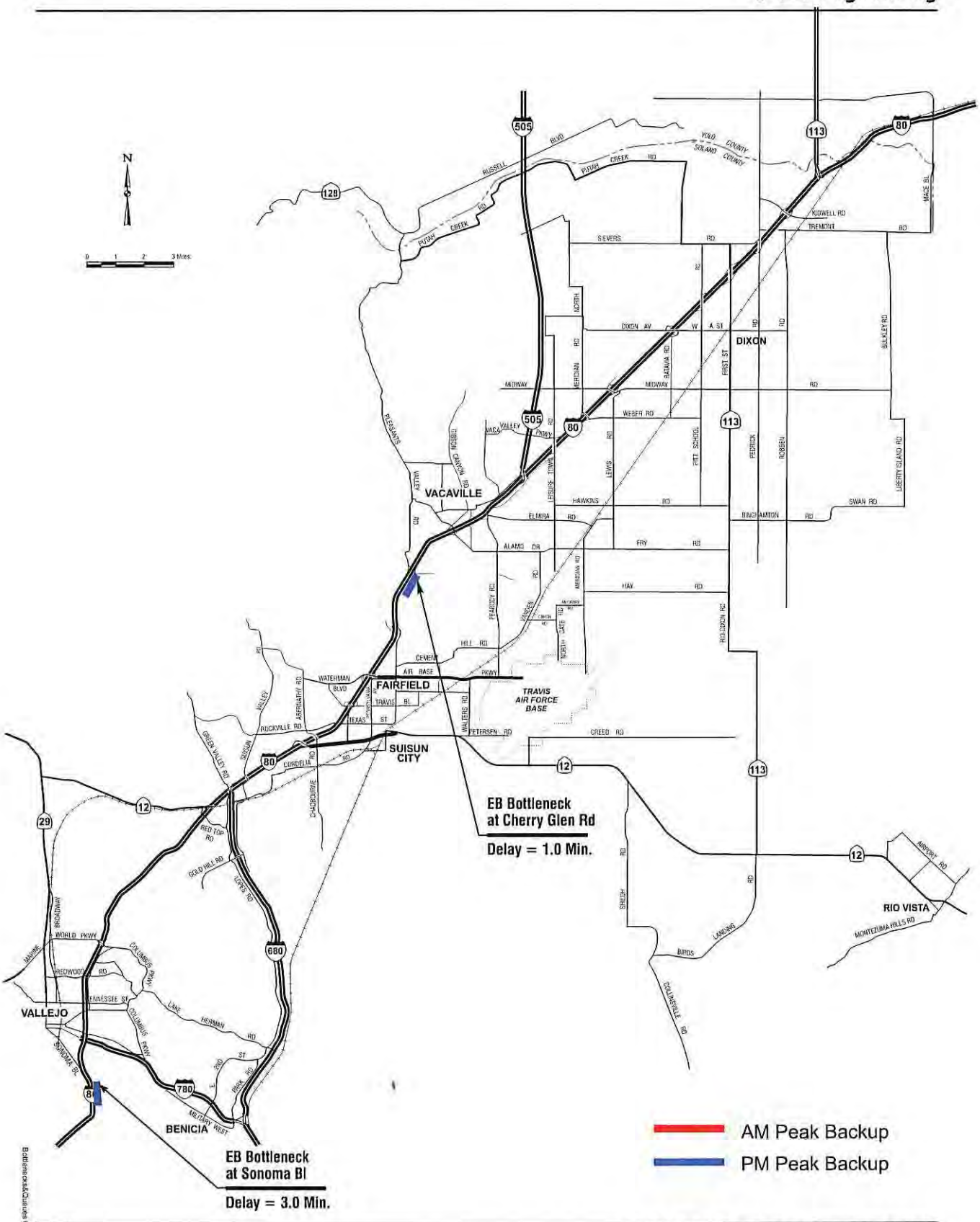
Figure 6-15

YEAR 2030 QUEUES WITH PROJECTS 1 - 34



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I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 6-16

YEAR 2030 QUEUES WITH PROJECTS 1 - 36

10-20-03
5-18-04

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 6-17

YEAR 2030 QUEUES WITH PROJECTS 1 - 38

6.2.2 Safety

As indicated in Figure 6-11 all of the long-term alternatives propose safe projects. Two improvements are proposed to eliminate substandard geometry. Segment 5 – I-80/SR-37/Columbus Parkway Interchange Improvement Project would replace the existing sharp left turn at the end of a long clover ramp, with a full standard grade separated connector.

Segment 3 – I-80/I-780 Interchange Improvement project would improve safety for westbound vehicles on I-780 as they approach I-80. This project would reconstruct the Laurel Street over-crossing to eliminate the substandard geometry, close the Cedar Street ramps, and grade separate the I-780 to I-80 eastbound connector from the I-80 Lincoln Road east off-ramp.

6.2.3 HOV Lane Performance

Several potential long-term improvement projects include the construction of HOV lanes. The effectiveness of HOV lanes is measured by estimated HOV traffic volumes and travel time savings.

6.2.3.1 Travel Time Savings

HOV travel time savings has been calculated and reported for each of the HOV mainline improvement projects. This travel time savings is reported in Section 6.1.1 for mid-term projects and on Figures 6-12 through 6-17.

6.2.3.2 HOV Forecasts

The HOV lanes proposed in each of the long-term improvement alternatives were tested with the revised 2030 travel model. The projected peak hour demands are shown in Table 6-1.

Table 6-1 HOV Lane Demand Forecasts – Year 2030, AM Peak Hour, Peak Direction

Project		Maximum HOV Lane Volume in Segment		
Route	**Area**	**2 Persons**	**3+ Persons**	**Total**
Mid-Term Projects Only				
I-80 WB	Air Base Pkwy to Travis Blvd	890	240	1,130
I-80 WB	Travis Blvd to W Texas St	1,030	280	1,310
I-80 WB	W Texas St to SR-12(E)	1,240	350	1,590
I-80 WB	SR-12(E) to I-680	1,290	350	1,640
I-80 WB	I-680 to SR-12(W)	830	210	1,040
I-80 WB	SR-37 to Redwood St	1,120	340	1,460
I-80 WB	Redwood St to I-780	1,110	330	1,440
I-80 WB	I-780 to Carquinez Bridge	980	250	1,230
With Project Segment 2: Curtola/I-80 HOV Connector				
Ramp	Lemon St to SB I-80	200	60	260
I-80 WB	I-780 to Carquinez Bridge	1,010	310	1,320
With Project Segment 4: NB/SB I-680 HOV Lane – Benicia Bridge to I-80				
I-680 WB	I-80 to Benicia Bridge	1,200	340	1,540
With Project Segment 6: EB/WB I-80 HOV Lane – Air Base Parkway to I-505				
I-80 EB	Alamo Dr to I-505	640	150	790
I-80 WB	Alamo Dr to N Texas St	740	200	940
I-80 WB	N Texas St to Air Base Pkwy	910	250	1,160

6.2.3.3 Potential Additional HOV Demand

The HOV lane volumes shown in Table 6-1 account for diversions of high occupancy vehicles (with two or more persons) to the proposed HOV lanes. The projected volumes do not account for potential overall increases in carpool formation due to the presence of HOV lanes. Potential induced demand was estimated using techniques described in the Federal Highway Administration (FHWA) publication *Predicting High Occupancy Vehicle Lane Demand* (Report No. FHWA SA-96-073, June, 1996). The methodology was applied manually for this study.

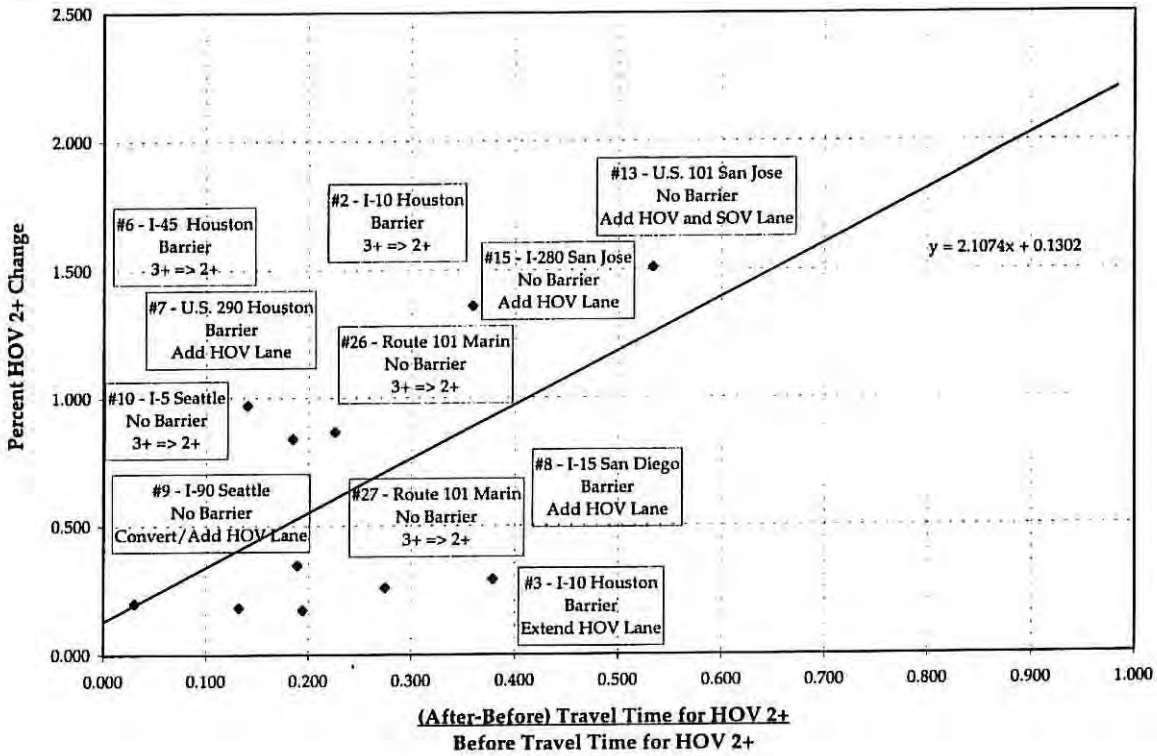
The FHWA methodology was based on before and after data obtained from a number of HOV lane projects throughout the United States, as shown in Figure 6-18.

Based on the observed HOV counts, the following average formula was estimated:

Percent increase in Total HOV volume (2+ persons)
= 13% + 2.11 × Percent improvement in travel time compared to No Build

This formula applies to all high occupancy vehicles, not just those traveling in a HOV lane. Therefore, the increases are applied to total high occupancy vehicle volumes in both mixed-flow and HOV lanes. To estimate the HOV lane projection, an assumption is made regarding the number of high occupancy vehicles that would choose to travel in the HOV lane.

Figure 6-18: Data Used for FHWA HOV Estimation



The potential increases in total high occupancy vehicle volumes (HOV lane plus mixed-flow lanes) were estimated using the FHWA methodology. The portions of the total high occupancy vehicle volumes traveling in the HOV lanes were estimated based on projected lane allocations from the travel demand model. The results are recorded in Table 6-2. The travel demand model assigns high occupancy vehicles to HOV or mixed-flow lanes based on relative amounts of congestion as well as the distance from the on-ramp or off-ramp used by the vehicle. For example, a carpool vehicle would not be assigned to the HOV lane if it enters and exits the freeway at adjacent interchanges.

Table 6-2 Potential HOV Lane Forecasts Using FHWA Methodology - 2030 AM Peak Hour, Peak Direction

Location		2030 No Build	2030 Model Forecast with HOV Improvement			FHWA Methodology Estimate		
		Total HOV	% Change from No Build	Total HOV	HOVs Using HOV Lane	% Change from No Build	Total HOV	HOVs Using HOV Lane
With Mid-Term Projects *Segment 2: WB I-80 HOV Lane –Carquinez Bridge to SR-37* *Segment 2: EB I-80 HOV Lane –Carquinez Bridge to SR-37*								
WB I-80	SR-37 to Redwood St	1,400	+44%	2,020	1,460	+57%	2,200	1,590
WB I-80	Redwood St to I-780	1,300	+59%	2,070	1,450	+85%	2,400	1,690
WB I-80	I-780 to Carquinez Bridge	1,360	+38%	1,880	1,230	+127%	3,090	2,030
With Project *Segment 2: Curtola/I-80 HOV Connector*								
Ramp	Curtola Ramp, Lemon St to WB I-80	20	+1200%	280	260	+116%	50	40
With Project *Segment 4: NB/SB I-680 HOV Lane – Benicia Bridge to I-80*								
WB I-680	I-80 to Benicia Bridge	740	+108%	1,540	1,530	+159%	1,930	1,920
With Project *Segment 6: EB/WB I-80 HOV Lane – Air Base Parkway to I-505*								
EB I-80	Alamo Dr to I-505	1,260	+2%	1,290	780	+40%	1,760	1,070
WB I-80	Alamo Dr to N Texas St	1,280	+12%	1,430	940	+76%	2,250	1,480
WB I-80	N Texas St to Air Base Pkwy	1,520	+13%	1,720	1,160	+104%	3,100	2,100

To show the potential overall increase in carpool formation due to the presence of HOV lanes (i.e. induced demand for HOVs), the estimated HOV lane volumes using the FHWA methodology were compared to the high occupancy vehicle volumes from the travel forecast model, as shown in Table 6-2. In all locations except for the Curtola direct HOV connector, the FHWA methodology results in higher HOV lane estimates than the travel demand model, which suggests the presence of induced demand in most cases. In several locations, the FHWA methodology estimate results in high occupancy vehicle volumes of 2,000 or more, which is at or above the HOV lane capacity. As a result, the HOV lane would not be able to operate at high speeds and the potential travel time benefits would be reduced. In these locations, the actual HOV demand may be somewhat less than the volumes shown in Table 6-2.

6.2.4 Preliminary Right-Of-Way Requirements

As shown in the summary evaluation matrix (Figure 6-11), the proposed long-term projects would require different amounts of right-of-way acquisition. The costs of land acquisition are included in the cost estimates of individual projects. Table 6-3 summarizes both the right-of-way area requirements and the cost of land acquisition for each long-term project. For those projects whose precise right-of-way demands are unknown, a relative evaluation has been made and is included in the evaluation matrix.

Table 6-3 Summary of the Right-Of-Way Requirements - Long-Term Projects

Project Number	Project Name	Area of Right-Of-Way Acquisition Required		Cost of the Right-Of-Way Acquisition
		Acre	Hectare	Million
25	EB/WB I-80 HOV Lane - Air Base Parkway to I-505	5.5	2.2	$ 7.7
26	EB I-80 Mixed Flow Lane - SR-12 (E) to Air Base Parkway	2.5	1.0	$ 3.0
27	I-80 WB Mixed Flow Lane – SR-29 to Cummings Skyway	-	-	-
28	I-780 / I-80 Interchange Improvements	5	2.0	$ 23.4
29	I-780 EB/WB Auxiliary Lane - Military West to Columbus Parkway	0.2	0.1	$ 0.2
30	Turner Parkway Extension over I-80 to Fairgrounds Drive with Park & Ride and HOV Connectors	9.7	3.9	$ 8.8
31	Vacaville Intermodal Transportation Center	-	-	- *
32A	EB I-80 Aux Lane – Redwood Pkwy to SR-37 with 2-lane off-ramp	-	-	-
32B	EB I-80 Aux Lane – Tennessee St to Redwood Pkwy	0.2	0.1	$ 0.2
33	EB/WB I-80 Mixed-Flow Lane SR-12 (E) to I-680	-	-	- *
34	WB I-80 Mixed Flow Lane - Air Base Pkwy to SR-12(E)	1.6	0.6	$ 1.9
35	I-80 Widening – Meridian Rd to Kidwell Rd	N/A	N/A	$ 0.6 **
36A	WB I-80 Aux Lane – North Texas St to Waterman Rd	2.3	1.0	$ 1.0
36B	EB I-80 Aux Lane – Air Base Pkwy to North Texas St	1.5	0.6	$ 1.0
37A	EB I-80 Aux Lane – Cherry Glen Rd to Alamo Dr	0.9	0.4	$ 0.6
37B	WB I-80 Aux Lane – Merchant St to Cherry Glen Rd	0.6	0.2	$ 0.4
38	Braid WB I-80 Ramps - Suisun Valley to SR-12 (W)	-	-	- *
39A	I-80 / Curtola HOV Connector	2	0.8	$ 4.9
39B	EB I-80 Aux Lane – I-780 to Georgia St	0.1	0.05	$ 0.1
39C	WB I-80 Aux Lane – Georgia St to I-780	0.1	0.05	$ 0.1
39D	WB I-80 Aux Lane – Redwood Pkwy to Tennessee St	4.6	1.9	$ 4.0
39E	I-80 EB Auxiliary Lane - North Texas to Lagoon Valley	0.2	0.1	$ 0.2
40	Interchange Improvement SR 113 / I-80	15.2	6.2	$ 3.1
41	I-80 EB Aux Lane - Alamo to Davis	0.2	0.1	$ 0.2
42	I-80 EB Aux Lane - Davis to Peabody	0.3	0.1	$ 0.35
43	I-80 EB Aux Lane - Peabody to Allison	0.4	0.2	$ 0.4
44	I-80 WB Aux Lane - Monte Vista to Mason	0.5	0.2	$ 0.5
45	I-80 WB Aux Lane - Mason to Alamo	0.3	0.1	$ 0.35
46	Ramp Improvements - Through Vallejo (SR 29 to Redwood)	-	-	-
47	West A Street Park & Ride	-	-	- *
48	I-680 NB/SB HOV Lane - Benicia Bridge to I-80	5.5	2.2	$ 7.7
49	Walters Road Park & Ride	-	-	- *
50	I-80 / SR-37 / Columbus Parkway Interchange Improvements	-	-	-

* Precise number unknown.
** Information from Caltrans.

6.2.5 Preliminary Environmental Constraints

The objective of the environmental evaluation is to identify any constraints, or "fatal flaws," that could render a physical improvement proposal infeasible. Information has been compiled based on field reconnaissance, review of existing planning and environmental documents obtained from local jurisdictions, and consultation with Planning and Public Works staff from the cities of Benicia, Dixon, Fairfield, Vacaville and Vallejo, and from Solano County. These sources of information are summarized in Table 6-4.

As shown in the evaluation matrix (Figure 6-11), all of the long-term improvements would have different levels of effect on the environment. A summary of the various types of potential environmental impacts these projects may incur is included at the end of Section 6.2.5.

Table 6-4 Sources of Information for the Environmental Impact Study

Source	Documents and Contacts
Solano County	
Documents	▪ *Solano County Land Use and Circulation Element*, December 1980. (Amended through December 2000) ▪ *Health and Safety Element,* included in the *Solano County General Plan*, May 1977 ▪ *Resource Conservation and Open Space Plan (Phase 2)*, included in the *Environmental Resources Management Element of the Solano County General Plan.* (Amended February 1999) ▪ Solano County Land Use and Circulation Map ▪ *Scenic Roadways Element*, included in the *Solano County General Plan*, May 1977 ▪ Solano County Orderly Growth Initiative, adopted by the Board of Supervisors July 26, 1994 ▪ *Solano Comprehensive Transportation Plan*, STA, May 2002 ▪ *I-80/I-680/I-780 Transit Corridor Study Final Report*, Wilbur Smith Associates, January 2004 ▪ *Solano Multispecies Habitat Conservation Plan and Natural Community Conservation Plan*, Solano County Water Agency, LSA Associates, Inc., working draft, December 2003
Information from Officials	▪ David Okita, General Manager, Solano County Water Agency ▪ Ronald Glass, Senior Planner, Department of Environmental Management ▪ Steve Foreman, Associate/Wildlife Biologist, LSA Associates, Inc. ▪ Jim Ball, Executive Director, Solano County Land Trust

Table 6-4 Sources of Information for the Environmental Impact Study (continued)

Source	Documents and Contacts
City of Benicia	
Documents	▪ *City of Benicia General Plan* ▪ City of Benicia Land Use Diagram, June 1999 ▪ City of Benicia Community Development Zoning Map, October 2002
Information from Officials	▪ Eric Angstadt, Associate Planner, Community Development Department
City of Dixon	
Documents	▪ Dixon General Plan Map ▪ City of Dixon Zoning Map ▪ City of Dixon Project and Development Summary ▪ *Northeast Quadrant Specific Plan*, Wade Associates, April 1995 ▪ *Northeast Quadrant Specific Plan Environmental Impact Report*, Wade Associates, March 1995
Information from Officials	▪ Marilyn Ponton, Senior Planner, Community Development Department ▪ Gerardo Gambirazzio, Planner, Community Development Department
City of Fairfield	
Documents	▪ *City of Fairfield General Plan, Policy Document*, June 2002 ▪ City of Fairfield General Plan, Land Use Diagram, August 2002 ▪ City of Fairfield Official Zoning Map, September 2002
City of Vacaville	
Documents	▪ Vacaville General Plan Diagram ▪ City of Vacaville Zoning Map ▪ *Vacaville Gateways Plan*, October 1999 ▪ *City of Vacaville Comprehensive Annexation Plan 2001-2015* Vacaville-Dixon Greenbelt Buffer
Information from Officials	▪ Lori Parrington, Associate Planner, Community Development Department
City of Vallejo	
Documents	▪ *Vallejo General Plan*, December 1996
Information from Officials	▪ Brian Dolan, Planning Manager, Planning Division ▪ Michelle Hightower, Senior Planner, Planning Division

6.2.5.1 Segment 1 – I-80 - SR 12 East to SR 12 West

Environmental studies are currently underway for all proposed improvement projects in Segment 1. A Project Report/Environmental Document (PR/ED) has been initiated for this work, and is expected to be completed in 2007.

6.2.5.2 Segment 2 - Carquinez Bridge to I-80/SR-37 in Vallejo

Planning Considerations

The projects in Segment 2 are located in the City of Vallejo, with the exception of a small area of unincorporated Solano County near the I-80/I-780 interchange. This heavily-traveled section of the I-80 corridor provides regional and local access to Vallejo's downtown/civic center, waterfront, retail commercial and residential neighborhoods, and Mare Island. Interstate 780 (I-780) provides a connection to I-680 and Contra Costa County to the east, and SR-29 and SR-37 provide regional connections to Napa,

Sonoma and Marin Counties. The interchanges in Segment 2 include non-standard ramp designs that are closely spaced and have exit speeds as low as 15 miles per hour.

Existing land uses on the corridor are generally Low and Medium Density Residential and Highway-Oriented Commercial, south of Redwood Street. The residential area adjacent to the proposed HOV connector, at the interchange of I-780 and I-80, consists of mobile home parks, an RV park and motels facing the freeway. The Solano County Fairgrounds is located west of the freeway between Redwood Street and the Columbus Parkway/SR-37 interchange, with regional retail uses located east of the freeway.

In the immediate vicinity of the Segment 2 - I-80/I-780 Interchange Project, the northeast quadrant of the interchange contains apartments, older motels, an auto repair shop, and vacant retail on the section of Lincoln Road East from Benicia Road to the intersection south of Georgia Street. New retail uses are clustered on Benicia Road between Lincoln Road East and Laurel Street to take advantage of the unusually direct access from the freeway transition ramps. The area south of Laurel Street and north of I-780 is entirely single-family homes.

Land uses in the southeast quadrant around Spruce Street, Laurel Street and Alhambra Avenue are single-family residential and include the Church of Vallejo and an elementary school. The east end of Alhambra Avenue, south of I-780, is unincorporated Solano County, and is classified as Low Intensity Residential, Rural and Vacant Land.

The *Vallejo General Plan - Land Use Map* designates the area adjacent to I-80, from the SR-29 on- and off-ramps to the I-80/I-780 interchange, as Highway Commercial and Medium Density Residential (8.8 to 17.4 units per acre) on the west side of the freeway, and Community Park, Low Density Residential (0.5 to 8.7 units per acre), and Highway Commercial on the east side of the freeway.

According to the *Vallejo General Plan - Land Use Map*, the land surrounding the I-80/I-780 interchange is designated as Residential, with Medium Density Residential along Laurel Street and between I-780 and Benicia Road, east of I-80. North of I-780 at Cedar Street is designated as Low Density Residential, as are Alhambra Avenue and Laurel and Spruce Streets on the south side of I-780.

Along I-80, Commercial uses are designated for the area north of Benicia Road and south of the Medium Density Residential mobile home park on Lincoln Road West. South of Redwood Street is occupied by Low and High Density Residential, as well as Highway Commercial. The area between Redwood Street and SR-37 consists of the Community Park-Solano County Fairgrounds to the west and Retail Commercial to the east.

It is noted that Lewis Avenue, proposed to be improved, passes through land that is currently unincorporated Solano County. The old parcels are largely rural or vacant properties that are likely to be subdivided in the future, at which time they would be annexed into the City of Vallejo.

Environmental Constraints

Segment 2 Project: I-80 EB/WB HOV Lane - Carquinez Bridge to SR-37

Eastbound and westbound HOV lanes would be constructed in the median of I-80 from north of the Carquinez Bridge at Maritime Academy Way to the easterly ramps of the I-80/SR-37 interchange. Required widening would be accomplished within the existing right-of-way, primarily by utilizing existing shoulders. Environmental constraints would be minimal, primarily relating to temporary and short-term construction impacts.

Segment 2 Project: Curtola/I-80 HOV Connector

This project would provide a HOV connector from eastbound Curtola Parkway/I-780 to westbound I-80 via an aerial structure merging into the center lanes of I-80. The connector would serve an approximately 1,200-space intermodal terminal proposed for the nearby park-and-ride lot at Lemon Street and Curtola Parkway. The project would require modifications to Lincoln Road West, a parallel frontage road, and potentially the closure of its on- and off-ramps at I-80. Additional improvements would need to be pursued to maintain access to the Vallejo Mobile Estates mobile home park, which is located opposite the Lincoln Road West ramps. Other modifications would need to be made to maintain access to the Tradewinds RV Park and two adjacent motels. The right-of-way for the freeway widening would result land use impacts in this quadrant, particularly to a number in of mobile home/RV units. The "flyover" aerial structure could result in a negative visual impact to the adjacent mobile homes, as would the associated increase in noise levels and air quality impacts from diesel buses climbing the grade of the aerial structure. Construction impacts (noise and dust) would be adverse and unavoidable, although temporary in nature.

Segment 2 Project: I-780/I-80 Interchange Improvements

The construction of a new two-lane ramp from northbound I-780 to eastbound I-80 and an auxiliary lane on I-80 would require widening of the freeway, resulting in the closure of Lincoln Road West. The right of way required for the proposed interchange improvements would affect the existing commercial properties facing I-80. The improvements would otherwise beneficially affect local residential neighborhoods. Traffic safety and operations would be improved with the elimination of the substandard ramp and confusing weaving areas. Sight distance would be increased for motorists entering mainstream I-80 between the sound wall and high-speed traffic, much of which is fully-loaded trailer truck traffic transporting goods from the Port of Oakland.

The Cedar Street on- and off-ramps, located approximately 300 feet from the freeway interchange ramp, would also be closed with this project. Substandard ramp spacing and poor signage on I-780 results in motorists mistakenly using the Cedar Street ramps in lieu of the freeway ramps. Vehicles also use these ramps to avoid freeway congestion. This project would reduce the existing traffic impacts on the adjacent neighborhoods. Short-term construction impacts would be significant and unavoidable.

South of I-780, the Laurel Street over-crossing bridge would be replaced. The freeway ramp connecting eastbound I-80 to southbound I-780, located under the Laurel Street over-crossing, would be reconstructed. Impacts would be minor, and no homes or businesses would be displaced. A seasonal creek/drainage area located at the slope

base of the reconstructed ramp would need to be examined during future studies, to minimize impacts on potential biological resources. The Spruce Street ramps would be closed, which would have minimal impact on the Low Density Residential neighborhood they serve. Lewis Avenue, from Alhambra Avenue to Glen Cove Way, is low density, unincorporated county land. The Lewis Avenue improvements would enhance local residential access to the Glen Cove Way interchange on I-780.

Segment 2 Project: Turner Parkway Extension, Park & Ride and I-80 HOV Connector

The proposed extension of Turner Parkway across I-80 would provide residential neighborhoods northwest of I-80 with convenient vehicular, bike and pedestrian access to regional commercial uses southeast of the freeway. Interstate 80 and the Solano County Fairgrounds currently serve as barriers to mobility, as local traffic is forced onto the highly congested Redwood Street (which frequently backs up onto mainline I-80) or onto SR-37/Columbus Parkway to reach nearby retail uses. Access to the Marine World parking lots would be improved with the additional freeway crossing.

A curving realignment of existing Turner Road, with the signalization of intersections at Fairgrounds Drive and Turner Parkway, is required to make the elevation gain for the over-crossing. Impacts associated with the realignment and over-crossing component of this project would be relatively minimal as land for the realignment is currently vacant or used for parking. However, a single structure next to the fairgrounds, at the bend in Coach Drive, would be impacted. The Turner Road over-crossing would enhance the potential for commercial redevelopment on the County-owned fairgrounds property. Future commercial development on the site would fall within the jurisdiction of the City of Vallejo for review and approval.

Construction of the median HOV lane in this project would require widening on the west (fairgrounds) side of I-80. Widening would result in land use impacts, particularly to a number mobile homes located adjacent to the freeway south of Coach Drive. The park-and-ride lot would be constructed on the fairgrounds existing parking area, but could be located elsewhere, depending on future plans for commercial development on the fairgrounds property.

Segment 2 Project: I-80 Ramp Improvements through Vallejo - SR 29 to Redwood St

This proposed project involves the improvement of interchanges on I-80 through an older, urbanized area of Vallejo. Detailed analysis of the strategies for ramp and interchange improvements is still underway and is beyond the scope of this study. Currently, ramp spacing in this area does not meet Caltrans standards, and the ramp improvements would benefit adjacent residential areas by reducing traffic volumes on residential streets, improving pedestrian safety, and reducing noise and air quality impacts.

6.2.5.3 Segment 3 - I-780 Military West to Columbus Parkway in Benicia

Long-term projects in Segment 3 include the provision of the eastbound and westbound auxiliary lanes on I-780 between Military West and Columbus Parkway and between the 2nd and 5th Street interchanges.

Planning Considerations

I-780 provides a regional connection between Contra Costa County to the southeast and Solano, Napa and Sonoma Counties to the northwest by passing through Benicia and Vallejo. The Benicia State Recreation Area occupies the west side of I-780 between Military West and Columbus Parkway. Retail uses are located at the Columbus Parkway interchange, with multi-family residential developments and dedicated open space on the adjacent hillside areas. Single- and multi-family residential and highway-oriented commercial areas are located between the 2nd and 5th Street interchanges, with the Robert Semple Elementary School at the 2nd Street ramp and B Street.

The *Benicia General Plan Land Use Diagram and Zoning Map* designates the west side of I-780 as Open Space, between Military West and Columbus Parkway, including land on the east side of the freeway. The area east of the Military West interchange includes Medium Density Residential zones, and the area around Columbus Parkway is zoned as General Commercial. The area near the 2nd and 5th Street interchanges is zoned as Low and Medium Density Residential with some General and Downtown Commercial zoning.

Environmental Constraints

Segment 3 Project: I-780 Auxiliary Lane - Military West to Columbus Parkway

The addition of auxiliary lanes in both directions of I-780, between Military West and Columbus Parkway, would be accomplished within the existing freeway right-of-way. The *Benicia General Plan* indicates that sensitive biological resources are present around the Military West interchange, identified as a riparian area requiring review and appropriate mitigation to offset potential construction impacts. As with most of the area on the perimeter of the Carquinez Strait and Suisun Bay, the area traversed by the freeway is subject to potential liquefaction, lateral spreading and settlement hazards that should be addressed in the engineering design.

6.2.5.4 Segment 4 - I-680 from the Benicia Bridge to I-80

The Segment 4 long-term project includes the construction of HOV lanes in the freeway median in both directions along I-680, from the Benicia Bridge to the I-80 interchange. The addition of HOV lanes would require widening of the viaduct section and installing a new support structure, located between the Industrial Way and Bayshore Road interchanges. The HOV lanes are proposed to continue into the median of I-80 east of the I-80/I-680 interchange.

Planning Considerations

The proposed HOV lanes in the I-680 freeway median would pass through three jurisdictions: the City of Benicia, unincorporated Solano County, and the City of

Fairfield. This high-speed section of I-680 carries regional traffic, with local industrial and residential traffic concentrated on frontage roads and local streets. Land uses along this segment of freeway are Industrial between the Benicia Bridge and Lake Herman Road. The open space and wetlands of Suisun Marsh on the east and steep hills and pastureland to the west characterize the central section of the alignment. The northern portion of the freeway is bounded on the west by large planned developments with Residential, Commercial, and Light Industrial uses. The Old Cordelia area to the east is characterized by established Commercial and Low Density Residential uses.

The *Benicia General Plan Land Use Diagram*, consistent with the City's *Commercial Development Zoning Map*, designates the area south of, and including, Lake Herman Road as General Industrial. General Commercial and Open Space are included on the west side of I-680, north of Lake Herman Road.

The mid-section of the I-680 alignment passes through unincorporated Solano County. The area east of the freeway is part of the greater Suisun Marsh and is identified as Marsh Open Space on the *Solano County Land Use and Circulation Map*. West of the freeway, the grazing land is designated as Extensive Agriculture land use (one dwelling unit per 160 acres). The *1994 Solano County Orderly Growth Initiative* (extending the voter-approved Proposition A to the year 2010) protects agricultural and open space land in the County by directing urban growth and development to existing cities. The *Scenic Roadways Element* of the *Solano County General Plan* indicates that I-680 from the Carquinez Strait to I-80 is a Designated Scenic Roadway. The *Solano County General Plan* sets forth specific policies regarding roadway construction stating that "Public roadway construction and improvement activities should be subject to restrictions permitting the natural water movement necessary to sustain the marsh environment."

The *City of Fairfield General Plan Land Use Diagram* and the *Cordelia Area Zoning Map* designate the area west of I-680 for Low Medium and Medium Density Residential, Community Commercial, and Limited Industrial/Industrial Business Park land use. The *Fairfield General Plan* designates land uses on the east side of the freeway, within the City of Fairfield, for Service and Office Commercial. The adjacent Old Cordelia Special Study Area is addressed by special policies in the *General Plan Policy Document* that pertains to planned development prior to annexation. The area south of Fairfield's Urban Limit Line, west of I-80 is designated as the Benicia/Fairfield/Vallejo Buffer, Open Space Planning Area (OSPA). The OSPA comprises approximately 10,000 acres of generally steep hills, designated as Open Space to maintain physical separation between the three cities. On the east side of the freeway, Suisun Marsh, designated OSPA 11 on the *Fairfield General Plan*, is the largest continuous estuarine wetland in the United States.

Environmental Constraints

Segment 4 Project: I-680 HOV Lanes - Benicia Bridge to I-80

The proposed HOV lanes would be constructed in the freeway median of I-680, requiring widening of the roadway and construction of a new structure in the viaduct section between Bayshore Road and Industrial Way. This project would be impacted by a number of environmental constraints. The Green Valley Fault crosses I-680 north of the Lake Herman Road interchange. The *Benicia General Plan - Geologic Hazards Map* indicates that the freeway alignment through Benicia is subject to potential landslide and

debris flow hazards. The freeway is sited at the edge of Suisun Marsh, and could be subject to potential liquefaction, lateral spreading, and settlement hazards. The widespread presence of sensitive biological resources near the freeway will pose a significant constraint during construction activities, and in areas where widening is required.

The viaduct section of I-680 crosses through an area of sensitive biological resources, as presented in the *Benicia General Plan*. The area under the viaduct is identified as an estuarine wetland with sensitive natural communities and unique vegetation. Construction activities associated with the proposed improvements could significantly impact these resources.

The Solano County Water Agency's *Solano Multispecies Habitat Conservation Plan and Natural Community Conservation Plan* (HCP/NCCP) provides detailed information on biological resources in Solano County. The HCP/NCCP establishes a framework for complying with State and Federal endangered species regulations while accommodating future urban growth, infrastructure development, and ongoing operation and maintenance activities associated with flood control, irrigation facilities, and other public infrastructure. The conservation strategies set forth in the HCP/NCCP apply to non-federal projects; however, federally funded projects must still comply with applicable state and federal endangered species act regulations. Accordingly, the HCP/NCCP provides baseline information and conservation strategies for the individual long-term projects on the I-80, I-680 and I-780 corridors.

The HCP/NCCP identifies resources that would be evaluated during the project review and approval process. The area adjoining the I-680 corridor is designated as a Priority Conservation Area known to provide riparian habitat for the California Red-legged Frog, a federally-threatened species. Sulfur Springs Creek is identified as a key drainage area, providing riparian or streamside vegetation that serves as habitat for a wide variety of species. The HCP/NCCP identifies a series of measurable biological objectives for riparian communities and species. The first objective listed is to avoid destruction and disturbance to riparian systems occupied by listed species.

Construction of the HOV lanes in the median of the freeway would necessitate the removal of mature Oleander bushes, resulting in a negative effect on visual resources. The City of Benicia considers the Oleanders to be an important aesthetic component of the views from I-680 and I-780, and maintains that the Oleanders should remain in the median and continue to be maintained.

6.2.5.5 Segment 5 - I-80/SR-37 Interchange Improvements

The Segment 5 improvement would relocate the existing Columbus Parkway off-ramp from westbound I-80, with the new configuration providing an exit to Columbus Parkway from the westbound SR-37 ramp from I-80. The new one-lane ramp would curve under SR-37 via a new tunnel and merge with the eastbound Columbus Parkway ramp from SR-37. The current configuration has a sharp, low-speed turn that does not meet turning radius standards.

Planning Considerations

The I-80/SR-37 interchange is located in the city of Vallejo. The interchange is bounded by single-family homes on the northwest, the Solano County Fairgrounds on the southwest, regional commercial uses on the southeast, and vacant land with a public bikeway adjoining Columbus Parkway and I-80 to the northeast. The *Vallejo General Plan Land Use Map* designates the area northwest of the interchange for Low Density Residential use, and the area to the southwest is shown as a Community Park comprising the Solano County Fairgrounds.

Environmental Constraints

Segment 5 Project: I-80/SR-37 Interchange Improvements

The new Columbus Parkway ramp would be constructed within the right-of-way of the I-80/SR-37 interchange; therefore, long-term impacts of this project would not be significant. Portions of the new alignment would be located closer to existing single-family residences to the northwest. This residential area would be temporarily impacted by short-term construction effects (noise, vibration, dust) associated with construction of the tunnel and roadway.

6.2.5.6 Segment 6 - I-80 from Air Base Parkway in Fairfield to Davis Street in Vacaville

Segment 6 projects include freeway widening, HOV lane, and auxiliary lane projects along the I-80 corridor through Fairfield and Vacaville. Included are the I-80 EB Mixed Flow Lane – SR-12 (E) to Air Base Parkway Project, the I-80 WB Mixed Flow Lane – Air Base Parkway to SR-12 (E) Project, the I-80 EB/WB HOV Lane – Air Base Parkway to I-505 Project, and the I-80 EB Auxiliary Lane – North Texas to Lagoon Valley Project. Five other Segment 6 projects involve the construction of auxiliary lanes on I-80, in both the eastbound and westbound directions, between Alamo Drive and Allison Drive.

Planning Considerations

Long-term projects proposed for Segment 6 are located on the I-80 corridor between SR-12(E) in Fairfield to the I-80/I-505 Interchange in Vacaville. Existing land uses range from Highway-Oriented Commercial and Suburban Residential uses in Fairfield, to the Scenic Rural Open Space of Lagoon Valley, and to Highway-Oriented Commercial uses in central Vacaville.

A variety of land uses occupy the land along I-80 in the City of Fairfield, including commercial, residential, agricultural, and recreational. The *Open Space, Conservation, and Recreation Element* of the *Fairfield General Plan* designates the area north of I-80 and east and west of the SR-12(E) interchange as Open Space Planning Areas #5 and #6 - Upper and Lower Suisun Valley. The Suisun Valley occupies approximately 20,000 acres of prime farm and crop land, separating central Fairfield and Cordelia. The *Fairfield General Plan* designates the vacant land north of the North Texas interchange and west of I-80 as Open Space Planning Area #8 Rolling Hills. The Rolling Hills OSPA occupies approximately 4,000 acres of hilly, often wooded country north of Fairfield. Much of the land is used for grazing livestock, but portions are undergoing development, including the Rancho Solano North Master Plan Area. The *Land Use Element* of the

Fairfield General Plan sets forth specific policies for Master Plan Areas to guide development.

The *Circulation Element* of the *Fairfield General Plan* proposes non-specific road improvements for I-80 through Segment 6, and identifies a need for interchange improvements at West Texas Street, Travis Boulevard, Air Base Parkway and North Texas Street. *Fairfield General Plan* policies provide direction for the city to support and participate in efforts led by the Solano Transportation Authority to improve traffic flow between the cities in Solano County.

Zoning designations in the City of Vacaville correspond to the *Vacaville General Plan*, with the most intensive commercial development proposed for the center of the city, between Davis Street and the I-505 interchange. Various Residential uses are included along the length of the city. A permanent Open Space/Community Separator is located on the hillsides that wrap around the proposed urbanization of Lagoon Valley, at the south end of Vacaville. Adjacent to the separator, land is designated as Business Park, Highway Commercial and Residential, as part of the *Lagoon Valley Specific Plan*, currently in preparation.

Environmental Constraints

Segment 6 Project: I-80 EB/WB HOV Lane – Air Base Parkway to I-505
Segment 6 Project: I-80 EB Mixed Flow Lane – SR-12 (E) to Air Base Parkway
Segment 6 Project: I-80 WB Mixed Flow Lane – SR-12 (E) to Air Base Parkway

These three projects will require new bridge structures over the numerous creeks and irrigation canals that cross the freeway between Air Base Parkway and I-505. These crossings include the Putah South Canal, Ledgewood Creek, Laurel Creek, Laguna Creek, Alamo Creek, Ulatis Creek, and Pine Tree Creek. The new bridges will require review and approval by state, and perhaps federal, resource agencies.

The HCP/NCCP identifies resources that will need to be evaluated during the project review and approval process. Ledgewood Creek is identified as a key drainage area, providing riparian or streamside vegetation that serves as habitat for a wide variety of species. The HCP/NCCP identifies a series of measurable biological objectives for riparian communities and species. The first objective listed is to avoid destruction and disturbance to riparian systems occupied by listed species.

Portions of this project area would be widened in conjunction with the mid-term projects' auxiliary lane improvements in Segment 6. The additional widening for the long-term project would require rebuilding or replacing interchange structures to accommodate the addition of mixed flow lanes, as well as the installation of sound walls in the vicinity of residential units along the stretch of the project. Potential impacts on adjacent commercial activities may be significant.

Segment 6 Project: I-80 EB Auxiliary Lane – North Texas St to Lagoon Valley Rd

This project would add mainline capacity to facilitate traffic increases resulting from the *Lagoon Valley Specific Plan* development buildout. The widening would require an additional 12 feet of right-of-way to accommodate the addition of an auxiliary lane. The North Texas area is developed with single-family homes and a golf course in northern

Fairfield. The Lagoon Valley area to the north is currently designated as Public Park use, but would change to Residential, Highway Commercial and Business Park uses with the inception of the proposed *Lagoon Valley Specific Plan*.

Segment 6 Project: I-80 EB/WB HOV Lane – Air Base Parkway to I-505

The *City Gateways Plan*, adopted by the Vacaville City Council in October 1999, is a comprehensive program to develop a more attractive and functional freeway corridor along I-80 in Vacaville. The *City Gateways Plan* recommends landscaping design elements, including median plantings. More specifically, it states: "The rows of Oleanders in the median dividing I-80 are a very attractive and desirable feature from both an aesthetic and safety perspective. Caltrans has given consideration to removing the Oleanders. It is the position of the city that such median plantings should be maintained and enhanced." It further recommends that the Oleanders be maintained, replaced when lost to fire, accidents or construction, and expanded to include the I-505 median. However, to accommodate HOV lanes in this segment of I-80, the removal of the Oleanders from the median would be necessary. Implementation of the HOV lane would result in a negative impact on visual resources.

6.2.5.7 Segment 7 - I-80 from Vacaville to Dixon

Segment 7 includes a major freeway widening project and a freeway to freeway interchange improvement project. The major project, I-80 Widening – Meridian Rd to Pedrick Rd, is a gap closure project, involving the widening of I-80 from three to four lanes in each direction, from east of Leisure Town Road in Vacaville to west of Kidwell Road in unincorporated Solano County. All widening would be accomplished within the existing right-of-way, utilizing the existing outside asphalt shoulders. The SR-113/I-80 Interchange Improvement Project is an interchange-to-interchange project to improve confusing geometry and poor access conditions in a developing area of the City of Dixon.

Planning Considerations

Segment 7 integrates three jurisdictions: the City of Vacaville, unincorporated Solano County and the City of Dixon. The westernmost section of the I-80 Widening – Meridian Rd to Pedrick Rd project begins east of Leisure Town Road, where the freeway narrows from four lanes to three lanes in each direction. A variety of land uses define this area of Vacaville, including Commercial, Industrial and Agricultural. At Midway Road, I-80 travels into unincorporated Solano County and the Vacaville-Dixon Community Separator, an open space greenbelt buffer of orchards and agricultural uses between the two cities.

The Vacaville-Dixon Greenbelt was established in 1995 through an agreement between the two cities to create a greenbelt separator. Both entities recognized the value of maintaining separation and identity along I-80 with a permanent greenbelt to carry on the area's existing agricultural tradition. The Vacaville-Dixon Greenbelt Agency purchased 1,000 acres between Midway Road and Dixon Avenue to be maintained as permanent open space.

The SR-113/I-80 Interchange Improvement Project is located in an area historically known for the Milk Farm, a traveler's stop at the junction of two highways. Land in the

City of Dixon, to the southeast, has been planned and zoned for highway commercial use, and a large Wal-Mart has recently opened. Much of the area has been graded for development and roadways have been completed. A commercial development proposal for the northwest side of the freeway had been proposed, but would require annexation and project approvals.

Environmental Constraints

Segment 7 Project: I-80 Widening – Meridian Road to Kidwell Road

This project would require rebuilding of bridges over two creeks, Gibson Canyon Creek and Sweeney Creek, and two irrigation canals, Putah Creek and Ulatis Canal. The area northwest of I-80 is agricultural open space. The Environmental Impact Report (EIR) for the *Northeast Quadrant Specific Plan* in Dixon has documented that Putah Creek, four miles to the north, supports a large population of Swainson's hawks (buteo swainsonii), a special status species listed by the State of California as threatened. In addition, the HCP/NCCP identifies the land surrounding the I-80 corridor in Segment 7 as a Priority Conservation Area for the Swainson's Hawk. The hawk uses mature riparian forest for nesting, and forages in open grasslands and agricultural fields nearby.

Construction activities may impact the hawk's foraging habitat, and would require consultation with the California Department of Fish and Game and appropriate mitigation measures. Review and permitting by state agencies will be required for the rebuilding of bridges over creeks and canals.

6.2.5.8 Summary and Conclusions

The initial environmental screening does not reveal any fatal flaws that would render any of the projects infeasible. The most substantive environmental constraints to project implementation would involve land use impacts in urbanized areas such as Vallejo and Fairfield.

In outlying areas, impacts to the natural environment would be the main environmental constraints. This is especially relevant for projects located within or adjacent to Suisun Marsh, which would have a high potential for significant impacts on sensitive biological resources, particularly during construction phases. Auxiliary lane and HOV lane projects that would require rebuilding of bridges over the numerous creeks and canals crossing I-80 would have impacts on biological resources, and would require review and approval from a variety of state and federal agencies. This process would affect schedule and cost, but mitigation measures can typically be developed to offset identified impacts.

Table 6-5 provides a generalized summary of the environmental constraints associated with each of the project alternatives. Each of the issues that represent an environmental constraint - land use and displacement of homes and businesses, biological resources, visual impacts, and construction noise and dust - are ranked as having a low, moderate or high potential to be impacted, as a result of the proposed long-term projects.

Table 6-5 Summary of Environmental Constraints for Long-Term Projects

Project	Project No.	Evaluation Criteria			
		Land use and displacement*	Biological Resources	Visual Impacts	Construction noise and dust
Segment 2					
HOV I-80: Maritime to SR-37	24	Low	Low	Low	Low
I-780/I-80: HOV Connector	39A	High	Low	High	High
I-80/I-780: Interchange	28	High	Low	Low	High
Turner Parkway Over-crossing/ HOV Connector	30	Moderate	Low	Low	Low
I-80 Ramp Improvements	46	High*	Low	Low	Moderate
Segment 3					
I-780 Auxiliary Lane	29	Low	Moderate	Low	Moderate
Segment 4					
I-680 HOV Lanes in median	48	Low	Moderate	Moderate	Low
Segment 5					
I-80/SR37 Interchange Improvement	50	Low	Low	Low	Moderate
Segment 6					
Mixed-Flow SR12(E) to Air Base	26	High	Moderate	Moderate	High
HOV Air Base Pkwy to I-505	25	Low	Moderate	Moderate	Low
I-80 EB Auxiliary Lane N. Texas to Lagoon Valley	39E	Moderate	Moderate	Low	Low
EB/WB Auxiliary Lanes on I-80	36A/B	Moderate	Moderate	Low	Moderate
Segment 7					
I-80 Widening Meridian Rd to Kidwell Rd	35	Low	Moderate	Low	Low
I-80/SR-113 Interchange Improvement	40	Low	Low	Low	Low

* Future redevelopment could mitigate negative impact.

6.2.6 Order of Magnitude Costs

The costs of individual projects are estimated based on their construction cost and the costs for required land acquisition. As described in Section 4.2.3, cost estimates are conducted based on the Caltrans' standard Preliminary Engineering Estimate format. These costs are summarized in the evaluation matrix (Figure 6-11) as "Capital Cost". Table 6-6 summarizes the estimated costs of all proposed long-term projects.

Table 6-6 Estimated Cost of Proposed Long-Term Projects

Project	Description	Project Cost in Million $ (2003 Dollars)
25	EB/WB I-80 HOV Lane - Air Base Pkwy to I-505	$111.20
26	EB I-80 Mixed Flow Lane - SR-12 (E) to Air Base Pkwy	$64.40
27	WB I-80 Mixed Flow Lane SR-29 to Cummings Skwy	$11.40
28	I-780/I-80 Interchange Improvement	$48.00
29	EB/WB I-780 Aux Lane - Military West to Columbus Pkwy	$4.30
30	Turner Parkway Extension over I-80 to Fairgrounds Dr with Park & Ride and HOV Connectors	$38.00
31	Vacaville Intermodal Transportation Center	$12.00
32A	EB I-80 Aux Lane – Redwood Pkwy to SR-37 with 2-lane off-ramp	$18.10
32B	EB I-80 Aux Lane – Tennessee St to Redwood Pkwy	$18.80
33	EB/WB I-80 Mixed Flow Lane - SR-12 (E) to I-680	$38.00
34	WB I-80 Mixed Flow Lane - Air Base Pkwy to SR-12 (E)	$48.20
35	I-80 Widening - Meridian Rd to Kidwell Rd	$60.00
36A	WB I-80 Aux Lane – North Texas St to Waterman Rd	$28.40
36B	EB I-80 Aux Lane – Air Base Pkwy to North Texas St	$24.50
37A	EB I-80 Aux Lane – Cherry Glen Rd to Alamo Dr	$7.90
37B	WB I-80 Aux Lane – Merchant St to Cherry Glen Rd	$16.50
38	Braid WB I-80 Ramps - Suisun Valley Rd to SR-12 (W)	$78.00
39A	I-80/Curtola Pkwy HOV Connector	$45.00
39B	EB I-80 Aux Lane – I-780 to Georgia St	$13.20
39C	WB I-80 Aux Lane – Georgia St to I-780	$14.00
39D	WB I-80 Aux Lane – Redwood Pkwy to Tennessee St	$10.80
39E	EB I-80 Aux Lane - North Texas St to Lagoon Valley Rd	$7.50
40	SR-113/I-80 Interchange Improvement	$22.70
41	EB I-80 Aux Lane - Alamo Dr to Davis St	$6.20
42	EB I-80 Aux Lane - Davis St to Peabody Rd	$3.50
43	EB I-80 Aux Lane - Peabody Rd to Allison Dr	$5.00
44	WB I-80 Aux Lane - Monte Vista Av to Mason St	$6.20
45	WB I-80 Aux Lane - Mason St to Alamo Dr	$5.00
46	I-80 Ramp Improvements Through Vallejo (SR-29 to Redwood)	$42.00
47	West A Street Park & Ride	$0.25
48	NB/SB I-680 HOV Lane - Benicia Bridge to I-80	$160.00
49	Walters Road Park & Ride	$2.00
50	I-80/SR-37/Columbus Parkway Interchange Improvements	$7.00
	Total	**$978.05**

6.2.7 Complement Transit Plan

The long-term improvement projects were evaluated for their relative impact on increasing transit ride share and complementing the proposed transit plan. A project which disproportionately complements the transit plan has been assigned a high relative benefit in this category. Intermodal terminal and HOV connector projects, such as the I-80/I-780 HOV Connector Project in Segment 2 and I-680/I-80 HOV connector project in Segment 1, were awarded high ratings; park-and-ride lot projects were awarded medium ratings; projects primarily directed at improving highway operations such as auxiliary

lane construction projects were awarded low ratings. Table 6-7 presents the relative benefits and costs for projects with positive transit ratings.

Table 6-7 Projects with Positive Impacts on Transit Improvements

High Relative Benefits / Low Relative Cost	
Segment 2	EB/WB I-80 HOV Lane – Carquinez Bridge to SR-37
	Turner Parkway Extension over I-80 to Fairgrounds Drive with Park & Ride and HOV Connectors
	Curtola Parkway/I-80 HOV Connector
Segment 6	Vacaville Intermodal Transportation Center
Moderate Relative Benefits / Moderate Relative Cost	
Segment 4	NB/SB I-680 HOV Lane – Benicia Bridge to I-80
Segment 6	EB/WB HOV lane – Air Base Parkway to I-505
	Walters Road Park & Ride
Segment 7	West A Street Park & Ride

6.2.8 Compliance with Standards

Three mid-term and two long-term projects would be not in full compliance with Caltrans design standards, primarily related to the construction of substandard shoulders. Their effects are discussed and integrated to the prioritization process, as shown in the evaluation matrix (page 6-26 to 6-29). Table 6-8 lists these projects and their corresponding non-compliance with Caltrans standards. For reference, mid-term projects that would be not in full compliance with Caltrans design standards are also listed below.

Table 6-8 Projects Not in Full Compliance with Caltrans Design Standards

Project	#	Segment	Detail
Mid-term Projects			
WB I-80 HOV – East of Carquinez Bridge to Maritime Academy on-ramp	2	2	Non-standard outside shoulder along the stretch of the project
WB I-80 HOV Lane – SR-37 to Carquinez Bridge	23	2	Non-standard inside shoulder of 1.2m along the stretch of the project and non-standard outside shoulder under over-crossing structures to minimize cost and avoid reconstruction of overcrossing structures
EB I-80 HOV Lane - Carquinez Bridge to SR-37, with improvement on Redwood Parkway EB off-ramp	24	2	Non-standard inside shoulder of 1.2m along the stretch of the project and non-standard outside shoulder under over-crossing structures to minimize cost, right-of-way encroachment and avoid reconstruction of overcrossing structures
Long-term Projects			
WB I-80 Mixed Flow Lane – SR-29 to Cumming Skyway	27	2	Non-standard inside shoulders of 1.25m at Carquinez Bridge
I-80 HOV Lanes – Airbase Pkwy to I-505	25	6	Non-standard inside shoulder of 1.8m to minimize cost and right-of-way impacts

6.2.9 User Benefits

The methodology described in Section 4.2.5 was used to assess the user benefits of selected long-term improvement projects. In the prioritization process, user benefits are weighed against the capital cost of the improvement projects and the results are presented as "Benefit/Cost" in the evaluation matrix. The user benefits of individual projects are summarized in Table 6-9.

Table 6-9 User Benefits of Selected Long-Term Projects

Project	Project No.	Daily User Benefits				Annual User Benefits
		Auto Person-Hours	Bus Person-Hours	Trucks	Total	Total (in Million)
Segment 2						
(Mid-term Project: For Reference Only) WB I-80 HOV Lane – Carquinez Bridge to SR-37 EB I-80 HOV Lane – Carquinez Bridge to SR-37	23 and 24	$203,200	$900	$13,400	$217,500	$65.3
EB/WB I-80 HOV Lane – Carquinez Bridge to SR-37 **AND** I-80 / Curtola HOV Connector	23, 24 and 39A	$217,600	$1,500	$14,000	$233,100	$69.9
Curtola / WB I-80 HOV Connector	39A	$14,400	$600	$600	$15,600	$4.7
Segment 4						
NB/SB I-680 HOV Lane – Benicia Bridge to I-80	48	$279,800	$2,400	$5,800	$288,000	$86.4
Segment 6						
EB/WB I-80 HOV Lane – Air Base Pkwy to I-505	25	$250,800	$1,100	$7,800	$259,700	$77.9
EB I-80 Mixed Flow Lane – SR-12 (E) to Air Base Pkwy **AND** WB I-80 Mixed Flow Lane – Air Base Pkwy to SR-12 (E)	26 and 34	$155,400	$0	$8,200	$163,600	$49.1
Segment 7						
I-80 Widening – Meridian Rd to Kidwell Rd	35	$8,400	$100	$6,500	$15,000	$4.5

The long-term improvement project with the highest ranking in user benefit is the HOV lanes on I-680 between I-80 and the Benicia Bridge, because of the length and thus person hour savings of this project, followed by the HOV lanes between I-505 in Vacaville and Air Base Parkway in Fairfield, and the HOV lanes through Vallejo.

The user benefits of the Segment 2 - Curtola / WB I-80 HOV Connector Project could only be estimated by including the WB I-80 HOV Lane – Carquinez Bridge to SR-37 Project in the same segment. The unique benefits of the former project alone were calculated by subtracting the benefits of the latter from the combined benefits of both.

6.3 Local Interchange Improvements

Improvements to local interchanges were prioritized separately from near, mid or long-term main-line freeway improvements. The main-line freeway improvement alternatives discussed in Sections 6.1 and 6.2 above are largely driven by changes in regional land uses and regional travel patterns. Improvements to local interchanges are largely driven by local land use decisions and changes in local travel patterns. The improvements described in Section 5 were developed through assessments of existing and future local traffic conditions at these interchanges, geometric standards, ability to handle future traffic increases, and conversations with City staffs. City staffs provided their input relative to existing and upcoming interchange problems, as well as upcoming land use decisions which may impact local interchange conditions. Finally, City staffs provided the study team with their input relative to the relative importance of the local interchange improvements. Through this input, and the local interchange traffic analysis, the interchange improvements were prioritized within each jurisdiction. Table 6-10 summarizes the local interchange improvement priorities, by jurisdiction.

Table 6-10 Priority of Local Interchange Improvements

Jurisdiction		Description of Interchanges	Segment	Note
Benicia	1	I-780/Rose Dr/Columbus Pkwy	3	Included as Mid Term Project 20
	2	I-780/E 2nd St/E 5th St	3	
	3	I-780/Southampton Rd/E 7th St	3	
	4	I-680/Industrial Way/Bayshore Rd	4	
	5	I-680/Lake Herman Rd	4	No Proposed Improvement
	6	I-780/Military West	3	
Dixon	1	I-80/Pedrick Rd	7	
	2	I-80/West A St/Dixon Ave	7	
	3	I-80/Pitt School Rd	7	
Fairfield	1	I-80/Green Valley Rd	1	Included as part of Mid Term Project 8 and Long Term Project 37
	2	I-80/N Texas St/Lyon Rd	6	
	3	I-80/Abernathy Rd	1	Included as part of Mid Term Project 5 and Long Term Project 30
	4	I-80/Magellan Rd/Auto Mall Pkwy	6	
	5	I-80/Suisun Valley Rd	1	Included as part of Mid Term Project 8 and Long Term Project 37
	6	I-80/W Texas St/Beck Ave/Oliver Rd	6	
	7	I-80/Red Top Rd	1	Included as part of Mid Term Project 8 and Long Term Project 37
	8	I-680/Red Top Rd	1	Included as part of Mid Term Project 8 and Long Term Project 37
	9	I-80/Central Way	1	Included as part of Mid Term Project 8 and Long Term Project 37
	10	I-80/Travis Blvd	6	No Proposed Improvement

Jurisdiction		Description of Interchanges	Segment	Note
Fairfield (Con't)	11	I-80/Airbase Pkwy/Waterman Blvd	6	No Proposed Improvement
	12	I-80/Gold Hill Rd	1	No Proposed Improvement
Solano County	1	I-680/Marshview Rd	4	
	2	I-680/Parish Rd	4	
	3	I-80/Kidwell Rd	7	No Proposed Improvement
	4	I-80/SR-113 (North)	7	No Proposed Improvement
Vacaville	1	I-80/Alamo Dr/Merchant St	6	
	2	I-80/California Dr Over-crossing and Cherry Glen Rd off-ramp	6	
	3	I-80/Lagoon Valley Rd/Cherry Glen Rd	6	
	4	I-80/Pena Adobe Road/Cherry Glen Rd	6	
	5	I-80/Davis St	6	Included as Long Term Project 41
	6	I-80/Midway Rd	7	
	7	I-80/Weber Rd/Meridian Rd	7	
	8	I-80/Peabody Rd/Mason St/Elmira Rd	6	No Proposed Improvement
Vallejo	1	I-80/Tennessee St	2	
	2	I-80/Redwood St	2	
	3	I-80/Georgia St	2	
	4	I-80/Springs Rd/Solano Ave/Magazine St/Sequoia Ave./Maritime Academy Dr	2	Included as part of Long Term Project 45
	5	American Canyon Rd	2	
	6	I-780/Glen Cove Pkwy	3	
	7	I-780/Cedar St	3	Included as part of Long Term Project 28

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7 PHASING AND PRIORITIZATION OF IMPROVEMENTS

Based on the evaluation methodology described in Section 4, and the specific alternatives assessment described in Section 6, the corridor improvements were prioritized. This section presents a summary of the final alternatives phasing and prioritization.

7.1 Mid-Term Improvements

As described in detail in Section 6, the mid-term improvement projects have been identified and prioritized through a detailed corridor traffic operations analysis taking into account bottlenecks, queues and delays during different time horizons (existing, 2010, 2020 and 2030). Those improvements which work to solve existing bottlenecks and congestion through the study corridors were prioritized first. With the implementation of these initial improvement projects, existing bottlenecks will be removed, generating additional vehicular throughput through currently congested areas. As traffic demand rises over time, this additional throughput will result in new bottlenecks. Improvement projects whose purpose is to solve these new bottlenecks are then prioritized after the initial projects.

There are altogether thirty-three mid-term projects, with twelve in Segment 1, five in Segment 2, three in Segment 3, three in Segment 4, one in Segment 5, seven in Segment 6 and two in Segment 7. Figure 7-1 summarizes the mid-term project prioritization list.

7.2 Long-Term Improvements

Based on the nine evaluation criteria presented in Section 6, the long-term improvement projects were phased and prioritized. These projects are expected to be implemented after the mid-term projects are completed. Figure 7-2 summarizes the long-term project prioritization list.

There are altogether thirty-three long term projects, with two in Segment 1, ten in Segment 2, one in Segment 3, one in Section 4, one in Section 5, fifteen in Section 6 and three in Section 7.

7.3 Local Interchange Improvements

As discussed in Section 6, the prioritization of local interchange improvements is based on an analysis of future traffic conditions and interaction with local City staffs. City staffs were consulted as they are highly aware of local traffic conditions and upcoming land use decisions and changes which may affect local interchange conditions. Table 7-1 presents the improvement priority for all freeway interchanges located within each local jurisdiction. Some interchanges do not require improvements within the planning horizon. Some other interchanges, especially those in the City of Fairfield, are proposed to be improved as part of mid-term or long-term projects.

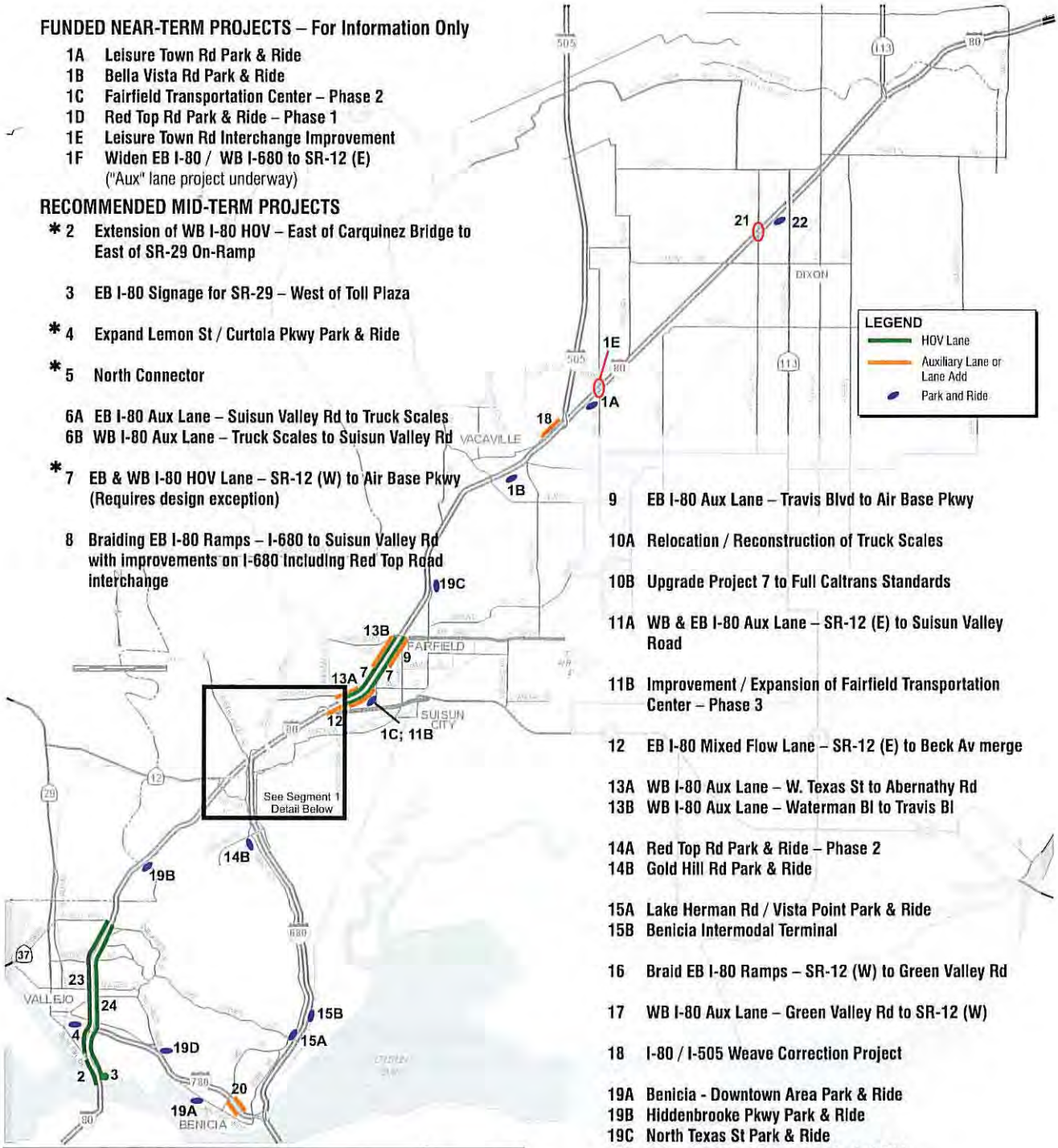
FUNDED NEAR-TERM PROJECTS – For Information Only

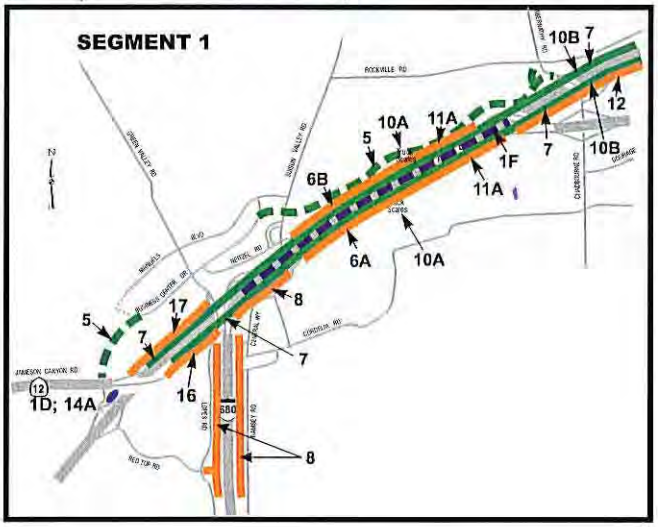
- 1A Leisure Town Rd Park & Ride
- 1B Bella Vista Rd Park & Ride
- 1C Fairfield Transportation Center – Phase 2
- 1D Red Top Rd Park & Ride – Phase 1
- 1E Leisure Town Rd Interchange Improvement
- 1F Widen EB I-80 / WB I-680 to SR-12 (E) ("Aux" lane project underway)

RECOMMENDED MID-TERM PROJECTS

- * 2 Extension of WB I-80 HOV – East of Carquinez Bridge to East of SR-29 On-Ramp
- 3 EB I-80 Signage for SR-29 – West of Toll Plaza
- * 4 Expand Lemon St / Curtola Pkwy Park & Ride
- * 5 North Connector
- 6A EB I-80 Aux Lane – Suisun Valley Rd to Truck Scales
- 6B WB I-80 Aux Lane – Truck Scales to Suisun Valley Rd
- * 7 EB & WB I-80 HOV Lane – SR-12 (W) to Air Base Pkwy (Requires design exception)
- 8 Braiding EB I-80 Ramps – I-680 to Suisun Valley Rd with improvements on I-680 including Red Top Road interchange
- 9 EB I-80 Aux Lane – Travis Blvd to Air Base Pkwy
- 10A Relocation / Reconstruction of Truck Scales
- 10B Upgrade Project 7 to Full Caltrans Standards
- 11A WB & EB I-80 Aux Lane – SR-12 (E) to Suisun Valley Road
- 11B Improvement / Expansion of Fairfield Transportation Center – Phase 3
- 12 EB I-80 Mixed Flow Lane – SR-12 (E) to Beck Av merge
- 13A WB I-80 Aux Lane – W. Texas St to Abernathy Rd
- 13B WB I-80 Aux Lane – Waterman Bl to Travis Bl
- 14A Red Top Rd Park & Ride – Phase 2
- 14B Gold Hill Rd Park & Ride
- 15A Lake Herman Rd / Vista Point Park & Ride
- 15B Benicia Intermodal Terminal
- 16 Braid EB I-80 Ramps – SR-12 (W) to Green Valley Rd
- 17 WB I-80 Aux Lane – Green Valley Rd to SR-12 (W)
- 18 I-80 / I-505 Weave Correction Project
- 19A Benicia - Downtown Area Park & Ride
- 19B Hiddenbrooke Pkwy Park & Ride
- 19C North Texas St Park & Ride
- 19D Columbus Pkwy & Rose Dr Park & Ride
- 20 EB / WB I-780 Stripe Aux Lane – 2nd St to 5th St
- 21 I-80 / Pitt School Rd Interchange Improvement
- 22 North First St Park & Ride
- 23 WB I-80 HOV Lane – Carquinez Bridge to SR-37
- 24 EB I-80 HOV Lane – Carquinez Bridge to SR-37 with Ramp Improvements at Redwood Parkway

* Projects which are currently partially funded.





I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 7-1

MID-TERM PROJECTS IN ORDER OF PRIORITY

June 5, 2003	Rev 8-11-03	Rev 2-24-04	Rev 5-18-04
Rev 7-1-03	Rev 8-28-03	Rev 3-04-04	Rev 6-1-04
Rev 7-7-03	Rev 9-3-03	Rev 5-05-04	Rev 6-17-04
Rev 8-7-03	Rev 11-25-03	Rev 5-07-04	Rev 8-4-04

25 EB/WB I-80 HOV Lane - Air Base Pkwy to I-505

26 EB I-80 Mixed Flow Lane - SR-12 (E) to Air Base Pkwy

27 WB I-80 Mixed Flow Lane SR-29 to Cummings Skwy

28 I-780 / I-80 Interchange Improvement

29 EB/WB I-780 Auxiliary Lane - Military West to Columbus Pkwy

30 Turner Parkway Extension over I-80 to Fairgrounds Dr with Park & Ride and HOV Connectors

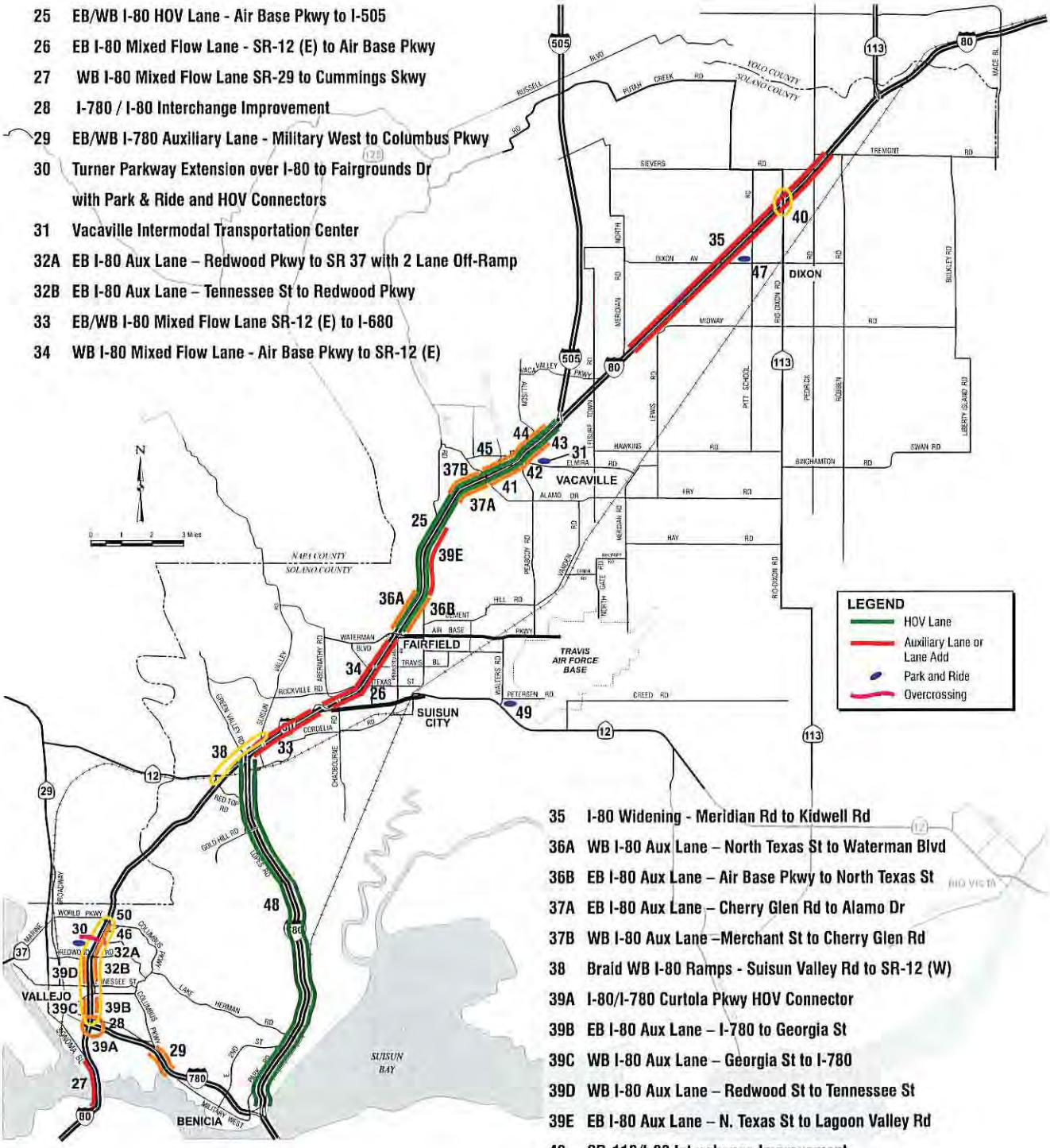
31 Vacaville Intermodal Transportation Center

32A EB I-80 Aux Lane – Redwood Pkwy to SR 37 with 2 Lane Off-Ramp

32B EB I-80 Aux Lane – Tennessee St to Redwood Pkwy

33 EB/WB I-80 Mixed Flow Lane SR-12 (E) to I-680

34 WB I-80 Mixed Flow Lane - Air Base Pkwy to SR-12 (E)



35 I-80 Widening - Meridian Rd to Kidwell Rd

36A WB I-80 Aux Lane – North Texas St to Waterman Blvd

36B EB I-80 Aux Lane – Air Base Pkwy to North Texas St

37A EB I-80 Aux Lane – Cherry Glen Rd to Alamo Dr

37B WB I-80 Aux Lane –Merchant St to Cherry Glen Rd

38 Braid WB I-80 Ramps - Suisun Valley Rd to SR-12 (W)

39A I-80/I-780 Curtola Pkwy HOV Connector

39B EB I-80 Aux Lane – I-780 to Georgia St

39C WB I-80 Aux Lane – Georgia St to I-780

39D WB I-80 Aux Lane – Redwood St to Tennessee St

39E EB I-80 Aux Lane – N. Texas St to Lagoon Valley Rd

40 SR-113/I-80 Interchange Improvement

41 EB I-80 Aux Lane – Alamo Dr to Davis St

42 EB I-80 Aux Lane – Davis St to Peabody Rd

43 EB I-80 Aux Lane – Peabody Rd to Allison Dr

44 WB I-80 Aux Lane – Monte Vista Av to Mason St

45 WB I-80 Aux Lane – Mason St to Alamo Dr

46 I-80 Ramp Improvements Through Vallejo (SR-29 to Redwood)

47 West A Street Park & Ride

48 NB/SB I-680 HOV Lane - Benicia Bridge to I-80

49 Walters Road Park & Ride

50 I-80/SR-37/Columbus Parkway Interchange Improvements

I-80 / I-680 / I-780 MIS / CORRIDOR STUDY

Figure 7-2

LONG TERM PROJECTS IN ORDER OF PRIORITY

June 5, 2003 Rev 7-1-03 Rev 7-7-03 Rev 8-7-03 Rev 8-11-03 Rev 10-1-03 Rev 11-25-03 Rev 12-15-03 Rev 1-15-04 Rev 1-26-04 Rev 1-28-04 Rev 1-29-04 Rev 2-23-04 Rev 3-04-04 Rev 5-05-04 Rev 5-07-04 Rev 5-18-04 Rev 5-25-04 Rev 6-17-04 Rev 8-4-04

Table 7-1 Priority of Local Interchange Improvements

Jurisdiction		Description of Interchanges	Seg-ment	Cost in Million $ (2003)	Note
Benicia	1	I-780/Rose Dr/Columbus Pkwy	3	$4.3	
	2	I-780/E 2nd St/E 5th St	3	$3.0	
	3	I-780/Southampton Rd/E 7th St	3	$3.2	
	4	I-680/Industrial Way/Bayshore Rd	4	$6.9	
	5	I-680/Lake Herman Rd	4	$14.8	
	6	I-780/Military West	3	$1.5	
Dixon	1	I-80/Pedrick Rd	7	$18.8	
	2	I-80/West A St/Dixon Ave	7	$22.8	
	3	I-80/Pitt School Rd	7	$13.2	
Fairfield	1	I-80/Green Valley Rd	1	--	Included as part of Mid Term Project 8 and Long Term Project 37
	2	I-80/N Texas St/Lyon Rd	6	$25.3	
	3	I-80/Abernathy Rd	1	--	Included as part of Mid Term Project 5
	4	I-80/Magellan Rd/Auto Mall Pkwy	6	$7.8	
	5	I-80/Suisun Valley Rd	1	--	Included as part of Mid Term Project 8 and Long Term Project 37
	6	I-80/W Texas St/Beck Ave/Oliver Rd	6	$34.3	
	7	I-80/Red Top Rd	1	--	Included as part of Mid Term Project 8 and Long Term Project 37
	8	I-680/Red Top Rd	1	--	Included as part of Mid Term Project 8 and Long Term Project 37
	9	I-80/Central Way	1	--	Included as part of Mid Term Project 8 and Long Term Project 37
	10	I-80/Travis Blvd	6	--	No Proposed Improvement
	11	I-80/Airbase Pkwy/Waterman Blvd	6	--	No Proposed Improvement
	12	I-80/Gold Hill Rd	1	--	No Proposed Improvement

Jurisdiction		Description of Interchanges	Seg-ment	Cost in Million $ (2003)	Note
Solano County	1	I-680/Marshview Rd	4	$7.8	
	2	I-680/Parish Rd	4	$5.8	
	3	I-80/Kidwell Rd	7	--	No Proposed Improvement
	4	I-80/SR-113 (North)	7	--	No Proposed Improvement
Vacaville	1	I-80/Alamo Dr/Merchant St	6	$10.5	
	2	I-80/California Dr Over-crossing and Cherry Glen Rd off-ramp	6	$20.2	
	3	I-80/Lagoon Valley Rd/Cherry Glen Rd	6	$14.4	
	4	I-80/Pena Adobe Road/Cherry Glen Rd	6	$30.6	
	5	I-80/Davis St	6	--	Included as Long Term Project 41
	6	I-80/Midway Rd	7	$24.0	
	7	I-80/Weber Rd/Meridian Rd	7	$24.5	
	8	I-80/Peabody Rd/Mason St/Elmira Rd	6	--	No Proposed Improvement
Vallejo	1	I-80/Tennessee St	2	$66.4	
	2	I-80/Redwood St	2	Alt 1: $12.8 Alt 2: $52.1	
	3	I-80/Georgia St	2	$1.5	
	4	I-80/Springs Rd/Solano Ave/Magazine St/Sequoia Ave/Maritime Academy Dr	2	--	Included as part of Long Term Project 45
	5	American Canyon Rd	2	Alt 1: $2.2 Alt 2: $8.4	
	6	I-780/Glen Cove Pkwy	3	$1.3	
	7	I-780/Cedar St	3	--	Included as part of Long Term Project 28

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8 NEXT STEPS

The following next steps are recommended:

- When the new Solano County travel demand model is complete, the STA should revisit the potential widening of I-80 from Meridian Road to Pedrick Road in Segment 7. This project is currently prioritized as long term project number 35

- Conduct a future study of the SACOG gateway on the eastern end of Segment 7. This study should be undertaken when SACOG reaches a decision on the widening of I-80 to the east of Segment 7 and the addition of an HOV lane on the causeway.

- Local jurisdictions (or agencies) should prepare Project Study Reports for all Local Interchange Improvements to establish and protect future right-of-way.

- With the preparation of Project Study Reports for each local interchange, the STA should assist local jurisdictions in the acquisition of the right of way necessary to construct the ultimate interchange improvements.

- The STA should revisit the prioritization of all mid and long-term projects with the completion of the new travel demand model. This review should be conducted at a cursory level to assure that the recommended priorities remain valid.

- Prepare an ultimate improvement plan for Segment 2 through Vallejo. This plan should integrate economic development planning with planning for freeway improvements.

- Conduct a study of the potential need for and benefit of a future (2040) truck lane on I-80 (particularly through Segments 1 and 6) similar to the currently proposal for I-710 in Los Angeles to serve the Los Angeles/Long Beach Port.

- Prepare a Traffic Management Plan for the I-80 corridor. As local interchanges are upgraded, install provisions for ramp metering. Establish prioritization of ramp metering by segment by direction. Design freeway management system components into all major mainline projects.

- Conduct Project Study Reports, preliminary engineering and environmental clearance for the mid-term projects, to prepare for design as funding becomes available.

- As land use patterns, travel demands and the tools to evaluate them evolve, update this corridor study[1] periodically. It is recommended that this study be updated every five years.

- Work with Caltrans and Contra Costa County to finalize a long-range plan for HOV facilities across the Carquinez (I-80) and Benicia Bridges (I-680), linking the two counties.

- Work with Caltrans and Yolo and Sacramento Counties to develop a long-range plan for HOV facilities linking the three counties at the Yolo causeway.