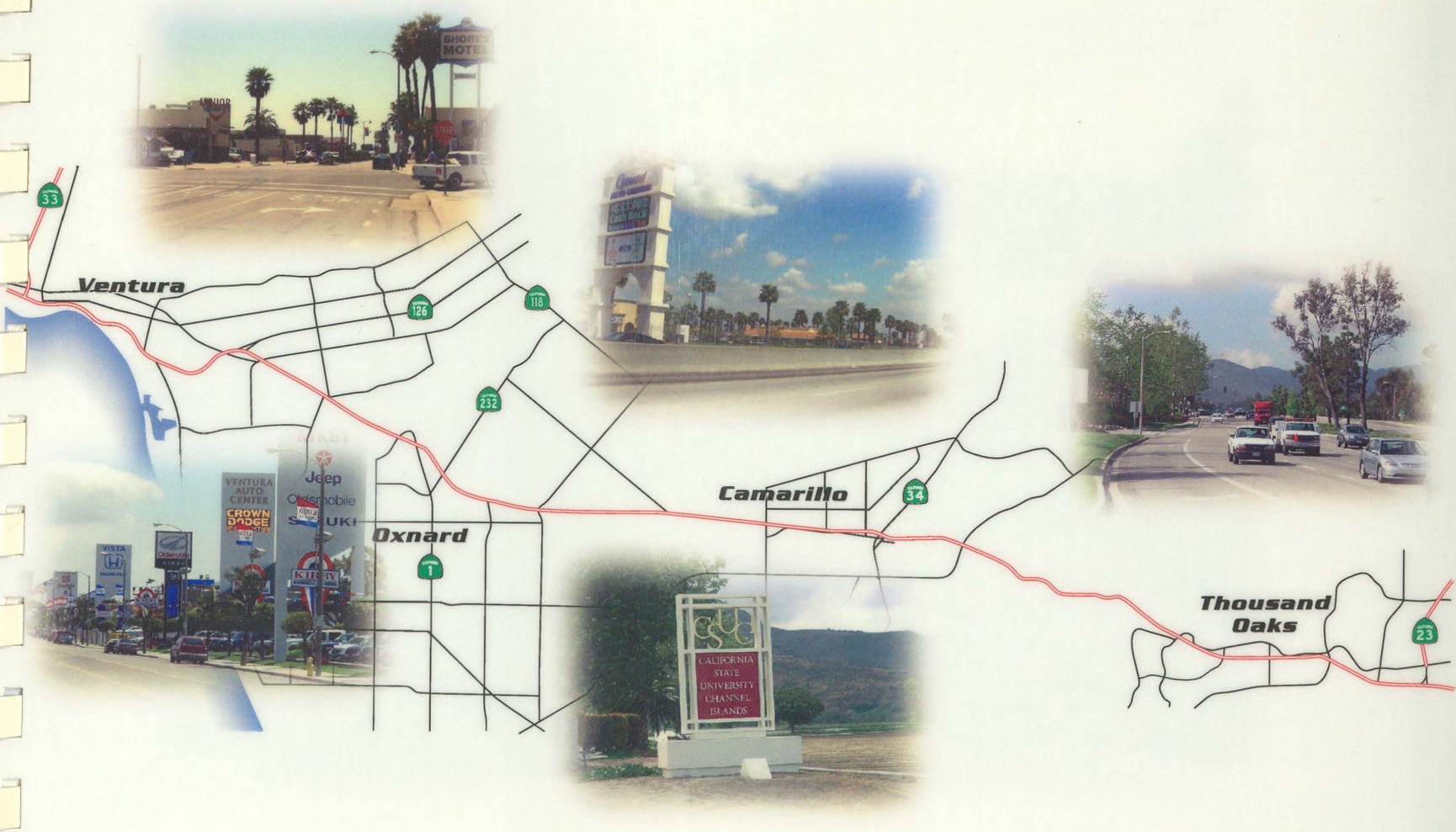
US 101

U.S. 101 Ventura County Feasibility Study

Final

June 2003



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Executive Summary

EXECUTIVE SUMMARY

The Ventura County Transportation Commission (VCTC) is seeking to identify short and long-range improvements on US 101 between State Route 23 in the City of Thousand Oaks to State Route 33 in the City of Ventura. Currently, the freeway within these limits experiences congested conditions during peak hours along various segments. The 1999 Route Concept Report for US 101 shows the freeway in need of widening to four lanes in each direction. In response to that earlier report, VCTC authorized this study to develop a phase implementation plan for achieving the four-lane widening of the freeway.

The Study involved using growth forecasts from the Southern California Association of Governments (SCAG) to project future travel demand on US 101 and a computer simulation model to identify the "hot spots" or deficiencies along the corridor. A series of "what if" scenarios were evaluated, segments were identified, and a phase implementation plan was developed. The table below describes the segments and their phase implementation per direction.

Preliminary engineering cost estimates for each of the segments in both the northbound and southbound direction were developed by superimposing the proposed improvements onto aerial photos of the corridor and using unit prices based on square footage. The estimates include costs for roadway and structure improvements, rights of way, environmental mitigation, intelligent transportation systems (ITS) costs, a 25% contingency, and the engineering support to develop the proposed improvements. The total cost to widen the freeway to four lanes in each direction has been determined to be approximately $200 million. It is possible to widen the freeway on a directional basis. If that were the case, the total cost to widen in the northbound direction is approximately $82 million and the total cost to widen in the southbound direction is $118 million.

Prioritized Segmentation

Priority	Southbound	Northbound
1st	Add 4th lane from Wendy Dr. to Lynn Rd, and an auxiliary lane only between Lynn Rd and Moorpark Rd.	Add 4th lane Carmen Dr. to Del Norte Blvd.
2nd	Add 4th lane Del Norte Blvd. to Carmen Dr.	Add 4th lane Del Norte Blvd. to Vineyard Ave.
3rd	Add 4th lane, Carmen Dr. to Camarillo Springs Rd, and add 5th lane as truck lane up Conejo Grade.	Add 4th lane, Camarillo Springs Rd. to Carmen Dr.
4th	Add 4th lane Vineyard Ave. to Del Norte Blvd.	Add 4th lane from Lynn Road to Wendy Dr., and an auxiliary lane only between Moorpark Rd. and Lynn Rd.
5th	Add 4th lane from Seaward Ave. to Rte 126, and 3rd lane from Rte 126 to Telephone Rd.	Add 4th lane down Conejo Grade from truck scales to Camarillo Springs Rd. on-ramp
6th	Add 4th lane from Telephone Rd. to Johnson Dr.	Add 3rd lane from Telephone Rd. to Route 126, 4th lane from Route 126 to Seaward Ave.
7th	Add 4th lane from SR 33 to Seaward Ave.	Add 4th lane from Johnson Dr. to Telephone Rd.
8th		Add 4th lane from Seaward Ave. to SR 33

The study also identified short range improvements that involve incorporating ITS technology along the corridor. Currently, the corridor does have some ITS technology such as Changeable Message Signs (CMS), Closed Circuit Television Cameras (CCTV), Vehicle Detection Station (VDS), and Highway Advisory Radio (HAR). Unfortunately, these operation devices use a telephone leased line for communication and are not directly connected to the Caltrans Traffic Management Center (TMC). The lack of a fiber optic cable to communicate directly prohibits Ventura County from sharing real time data with Caltrans, District 7, or any other local agency that may wish to do so, and it also limits the California Highway Patrol (CHP) in Ventura County from responding quickly to traffic accidents.

The total cost to upgrade the existing ITS technology is estimated to cost $27 million. The improvements can be done as a "stand alone" project or they can be incorporated with the proposed segment improvements along the corridor.

All the improvements identified in this study are expected to alleviate congestion up to year 2025.

Northbound Total	
All Segments	
Roadway Cost	$33,251,999
Structure Cost	$4,500,000
Right of Way Cost	$340,000
Environmental Mitigation Cost	$1,132,560
ITS Cost	$13,550,000
Contingency 25%	$13,193,640
Support Cost	$16,492,050
Total Cost (All Segments)	**$82,460,248**

Southbound Total	
All Segments	
Roadway Cost	$41,423,787
Structure Cost	$17,766,000
Right of Way Cost	$860,000
Environmental Mitigation Cost	$1,775,694
ITS Cost	$13,550,000
Contingency 25%	$18,843,870
Support Cost	$23,554,838
Total Cost (All Segments)	**$117,774,188**

Northbound & Southbound-Total SR23 to SR33	
Roadway Cost	$74,675,786
Structure Cost	$22,266,000
Right of Way Cost	$1,200,000
Environmental Mitigation Cost	$2,908,254
ITS Cost	$27,100,000
Contingency 25%	$32,037,510
Support Cost	40,046,888
Total Cost	**$200,234,438**

US 101

Introduction

1.0 INTRODUCTION

US 101 is a major north-south freeway connecting southern, central and northern California. In Ventura County, the freeway is used for intrastate and interregional travel, for the movement of goods and services, and as a commuter route. It is the primary freeway corridor in the County, traversing the cities of Thousand Oaks, Camarillo, Oxnard, and Ventura.

Currently, the freeway experiences congested conditions during peak hours along various segments of the corridor. The 1999 Route Concept Report for US 101 within the County of Ventura, shows the freeway in need of widening to four lanes in each direction. To address this need, the Ventura County Transportation Commission (VCTC) authorized a "Feasibility Study" to develop an implementation plan that would improve (1) the Level of Service (LOS), (2) regional mobility and access, (3) traffic safety of all modes, and (4) air quality. The Study would seek to identify major capital, operational, and technological improvements and develop a cost effective phasing plan that would identify short-term and long term solutions for achieving the four-lane widening along the Corridor.

This report presents the results of the "Feasibility Study" that seeks to meet the objectives described above. The scope of the Study includes the segment of US 101 from just east of Moorpark Road at the southern end to State Route 33 at the northern end, a distance of approximately 27 miles. The Study uses currently adopted growth forecasts from the Southern California Association of Governments (SCAG) to project future travel demand. These projections were, in turn, used to analyze the traffic conditions of the freeway by employing the FREQ computer simulation model. A series of "What if" scenarios were evaluated. Segments were identified and a phase implementation plan was developed. Impacts and the associated costs for improving the corridor were identified using engineering plans superimposed onto aerial photo images of the corridor. A preliminary environmental assessment was conducted on the entire corridor in order to identify mitigation costs.

The intent of this Study is to establish a plan of long- and short-term improvements for widening US 101 to four lanes in each direction and to assist VCTC staff in coordinating these proposed improvements with other planned transportation improvements in order to establish a countywide highway priority list. It is not the intent of this study to preclude US 101 from any recommendations that may arise from the Regionally Significant Transportation Investment Study (RSTIS) currently under way for US 101 in Los Angeles County, which also includes a segment of US 101 in Ventura County (LA County Line to State Route 23 in Thousand Oaks).

In order to coordinate the development of the Study and to achieve consensus on the phased implementation plan, regular Technical Advisory Committee (TAC) meetings were held. The TAC members included representatives from the City of Thousand Oaks, the City of Camarillo, the City of Oxnard, City of Ventura, the County of Ventura and management and technical staff members from VCTC.

US 101

Existing Conditions

2.0 EXISTING CONDITIONS

2.1 ROADWAY

2.1.1 Roadway Section

Through the City of Thousand Oaks, the existing highway roadway section provides for three mixed flow lanes and one auxiliary lane in each direction.

At the summit of the Conejo Grade, near the Caltrans truck-weigh station, the auxiliary lanes cease as motorists proceed north into the City of Camarillo. At the bottom of the Conejo Grade, in the southbound direction, a fourth lane is provided on the far right to Wendy Drive for slow moving traffic ascending the grade.

Proceeding north from the bottom of the Conejo Grade toward State Route 33 in the City of Ventura, the roadway section provides three mixed flow lanes in each direction. However, it reduces to two lanes in each direction as it passes through the two interchanges at State Route 126 and State Route 33. An auxiliary lane is located in the southbound direction at the Lewis Road (State Route 34) undercrossing.

While this study was being prepared, construction work was underway to improve the Santa Clara River bridge and Oxnard Boulevard interchange, to provide a new freeway interchange at Fulton Street, and to provide a new on-ramp from Rancho Conejo Boulevard and Borchard Road onto southbound US 101.

2.1.2 Median

Along the corridor, the freeway median varies from the standard 22 feet to 55 feet in width and is intermittently paved. Generally speaking, in the City of Thousand Oaks the median is 22 feet wide. In the City of Camarillo and in the City of Oxnard, the median varies from 22 feet to 35 feet and in the City of Ventura it varies from 45 to 55 feet. Forty-six feet is the minimum width required to accommodate two lanes in each direction with standard shoulders. Typical

cross sections of the freeway at various locations along the corridor are shown in **Figure 2-1**.

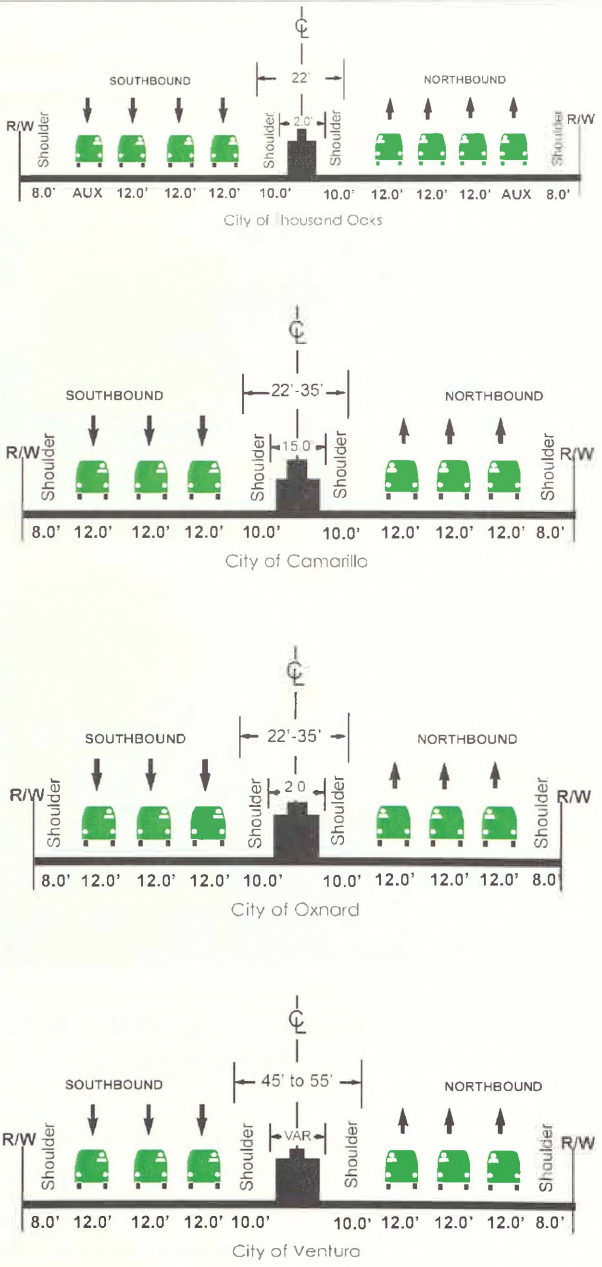
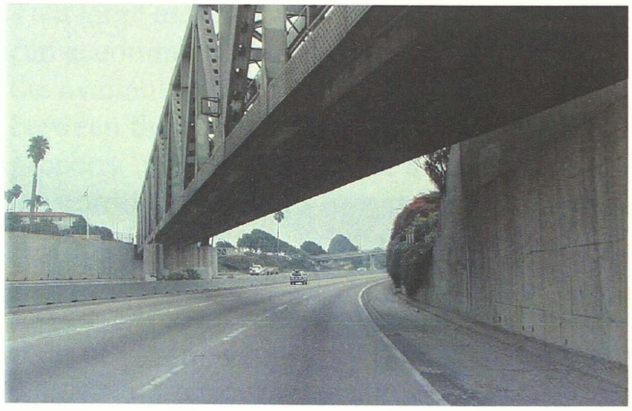


Figure 2-1 – Typical Freeway Cross Sections

2.1.3 Structures

There are a total of 47 structures along the corridor study area. The name and location of each are shown on Project Alignment sheets in Appendix A. Except for Moorpark Road UC, in the City of Thousand Oaks, all of the structures have been reconstructed or are capable of accommodating the additional fourth lane in each direction. In the City of Camarillo, the north half of the overcrossing at Pleasant Valley Road/Santa Rosa Road would need to be removed and replaced and the same is true for the overcrossing at Central Avenue. Along the freeway, Camarillo Springs Road UC, Arroyo Conejo Bridge, Carmen Drive OC, and Las Posas OC would require some modification to accommodate the fourth lane. In the City of Oxnard, the overcrossing at Del Norte Boulevard and the Route 232/US 101 Separation do not accommodate the fourth lane and would need to be removed and replaced. In the City of Ventura, there are a number of structures with closed abutments that may accommodate a fourth lane depending on the available median width and the required stopping sight distance. The likelihood is that nonstandard design features will be needed in order to avoid replacing some of these structures. For the purposes of this study, the assumption is these structures will need to be replaced.



Currently, the two interchanges at SR 126 and SR 33 accommodate two lanes in each direction. The traffic analysis conducted as part of this study and presented later in this report will discuss whether or not these interchanges need to be modified in order to accommodate the future traffic demand.

2.1.4 Intelligent Transportation Systems (ITS)

Currently, the corridor does have ITS technology that includes four changeable message signs (CMS), four closed circuit televisions cameras (CCTV), one vehicle detection station (VDS), one highway advisory radio (HAR) site and 25 ramp meters (RMS). Unfortunately, these operation devices are not being used to the best advantage due to the lack of necessary infrastructure. Currently, these traffic operation devices communicate with the District 7 Traffic Management System (TMC) via leased telephone lines or wireless communication, hampering their ability to communicate data on a real time basis. Furthermore, the TMC cannot communicate directly with the Ventura County California Highway Patrol (CHP) and thereby reduces its ability to respond quickly to traffic accidents.

VCTC has developed an ITS strategy that outlines the needed infrastructure improvements for all major highways in the County. Currently, there are two projects in the design phase that would provide needed infrastructure improvements by constructing a fiber optics cable along SR 118 and State Route 23, respectively. Additionally, Caltrans is pursuing a project which is currently in the planning phase that would provide the ITS improvements along US 101 from State Route 23 to the Los Angeles County Line including a new hub relay station at the interchange of State Route 23 and US 101.

One of the objectives of this study is to identify an implementation plan for ITS improvements along the corridor that would continue to build upon the efforts that have already commenced and provide the necessary infrastructure for future ITS developments on US 101.

2.1.5 Right of Way

To a large extent, the existing right of way can accommodate a fourth lane by utilizing the available median or the right of way between the outside edge of shoulder and the property line, or both. At the northern end of the corridor, new right of way may be needed depending on whether design exceptions would be granted. In the City of Camarillo, there are some locations where the existing right of way abuts the city frontage road and would not accommodate the added lanes. New right of way would be needed at these locations. However, these locations are few

and their impact is not viewed as controversial. The layout sheets included in Appendix C depict the existing state right of way and the proposed improvements superimposed on aerial photo images.

2.1.6 Project Coordination

Within the last ten years, there have been a number of improvements along the corridor. **Table 2-1** lists those improvements currently planned or programmed. For the purposes of this study, these projects are considered as part of the existing roadway system and have been included in the analysis in the baseline condition. The baseline condition also assumes a second lane on the connector connecting the southbound State Route 23 to the northbound US 101 as well as an additional southbound lane east of the interchange. **Table 2-2** lists those projects that have recently been completed within the last ten years and are already included in the aerials photos taken in March 2002. The list is provided for historical purposes only.

2.2 Traffic

2.2.1 Traffic Simulation—Existing Conditions

To analyze traffic conditions for this study, freeway simulations were performed using the FREQ computer simulation model. The FREQ series of simulation models were first developed in the early 1970's, and have been updated periodically since then. The current version, FREQ12PE, runs on Windows-based personal computers. FREQ is a macroscopic model, simulating traffic as flows rather than as movements of individual vehicles as would be done with a microscopic model. FREQ was selected for this study over some popular microscopic simulation models like CORSIM and VISSIM because FREQ is more suitable for a very large-scale project like the US 101 corridor.

The input data to the FREQ model consists of number of lanes, distance between interchanges, ramp configurations, grade, truck mix, and ramp traffic counts taken every 15 minutes. Analysis was based on traffic tube counts that had been collected in the past few years by Caltrans District 7. Most of the ramp counts were performed as part of a count program that ran from fall of 1998 to summer of 1999. These counts were supplemented by mainline counts and other ramp counts collected from January 2000 through March 2002. Despite the age of some of the traffic counts, they were found to be sufficiently accurate to generate a reasonable simulation of existing conditions. Traffic conditions were simulated for weekday periods, from 6:00am to 10:00am and from 3:00pm to 7:00pm.

The FREQ model simulated the freeway configuration as it existed in early Fall 2002. At that time, freeway improvement construction was occurring at the Santa Clara River Bridge and the US 101/Oxnard Boulevard interchange, at a new southbound on-ramp at Borchard Road, and in the vicinity of Lewis Road.

The FREQ model produces a multitude of measures of effectiveness, such as freeway mainline delay, travel time, average speed. Furthermore, FREQ provides graphic representations of freeway conditions. **Figures 2-2** to **2-5** depict conditions along the US 101 freeway mainline for the existing conditions.

Table 2-1 – Current Corridor Improvement Projects

Project	Type	Limits	City	Status
Lewis Road Interchange	Interchange Modification	PM 13.4 to 14.4	Camarillo	Construction
Rice Avenue Interchange	Interchange Modification	PM 19.5 to 20.5	Oxnard	Design
Vineyard Ave. to Johnson Dr.	Bridge Widening	PM 22.0 to 24.0	Oxnard/ Ventura	Construction
U.S. 101 Median Widening	Highway Widening	PM 0.2 to 2.6	Thousand Oaks	Planning-PSR
U.S. 101 MIS LA County/Ventura	To be Determined	East of SR 23 to Los Angeles	Thousand Oaks	Planning-MIS
Springville	New Interchange	PM 16.85	Camarillo	In Design
Victoria Avenue Interchange	Widen Ramps	PM 25.2	Ventura	In Design

Table 2-2 – Completed Corridor Projects

Project	Type	Limits	City	Design Completed
Moorpark Rd.	Interchange Modification	PM 6.0 to 7.0	Thousand Oaks	April 1999
Borchard Road	Ramp Modification	PM 7.0 to 7.3	Thousand Oaks	December 1999
Flynn Road	Ramp Modification	PM 12.8 to 13.3	Camarillo	April 1997
Carmen Drive	Interchange Modification Street Re-alignment	PM 14.7 to 15.1	Camarillo	November 2000
Santa Rosa Rd. Overcrossing	Interchange Modification	PM 12.0 to 12.7	Camarillo	March 1993
Rose Avenue Overcrossing	Interchange Modification	PM 20.6 to 21.4	Oxnard	March 1997
Johnson Drive	Ramp Modification	PM 23.4 to 23.6	Ventura	March 2000

These graphs show time of day running down the vertical axis, and the freeway segment running from upstream to downstream, left to right. The color codes are as follows:

GREEN: Free-flow conditions,

BLUE: Near capacity conditions where .9 <= V/C < 1.00,

YELLOW: Bottleneck (V/C = 1.00) located immediately downstream of the queue and a transition area between free-flow conditions and congested conditions,

RED: Congested flow conditions.

Traffic congestion typically has a red triangular pattern, bordered by a yellow strip along its right edge. The yellow strip represents the bottleneck. Bottlenecks could be caused either by an increase in demand due to an on-ramp, or to a reduction in capacity due to a lane drop or weaving section. The vertical height of the base represents the duration of the congestion, with the top edge representing the time-of-day of the start of a bottleneck, and the bottom edge representing the end of the bottleneck. The red triangle extends leftwards from the bottleneck. The farther tip of the triangle from the bottleneck

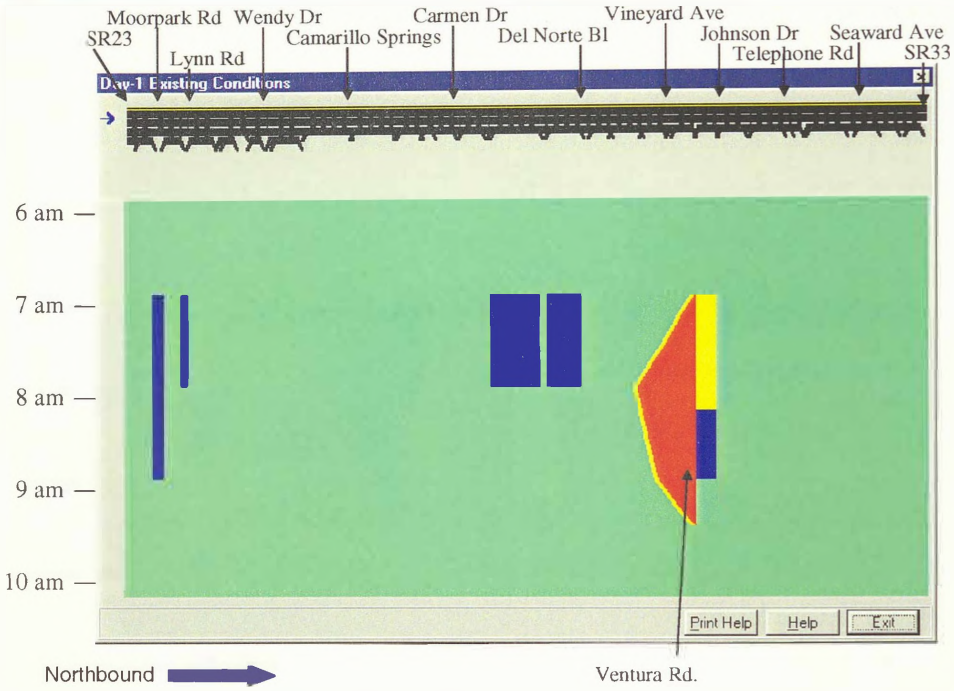


Figure 2-2 – FREQ Simulation of Northbound AM Existing Condition

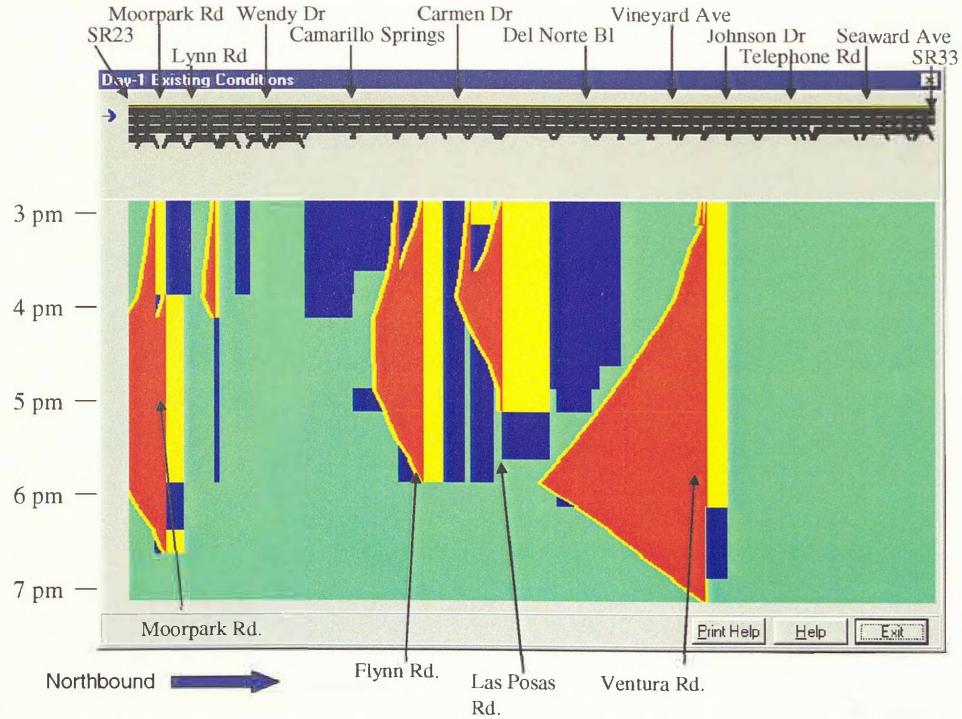


Figure 2-3 – FREQ Simulation of Northbound PM Existing Condition

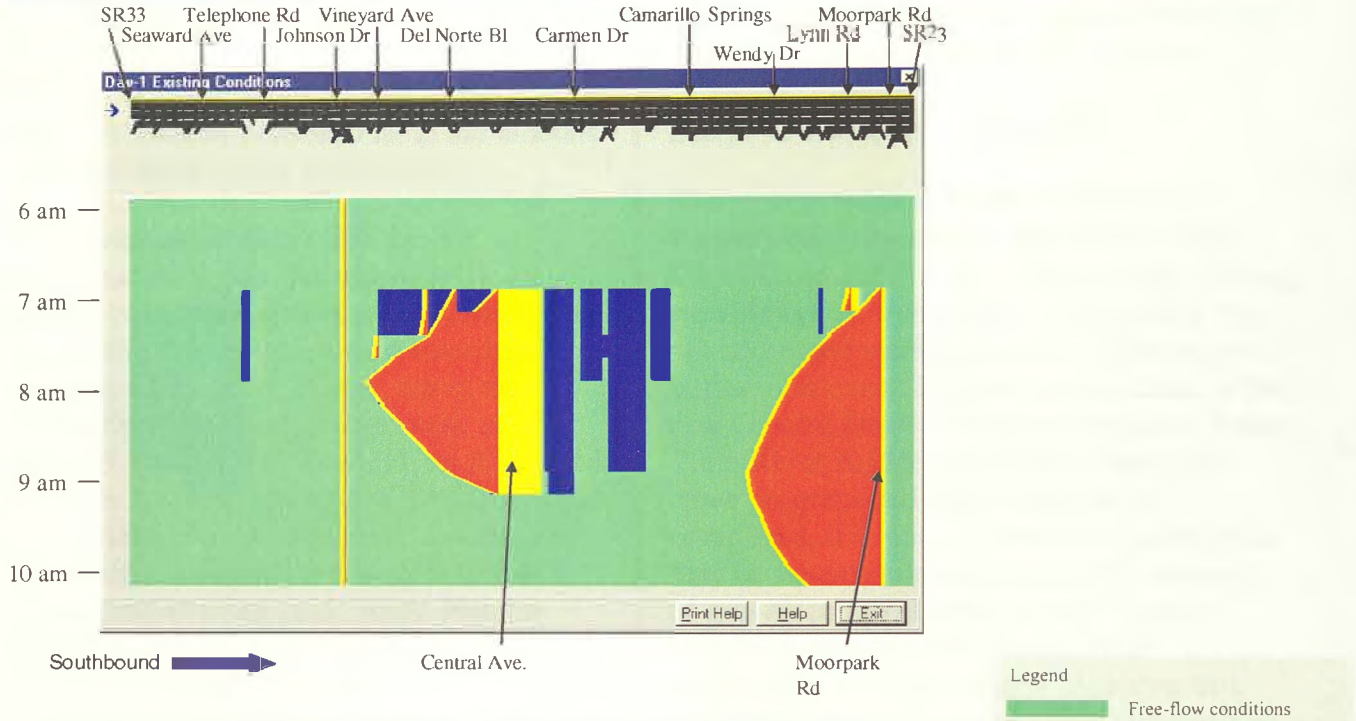


Figure 2-4 – FREQ Simulation of Southbound AM Existing Condition

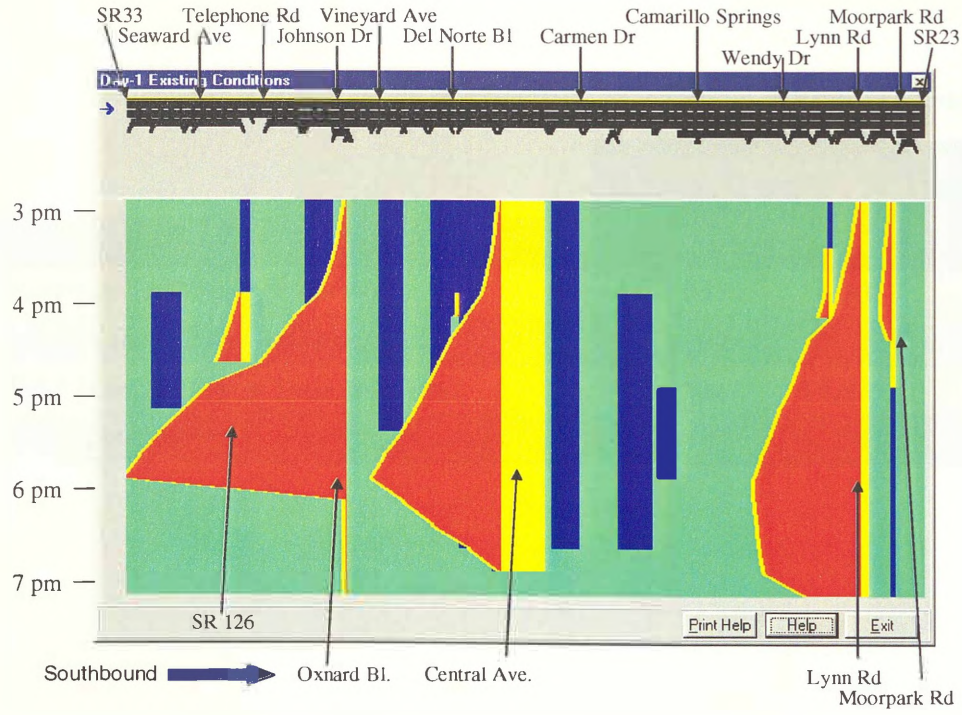


Figure 2-5 – FREQ Simulation of Southbound PM Existing Condition

shows how far back the traffic congestion extends, and can be compared to the strip map at the top of the graph. The area of the triangle is roughly proportional to the amount of delay created by the congestion.

The simulations indicate that for the northbound direction, the only significant morning bottleneck occurs at the construction zone for the Oxnard Boulevard interchange and Santa Clara River Bridge, but in the evening the major bottlenecks occur at Moorpark Road, Lynn Road, Flynn Road, and Las Posas Road, in addition to the Santa Clara River Bridge construction zone. Southbound traffic suffers congestion during both the morning and evening peak hours. Notable bottlenecks for the southbound direction occur at the Central Avenue and Moorpark Road on-ramps during the morning. During the evening, the southbound bottlenecks occur at the Oxnard Boulevard off-ramp, Central Avenue on-ramp, and Lynn Road on-ramp.

Table 2-3 summarizes the major measures of effectiveness for the existing conditions.

2.2.2 Deficiency Analysis

The most notable deficiencies in terms of freeway capacity extend between the Santa Clara River and the SR 23 interchange, during weekday peak hour periods. (This study has not addressed weekend traffic.) The single largest bottleneck is due to construction of the new Oxnard Boulevard interchange and Santa Clara River Bridge. After that project and other programmed improvements are completed, it is possible that new bottlenecks may be revealed downstream. Also, because of growth in travel demand over the next couple of decades, it is possible that bottlenecks will form at new locations that might not be obvious now. That issue will be addressed in the sections that follow.

Table 2-3 – Effectiveness Measures – Existing Conditions

	Northbound (Ventura ← Thousand Oaks)		Southbound (Ventura → Thousand Oaks)	
Existing	**AM**	**PM**	**AM**	**PM**
Total Mainline Delay (Veh-hrs)	1,047	5,308	5,076	7,149
Avg. Mainline Delay (Minutes/Veh)	2	5	5	7
Total Freeway Travel Time (Veh Hrs)	8,184	14,871	13,432	16,432
Avg. Speed (MPH)	57	41	40	37

US 101

Travel Forecast and Traffic Analysis

3.0 TRAVEL FORECASTS AND TRAFFIC ANALYSIS

The US 101 Highway Corridor Study improvements will be prioritized by segment based on meeting future year (2025) traffic requirements. Given this focus, the project team completed a detailed assessment of horizon year 2025 travel forecasts for US 101 and performed a detailed assessment of traffic performance by segment. The travel forecasts and traffic analysis were performed for a Baseline (Existing plus funded projects) condition and a Build Alternative that introduced a fourth mixed flow travel lane to many of the segments of the US 101 in Ventura County.

3.1 TRAVEL FORECASTS

Increased population and employment growth in Ventura County will create additional traffic demand on US 101 in the coming years. Based on currently adopted growth forecasts from the Southern California Association of Governments (SCAG), Ventura County's population will increase from 725,734 in 1997 to 940,077 in the horizon year 2025, a 30 percent increase. At the same time, employment is Ventura County is forecast to increases from 300,987 in 1997 to 428,394 for horizon year 2025, a 42 percent increase.

Given this socio-economic growth projection, traffic on the US 101 will increase substantially in the peak periods of the average weekday. Evening and weekend traffic is expected to continue to continually grow as well.

3.1.1 Travel Forecasting Approach

For the US 101 Highway Corridor Study, two sets of future Year (2025) model runs were performed using the SCAG Regional Transportation Model. These runs were done in order to assess the effect of widening US-101. First the Baseline (the unmodified SCAG 2025 RTIP) Alternative was run. An initial assessment was made of the corridor performance, and a "preliminary" Build Alternative was defined, based on the results of the Baseline.

These demand model alternatives (the Baseline and the "preliminary" Build Alternatives) were developed to provide volumes for the simulation analysis described in Section 3.2. It is that analysis that determines in detail the recommended lane configuration.

The Build Alternative model (the demand model) consisted of improving the Baseline by adding a travel lane in each direction on the US-101 from Camarillo Springs Road to Johnson Drive.

The SCAG Regional Transportation Model is a traditional "Four Step" transportation model, comprised of; Trip Generation, Trip Distribution, Modal Split, and Trip Assignment. The SCAG region is modeled as a large number (3217) of zones. For each of a number of Trip Purposes (e.g. Home-to-Work, Home-to-Shop, Work-to-Other) and for each zone or zone-pair:

1) Trip Generation calculates the level of tripmaking (Productions and Attractions) to or from a zone from the Socio-economic data for each zone.

2) Trip Distribution connects the ends of those trips throughout the region based on the congested travel times.

3) Mode Choice splits trips between any zone pair, amongst the methods of travel (E.g. Drive-Alone Car, Carpool, Bus, Etc.) available.

4) Trip Assignment "assigns" those trips to the roadway and transit networks. The highway assignment uses an "equilibrium" process to balance the various paths trips will make between zone-pairs.

The SCAG model is a state of the practice model in a number of ways. For instance, Trip Generation, Trip Distribution, and Mode Choice are carried out separately for Peak and Off-Peak trips.

The model assigns trips for four periods that make up the day; AM (6:00-9:00 AM) Midday (9:00 AM- 3:00 PM) PM (3:00-7:00 PM) and Night (7:00 PM-6:00 AM). In the following discussion, we will review the results of the AM period (3 hour) and PM period (4 hour) assignments.

In the Baseline 2025 Alternative, US-101 will be a four lane per direction facility from SR-23 to Camarillo Springs Road. It will be a three lane per direction facility from Camarillo Springs Road to SR-126. It will then be a four lane per direction facility for the short segment from SR-126 to Seaward Avenue, then a three lane per direction facility from Seaward Avenue to California Street in the west.

Figure B-1 in Appendix B depicts the roadway network for the Build Alternative for the US-101 in Ventura County. In the Build Alternative, US-101 will be a four lane per direction facility from SR-23 to Johnson Drive. It will be a three lane per direction facility from Johnson Drive to SR-126. It will then be a four lane per direction facility for the short segment from SR-126 to Seaward Avenue, then a three lane per direction facility from Seaward Avenue to California Street in the west.

The only difference between the alternatives is the addition of one lane of capacity in each direction from Camarillo Springs Road in the east, to Johnson Drive in the west.

3.1.2 Forecasting Results

Tables B-1 and **B-2** in Appendix B show the AM and PM period volumes projected for the Baseline Alternative in 2025. The top halves of the Tables show the volumes for the northbound/westbound direction, and the bottom halves of the Tables show the volumes for the southbound/eastbound direction.

The columns in **Tables B-1** and **B-2** show, for each direction of travel and for each freeway segment reported: peak period (3 Hours AM, 4 hours PM) number of cars, the peak period number of trucks, the period capacity, the number of lanes for that travel direction, the Demand to Capacity ratio, and the Level of Service.

Levels of service (LOS) reported in the tables are based on the standard ITE LOS definitions shown in **Table B-3** in Appendix B. As shown in the exhibit, traffic operations at LOS D are becoming crowded, while at LOS E operations are breaking down and show delay. Traffic operating at LOS F is severely congested.

As shown in **Table B-1**, AM peak period traffic for the Baseline in the southbound/eastbound direction ranges from 9,509 for the segment from SR126 and the US-101 interchange to Seaward Avenue, to 26,477 for the segment from SR23 to Moorpark Road. The AM peak period is heaviest in the southbound/eastbound direction fueled by Ventura County residents going to jobs in Los Angeles County.

As shown in **Table B-2**, traffic volumes for PM peak period westbound/northbound on the US101 in Ventura County ranges from 18,094 for the segment from SR126 and the US101 interchange to Seaward Avenue, to 34,707 for

the segment from SR23 to Moorpark Road for the Baseline Condition in horizon year 2025.

The tables show that, for the Baseline, in the peak travel directions (southbound/eastbound in the AM and northbound/westbound in the PM) the freeway is expected to operate at LOS D, E or F from SR23 to approximately SR126.

Tables B-4 and **B-5** in Appendix B show the results of the Build alternative, with one lane of capacity added in each direction from Camarillo Springs to Johnson Drive. While the peak directions are still operating at congested levels LOS D, E or F, we see that in the AM the V/C ratio is reduced by nearly a level (a reduction of over "0.1") from "high D's" to "low D's" for the entire improved section. The improvement is greater in the PM, where the freeway is improved from "D's and E's" to "C's and D's" for the improved section.

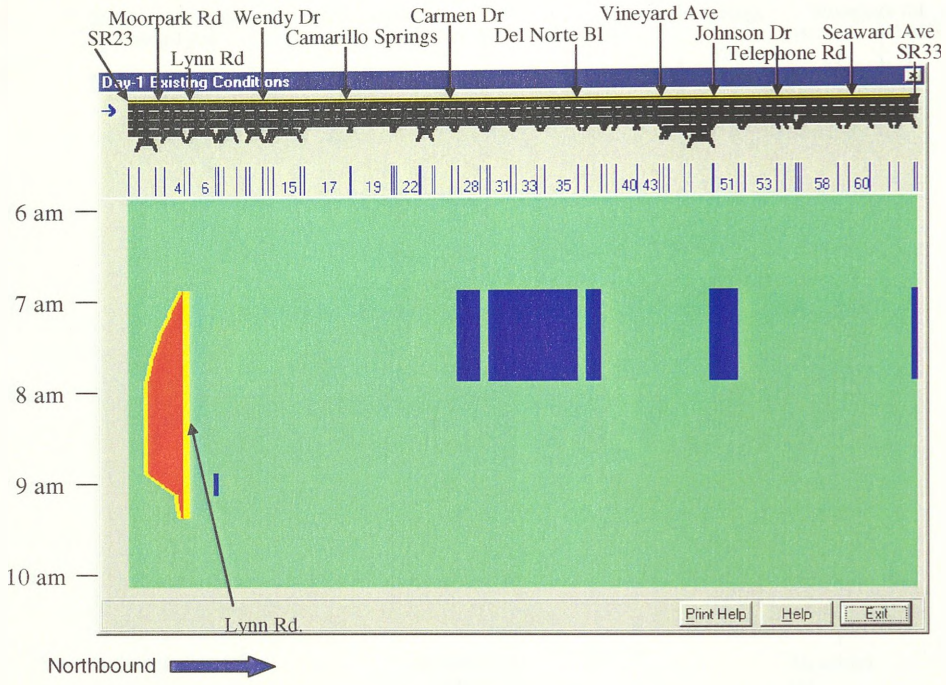
3.2 Future Year Traffic Performance

In order to evaluate future year traffic performance, an operational analysis was done based on existing conditions and the 2025 SCAG model results presented in the previous chapter.

Using the 2025 SCAG model results as a basis, the existing traffic volumes were projected upwards. A uniform multiplier was applied for the southbound direction of 1.20 for AM, 1.00 for PM. PM volumes required no multiplier, since SCAG model results for 2025 nearly matched the existing counts. For the northbound direction, uniform growth rates were applied to match SCAG's growth rate of 1.11 for the morning and 1.06 for evening.

The freeway configuration was modified to include the programmed improvements, described in an earlier section. These programmed improvements include interchange improvements at SR 23, Rancho Conejo Road, Lewis Road, Rice Avenue, and Oxnard Boulevard, as well as the new interchange at Springville Road/Airport Road.

FREQ simulations were conducted to represent the 2025 No Build Condition, which would represent conditions if no further improvements were made besides the programmed improvements. The FREQ results are shown in **Figures 3-1** through **3-4**.



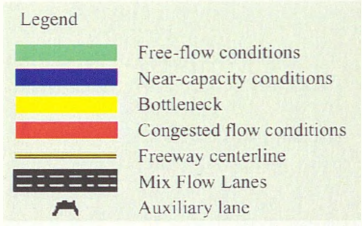


Figure 3-1 – FREQ Simulation of Northbound AM No Build – 2025

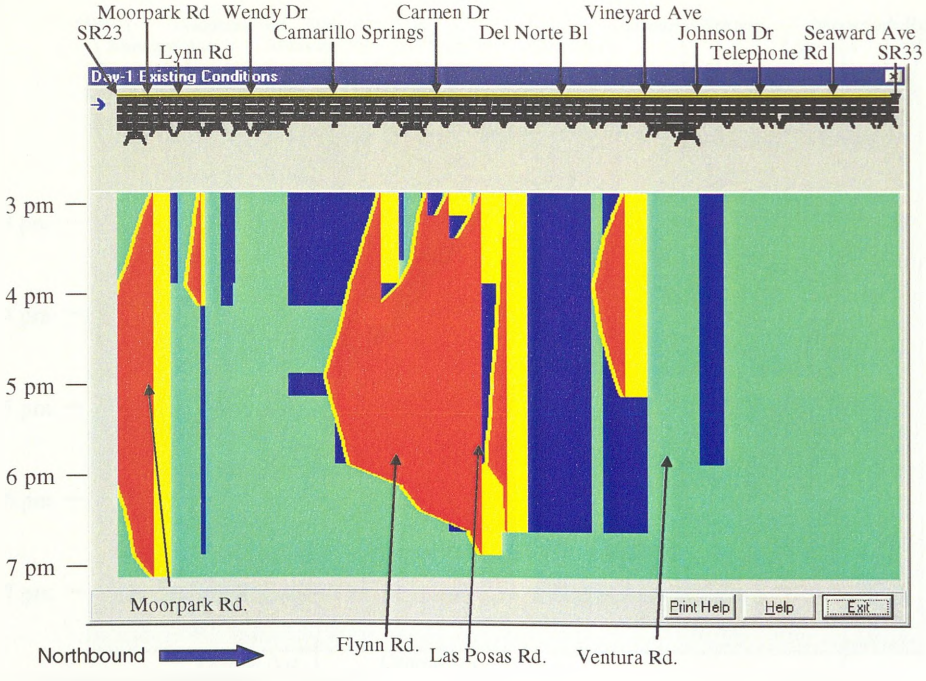


Figure 3-2 – FREQ Simulation of Northbound PM No Build – 2025

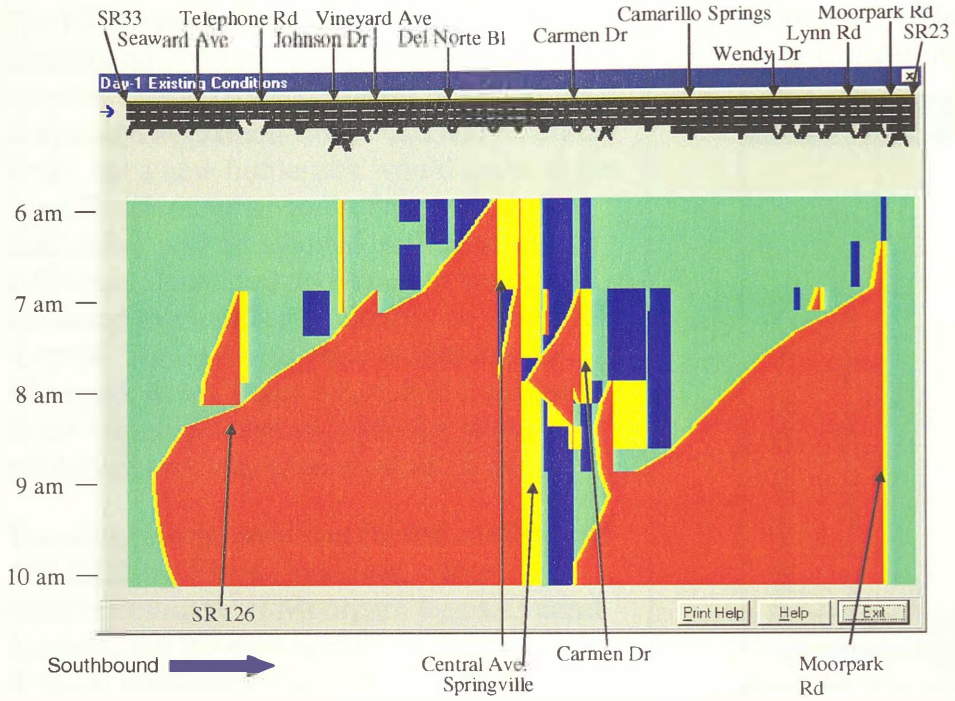


Figure 3-3 – FREQ Simulation of Southbound AM No Build – 2025

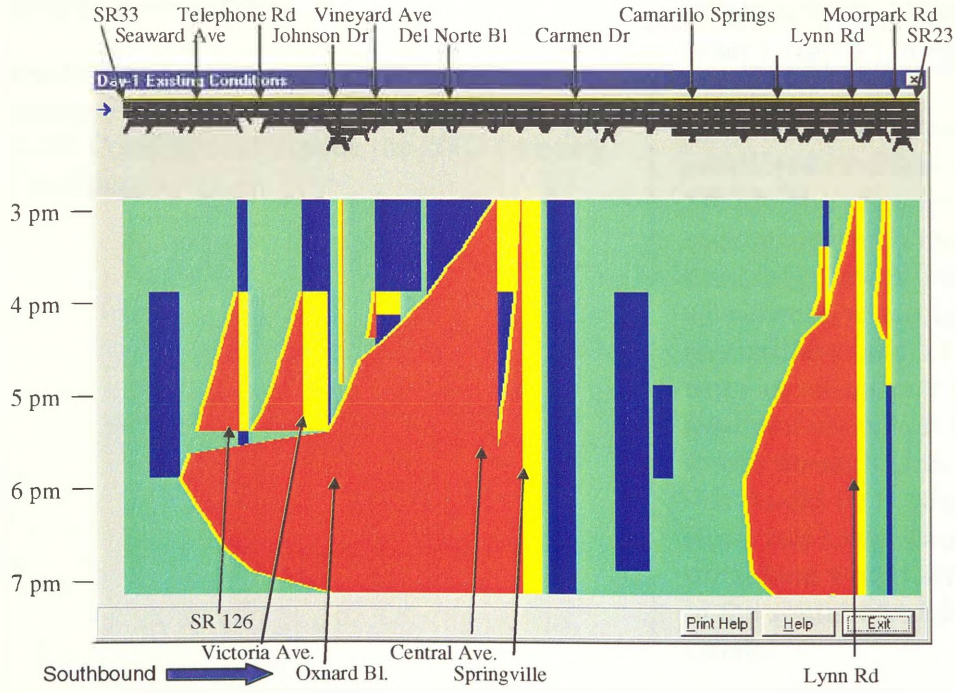


Figure 3-4 – FREQ Simulation of Southbound PM No Build – 2025

The FREQ model shows that for the northbound 2025 No Build Condition, morning traffic will be relieved of major congestion at Oxnard Boulevard and Ventura Road, but a new bottleneck would occur at the Lynn Road interchange. In the evening, commuters will be relieved of the bottleneck at Oxnard Boulevard and Ventura Road, but subjected to a smaller bottleneck at Vineyard Avenue. The existing major bottlenecks at Moorpark Road, Flynn Road, and Las Posas Road would still remain, and new minor bottlenecks are expected at other locations.

The simulations show that for the southbound AM 2025 No Build Condition, major bottlenecks occur at Moorpark Road, Central Avenue, and the new Springville interchange. A lesser bottleneck occurs at SR 126. For the afternoon, major bottlenecks occur at the Central Avenue and new Springville interchanges, and at Lynn Road. Lesser bottlenecks occur at the SR126 and Victoria Avenue interchanges.

Table 3-1 as shown below shows the measures of effectiveness for the 2025 No Build Condition, alongside the 2002 Existing Condition.

Table 3-1 – Effectiveness Measures – Existing Conditions vs. Future "No Build"

	Existing				2025 No Build			
	Total Mainline Delay (Veh-hrs)	Avg. Mainline Delay (Minutes/Veh)	Total Freeway Travel Time (Veh Hrs)	Avg. Speed (MPH)	Total Mainline Delay (Veh-hrs)	Avg. Mainline Delay (Minutes /Veh)	Total Freeway Travel Time (Veh Hrs)	Avg. Speed (MPH)
Northbound (Ventura ← Thousand Oaks)								
AM	1,047	2	8,184	57	919	1	8,850	58
PM	5,308	5	14,871	41	5,970	4	16,391	40
Southbound (Ventura → Thousand Oaks)								
AM	5,076	5	13,432	40	19,299	20	28,757	21
PM	7,149	7	16,432	37	10,113	9	19,691	32

Simulations were performed assuming that an additional lane was provided from SR 23 to SR 33. The segment through the SR 126 interchange with two lanes would receive a third lane. Locations with three through lanes would receive a fourth lane. Locations with an auxiliary lane, i.e. a lane that extends only from an on-ramp to the next off-ramp, were assumed to convert the auxiliary lane into a fourth through lane. The only auxiliary lane that would be needed was between Moorpark Road and Lynn Road, in both directions. A truck lane would serve as the 5th lane of traffic in the southbound direction up the Conejo Grade.

The results of these simulations are shown in **Figures 3-5** through **3-8.**

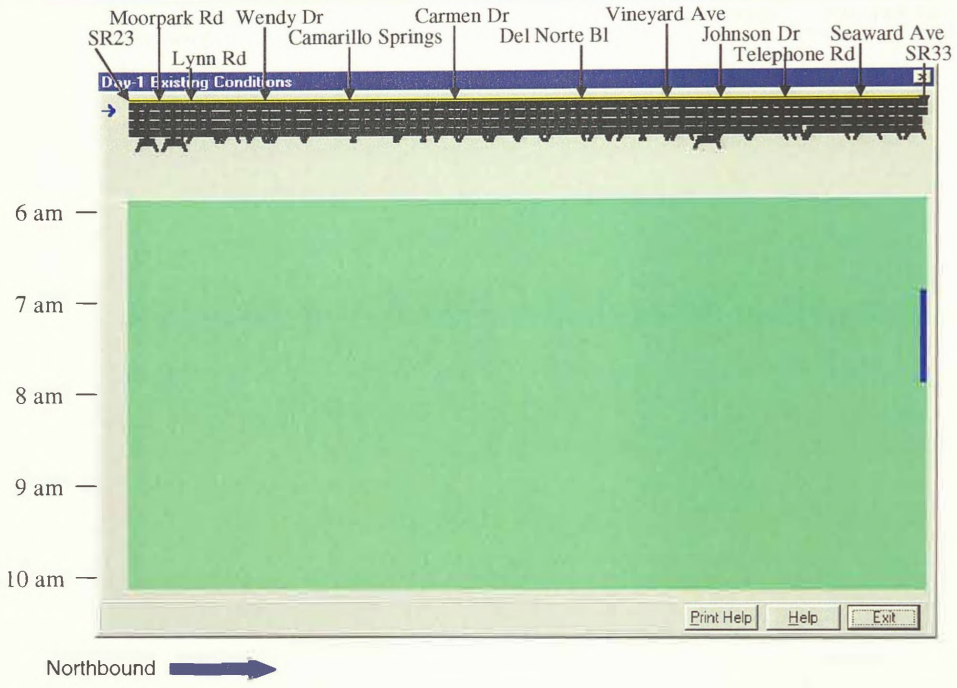


Figure 3-5 – FREQ Simulation of Northbound AM with Added Lane

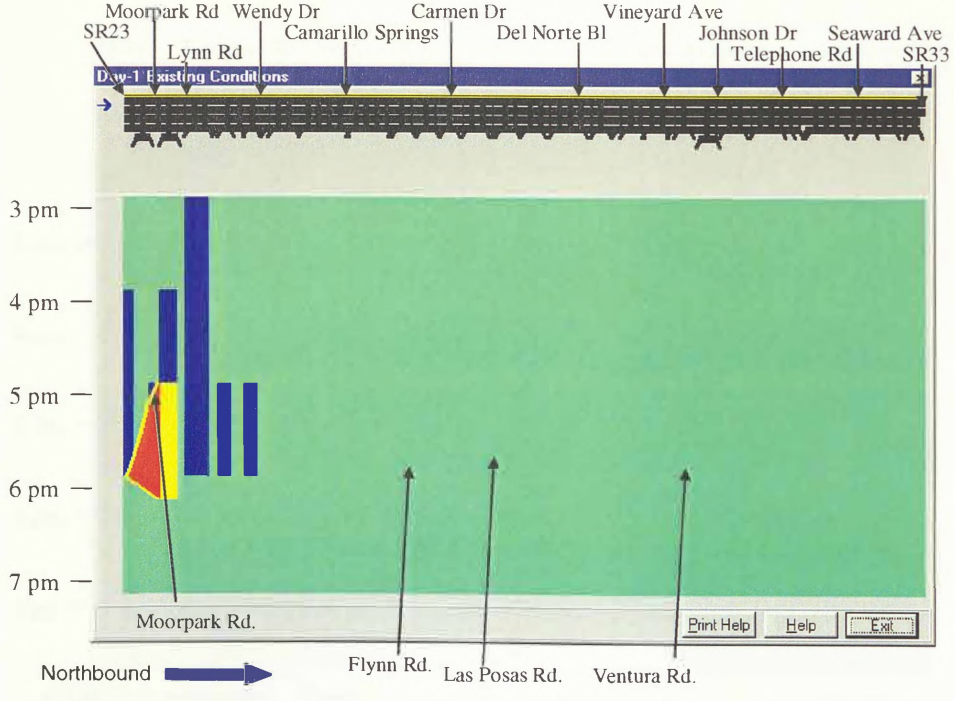


Figure 3-6 – FREQ Simulation of Northbound PM with Added Lane

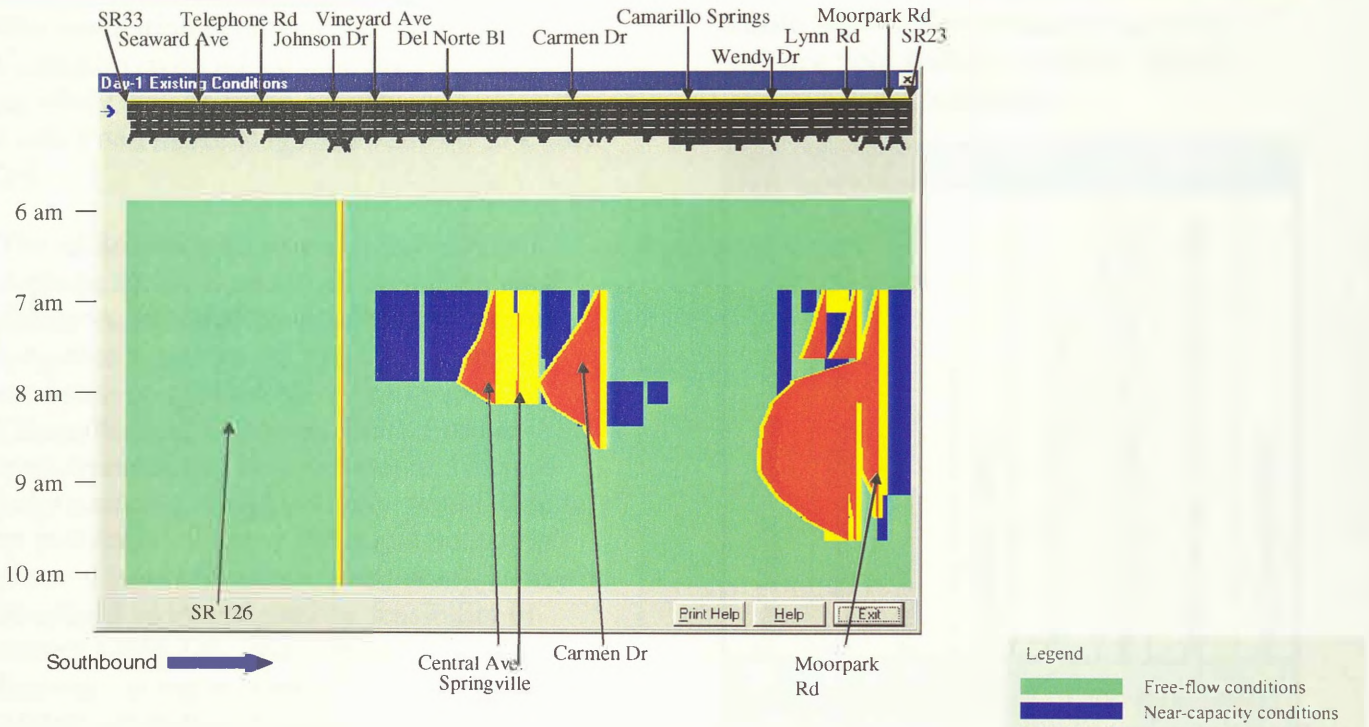


Figure 3-7 – FREQ Simulation of Southbound AM with Added Lane

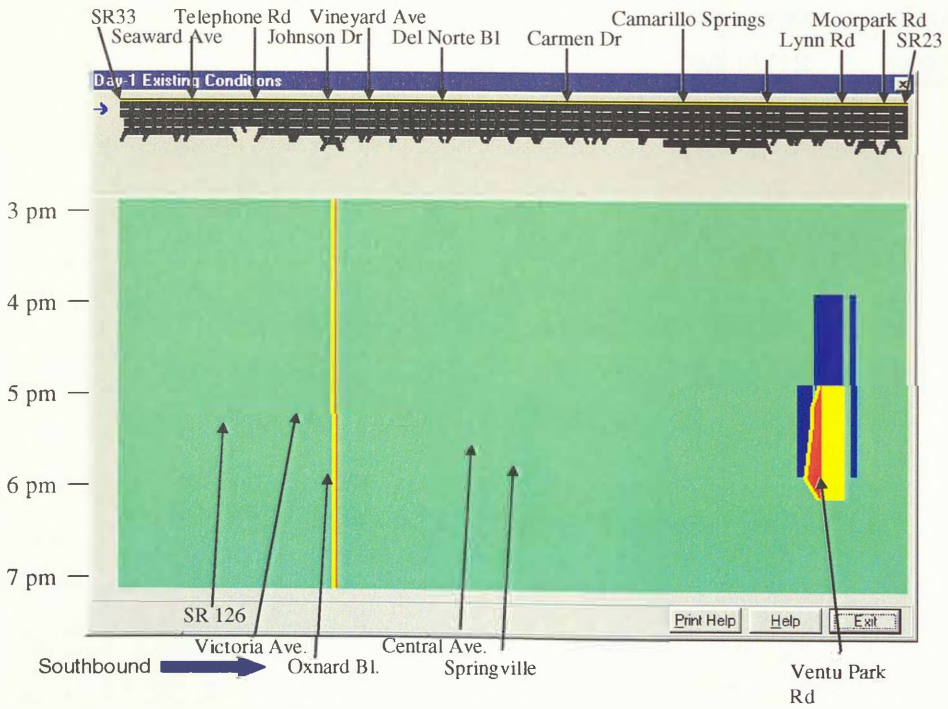


Figure 3-8 – FREQ Simulation of Southbound PM with Added Lane

The simulation results of the 2025 Build Condition (with added lane throughout, plus auxiliary lane between Moorpark Road and Lynn Road interchanges) are shown in **Table 3-2**.

The additional lane would significantly improve traffic flow for all periods in each direction, although the southbound morning commute hours would still experience moderate congestion through Oxnard, Camarillo, and Thousand Oaks. Further improvement was not considered, because large amounts of right-of-way would need to be purchased. During the implementation phase (Project Initiation Document), it may be beneficial to investigate the feasibility of adding a fifth lane along this stretch of the freeway. It can be seen in Figure 3-7 that adding a fifth lane from Del Norte to Camarillo Springs would further reduce the anticipated congestion in the southbound direction.

Table 3-2 – Effectiveness Measures – Future "No Build" vs. 2025 "Build" Conditions

	2025 No Build				2025 Build			
	Total Mainline Delay (Veh-hrs)	Avg. Mainline Delay (Minutes /Veh)	Total Freeway Travel Time (Veh Hrs)	Avg. Speed (MPH)	Total Mainline Delay (Veh-hrs)	Avg. Mainline Delay (Minutes / Veh)	Total Freeway Travel Time (Veh Hrs)	Avg. Speed (MPH)
Northbound (Ventura ← Thousand Oaks)								
AM	919	1	8850	58	19	0	7951	65
PM	5970	4	16391	40	471	0	10493	62
Southbound (Ventura → Thousand Oaks)								
AM	19299	20	28757	21	2570	2	12793	52
PM	10113	9	19691	32	255	0	10225	63

3.3 RECOMMENDATION

Recommended project improvements to handle 2025 weekday traffic demand are as follows:

Add a fourth lane in both the northbound and southbound directions on US 101 from Moorpark Road in Thousand Oaks to Vineyard Avenue in Oxnard. At the southern end, this improvement would be a continuation of improvements made as part of the State Route 23 Freeway and US 101 interchange projects. At the northern end, the fourth lane would join improvements being made as part of the US 101/Oxnard Boulevard interchange project.

In the City of Thousand Oaks, the existing auxiliary lanes would be converted to form a continuous fourth lane. A new auxiliary lane would serve as the fifth lane between the Moorpark Road and Lynn Road interchanges, for both the northbound and southbound directions. These would be the only auxiliary lanes needed between State Route 23 and the Santa Clara River Bridge. A truck lane would serve as the 5th lane in the southbound direction up the Conejo Grade.

Add an additional lane from Johnson Drive to State Route 33 in both the northbound and southbound directions. Most of this segment would gain a fourth mainline lane, but the segment through the State Route 126 interchange would gain a third lane. No auxiliary lanes are needed. The southern end would join improvements currently under construction over Santa Clara River. The northern end would terminate at State Route 33.

Some of these improvements are unlikely to be needed for weekday conditions before 2025, particularly at the northern end in Ventura. This issue will be discussed further in the section on Implementation.

US 101

Implementation Plan

4.0 IMPLEMENTATION PLAN

An Implementation Plan was developed to determine priorities for construction. The plan was created by selectively adding lanes segment-by-segment in the FREQ model. One key product of this exercise was the ability to determine logical segments for implementation. For instance, it was found that southbound improvements at Moorpark Road would be of limited value unless improvements were also extended back to Wendy Road. As a result, one segment of implementation was determined to run from Wendy Road to Moorpark Road.

The segment-by-segment FREQ simulations also revealed that, generally speaking, lanes should be added for downstream segments before upstream segments. The reason is that if an upstream bottleneck were removed by adding a lane, the result is often a mere shifting of the bottleneck to the next interchange downstream. However, some segments at upstream locations were found to merit a high priority because their travel demand patterns are such that a long segment of freeway could be cleared of congestion by removing that particular bottleneck.

The segments and their priority ranking are described in **Table 4-1**. The complete traffic operation analysis is included in Appendix D.

The FREQ simulation found that improving the segment through the City of Ventura between Route 33 and Seaward Avenue would result in only marginal improvement to traffic flow. That segment was found to have a last place ranking in priority for both the northbound and southbound direction.

The information provided in Table 4-1 is intended to be used as a tool to assist VCTC staff, the Local Agencies, and Caltrans in developing a countywide transportation priority list which also includes other highway improvements within the County.

Table 4-1 – Prioritized Segmentation

Priority	Southbound	Northbound
1st	Add 4th lane from Wendy Dr. to Lynn Rd, and an auxiliary lane only between Lynn Rd and Moorpark Rd.	Add 4th lane Carmen Dr. to Del Norte Blvd.
2nd	Add 4th lane Del Norte Blvd. to Carmen Dr.	Add 4th lane Del Norte Blvd. to Vineyard Ave.
3rd	Add 4th lane, Carmen Dr. to Camarillo Springs Rd, and add 5th lane as truck lane up Conejo Grade.	Add 4th lane, Camarillo Springs Rd. to Carmen Dr.
4th	Add 4th lane Vineyard Ave. to Del Norte Blvd.	Add 4th lane from Lynn Road to Wendy Dr., and an auxiliary lane only between Moorpark Rd. and Lynn Rd.
5th	Add 4th lane from Seaward Ave. to Rte 126, and 3rd lane from Rte 126 to Telephone Rd.	Add 4th lane down Conejo Grade from truck scales to Camarillo Springs Rd. on-ramp
6th	Add 4th lane from Telephone Rd. to Johnson Dr.	Add 3rd lane from Telephone Rd. to Route 126, 4th lane from Route 126 to Seaward Ave.
7th	Add 4th lane from SR 33 to Seaward Ave.	Add 4th lane from Johnson Dr. to Telephone Rd.
8th		Add 4th lane from Seaward Ave. to SR 33

US 101

Engineering Concepts

5.0 ENGINEERING CONCEPTS

The layout plans for adding a fourth lane in each direction were superimposed onto the aerial photography of the corridor and are included in Appendix C. Impacts to roadway and structures were identified as well as the need for retaining walls, tiebacks walls, and sound walls. Every effort was made to provide the additional lanes within the existing right of way. Cost estimates were based on a square foot basis with the unit prices derived from other projects with similar characteristics.

The total cost estimate to add the fourth lane in both the northbound and southbound direction is shown in **Table 5-1**. It is assumed for the purposes of this study that improvements can occur independently along the northbound and southbound direction. The costs for the various segments along the northbound and southbound directions as previously determined by the traffic analysis are shown in **Tables 5-2 and 5-3**. These costs include environmental mitigation, right of way, and ITS. The ITS cost were based on the phase implementation plan to be discussed in a later section and were prorated per length of segment.

Table 5-1 – Total Improvement Cost Estimate for Corridor

NORTHBOUND & SOUTHBOUND-TOTAL SR23 TO SR33	
Roadway Cost	$74,675,786
Structure Cost	$22,266,000
Right of Way Cost	$1,200,000
Environmental Mitigation Cost	$2,908,254
ITS Cost	$27,100,000
Contingency 25%	$32,037,510
Support Cost	40,046,888
Total Cost	**$200,234,438**

Table 5-2 – Northbound Segment Cost Estimate

SR 23 TO WENDY DRIVE	
Roadway Cost	$4,265,066
Structure Cost	$360,000
Right of Way Cost	$0
Environmental Mitigation Cost	$138,752
ITS Cost	$2,250,000
Contingency 25%	$1,753,454
Support Cost	$2,191,818
Total Cost	**$10,959,091**
WENDY DRIVE TO CAMARILLO SPRINGS	
Roadway Cost	$10,278,321
Structure Cost	$0
Right of Way Cost	$40,000
Environmental Mitigation Cost	$308,350
ITS Cost	$1,400,000
Contingency 25%	$3,006,668
Support Cost	$3,758,335
Total Cost	**$18,791,673**
CAMARILLO SPRINGS TO CARMEN DRIVE	
Roadway Cost	$5,928,377
Structure Cost	$3,240,000
Right of Way Cost	$0
Environmental Mitigation Cost	$275,051
ITS Cost	$2,000,000
Contingency 25%	$2,860,857
Support Cost	$3,576,071
Total Cost	**$17,880,357**
CARMEN DRIVE TO DEL NORTE BOULEVARD	
Roadway Cost	$8,996,992
Structure Cost	$900,000
Right of Way Cost	$300,000
Environmental Mitigation Cost	$296,910
ITS Cost	$2,000,000
Contingency 25%	$3,123,475
Support Cost	$3,904,344
Total Cost	**$19,521,722**
DEL NORTE BOULEVARD TO VINEYARD AVENUE	
Roadway Cost	$3,162,056
Structure Cost	$0
Right of Way Cost	$0
Environmental Mitigation Cost	$94,862
ITS Cost	$1,400,000
Contingency 25%	$1,164,229
Support Cost	$1,455,287
Total Cost	**$7,276,434**

Table 5-2 – Northbound Segment Cost Estimate (Contd.)

VINEYARD AVENUE TO TELEPHONE ROAD	
Roadway Cost	$621,187
Structure Cost	$0
Right of Way Cost	$0
Environmental Mitigation Cost	$18,636
ITS Cost	$1,900,000
Contingency 25%	$634,956
Support Cost	$793,695
Total Cost	**$3,968,473**
TELEPHONE ROAD TO SEAWARD AVENUE	
Roadway Cost	$0
Structure Cost	$0
Right of Way Cost	$0
Environmental Mitigation Cost	$0
ITS Cost	$1,350,000
Contingency 25%	$337,500
Support Cost	$421,875
Total Cost	**$2,109,375**
SEAWARD AVENUE TO SR 33	
Roadway Cost	$0
Structure Cost	$0
Right of Way Cost	$0
Environmental Mitigation Cost	$0
ITS Cost	$1,250,000
Contingency 25%	$312,500
Support Cost	$390,625
Total Cost	**$1,953,125**
NORTHBOUND TOTAL	
All Segments	
Roadway Cost	$33,251,999
Structure Cost	$4,500,000
Right of Way Cost	$340,000
Environmental Mitigation Cost	$1,132,560
ITS Cost	$13,550,000
Contingency 25%	$13,193,640
Support Cost	$16,492,050
Total Cost (All Segments)	**$82,460,248**

Table 5-3 – Southbound Segment Cost Estimate

SR 23 TO WENDY DRIVE	
Roadway Cost	$4,148,066
Structure Cost	$396,000
Right of Way Cost	$60,000
Environmental Mitigation Cost	$136,322
ITS Cost	$2,250,000
Contingency 25%	$1,747,597
Support Cost	$2,184,496
Total Cost	**$10,922,481**
WENDY DRIVE TO CAMARILLO SPRINGS	
Roadway Cost	$3,687,821
Structure Cost	$0
Right of Way Cost	$600,000
Environmental Mitigation Cost	$110,635
ITS Cost	$1,400,000
Contingency 25%	$1,449,614
Support Cost	$1,812,017
Total Cost	**$9,060,087**
CAMARILLO SPRINGS TO CARMEN DRIVE	
Roadway Cost	$6,698,378
Structure Cost	$2,610,000
Right of Way Cost	$0
Environmental Mitigation Cost	$279,251
ITS Cost	$2,000,000
Contingency 25%	$2,896,907
Support Cost	$3,621,134
Total Cost	**$18,105,671**
CARMEN DRIVE TO DEL NORTE BOULEVARD	
Roadway Cost	$9,416,992
Structure Cost	$900,000
Right of Way Cost	$200,000
Environmental Mitigation Cost	$309,510
ITS Cost	$2,000,000
Contingency 25%	$3,206,625
Support Cost	$4,008,282
Total Cost	**$20,041,409**
DEL NORTE BOULEVARD TO VINEYARD AVENUE	
Roadway Cost	$3,293,936
Structure Cost	$0
Right of Way Cost	$0
Environmental Mitigation Cost	$98,818
ITS Cost	$1,400,000
Contingency 25%	$1,198,189
Support Cost	$1,497,736
Total Cost	**$7,488,678**

Table 5-3 - Southbound Segment Cost Estimate (Contd.)

VINEYARD AVENUE TO TELEPHONE ROAD	
Roadway Cost	$5,567,683
Structure Cost	$2,700,000
Right of Way Cost	$0
Environmental Mitigation Cost	$248,030
ITS Cost	$1,900,000
Contingency 25%	$2,603,928
Support Cost	$3,254,910
Total Cost	**$16,274,552**
TELEPHONE ROAD TO SEAWARD AVENUE	
Roadway Cost	$8,610,911
Structure Cost	$11,160,000
Right of Way Cost	$0
Environmental Mitigation Cost	$593,127
ITS Cost	$1,350,000
Contingency 25%	$5,428,510
Support Cost	$6,785,637
Total Cost	**$33,928,185**
SEAWARD AVENUE TO SR33	
Roadway Cost	$0
Structure Cost	$0
Right of Way Cost	$0
Environmental Mitigation Cost	$0
ITS Cost	$1,250,000
Contingency 25%	$312,500
Support Cost	$390,625
Total Cost	**$1,953,125**
SOUTHBOUND TOTAL	
All Segments	
Roadway Cost	$41,423,787
Structure Cost	$17,766,000
Right of Way Cost	$860,000
Environmental Mitigation Cost	$1,775,694
ITS Cost	$13,550,000
Contingency 25%	$18,843,870
Support Cost	$23,554,838
Total Cost (All Segments)	**$117,774,188**

US 101

Environmental Assessment

6.0 ENVIRONMENTAL ASSESSMENT

The result of the analysis concludes capacity should be increased on the US 101 corridor from Highway 33 in the City of Ventura to Highway 23 in the City of Thousand Oaks. The widening would take place in the median, at the edge of the right-of-way (ROW), or both, depending on the current alignment and available ROW. Along most of the corridor, the proposed widening would not require any additional ROW acquisitions; however, at the north end of the study area, there is not sufficient width to provide the standard 6.6 meters in the median. At this end, design exceptions would be required to avoid ROW impacts as well as effects on the existing structures spanning the freeway.

SUMMARY STATEMENT:

The purpose of this assessment is to make a tentative determination whether any project impacts are likely to be significant, as well as what type of environmental document should be prepared. This is to ensure the environmental issues and resources are identified early in the planning stages, and to aid in the local project decision-making process.

Likely Impacts:

Agricultural lands, noise impacts to adjacent residential communities, hydrology/water quality, wetlands, 4(f) resources, biological resources, hazardous materials, air quality, right-of-way, noise, and cultural resources.

Impacts requiring additional investigation:

Hazardous materials, noise impacts, biological resources, transportation/traffic, hydrology/water quality, air quality, right-of-way, 4(f) resources, agricultural resources, wetlands, and cultural resources.

No impacts are anticipated in the following categories:

Land use and planning, mineral resources, public resources.

ANTICIPATED PROJECT MITIGATION:

Because only conceptual levels of design have been developed for the Study, specific mitigation measures cannot be identified at this time. However, standard mitigation measures or types of mitigation measures that would be typically implemented are identified below where possible.

Water Quality and Hydrology, Wetlands:

There are likely to be mitigation requirements regarding the widening of the overcrossing over Calleguas Creek and the other water bodies that cross the proposed project corridor. Construction of the bridges may cause debris to enter these water bodies. Consultation with the Army Corps of Engineers, the US Fish and Wildlife Service, California Department of Fish and Game, and other resource agencies will be necessary. Construction would be conducted in accordance with all applicable water quality regulations (National Pollution Discharge Elimination System General Permit) to avoid or mitigate the effect on water resources. Consequently, the proposed project is not expected to violate any water quality or waste discharge standard. However, any additional columnar support would have potentially significant effects on water quality during construction. In the event that contaminated materials are encountered or re-suspended within the affected water body during construction, the appropriate mitigation will be developed and implemented. Column construction methodologies (CISS, CIDH,

etc.) should be considered to minimize sediment re-suspension (see VCTC Study-Water Features Figures in Appendix E).

Noise:

Residential communities are located adjacent to the freeway corridor. On the southbound side of the freeway residential units are located at the Lynn Road interchange in Thousand Oaks; south of the Old Conejo Road interchange in Thousand Oaks; at the Camarillo Springs Road interchange in Camarillo; and south of Seaward Avenue in Ventura. On the northbound side of the freeway, there are residential units located just south of Rancho Conejo Boulevard in Thousand Oaks and just north of Main Street in Ventura. The placement of soundwalls where new travel lanes would be located adjacent to residential areas would help to mitigate potential noise impacts. Since only conceptual levels of design have been developed for this Study, exact heights and lengths of soundwalls cannot be determined at this time.

Biological Assessment:

Widening of the freeway beyond the current right-of-way may affect sensitive biological habitats, which may require mitigation. Construction within the ROW could significantly affect biological resources in the immediate vicinity. Potential mitigation measures could include construction buffer zones or habitat restoration or replacement. Specific mitigation measures would need to be identified in the future environmental document for the proposed project (see VCTC Study-CNDDB Federal Species Status Figures in Appendix E).

Traffic:

Existing and forecasted traffic volumes indicate that congestion is substantial in certain areas of the project corridor. Capacity improvements along the freeway mainline and at interchanges could affect traffic flow and circulation on the local street systems. Since only conceptual levels of design have been developed for the Study, specific measures required to mitigate local street impacts cannot be identified at this time. However, potential mitigation measures would include installation of traffic signals and intersection restriping or widening.

Air Quality:

During later stages in the project planning, the proposed improvements must be shown to be in conformity with the region's air quality plan. Additional information is needed to assess to potential short-term air quality impacts associated with construction of the project alternative. An analysis of construction emissions will be required in subsequent environmental documentation and prior to implementation. Typically, construction dust is the primary construction-related impact. To minimize fugitive dust impacts, the following types of mitigation may be used during the site preparation stage: minimize land disturbances; use watering trucks; cover truck when hauling dirt; and, use windbreaks. During the construction phase: cover trucks when transferring materials; minimize unnecessary vehicular activities; and, wash or clean trucks before leaving the site. During the post-construction phase: revegetate any disturbed land not used as well as all vehicular paths created during construction to avoid off-road vehicular activities; and, remove dirt piles and unused materials.

Geotechnical:

The proposed project corridor traverses areas of faulting and geological instability. A comprehensive geotechnical investigation should be conducted by a geotechnical

engineer and should be designed to withstand the maximum ground accelerations anticipated to occur beneath the proposed improvements. In addition, all critical elements would be designed and built to resist strong ground motions approximating the Maximum Credible Earthquake (MCE) and the associated ground accelerations expected to occur in the vicinity of the proposed alignments. Potential impacts that could affect the proposed improvements including slope instability, ground shaking, and liquefaction, can be reduced to a level of nonsignificance with proper engineering design and construction, and conformance with current building code requirements (see VCTC Study-Alquist-Priolo Earthquake Fault Zones Figures in Appendix E).

Hazardous Materials:

In order to mitigate potential impacts from hazardous materials that may be encountered during construction, the following measures could be implemented. A Phase II Environmental Site Assessment investigation would be conducted prior to property acquisition and/or construction activities to evaluate potential ownership liability issues and to characterize soil and/or groundwater, which maybe disturbed during construction. The investigation shall include collection of soil and groundwater samples, and quantification of suspected contaminant levels. In addition, areas with contaminated soil determined to be hazardous waste would be excavated by personnel who have been trained through the OSHA recommended 40-hour safety program (29 CFR 1910.120) with an approved plan for excavation, control of contaminant releases to the air, and off-site transport or on-site-treatment. Health and safety plans prepared by a qualified and approved industrial hygienist would be developed to protect the public and all workers in the construction area. Health and safety plans would be reviewed and approved by the appropriate agencies, such as the Ventura County Environmental Health Department or the California Department of Toxic Substances Control. Finally, fill materials that are proposed for use on-site should be sampled and analyzed for chemicals of potential concern, and the results should be reviewed and approved, before the fill is brought to the site.

Visual:

Because US 101 has been deemed eligible for the State of California scenic highway system, Caltrans must work with the appropriate agencies to coordinate transportation proposals and maintenance activities and to ensure the protection of scenic corridors to the maximum extent feasible.

Acquisitions and Displacements:

Some additional right-of-way appears to be needed along the corridor. It does not appear that there would be any displacements due to these acquisitions; however, if displacements are, in fact, necessary, relocation assistance will be provided in accordance with Caltrans policies and procedures.

Disclaimer:

This report is not an environmental document. Preliminary analysis, determination, and estimates of mitigation costs are based on the project description provided in the report. The estimates and conclusions provided are approximate and are based on cursory analysis of probable effects. This report is to provide a preliminary level of environmental analysis to supplement the Feasibility Study. Changes in project scope, alternatives, or environmental laws will require a re-evaluation of this report.

PROJECT SCREENING

Socio-Economic and Community Effects

Land uses within the proposed project corridor are controlled by the County of Ventura, the cities of Ventura, Oxnard, Camarillo, and Thousand Oaks, and the State of California (San Buenaventura State Beach). The proposed project alignment is located adjacent to areas developed for commercial and residential use, as well as undeveloped land and farmland. The proposed improvements would remain in the Caltrans right-of-way, for the most part. Therefore, it is not likely that substantial conflicts with land use plans, policies, or regulations for the adjoining properties would occur.

Farmland

The proposed project corridor runs both adjacent and through areas of Unique and Prime Farmland, as well as Farmland of Statewide Significance. See attached Farmland and Parks maps for specific locations (see VCTC Study-Farmland and Parks Figures in Appendix E).

4(f) Impacts

Public parks and recreation areas located adjacent to U.S. 101 include San Buenaventura State Beach, Camarillo Grove County Park, Walnut Grove Park. Parks and recreation areas located within a quarter-mile of the freeway include, Seaside Park & Ventura County Fairgrounds, Promenade Park, Plaza Park Ocean Avenue Park, Arundell Linear Park, Camino Real Park, Ivy Lawn Cemetery, Dizdar Park, Pepper Tree Playfield, Knoll Park and Newberry Park.

Cultural Resources

A review of the National Register for Historic Places, the Los Angeles Public Library Photos, the LA Conservancy lists of cultural and historical resources in Ventura County, the California Land Use Planning Information Network, the California Environmental Resources Evaluation System, California State University at Northridge lists of cultural and historic resources in Ventura County, and the James Stevenson list of cultural historic places, and the State of California Office of Historic Preservation County Listing of Landmarks for Ventura County showed no cultural or historic resources adjacent to the proposed project corridor. The San Buenaventura Mission is located approximately 2 blocks from the existing freeway alignment. It does not appear, however, that any historical resources would be affected by the proposed project. A literature/records review by the South Central Coastal Information Center at the California State University Fullerton and a field reconnaissance would need to be conducted during the next phase of project planning to confirm the absence of cultural resources in the immediate vicinity of U.S. 101.

Visual Impacts

The proposed project would involve the construction of additional travel lanes in each direction on U.S. 101 from Highway 33 in the City of Ventura to Highway 23 in the City of Thousand Oaks. The freeway crosses over the Santa Clara River. It runs through residential and commercial areas, and is located adjacent to recreation areas. The proposed additional lanes would influence the views of these properties. However, because the proposed widening would occur primarily within the existing freeway right-of-way corridor, the construction of the additional lanes would not likely have a significant effect upon existing views. The roadway itself has been officially designated as a State Scenic Highway from Route 1 near El Rio to beyond the project limits at Highway 33. The remainder of the corridor has also been

deemed eligible for inclusion in the state scenic highway system. Therefore, careful attention must be paid to earthmoving and landscaping, as well as the design of the roadway. Scenic highways can be widened; however, Caltrans must work with VCTC to ensure the protection of scenic corridors to the maximum extent feasible.

Water Quality

US 101 within the proposed project limits crosses over the Sanjon Barranca, Mills Road Drain, Barlow Barranca, Arundell Barranca, Telephone Road Drain, the Santa Clara River, Revolon Slough, Camarillo Hills Drain, Lewis Road Drain, Calleguas Creek, Conejo Creek and Arroyo Conejo. Runoff from the current roadway is a source of potential pollutants. Construction of the additional travel lanes would also be a source of potential pollutants, especially suspended solids and petroleum hydrocarbon from disturbed soils. Petroleum hydrocarbons may also be introduced into these water bodies through runoff from the roadway surface. It is unknown at this time whether columns would be placed in the aforementioned water bodies in order to support the proposed additional travel lanes. If columnar support is required, such action could re-suspend potentially contaminated sediments, which had been previously deposited.

Construction would be conducted in accordance with all applicable water quality regulations (National Pollution Discharge Elimination System (NPDES) General Permit) to avoid or mitigate the effect on water resources.

The construction of the proposed project would operate under a NPDES General Permit with Best Management Practices (Bumps) as required by the County of Ventura and/or (the regional water quality control board) to minimize water erosion of exposed soils and resultant sediment and surface contaminant loading into the storm drain system and downstream water bodies. Consequently, the proposed project is not expected to violate any water quality or waste discharge standard, in this regard. However, any additional columnar support would have potentially significant effects on water quality during construction. In the event that contaminated materials are encountered or re-suspended within the affected water body during construction, the appropriate mitigation will be developed and implemented. Column construction methodologies (CISS, CIDH, etc.) should be considered to minimize sediment re-suspension.

The construction of additional travel lanes along each corridor would result in the placement of impervious materials upon the existing permeable surface. These paved surfaces do not cover a significant percentage of the total area permeable surface, and are not expected to have a significant impact on the level of the local groundwater table.

The Santa Clara River is a free flowing waterway. Therefore, construction taking place within the streambed could affect its course. As stated above, Bumps would be followed in order to minimize water erosion of exposed soils. There could be an occurrence of short-term impacts resulting from the construction of columnar support(s) within the river. In the event that contaminated materials are encountered within the channel during construction, the appropriate mitigation would be developed and implemented.

The existing freeway and local roads are already sources of polluted runoff, and the proposed improvements would not substantially increase the amount or type of pollution. Drainage improvements would be incorporated into the design as necessary to

control additional runoff, and further investigation is necessary to determine whether the existing flood control channel is adequate for diverting the extra runoff. With the appropriate mitigation, any additional runoff created by the improvements is not expected to exceed the capacity of storm water drainage systems (see VCTC Study-Water Features Figures in Appendix E).

Floodplain

The proposed project is located, for the most part, outside the area of a 100-year flood hazard as defined by the Federal Emergency Management Agency. However, a 100-year flood hazard exists in areas where the roadway crosses over the water bodies mentioned above (see VCTC Study-Water Features Figures in Appendix E).

Air and Noise

The study area is located within the Ventura County Air Pollution Control District. The proposed project would accommodate anticipated increases in vehicle traffic throughout the corridor. It is anticipated that the proposed project would generally reduce congestion and improve traffic flow in the project area, and would, thus, yield overall air quality benefits to the region. However, increases in freeway capacity could affect circulation patterns on local streets in the vicinity of interchanges, which may result in localized air quality impacts. Nonetheless, it is not expected that the project would conflict with applicable air quality management plan for the area. This is subject to confirmation by a technical study.

It is expected that the improvements in area traffic congestion will be commensurate with a decrease in objectionable odors that may be associated with the enhanced roadway, such as truck exhaust. During construction, however, it is possible that construction activities would produce emissions in excess of established standards. These effects would be temporary. Air quality impacts associated with construction would be mitigated by compliance with Ventura County Air Pollution Control District requirements. Criteria pollutant emissions may exceed established thresholds; however, these emissions would be short-term.

The proposed project would result in a permanent increase in ambient noise levels and groundborne vibration due to increased traffic levels. Noise levels and vibration would also fluctuate periodically, with AM and PM peak traffic volumes, and also during construction activities. These impacts may affect the nearby residential communities. A possible mitigation measure is the placement of noise barriers along segments of the freeway adjacent to noise-sensitive land uses.

Noise sensitive residential units on the southbound side of the freeway are located at the Lynn Road interchange in Thousand Oaks; south of the Old Conejo Road interchange in Thousand Oaks; at the Camarillo Springs Road interchange in Camarillo; and south of Seaward Avenue in Ventura. On the northbound side of the freeway, there are residential units located just south of Rancho Conejo Boulevard in Thousand Oaks and just north of Main Street in Ventura. Although some of these areas currently have noise mitigation measures such as soundwalls, they would need to be re-evaluated due to the proposed additional travel lanes. The additional noise studies would need to be done during the Project Initiation Phase to determine if noise mitigation measures are needed at these locations. For the purpose of this study, the costs for any new soundwalls that may be required are included in the cost item for environmental mitigation.

Hazardous Materials

Leaking Underground Storage Tanks (LUST) sites have the highest potential for environmental contamination. Any gasoline stations or car dealerships located adjacent to the project corridor would be potential sources of this type of hazard. Other potential hazardous waste sites within the proposed project corridor include those areas that are currently or have been historically used for agriculture. These agricultural areas may have residual levels of pesticides that would require excavated soil to be handled as hazardous material. In addition, soils within and adjacent to the freeway may be contaminated by aerially deposited lead due to exhaust emissions from leaded gasoline. Lead-based paint and asbestos containing material may also be present in overcrossing structures. Also, yellow thermoplastic and painted traffic markings that would require removal during construction may contain lead and chromium. It is recommended that a Phase I Initial Site Assessment be performed during the next phase in project planning to identify any potential LUST or other hazardous waste sites in the project area.

Biological Resources

The proposed project is located within the U.S. 101 corridor and traverses large areas of open space. However, because the freeway widening would primarily occur within the freeway right-of-way, it would not generally encroach upon these areas. Streams and other water bodies that cross the corridor have the potential to support seasonal wetlands. Construction within or outside the ROW in the vicinity of wetlands could result in indirect and direct impacts on these resources. The proposed project could encroach upon these areas if it does not remain within the Caltrans ROW. This could be a potentially significant impact. A biology field report, including field surveys for species, habitat, and wetlands must be done prior to construction.

The project corridor traverses habitat areas for the Verity's Dudleya, a Federally listed threatened species, and the California Orcutt Grass, a Federally listed endangered species. In addition, the proposed project corridor is adjacent to and/or crosses several areas of habitat home to non-listed species such as the monarch butterfly, the Western Yellow-Billed Cuckoo, the Conejo Buckwheat, the Southern Tarplant, Plummer's Mariposa Lily, Southern Sycamore Alder Riparian Woodland, and Valley Oak Woodland. The proposed project could encroach upon these habitat areas if construction does not remain within the Caltrans ROW, a potentially significant impact. Migratory movements across the study area are limited due to the current presence of the freeway. However, underpasses and overcrossings provide potential wildlife corridors.

If the proposed roadway widening would involve the removal of any oak or sycamore trees, the County of Ventura requires that a permit be obtained before construction activities begin.[1] In addition, if the proposed project would require the removal of any oak tree or designated Landmark Tree, a permit from the City of Thousand Oaks would need to be obtained.[2] Other permits from local jurisdictions may also be required for the removal of special status or landmark trees.

Wetlands

There is a high probability of seasonal wetlands located within the project area due

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[1] Ventura County Non-Coastal Zoning Ordinance (01-09-01 edition) Sec. 8107-25.2, Table 1.

[2] City of Thousand Oaks Municipal Code Section 5-14.01 et seq. (section 1, Ord. 937-NS, eff. October 14, 1986); Section 5-24.01 et seq. (section 2, Ord. 1217-NS, eff. September 27, 1994).

to a number of named and unnamed streams. Additional field investigations will need to be performed to confirm the extent of wetlands in areas where construction would occur.

Right-of-Way

It is estimated that 25-foot easements would be necessary in areas requiring soundwalls. The construction staging plan is not yet complete, so estimates of potential ROW requirements cannot be calculated at this time.

Geology and Soils

The project corridor would be located within the seismically active region of southern California. Numerous faults, known and unknown, are located within the proposed project's vicinity. The known faults are located from Ventura Avenue to Laurel Avenue, running parallel to the highway; from Sanjon Barranca to Mills Road, running parallel to the highway; at Central Avenue; and running parallel to the highway between Las Posas Road and Pleasant Valley Road. In addition, a fault crosses the freeway between Lewis Road and Calleguas Creek.

ANTICIPATED IMPACTS WITHIN EACH PROPOSED PROJECT SEGMENT (northbound and southbound directions evaluation concurrently):

1. Moorpark Road to Wendy Drive

biology (removal of vegetation and landscaping with the Caltrans ROW), hazardous materials (general roadway such as aerially deposited lead, asbestos found in the overpass concrete, and paint from the roadway striping), air quality (construction and possibly long term operational due to the proposed additional travel lanes), noise.

2. Wendy Drive to Camarillo Springs Drive

biology (open space along this stretch of the corridor, as well as removal of vegetation and landscaping within the Caltrans ROW), hazardous materials (general roadway such as aerially deposited lead, asbestos found in the overpass concrete, and paint from the roadway striping), air quality (construction and possibly long term operational due to the proposed additional travel lanes), geology/soils (due to the cut and fill anticipated to be required along this section of roadway), noise (homes at Camarillo Springs Drive), 4(f) resources (Camarillo Grove County Park).

3. Camarillo Springs Drive to Carmen Drive

biology (roadway crosses a wash as well as Calleguas Creek, in addition to the removal of vegetation and landscaping within the Caltrans ROW), hazardous materials (general roadway such as aerially deposited lead, asbestos found in the overpass concrete, and paint from the roadway striping), air quality (construction and possibly long term operational due to the proposed additional travel lanes), agricultural resources (located within an area of prime and unique farmland), noise (residential area located at Camarillo Springs Drive).

4. Carmen Drive to Del Norte Boulevard

biology (removal of existing plantings within the Caltrans ROW), hazardous materials (general roadway such as aerially deposited lead, asbestos found in the overpass concrete, and paint from the roadway striping), air quality (construction and possibly long term operational due to the proposed additional of travel lanes), agricultural resources, noise (residential area located adjacent to the alignment).

5. Del Norte Boulevard to Vineyard Avenue (Route 232)

(Note: There is not anticipated to be any roadway work until Rose Avenue). Hazardous materials (general roadway such as aerially deposited lead, asbestos found in the overpass concrete, and paint from the roadway striping), air quality (construction and possibly long term operational due to the proposed additional travel lanes), noise.

6. Johnson Drive to Telephone Road

There will not be any work over the Santa Clara River. Biology (removal of existing plantings within the Caltrans ROW), hazardous materials (general roadway such as aerially deposited lead, asbestos found in the overpass concrete, and paint from the roadway striping), air quality (construction and possibly long term operational due to the proposed additional travel lanes), 4 (f) (Ivy Lawn Cemetery).

7. Telephone Road to Seward Avenue

biology (removal of existing plantings within the Caltrans ROW), hazardous materials (general roadway such as aerially deposited lead, asbestos found in the overpass concrete, and paint from the roadway striping), air quality (construction and possibly long term operational due to the proposed additional travel lanes), noise (homes near Telephone Road), 4(f) (Camino Real Park), agricultural resources.

8. Seward Avenue to State Route 33

biology (removal of existing plantings within the Caltrans ROW), hazardous materials (general roadway such as aerially deposited lead, asbestos found in the overpass concrete, and paint from the roadway striping), air quality (construction and possibly long term operational due to the proposed additional travel lanes), 4(f) (San Buenaventura State Beach, Seaside Park and Ventura County Fairgrounds), cultural resources [HPSR (trestle bridge)/NASR].

ANTICIPATED TECHNICAL STUDIES

It is anticipated that the following technical studies will be required: Phase I Initial Site Assessment, negative HPSR/NASR, noise, wetlands delineation, biology, traffic, and air quality.

Maps depicting farmlands, parks, earthquake fault zones, water feature, and endanger species status are included in Appendix E.

ANTICIPATED ENVIRONMENTAL DOCUMENT

It is anticipated that the environmental document required would be an Environmental Impact Report/Environmental Impact Statement (EIR/EIS) unless the results of the tech reports show that all of the anticipated impacts could be mitigated to a level of less than significant.

US 101

Short Range Alternatives

7.0 SHORT RANGE ALTERNATIVES

During the course of the study, a number of lower-cost improvements arose as possible candidates to remedy traffic congestion in the short term. These include ramp metering, and the assorted electronically oriented measures known collectively as Intelligent Transportation Systems (ITS). These are described in this section.

7.1 RAMP METERING

Field observations reveal that some on-ramp locations experience occasional merging problems resulting in intermittent congestion, particularly when on-ramp vehicles are grouped in platoons caused by upstream traffic signals. One solution to this is the installation of ramp metering at the on-ramp, through the use of traffic signal equipment. The ramp meter would normally be turned off during off-peak traffic periods. During peak periods, the ramp meter would display a green light/red light sequence, but no yellow light. The ramp meter would break up the platoons entering the freeway, thereby reducing the impact of merging in the right-most traffic lane on the freeway mainline. For example, a five-car platoon that would have entered the freeway within a 7.2-second interval would instead enter over a longer period of 24 seconds.

Ramp metering can cause impacts to surface street traffic if traffic queues at the ramp meter cause a backup blocking lanes on the street. This impact can be minimal if ramp metering is applied where the on-ramp demand is less than 600 vehicles per hour. The reason is that the ramp meter at its fastest setting could complete a cycle every 6 seconds, displaying a 3-second green and 3-second red, equivalent to a 600 vehicle per hour rate. If the demand were higher than that, motorists might experience considerable delay. Worse yet, traffic queues would overflow from the on-ramp onto the street, impacting traffic operations on surface streets. In some instances, this may be desirable as a means of diverting traffic from an overloaded on-ramp to an on-ramp with less congestion, especially if a good arterial street runs parallel to the freeway. However, this would require a fine-tuned coordinated system of ramp meters to achieve the right mix of attraction and dissuasion from the appropriate on-ramps.

Ramp metering would be of most benefit at locations where merging is a problem. Typically this would be at freeway segments that lack an auxiliary lane. However, ramp metering may also be beneficial at locations with short auxiliary lanes where weaving of on-ramp and off-ramp traffic hampers freeway capacity.

For the US 101 corridor in Ventura County, the obvious candidate sites for ramp metering are within the Oxnard plain, through the cities of Oxnard and Camarillo and the unincorporated segment in between those cities. This location consists of three mainline lanes without auxiliary lanes in most locations, and experiences sufficient mainline traffic demand to benefit from the ramp meters. In contrast, the freeway segment through Thousand Oaks would receive less benefit from ramp metering because merging problems are minimized by the presence of auxiliary lanes. The freeway segment through most of the City of Ventura has generally less congestion problems, at least on weekdays, so that ramp metering would have marginal benefit to the mainline, while causing delay and possible impacts to surface street traffic. Weekday congestion is a problem observed between Victoria Avenue and the Santa Clara River Bridge, but on-ramp volumes are too heavy to be controlled by ramp metering.

Within the Oxnard plain, on-ramps that experience more than 600 vehicles per hour would be unsuitable candidates for ramp metering, unless a second lane could be constructed. It is assumed, however, that construction of a second lane would be considered beyond the scope of short-range improvements.

Based on existing traffic volumes, candidate locations that meet the criteria for the northbound direction include the following:

- Camarillo Springs Road
- Northbound Pleasant Valley Road
- Flynn Road
- Northbound Las Posas Road
- Central Avenue
- Del Norte Boulevard
- Rice Avenue
- Northbound Rose Avenue
- Southbound Rose Avenue
- Northbound Vineyard Avenue
- Southbound Vineyard Avenue

A distinction should be noted between the two on-ramps at Pleasant Valley Road and at Las Posas Road that enter the northbound US 101. The loop ramps serving northbound arterial street traffic have less traffic demand than the slip ramps serving the southbound arterials, and are therefore better candidates for ramp metering. The slip ramp serving Pleasant Valley Road (or Santa Rosa Road) and Las Posas Road have traffic demand well in excess of the 600 vehicle per hour maximum.

It should also be noted that the Flynn Road on-ramp has very heavy demand during the evening peak period, and therefore would not be a good candidate for ramp metering at that time. However, during the morning peak period, ramp metering is feasible at Flynn Road without causing backup onto the surface street.

For on-ramps serving southbound US 101, the candidate locations for ramp metering are:

- Camarillo Springs Road
- Northbound Pleasant Valley Road
- Southbound Pleasant Valley Road
- Dawson Drive
- Fulton Street
- Carmen Drive
- Northbound Las Posas Road
- Southbound Las Posas Road
- Central Avenue
- Del Norte Boulevard
- Northbound Rose Avenue
- Southbound Rose Avenue
- Southbound Vineyard Avenue

While the loop on-ramp from southbound Vineyard Avenue to southbound US 101 is a good candidate for ramp metering, the slip ramp from northbound Vineyard Avenue is not due to high traffic demand.

Some of the ramps, like Central Avenue, are better candidates for ramp metering at one part of the day than others.

Current VCTC Policy is to construct all new on-ramp as "meter-ready" ramps so that ramp meters may be installed at a future date when they are deemed necessary. All projects identified as part of this study will adhere to this policy.

7.2 Intelligent Transportation Systems (ITS)

Besides ramp metering, other short-range improvements are possible under the

general heading of Intelligent Transportation Systems, or ITS. ITS solutions are capable of providing only a slight improvement to weekday recurring capacity. Their main benefit is the handling of freeway incidents. However, considering that field observations reveal that about half of the congestion along the US 101 corridor is caused by incidents such as collisions, law enforcement activity, motor vehicle breakdowns, and construction lane closures, the benefits of ITS could be considerable.

A number of possible ITS solutions are listed below.

- **Surveillance Stations.** Surveillance stations consist of inductive loops placed in each lane of the freeway mainline, allowing measurement of congestion that could be displayed to a traffic management center or throughout the Internet on a web site. Currently no surveillance stations are located north of Lewis Road. Installation of loops could be provided at approximately one-mile intervals from Lewis Road to the west end of Ventura. Benefits would include better handling of emergencies by Caltrans, increased traffic reporting on radio stations, and the ability of motorists to choose alternate routes when congestion on US 101 is extremely heavy. Other benefits include the ability to collect freeway mainline traffic counts.

- **Video Surveillance.** Closed circuit video cameras could be installed at strategic locations along US 101, allowing observers at a traffic management center to verify potential traffic problems. The cameras would be mounted on tall poles and have pan-tilt-zoom capabilities, so that relatively few cameras could observe long segments of the freeway. The cameras would enable Caltrans to provide better operations of the freeway.

- **Changeable Message Signs.** Changeable message signs along the freeway mainline would provide motorists information regarding upstream problems such as accidents, fires, or lane closures due to construction, providing them with an opportunity to divert to other routes. Such signs are also increasingly used for "Amber alerts", that is, messages related to criminal child abductions.

Changeable message signs could also be located along surface streets, either on approaches to freeway on-ramps or along streets parallel to the freeway. The signs could either carry variable messages, or consist of blank-out trailblazer symbols that indicate detour routes.

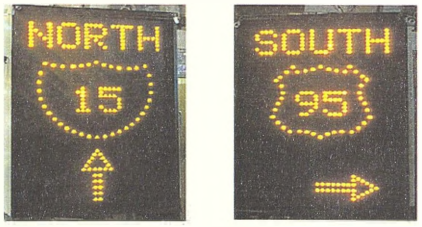
- **Highway Advisory Radio.** Radio transmitters could be provided along the US 101 corridor providing traveler advisory information to motorists' AM radio receivers. This in combination with changeable message signs could alert motorists of upcoming traffic problems. Highway advisory radio may be a preferable method of providing "Amber alert" information, since more detailed information could be provided over the radio waves than on a changeable message sign.

- **Incident Management System.** An

incident management system could provide local agencies with the ability to re-route freeway traffic around an incident location, such as a major accident or construction site. The system would consist of a coordinate traffic signal control system along detour routes, changeable message signs or blank out trailblazer signs, highway advisory radio, video surveillance, and loop count stations. Ramp metering could also be a useful tool in rerouting traffic. Such as system would require multi-agency coordination, between Caltrans and the local agencies, and between each local agency.

Currently, the existing ITS system along the corridor is very limited comprised of dedicated, leased telephone lines that result in a high capital cost and a continuing maintenance problem for Caltrans. The leased lines currently in place do not have the capacity for transmission of real time video, but rather compressed digital images at a considerable expense to Caltrans. Additionally, the real time video in its compressed format has poor resolution quality and cannot be retransmitted to media or other agencies. By providing an optical fiber cable to accommodate direct communication of voice, data, and video much of these problems would be eliminated.

Trailblazer Sign

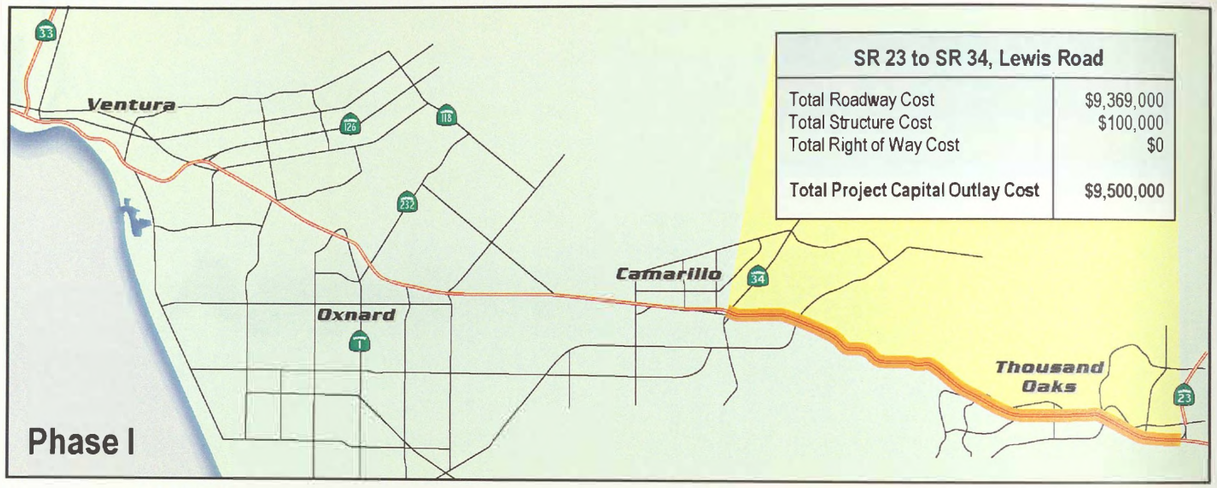


In Los Angeles County, Caltrans, in partnership with MTA and other local agencies, is beginning to share real time data on the performance of their respective transportation modes in order to allow the traveler to assess the best mode of transportation (see **Figure 7-1**). Caltrans would like to do the same in Ventura County but is lacking the infrastructure for direct communication

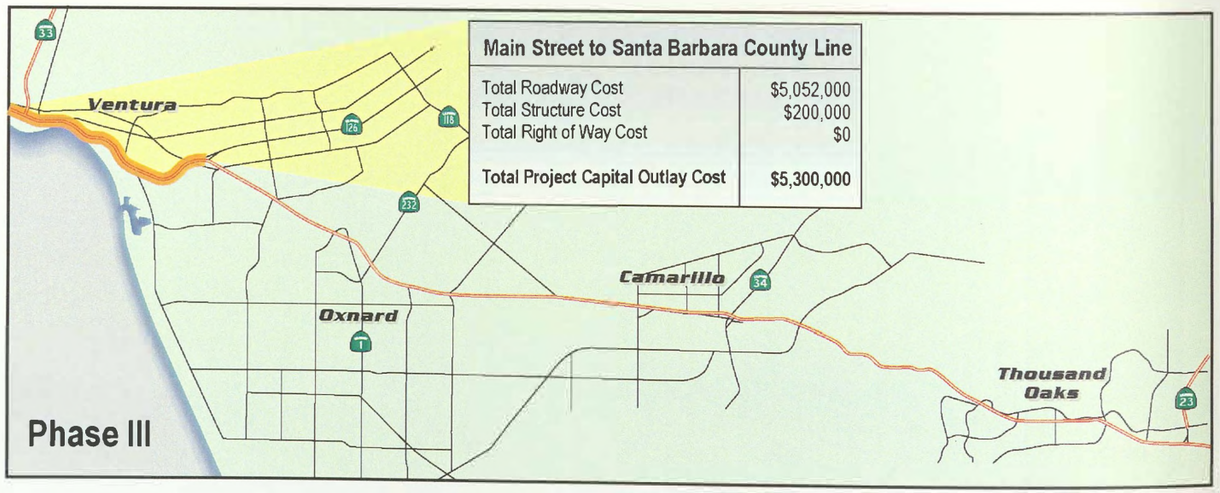
Figure 7-1 – MTA's Website Displaying Real Time Data for Los Angeles County

In order to accommodate the direct communication of voice, data, and video, to the Caltrans Traffic management Center (TMC) and the County of Ventura CHP, the study recommends that a fiber optics cable be installed along the entire project limits. The estimated cost to install the fiber optics cable including its ITS elements along the entire corridor is approximately $30 million. **Figure 7-2** suggests a three-phase implementation plan, however, the implementation could be done in one phase depending on the availability of funds.

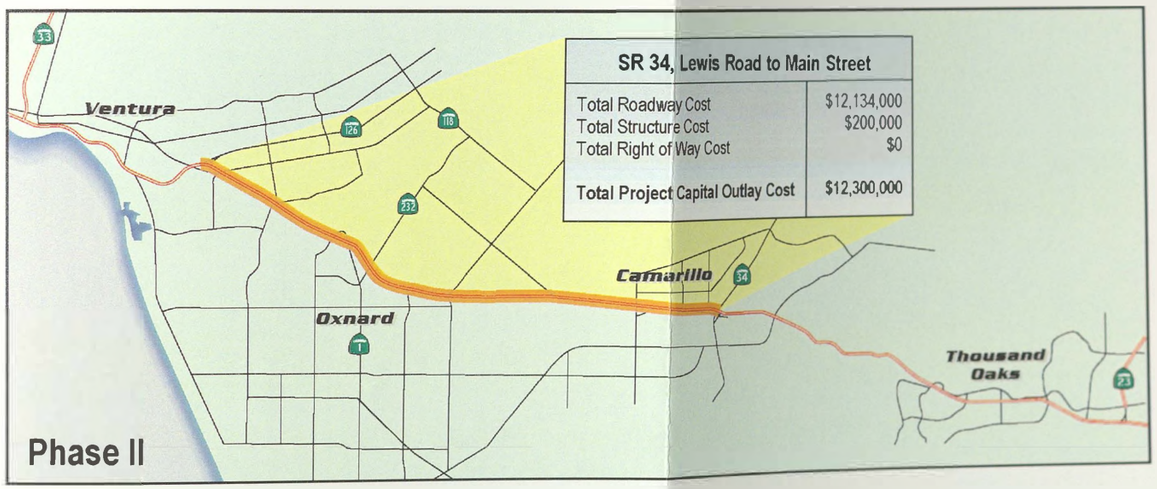
Due to the fact that the ITS component is considered a short-range alternative, it is likely to be implemented before the new lanes are added. As such, the fiber optics cable should be installed along the outside edge of the proposed new edge of shoulder or along the median. Furthermore, since there are already plans to install a fiber optics cable on State Route 23, the natural starting point of the installation should be at the southern end of the project limit at State Route 23 and proceed north until it reaches State Route 33.



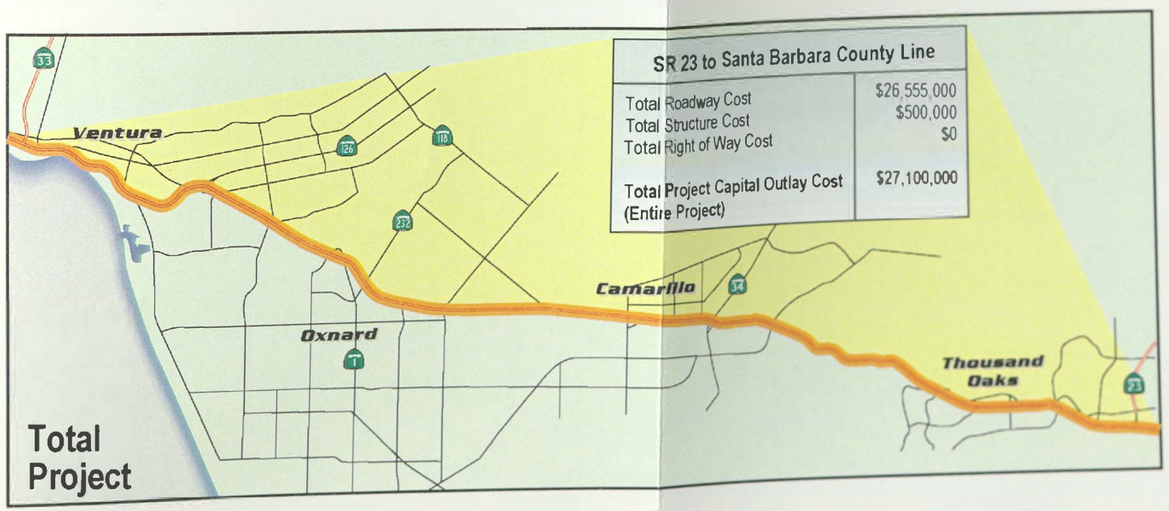
SR 23 to SR 34, Lewis Road	
Total Roadway Cost	$9,369,000
Total Structure Cost	$100,000
Total Right of Way Cost	$0
Total Project Capital Outlay Cost	**$9,500,000**



Main Street to Santa Barbara County Line	
Total Roadway Cost	$5,052,000
Total Structure Cost	$200,000
Total Right of Way Cost	$0
Total Project Capital Outlay Cost	**$5,300,000**



SR 34, Lewis Road to Main Street	
Total Roadway Cost	$12,134,000
Total Structure Cost	$200,000
Total Right of Way Cost	$0
Total Project Capital Outlay Cost	**$12,300,000**



SR 23 to Santa Barbara County Line	
Total Roadway Cost	$26,555,000
Total Structure Cost	$500,000
Total Right of Way Cost	$0
Total Project Capital Outlay Cost (Entire Project)	**$27,100,000**

Figure 7-2 – ITS Implementation Plan Costs

Appendixes


SERVICES NEXT 2 EXITS
101
Los Angeles
Ventura Ave
33
NORTH
Ojai

8.0 APPENDIXES

Appendix A – Corridor Structure Names and Locations

Appendix B – Traffic Modeling

Appendix C – Engineering Layouts Plans

Appendix D – Traffic Operation Analysis

Appendix E – Environmental Maps

Appendix F – Ranking Criteria

Appendix G – Data Delivery

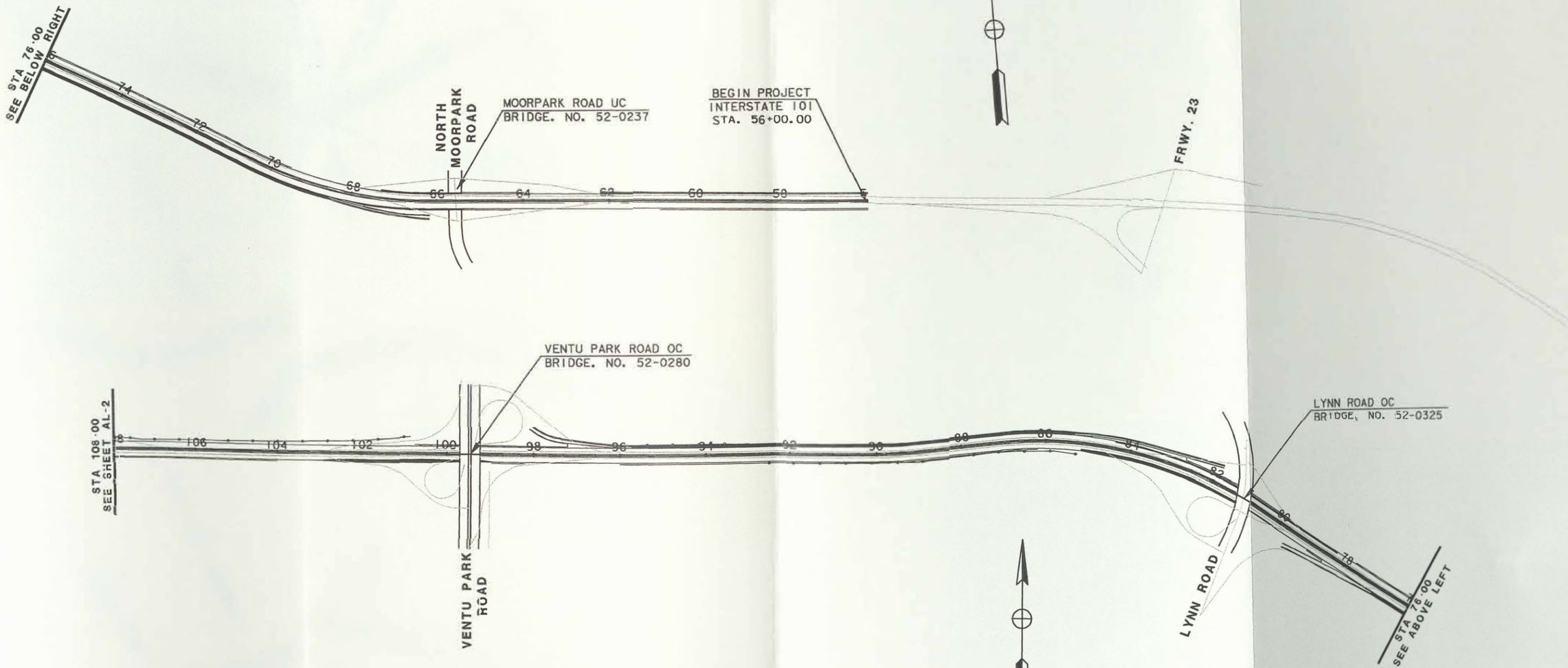
APPENDIX A – CORRIDOR STRUCTURE NAMES AND LOCATIONS

VENTURA COUNTY
TRANSPORTATION COMMISSION
US 101 IMPLEMENTATION PLAN
PROPOSED IMPROVEMENTS

AL-1

PROJECT ALIGNMENT

NO SCALE



BRIDGE NAME AND NUMBER	ACTION	NORTH BOUND	ACTION	SOUTH BOUND
MOORPARK ROAD UC BR. NO. 52-0237	◔	WIDEN TO ACCOM. 4 LANES AND 3.0 METER SHLDS	◔	WIDEN TO ACCOMMODATE 4 LANES AND 3.0 METER SHLDS
LYNN RD OC BR. NO. 52-0325	○	ACCOMMODATES 4 LANES	○	ACCOMMODATES 4 LANES
VENTU PK RD OC BR. NO 52-0280	○	ACCOMMODATES WIDENING	○	ACCOMMODATES WIDENING

● = BRIDGE REPLACEMENT ◔ = BRIDGE WIDENING ○ = NO MODIFICATION REQUIRED ◇ = NEEDS FURTHER STUDY

BRIDGE NAME AND NUMBER	ACTION	NORTH BOUND	ACTION	SOUTH BOUND
SO BR ARROYO CONEJO OC BR. NO. 52-0280	○	CONCRETE CHANNEL - ACCOMMODATES 4 LANES	○	CONCRETE CHANNEL - ACCOMMODATES 4 LANES
S BRANCH ARROYO CONEJO OC BR. NO. 52-0014	○	STREET BRIDGE/CONCRETE BRIDGE - ACCOMMODATES 4 LANES	○	STEEL BRIDGE/CONCRETE BRIDGE - ACCOMMODATES 4 LANES
BORCHARD RD OC BR. NO. 52-0247	○	STEEL BRIDGE/CONCRETE BRIDGE - ACCOMMODATES 4 LANES	○	STEEL BRIDGE/CONCRETE BRIDGE - ACCOMMODATES 4 LANES
ARROYO CONEJO SH VIA UC BR. NO. 52-0411L	○	ACCOMMODATES 4 LANES	○	ACCOMMODATES 4 LANES

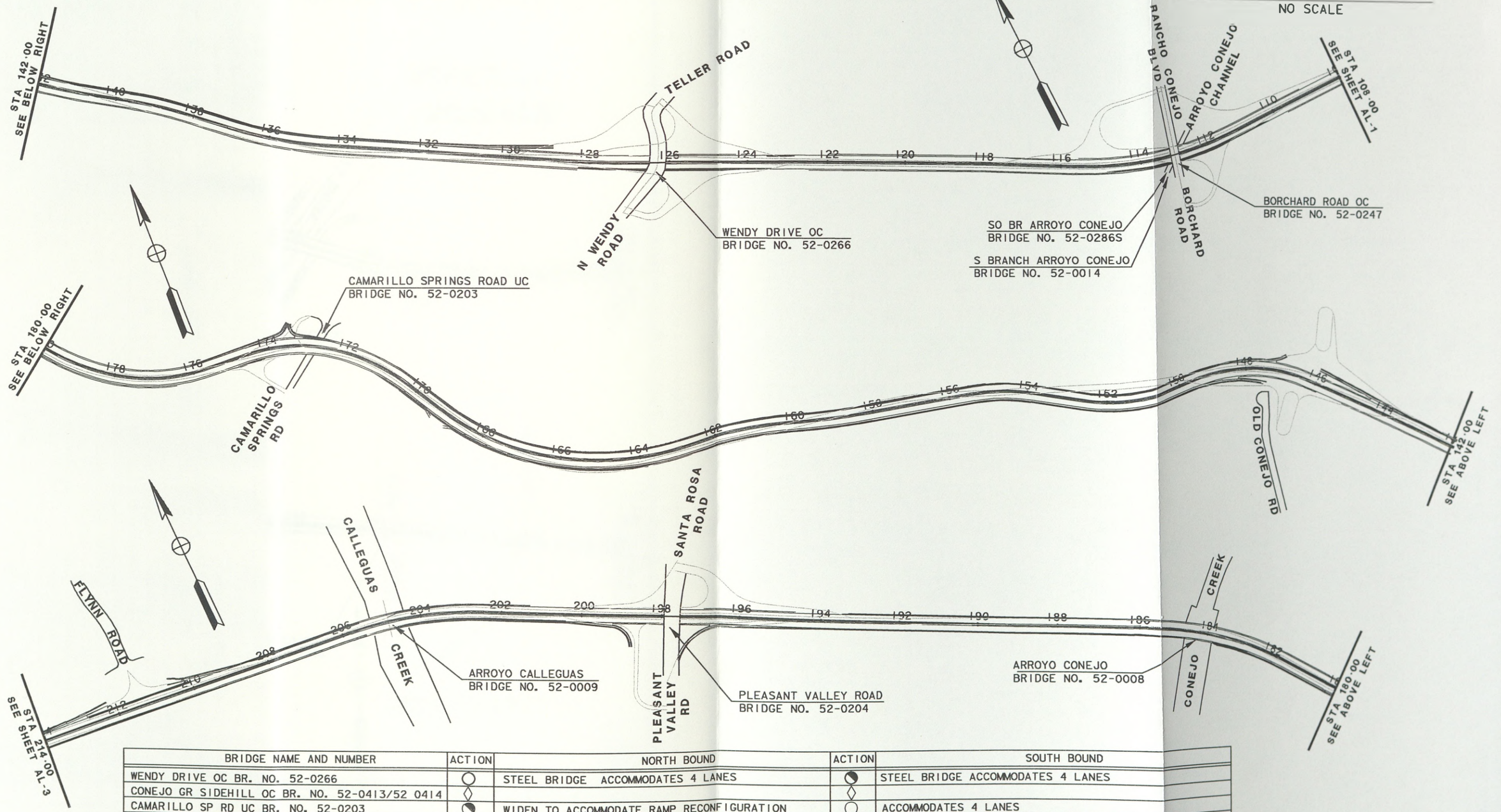
● = BRIDGE REPLACEMENT ◔ = BRIDGE WIDENING ○ = NO MODIFICATION REQUIRED ◇ = NEEDS FURTHER STUDY

VENTURA COUNTY TRANSPORTATION COMMISSION
US 101 IMPLEMENTATION PLAN
PROPOSED IMPROVEMENTS

AL-2

PROJECT ALIGNMENT

NO SCALE



BRIDGE NAME AND NUMBER	ACTION	NORTH BOUND	ACTION	SOUTH BOUND
WENDY DRIVE OC BR. NO. 52-0266	○	STEEL BRIDGE ACCOMMODATES 4 LANES	◔	STEEL BRIDGE ACCOMMODATES 4 LANES
CONEJO GR SIDEHILL OC BR. NO. 52-0413/52 0414	◇		◇	
CAMARILLO SP RD UC BR. NO. 52-0203	◔	WIDEN TO ACCOMMODATE RAMP RECONFIGURATION	○	ACCOMMODATES 4 LANES
ARROYO CONEJO BRIDGE BR. NO. 52-0008	◔	WIDEN TO ACCOMMODATE 4 LANES	◔	WIDEN TO ACCOMMODATE 4 LANES
PLEASANT VALLEY ROAD BR. NO. 52-0204	●	REPLACE OLDER STRUCTURE WHICH HAS CLOSED ABUTMENTS WITH ONE MATCHING THE WIDENING. NONSTANDARD OUTSIDE SHLDS AT RAMPS.	●	REPLACE OLDER STRUCTURE WHICH HAS CLOSED ABUTMENTS WITH ONE MATCHING THE WIDENING. RAMP MODIFICATION NEEDED.
ARROYO CALLEGUAS BR. NO. 52-0009	◔	WIDEN TO ACCOMMODATE 4 LANES	◔	WIDEN TO ACCOMMODATE 4 LANES

● = BRIDGE REPLACEMENT ◔ = BRIDGE WIDENING ○ = NO MODIFICATION REQUIRED ◇ = NEEDS FURTHER STUDY

BRIDGE NAME AND NUMBER	ACTION	NORTH BOUND	ACTION	SOUTH BOUND
CAMARILLO OH & SEP OC BR. NO. 52-0016	○	STRUCTURE CURRENTLY BEING WIDENED	○	STRUCTURE CURRENTLY BEING WIDENED
CAMARILLO POH OC BR. NO. 52-0426	○	STRUCTURE CURRENTLY BEING WIDENED	○	STRUCTURE CURRENTLY BEING WIDENED
FULTON STREET OC BR. NO. 52-0179	○	STRUCTURE CURRENTLY BEING REPLACED	○	STRUCTURE CURRENTLY BEING REPLACED
ARNEILL ROAD OC BR. NO. 52-0180	◔	STRUCTURE CURRENTLY BEING REPLACED	◔	STRUCTURE CURRENTLY BEING REPLACED
CARMEN DR OC BR. NO. 52-0428	◔	USE TIE BACK WALL TO ACCOMMODATE 1 LANE WIDENING	◔	USE TIE BACK WALL TO ACCOMMODATE 1 LANE WIDENING
CAMARILLO HILLS DRAIN BR. NO. 52-0370	◇		◔	WIDEN TO ACCOMMODATE 4 LANES
LAS POSAS RD OC BR. NO. 52-0246	◔	MAY NEED TIE BACK WALL TO ACCOMMODATE 1 LANE WIDENING	◔	MAY NEED TIE BACK WALL TO ACCOMMODATE 1 LANE WIDENING
CENTRAL AVENUE OC BR. NO. 52-0270	●	NON STANDARD SHLD WILL BE PROVIDED UNLESS BRIDGE IS REPLACED. EXISTING COLUMN ARE AT ES.	●	NON STANDARD SHLD WILL BE PROVIDED UNLESS BRIDGE IS REPLACED. EXISTING COLUMN ARE AT ES.
WOOD CREEK BR. NO. 52-0198M	○	CULVERT DOES NOT NEED MODIFICATION	○	CULVERT DOES NOT NEED MODIFICATION
BEARDSLEY WASH BR. NO. 52-0164	○	CULVERT DOES NOT NEED MODIFICATION	○	CULVERT DOES NOT NEED MODIFICATION
DEL NORTE BLVD OC BR. NO. 52-0271	●	INTERCHANGE TO BE RECONFIGURED/OTHERWISE REPLACE	●	INTERCHANGE TO BE RECONFIGURED/OTHERWISE REPLACE
SANTA CLARA AVENUE OC BR. NO. 52-0197	○	STRUC. BEING REPLACED UNDER CONTRACT NO. 07-003434	○	STRUC. BEING REPLACED UNDER CONTRACT NO. 07-003434

● = BRIDGE REPLACEMENT ◔ = BRIDGE WIDENING ○ = NO MODIFICATION REQUIRED ◇ = NEEDS FURTHER STUDY

BRIDGE NAME AND NUMBER	ACTION	NORTH BOUND	ACTION	SOUTH BOUND
BEAN FIELD DRAIN BR. NO. 52-0171	◔	TRIPLE BOX CULVERT MAY NEED TO BE EXTENDED	◔	TRIPLE BOX CULVERT MAY NEED TO BE EXTENDED
TAMARISK DRAIN BR. NO. 52-0172	◇	DOUBLE BOX	◇	DOUBLE BOX

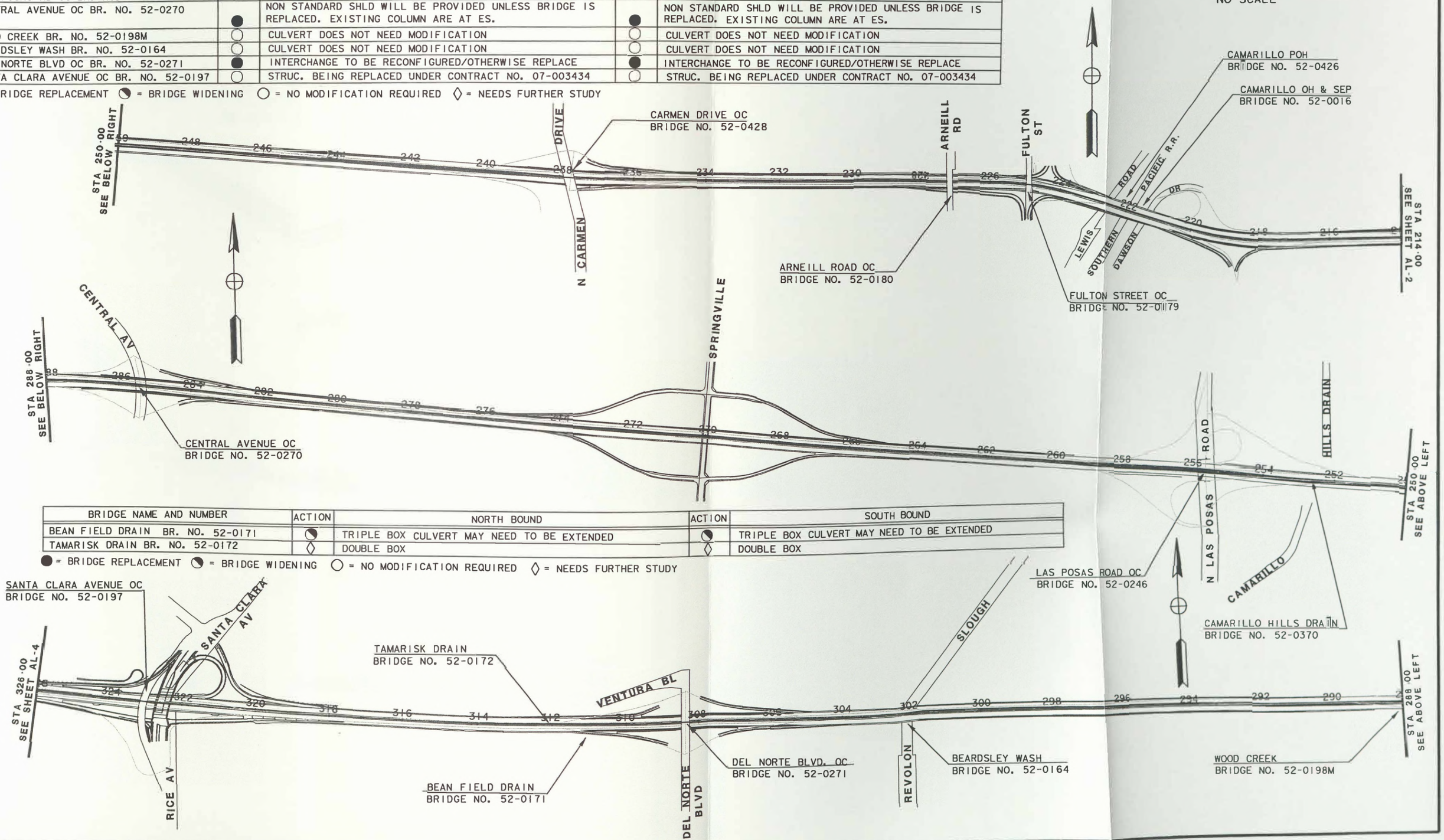
● = BRIDGE REPLACEMENT ◔ = BRIDGE WIDENING ○ = NO MODIFICATION REQUIRED ◇ = NEEDS FURTHER STUDY

VENTURA COUNTY TRANSPORTATION COMMISSION
US 101 IMPLEMENTATION PLAN
PROPOSED IMPROVEMENTS

AL-3

PROJECT ALIGNMENT

NO SCALE



BRIDGE NAME AND NUMBER	ACTION	NORTH BOUND	ACTION	SOUTH BOUND
ROSE ROAD OC BR. NO. 52-0202	○	ACCOMMODATES 4 LANE WIDENING	○	ACCOMMODATES 4 LANE WIDENING
ROUTE 232/101 SEPARATION (VINEYARD) BR. NO. 52-0188	◔	MAY NEED TIE BACK WALL TO ACCOMMODATE 1 LANE WIDENING/ VERTICAL CLEARANCE MAY NECESSITATE REPLACEMENT.	◔	MAY NEED TIE BACK WALL TO ACCOMMODATE 1 LANE WIDENING/ VERTICAL CLEARANCE MAY NECESSITATE REPLACEMENT.
N1-N101 CONN OC (OXNARD BLVD OC) BR. NO. 52-0187G	○	STRUCTURE CURRENTLY BEING REPLACED UNDER CONTRACT NO. 07-0607U4 (OXNARD BLVD OC)	○	STRUCTURE CURRENTLY BEING REPLACED UNDER CONTRACT NO. 07-0607U4 (OXNARD BLVD OC)
WAGON WHEEL ROAD UC BR. NO. 52-0190 L/R	○	STRUCTURE CURRENTLY BEING REPLACED UNDER CONTRACT NO. 07-0607U4 (OXNARD BLVD OC)	○	STRUCTURE CURRENTLY BEING REPLACED UNDER CONTRACT NO. 07-0607U4 (OXNARD BLVD OC)
SANTA CLARA RIVER BR. NO. 52-0007 L/R	○	STRUCTURE CURRENTLY BEING REPLACED UNDER CONTRACT NO. 07-0607U4 (OXNARD BLVD OC)	○	STRUCTURE CURRENTLY BEING REPLACED UNDER CONTRACT NO. 07-0607U4 (OXNARD BLVD OC)
MONTALVO SPUR OH BR. NO. 52-0021	◔	WIDENING IN MEDIAN TO ACCOMMODATE 4 LANES	◔	WIDENING IN MEDIAN TO ACCOMMODATE 4 LANES
VICTORIA AVENUE UC BR. NO. 52-0255 L/R	◔	MAY CONSIDER WIDENING IN MEDIAN TO ACCOMMODATE 4 LANES, 4TH LANE OPTIONAL	◔	WIDEN IN MEDIAN TO ACCOMMODATE 4 LANES
TELEPHONE ROAD UC BR. NO. 52-0214 L/R	◔	MAY CONSIDER WIDENING IN MEDIAN TO ACCOMMODATE 4 LANES, 4TH LANE OPTIONAL	◔	WIDEN TO ACCOMMODATE 4 LANES
S101-E126 CONN OC BR. NO. 52-0224F	○	4TH LANE OPTIONAL; FIELD VERIFY TO ENSURE NO WIDENING	○	4TH LANE OPTIONAL; FIELD VERIFY TO ENSURE NO WIDENING

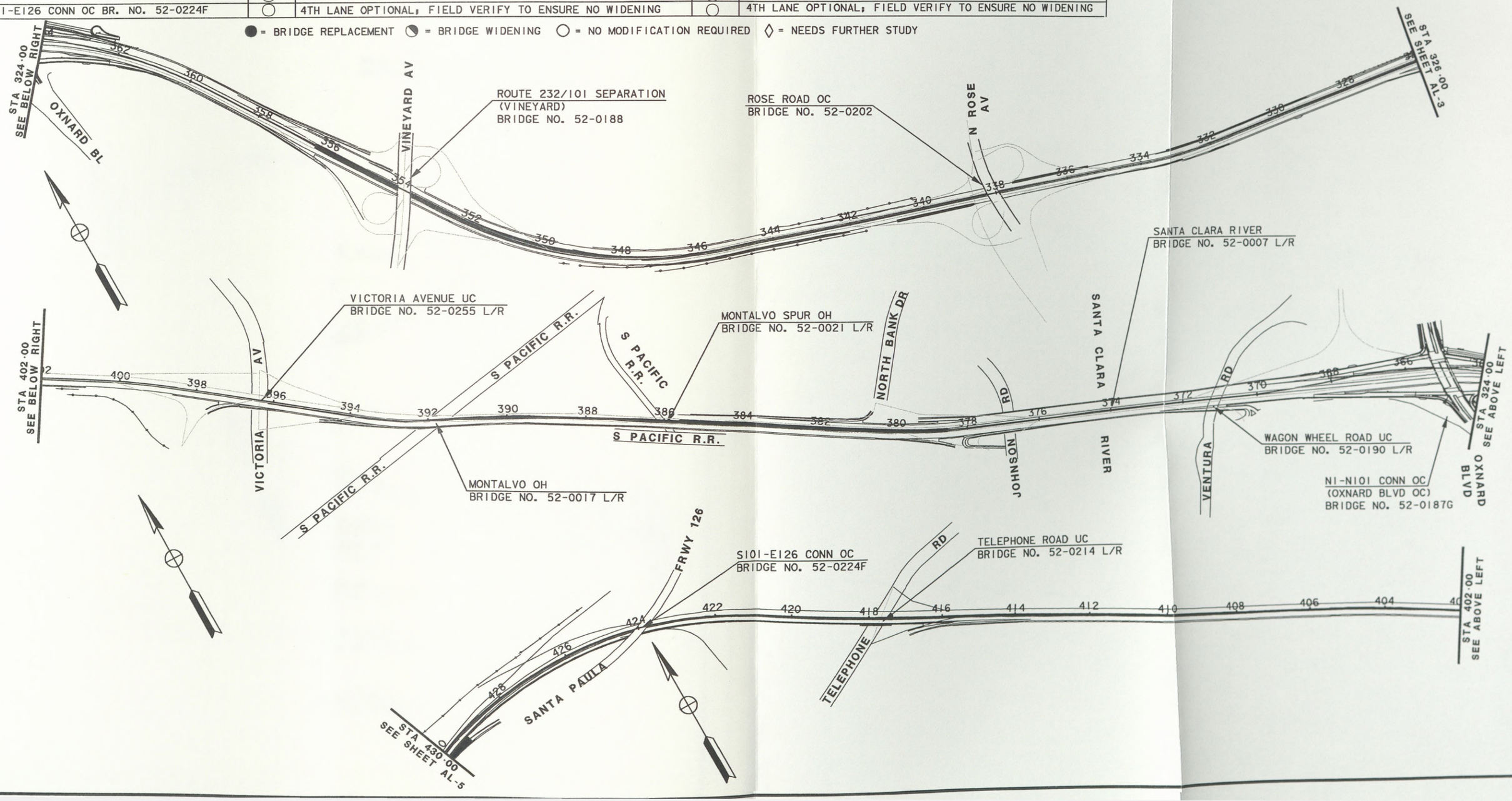
● = BRIDGE REPLACEMENT ◔ = BRIDGE WIDENING ○ = NO MODIFICATION REQUIRED ◇ = NEEDS FURTHER STUDY

VENTURA COUNTY TRANSPORTATION COMMISSION
US 101 IMPLEMENTATION PLAN
PROPOSED IMPROVEMENTS

AL-4

PROJECT ALIGNMENT

NO SCALE



BRIDGE NAME AND NUMBER	ACTION	NORTH BOUND	ACTION	SOUTH BOUND
MAIN STREET UC BR. NO. 52-0168 L/R	○	ADDED LANE OPTIONAL, IN MEDIAN IF NECESSARY	○	ADDED LANE OPTIONAL, IN MEDIAN IF NECESSARY
LEMON OH BR. NO. 52-0020L	○	ADDED LANE OPTIONAL, IN MEDIAN IF NECESSARY	○	ADDED LANE OPTIONAL, IN MEDIAN IF NECESSARY
SEAWARD AVE OC BR. NO. 52-0216	◔	4TH LANE OPTIONAL, WOULD REQUIRE TIE-BACK WALLS FOR 4TH LANE	◔	REQUIRE TIE-BACK WALL FOR 4TH LANE; HOWEVER, NOTE RAMP WALL RESTRICTS ULTIMATE WIDTH.

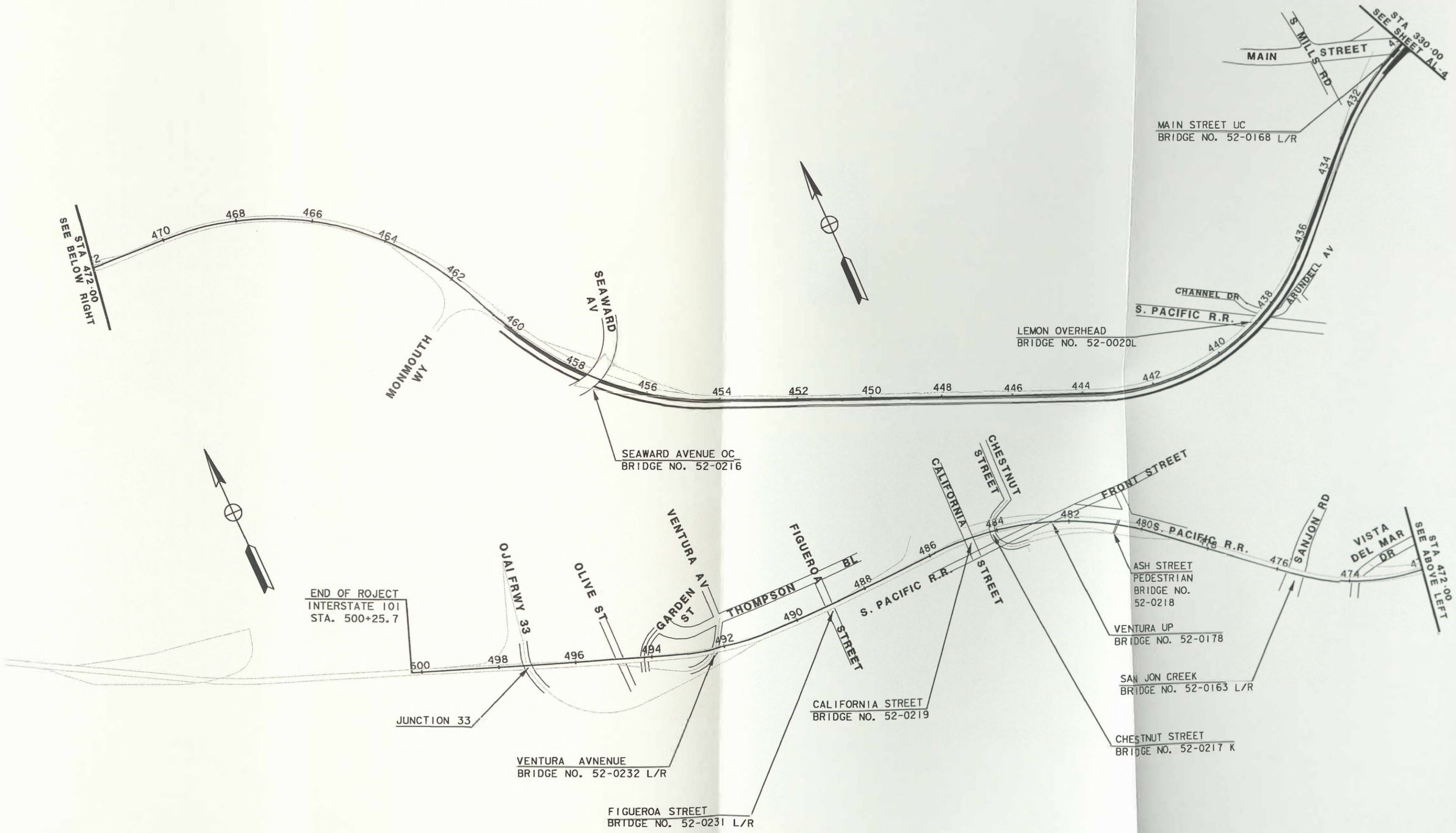
● = BRIDGE REPLACEMENT ◔ = BRIDGE WIDENING ○ = NO MODIFICATION REQUIRED ◇ = NEEDS FURTHER STUDY

VENTURA COUNTY
TRANSPORTATION COMMISSION
US 101 IMPLEMENTATION PLAN
PROPOSED IMPROVEMENTS

AL-5

PROJECT ALIGNMENT

NO SCALE



APPENDIX B – TRAFFIC MODELING

Figure B-1 – US 101 Corridor Study-Build Alternative Network-Number of Lanes

Figure B-1
US-101 Corridor Study
Build Alternative Network
Number of Lanes

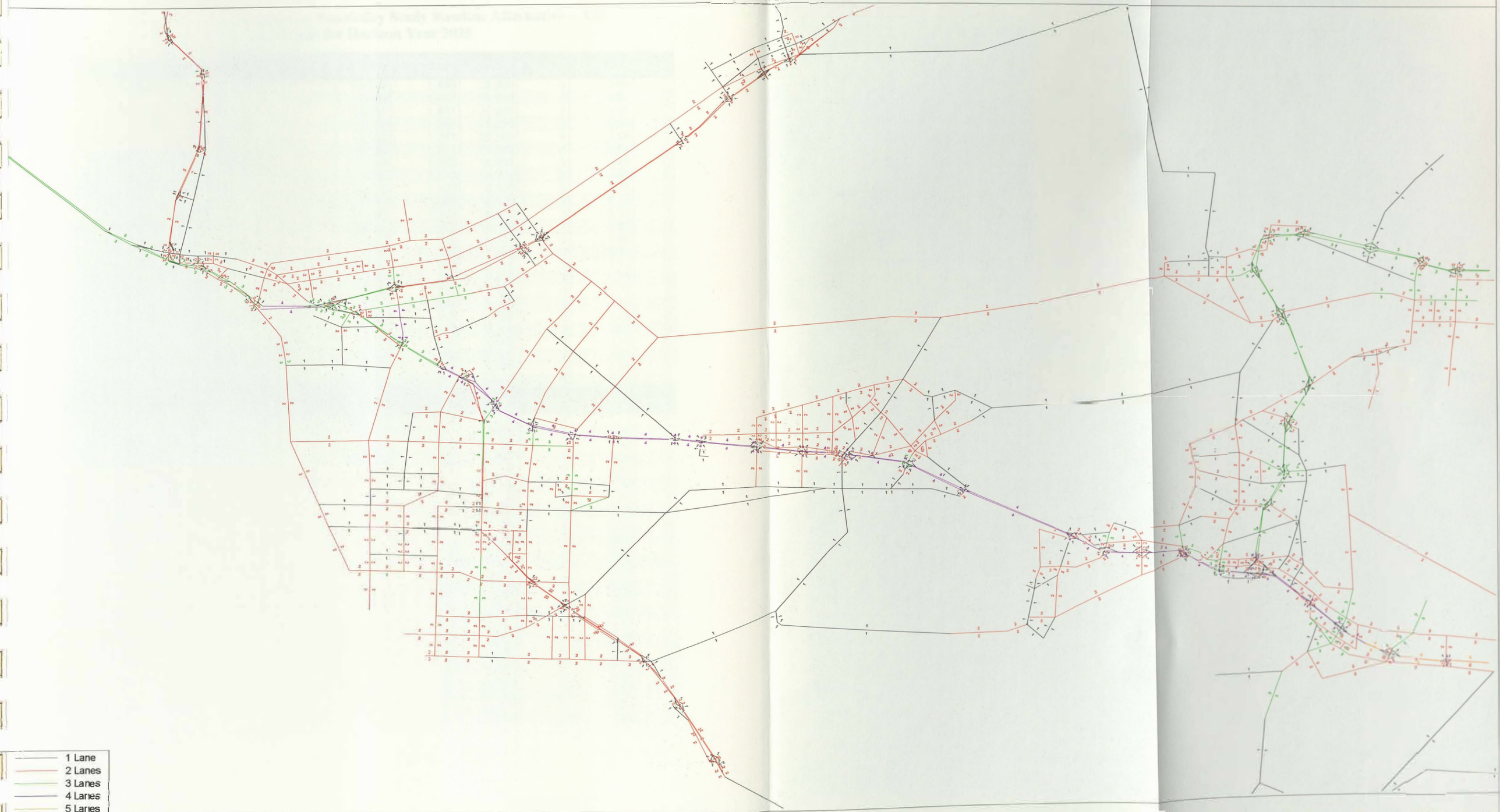


Table B-1 – US 101 Highway Feasibility Study Baseline Alternative – AM Forecasts for Horizon Year 2025

NORTHBOUND/WESTBOUND							
No.	Locations	AM cars	AM Trucks	Capacity	*Lane	D/C Ratio	LOS
1	SR23 to Moorpark Rd	15,704	1,499	25,200	4	0.68	C
2	Moorpark Rd to Lynn Rd	14,200	1,447	25,200	4	0.62	C
3	Lynn Rd to Ventu Park Rd	15,037	1,431	25,200	4	0.65	C
4	Ventu Pk Rd to Rancho Conejo	13,758	1,356	25,200	4	0.60	C
5	Rancho Conejo to Wendy Dr.	13,203	1,341	25,200	4	0.58	C
6	Wendy Dr to Camarillo Springs Rd	13,208	1,291	25,200	4	0.58	C
7	Camarillo Springs Rd to Santa Rosa	11,129	1,200	18,900	3	0.65	C
8	Santa Rosa Rd to Flynn Rd	10,375	1,078	18,900	3	0.61	C
9	Flynn Rd to Lewis	12,710	1,100	18,900	3	0.73	C
10	Lewis Rd to Camden Dr.	12,474	1,089	18,900	3	0.72	C
11	Camden Dr. to Los Posas.	12,499	1,038	18,900	3	0.72	C
12	Los Posas to Springville	14,603	959	18,900	3	0.82	D
13	Springville to Central	14,603	959	18,900	3	0.82	D
14	Central to Del Norte	14,738	896	18,900	3	0.83	D
15	Del Norte to Santa Clara	13,091	740	18,900	3	0.73	C
16	Santa Clara to Rose Ave	13,091	740	18,900	3	0.73	C
17	Rose Ave to Vineyard	13,796	707	18,900	3	0.77	C
18	Vineyard to Town Ctr Dr.	13,995	654	18,900	3	0.78	C
19	Town Ctr. Dr to Johnson Dr.	17,850	628	18,900	3	0.98	E
20	Johnson Dr. to Victoria	15,730	526	18,900	3	0.86	D
21	Victoria to SR126 and 101 interchange	13,539	421	18,900	3	0.74	C
22	SR126 and 101 interchange to Seaward Ave	15,452	350	25,200	4	0.63	C
23	Seaward Ave to Vista Del Mar Dr.	15,694	336	18,900	3	0.85	D
24	Vista Del Mar Dr to California St.	14,338	311	18,900	3	0.78	D
SOUTHBOUND/EASTBOUND							
No.	Locations	AM cars	AM Trucks	Capacity	*Lane	D/C Ratio	LOS
1	SR23 to Moorpark Rd	26,477	1,596	25,200	4	1.11	F
2	Moorpark Rd to Lynn Rd	25,832	1,557	25,200	4	1.09	F
3	Lynn Rd to Ventu Park Rd	24,305	1,503	25,200	4	1.02	F
4	Ventu Pk Rd to Rancho Conejo	23,292	1,430	25,200	4	0.98	E
5	Rancho Conejo to Wendy Dr.	22,479	1,427	25,200	4	0.95	E
6	Wendy Dr to Camarillo Springs Rd	23,391	1,428	25,200	4	0.98	E
7	Camarillo Springs Rd to Santa Rosa	19,904	1,289	18,900	3	1.12	F
8	Santa Rosa Rd to Flynn Rd	16,280	1,210	18,900	3	0.93	D
9	Flynn Rd to Lewis	16,280	1,210	18,900	3	0.93	D
10	Lewis Rd to Camden Dr.	15,460	1,198	18,900	3	0.88	D
11	Camden Dr. to Los Posas.	15,740	1,149	18,900	3	0.89	D
12	Los Posas to Springville	16,194	1,104	18,900	3	0.92	D
13	Springville to Central	17,127	1,112	18,900	3	0.97	E
14	Central to Del Norte	16,524	1,039	18,900	3	0.93	D
15	Del Norte to Santa Clara	15,053	942	18,900	3	0.85	D
16	Santa Clara to Rose Ave	14,004	865	18,900	3	0.79	D
17	Rose Ave to Vineyard	13,476	776	18,900	3	0.75	C
18	Vineyard to Town Ctr Dr.	11,588	678	18,900	3	0.65	C
19	Town Ctr. Dr to Johnson Dr.	15,244	721	18,900	3	0.84	D
20	Johnson Dr. to Victoria	13,366	652	18,900	3	0.74	C
21	Victoria to SR126 and 101 interchange	9,514	476	18,900	3	0.53	B
22	SR126 and 101 interchange to Seaward Ave	9,509	386	25,200	4	0.39	B
23	Seaward Ave to Vista Del Mar Dr.	10,553	361	18,900	3	0.58	C
24	Vista Del Mar Dr to California St.	10,553	361	18,900	3	0.58	C

* AM has 3 hour peak period – Lane Capacity = 2100
Source: SCAG Regional Travel Model

Table B-2 – US 101 Highway Feasibility Study Baseline Alternative – PM Casts for Horizon Year 2025

NORTHBOUND/WESTBOUND							
No.	Locations	PM cars	PM Trucks	Capacity	*Lane	D/C Ratio	LOS
1	SR23 to Moorpark Rd	34,410	1,881	33,600	4	1.08	F
2	Moorpark Rd to Lynn Rd	32,507	1,837	33,600	4	1.02	F
3	Lynn Rd to Ventu Park Rd	31,388	1,779	33,600	4	0.99	E
4	Ventu Pk Rd to Rancho Conejo	29,710	1,705	33,600	4	0.93	D
5	Rancho Conejo to Wendy Dr.	28,656	1,687	33,600	4	0.90	D
6	Wendy Dr to Camarillo Springs Rd	30,041	1,657	33,600	4	0.94	E
7	Camarillo Springs Rd to Santa Rosa	24,612	1,533	25,200	3	1.04	F
8	Santa Rosa to Flynn Rd	21,858	1,415	25,200	3	0.92	D
9	Flynn Rd to Lewis	23,387	1,422	25,200	3	0.98	E
10	Lewis Rd to Camden Dr.	21,926	1,410	25,200	3	0.93	D
11	Camden Dr. to Los Posas.	21,661	1,359	25,200	3	0.91	D
12	Los Posas to Springville	22,683	1,276	25,200	3	0.95	E
13	Springville to Central	23,699	1,290	25,200	3	0.99	E
14	Central to Del Norte	23,013	1,239	25,200	3	0.96	E
15	Del Norte to Santa Clara	20,051	1,080	25,200	3	0.84	D
16	Santa Clara to Rose Ave	20,051	1,080	25,200	3	0.84	D
17	Rose Ave to Vineyard	19,966	1,032	25,200	3	0.83	D
18	Vineyard to Town Ctr Dr.	18,811	943	25,200	3	0.78	D
19	Town Ctr. Dr to Johnson Dr.	23,635	921	25,200	3	0.97	E
20	Johnson Dr. to Victoria	20,761	798	25,200	3	0.86	D
21	Victoria to SR126 and 101 interchange	17,928	636	25,200	3	0.74	C
22	SR126 and 101 interchange to Seaward Ave	17,828	516	33,600	4	0.55	B
23	Seaward Ave to Vista Del Mar Dr.	20,513	488	25,200	3	0.83	D
24	Vista Del Mar Dr to California St.	19,317	456	25,200	3	0.78	D
SOUTHBOUND/EASTBOUND							
No.	Locations	PM cars	PM Trucks	Capacity	*Lane	D/C Ratio	LOS
1	SR23 to Moorpark Rd	26,269	1,914	33,600	4	0.84	D
2	Moorpark Rd to Lynn Rd	24,453	1,858	33,600	4	0.78	D
3	Lynn Rd to Ventu Park Rd	25,110	1,803	33,600	4	0.80	D
4	Ventu Pk Rd to Rancho Conejo	23,674	1,730	33,600	4	0.76	C
5	Rancho Conejo to Wendy Dr.	22,709	1,711	33,600	4	0.73	C
6	Wendy Dr to Camarillo Springs Rd	22,979	1,655	33,600	4	0.73	C
7	Camarillo Springs Rd to Santa Rosa	20,011	1,519	25,200	3	0.85	D
8	Santa Rosa to Flynn Rd	18,462	1,381	25,200	3	0.79	D
9	Flynn Rd to Lewis	18,462	1,381	25,200	3	0.79	D
10	Lewis Rd to Camden Dr.	19,299	1,384	25,200	3	0.82	D
11	Camden Dr. to Los Posas.	19,766	1,338	25,200	3	0.84	D
12	Los Posas to Springville	21,393	1,257	25,200	3	0.90	D
13	Springville to Central	22,756	1,263	25,200	3	0.95	E
14	Central to Del Norte	22,845	1,136	25,200	3	0.95	E
15	Del Norte to Santa Clara	20,732	1,016	25,200	3	0.86	D
16	Santa Clara to Rose Ave	20,399	914	25,200	3	0.85	D
17	Rose Ave to Vineyard	21,708	855	25,200	3	0.90	D
18	Vineyard to Town Ctr Dr.	22,355	791	25,200	3	0.92	D
19	Town Ctr. Dr to Johnson Dr.	27,331	833	25,200	3	1.12	F
20	Johnson Dr. to Victoria	24,800	738	25,200	3	1.01	F
21	Victoria to SR126 and 101 interchange	19,244	536	25,200	3	0.78	D
22	SR126 and 101 interchange to Seaward Ave	24,157	482	33,600	4	0.73	C
23	Seaward Ave to Vista Del Mar Dr.	26,603	460	25,200	3	1.07	F
24	Vista Del Mar Dr to California St.	26,603	460	25,200	3	1.07	F

* PM has 4 hour peak period – Lane Capacity = 2100
Source: SCAG Regional Travel Model

Table B-3 – Level-of Service Criteria for Freeways[1]

Level of Service	Interpretation	Nominal Range of Volume-to-Capacity Ratio
A	Low volumes; primarily free-flow operations. Density is low, and vehicles can freely maneuver within the traffic stream. Drivers can maintain their desired speeds with little or no delay.	0.000 - 0.609
B	Stable flow with potential for some restrictions of operating speeds due to traffic conditions. Maneuvering is only slightly restricted. The stopped delays are not bothersome, and drivers are not subject to appreciable tension.	0.610 - 0.709
C	Stable operations; however, the ability to maneuver is more restricted by the increases in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signed coordination or longer queues cause delays.	0.710 - 0.809
D	Approaching unstable traffic flow, where small increases in volume could cause substantial delays. Most drivers are restricted in their ability to maneuver and in their selection of travel speeds. Comfort and convenience are low but tolerable.	0.810 - 0.909
E	Operations characterized by significant approach delays and average speeds of one-half to one-third of free-flow speed. Flow is unstable and potential for stoppages of brief duration.	0.910 - 1.009
F	Forced-flow operations with high approach delays at critical signalized intersections. Speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion.	1.010+

(1) Source: *Highway Capacity Manual*, Transportation Research Board, 1965.

Table B-4 – US 101 Highway Feasibility Study Build Alternative – AM Forecasts for Horizon Year 2025

NORTHBOUND/WESTBOUND							
No.	Locations	AM cars	AM Trucks	Capacity	*Lane	D/C Ratio	LOS
1	SR23 to Moorpark Rd	16,148	1,520	25,200	4	0.70	C
2	Moorpark Rd to Lynn Rd	14,653	1,470	25,200	4	0.64	C
3	Lynn Rd to Ventu Park Rd	15,445	1,452	25,200	4	0.67	C
4	Ventu Pk Rd to Rancho Conejo	14,220	1,380	25,200	4	0.62	C
5	Rancho Conejo to Wendy Dr.	13,732	1,365	25,200	4	0.60	C
6	Wendy Dr to Camarillo Springs Rd	14,005	1,319	25,200	4	0.61	C
7	Camarillo Springs Rd to Santa Rosa	12,291	1,237	25,200	4	0.54	B
8	Santa Rosa to Flynn Rd	11,795	1,140	25,200	4	0.51	B
9	Flynn Rd to Lewis	14,114	1,165	25,200	4	0.61	C
10	Lewis Rd to Camden Dr.	13,874	1,153	25,200	4	0.60	C
11	Camden Dr. to Los Posas.	14,079	1,101	25,200	4	0.60	C
12	Los Posas to Springville	16,168	1,013	25,200	4	0.68	C
13	Springville to Central	16,168	1,013	25,200	4	0.68	C
14	Central to Del Norte	16,299	950	25,200	4	0.68	C
15	Del Norte to Santa Clara	14,731	781	25,200	4	0.62	C
16	Santa Clara to Rose Ave	14,731	781	25,200	4	0.62	C
17	Rose Ave to Vineyard	15,220	731	25,200	4	0.63	C
18	Vineyard to Town Ctr Dr.	15,204	673	25,200	4	0.63	C
19	Town Ctr. Dr to Johnson Dr.	18,807	642	25,200	4	0.77	C
20	Johnson Dr. to Victoria	16,443	538	18,900	3	0.90	D
21	Victoria to SR126 and 101 interchange	14,100	430	18,900	3	0.77	C
22	SR126 and 101 interchange to Seaward Ave	15,613	353	25,200	4	0.63	C
23	Seaward Ave to Vista Del Mar Dr.	15,729	337	18,900	3	0.85	D
24	Vista Del Mar Dr to California St.	14,358	312	18,900	3	0.78	D
SOUTHBOUND/EASTBOUND							
No.	Locations	AM cars	AM Trucks	Capacity	*Lane	D/C Ratio	LOS
1	SR23 to Moorpark Rd	26,745	1,618	25,200	4	1.13	F
2	Moorpark Rd to Lynn Rd	26,256	1,585	25,200	4	1.10	F
3	Lynn Rd to Ventu Park Rd	24,769	1,538	25,200	4	1.04	F
4	Ventu Pk Rd to Rancho Conejo	23,770	1,466	25,200	4	1.00	F
5	Rancho Conejo to Wendy Dr.	23,335	1,466	25,200	4	0.98	E
6	Wendy Dr to Camarillo Springs Rd	24,431	1,468	25,200	4	1.03	F
7	Camarillo Springs Rd to Santa Rosa	21,964	1,369	25,200	4	0.93	D
8	Santa Rosa to Flynn Rd	18,756	1,299	25,200	4	0.80	D
9	Flynn Rd to Lewis	18,756	1,299	25,200	4	0.80	D
10	Lewis Rd to Camden Dr.	18,035	1,287	25,200	4	0.77	C
11	Camden Dr. to Los Posas.	18,736	1,245	25,200	4	0.79	D
12	Los Posas to Springville	19,040	1,186	25,200	4	0.80	D
13	Springville to Central	19,040	1,186	25,200	4	0.80	D
14	Central to Del Norte	18,512	1,124	25,200	4	0.78	D
15	Del Norte to Santa Clara	17,196	1,037	25,200	4	0.72	C
16	Santa Clara to Rose Ave	16,241	938	25,200	4	0.68	C
17	Rose Ave to Vineyard	15,148	823	25,200	4	0.63	C
18	Vineyard to Town Ctr Dr.	12,383	696	25,200	4	0.52	B
19	Town Ctr. Dr to Johnson Dr.	15,935	737	25,200	4	0.66	C
20	Johnson Dr. to Victoria	13,952	667	18,900	3	0.77	C
21	Victoria to SR126 and 101 interchange	9,895	483	18,900	3	0.55	C
22	SR126 and 101 interchange to Seaward Ave	9,651	387	25,200	4	0.40	B
23	Seaward Ave to Vista Del Mar Dr.	10,605	361	18,900	3	0.58	C
24	Vista Del Mar Dr to California St.	10,605	361	18,900	3	0.58	C

* AM has 3 hour peak period - Lane Capacity = 2100
Source: SCAG Regional Travel Model

Table B-5 – US 101 Highway Feasibility Study Build Alternative – PM Forecasts for Horizon Year 2025

NORTHBOUND/WESTBOUND							
No.	Locations	PM cars	PM Trucks	Capacity	*Lane	D/C Ratio	LOS
1	SR23 to Moorpark Rd	34,707	1,894	33,600	4	1.09	F
2	Moorpark Rd to Lynn Rd	33,050	1,850	33,600	4	1.04	F
3	Lynn Rd to Ventu Park Rd	32,107	1,799	33,600	4	1.01	F
4	Ventu Pk Rd to Rancho Conejo	30,459	1,706	33,600	4	0.96	E
5	Rancho Conejo to Wendy Dr.	29,640	1,689	33,600	4	0.93	D
6	Wendy Dr to Camarillo Springs Rd	31,505	1,682	33,600	4	0.99	E
7	Camarillo Springs Rd to Santa Rosa	27,082	1,568	33,600	4	0.85	D
8	Santa Rosa to Flynn Rd	25,603	1,494	33,600	4	0.81	D
9	Flynn Rd to Lewis	26,443	1,496	33,600	4	0.83	D
10	Lewis Rd to Camden Dr.	25,367	1,483	33,600	4	0.80	D
11	Camden Dr. to Los Posas.	24,859	1,427	33,600	4	0.78	D
12	Los Posas to Springville	26,356	1,354	33,600	4	0.82	D
13	Springville to Central	26,305	1,354	33,600	4	0.82	D
14	Central to Del Norte	25,779	1,308	33,600	4	0.81	D
15	Del Norte to Santa Clara	23,127	1,136	33,600	4	0.72	C
16	Santa Clara to Rose Ave	23,127	1,136	33,600	4	0.72	C
17	Rose Ave to Vineyard	23,053	1,081	33,600	4	0.72	C
18	Vineyard to Town Ctr Dr.	21,075	975	33,600	4	0.66	C
19	Town Ctr. Dr to Johnson Dr.	24,989	942	33,600	4	0.77	C
20	Johnson Dr. to Victoria	21,789	814	25,200	3	0.90	D
21	Victoria to SR126 and 101 interchange	18,840	647	25,200	3	0.77	C
22	SR126 and 101 interchange to Seaward Ave	18,094	516	33,600	4	0.55	C
23	Seaward Ave to Vista Del Mar Dr.	20,641	488	25,200	3	0.84	D
24	Vista Del Mar Dr to California St.	19,404	456	25,200	3	0.79	D
SOUTHBOUND/EASTBOUND							
No.	Locations	PM cars	PM Trucks	Capacity	*Lane	D/C Ratio	LOS
1	SR23 to Moorpark Rd	26,918	1,941	33,600	4	0.86	D
2	Moorpark Rd to Lynn Rd	25,164	1,885	33,600	4	0.81	D
3	Lynn Rd to Ventu Park Rd	26,052	1,843	33,600	4	0.83	D
4	Ventu Pk Rd to Rancho Conejo	24,704	1,770	33,600	4	0.79	D
5	Rancho Conejo to Wendy Dr.	23,844	1,751	33,600	4	0.76	C
6	Wendy Dr to Camarillo Springs Rd	24,411	1,698	33,600	4	0.78	C
7	Camarillo Springs Rd to Santa Rosa	21,950	1,598	33,600	4	0.70	C
8	Santa Rosa to Flynn Rd	21,454	1,492	33,600	4	0.68	C
9	Flynn Rd to Lewis	21,454	1,492	33,600	4	0.68	C
10	Lewis Rd to Camden Dr.	21,757	1,481	33,600	4	0.69	C
11	Camden Dr. to Los Posas.	22,961	1,442	33,600	4	0.73	C
12	Los Posas to Springville	24,994	1,347	33,600	4	0.78	D
13	Springville to Central	25,375	1,349	33,600	4	0.80	D
14	Central to Del Norte	25,573	1,215	33,600	4	0.80	D
15	Del Norte to Santa Clara	23,960	1,122	33,600	4	0.75	C
16	Santa Clara to Rose Ave	23,814	1,021	33,600	4	0.74	C
17	Rose Ave to Vineyard	24,213	906	33,600	4	0.75	C
18	Vineyard to Town Ctr Dr.	23,701	807	33,600	4	0.73	C
19	Town Ctr. Dr to Johnson Dr.	28,301	847	33,600	4	0.87	D
20	Johnson Dr. to Victoria	25,693	760	25,200	3	1.05	F
21	Victoria to SR126 and 101 interchange	19,736	545	25,200	3	0.80	D
22	SR126 and 101 interchange to Seaward Ave	24,201	476	33,600	4	0.73	C
23	Seaward Ave to Vista Del Mar Dr.	26,732	462	25,200	3	1.08	F
24	Vista Del Mar Dr to California St.	26,732	462	25,200	3	1.08	F

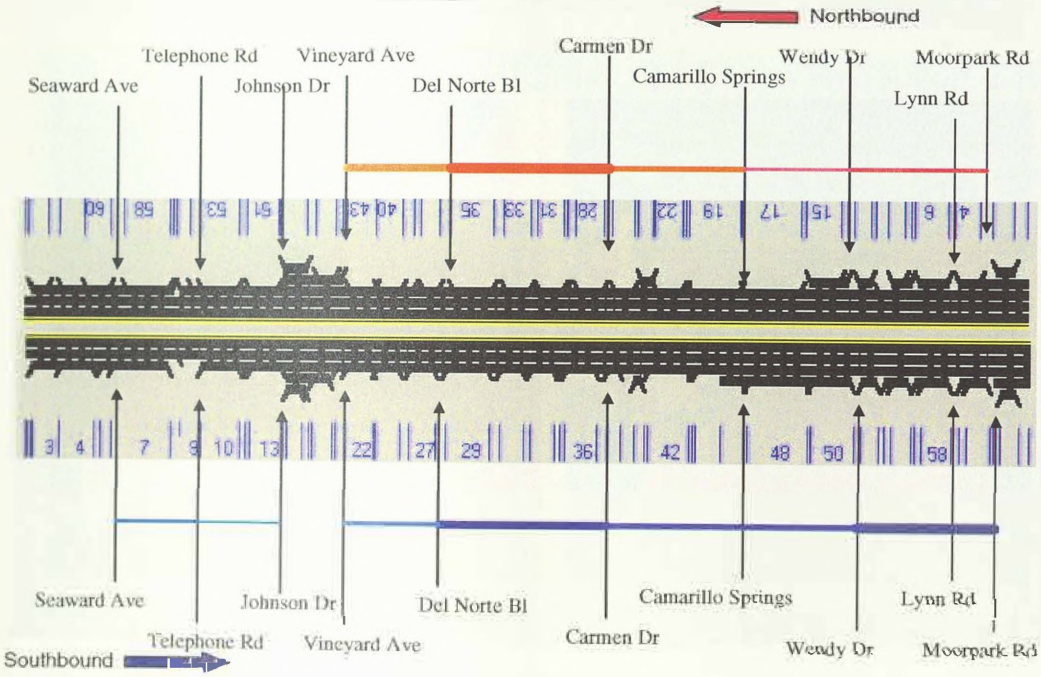
* PM has 4 hour peak period - Lane Capacity = 2100
Source: SCAG Regional Travel Model

Appendix C – Engineering Layouts Plans

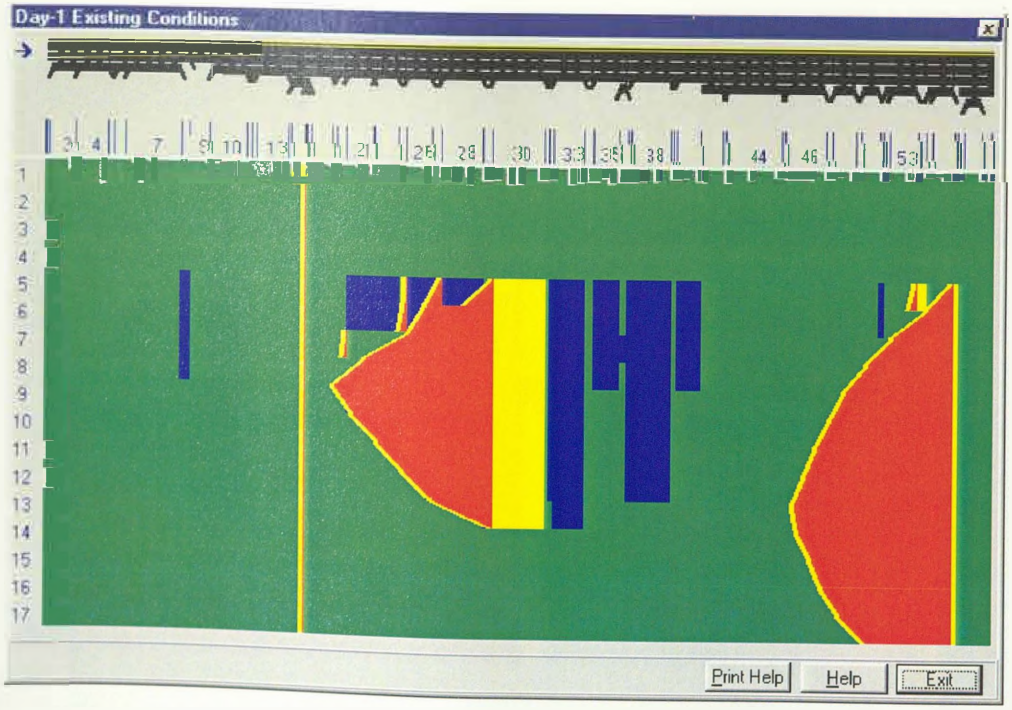
Appendix C is provided under separate cover.

APPENDIX D – TRAFFIC OPERATION ANALYSIS

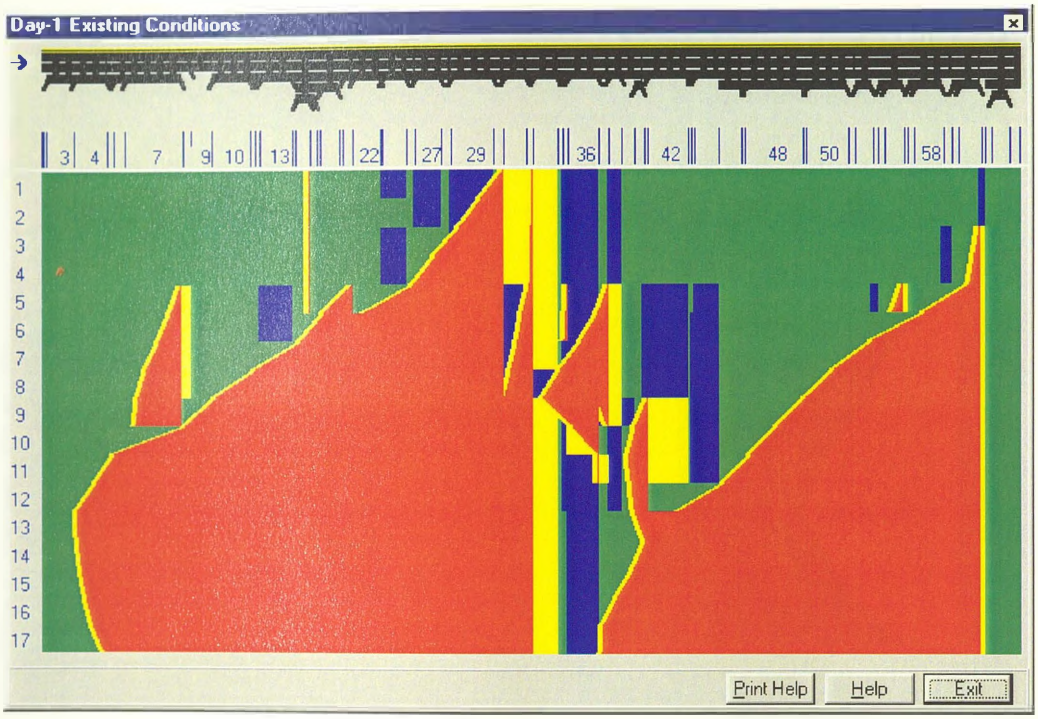
Segmentation



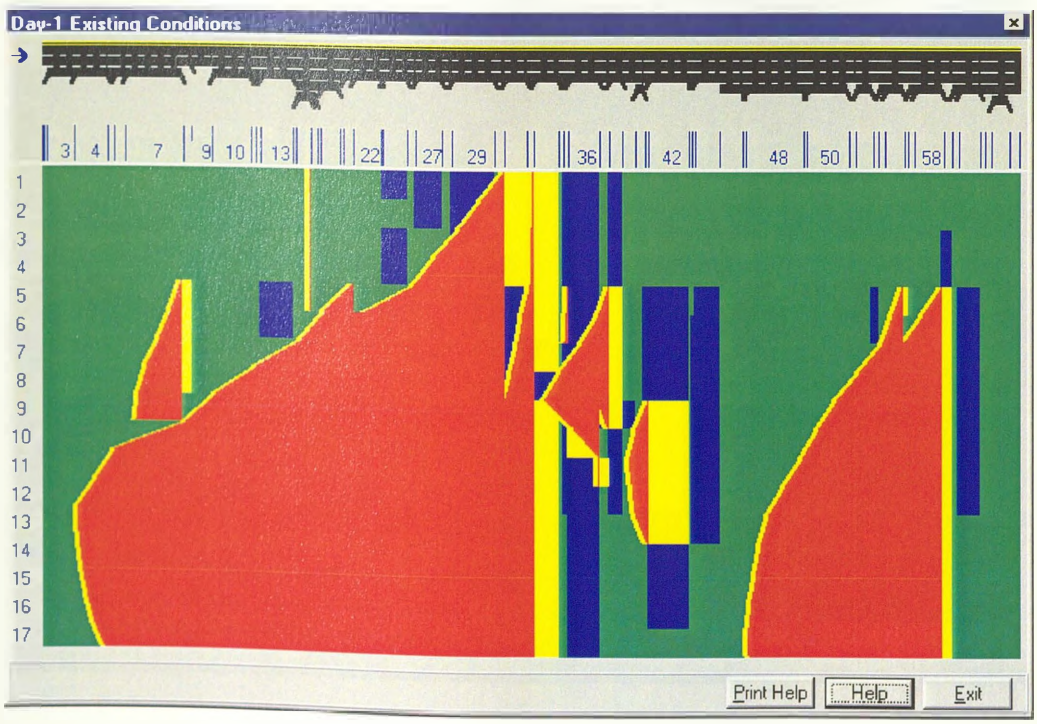
Southbound A.M Existing



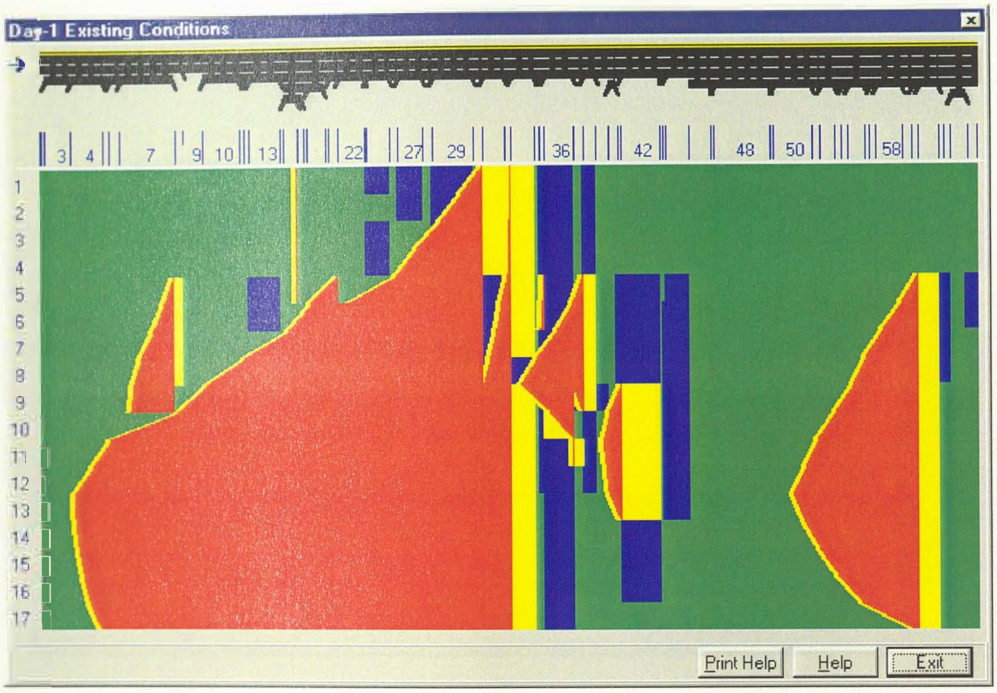
Southbound AM No Build Straight Growth



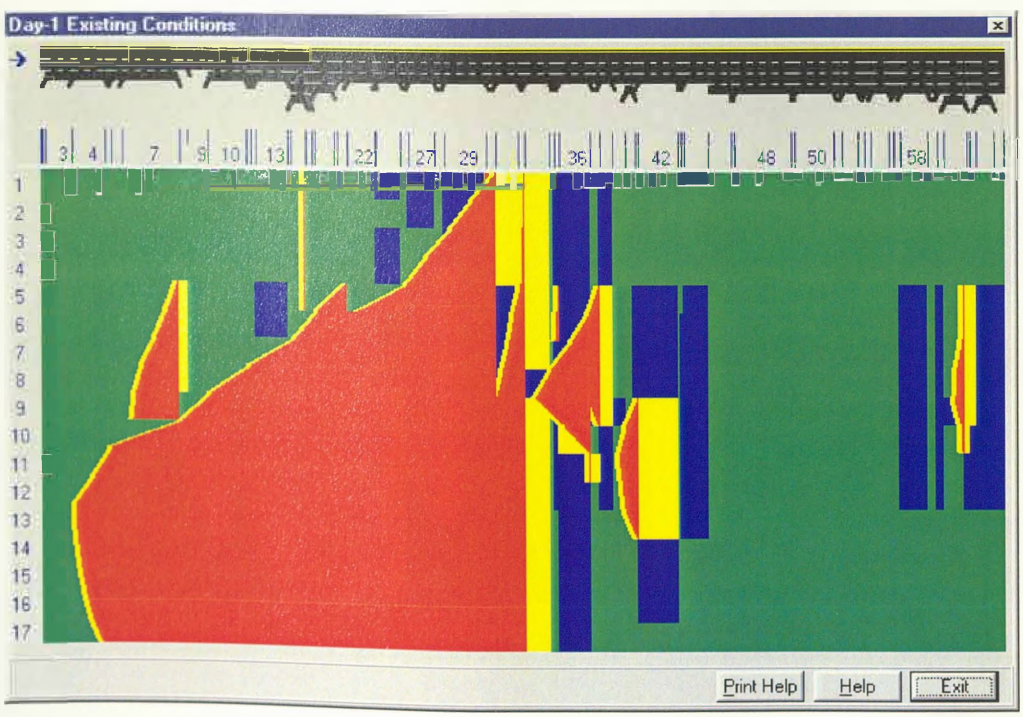
Southbound AM add 4th lane from Moorpark off to Moorpark on



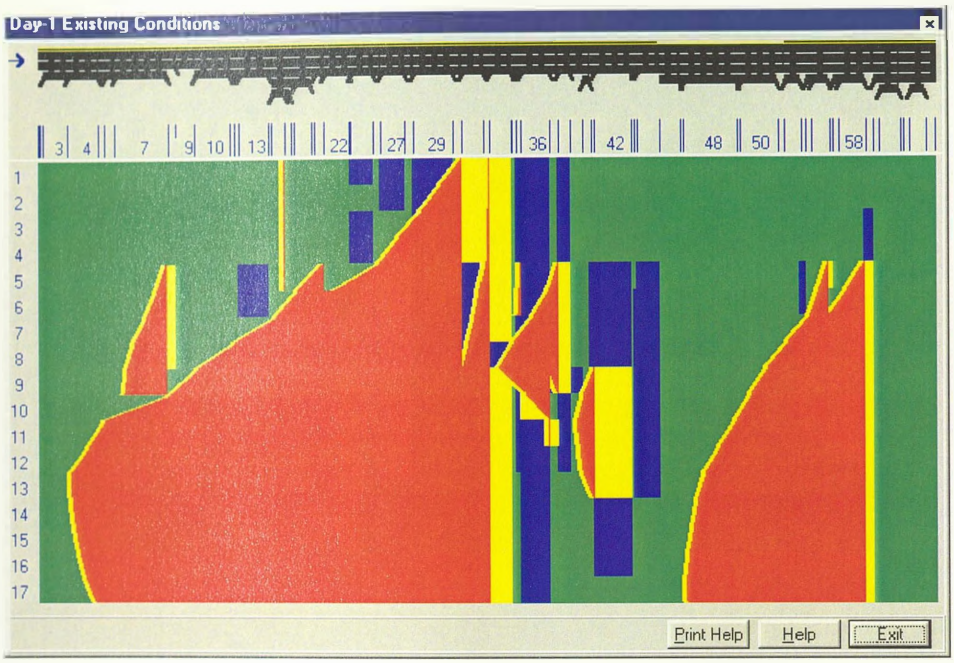
Southbound AM add 4th lane from Wendy off to Moorpark on (better)



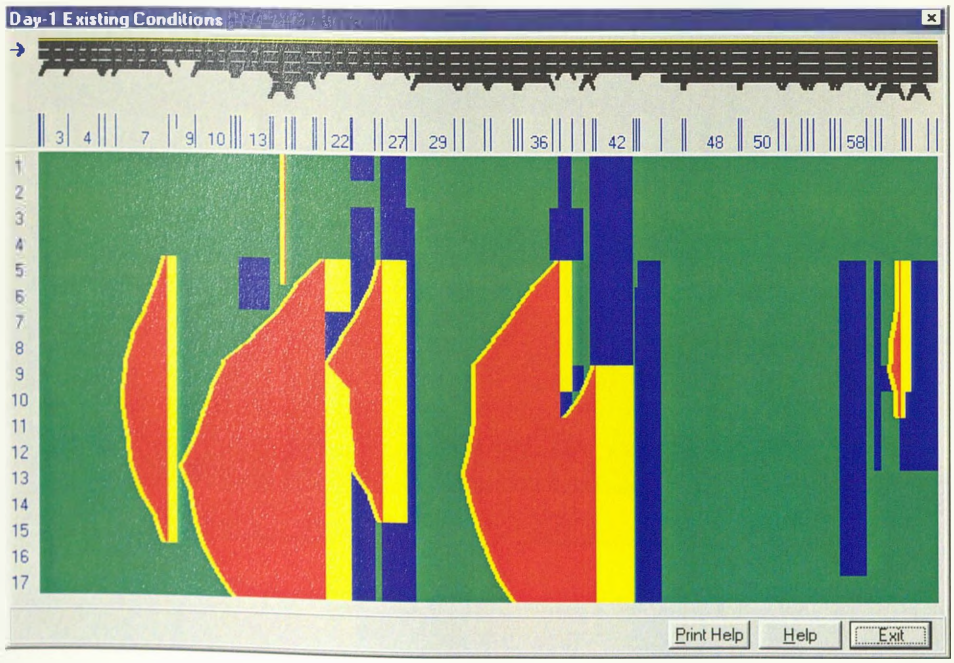
Southbound AM add 4th lane from Wendy off to Moorpark on, and aux lane Lynn to Moorpark (better yet)



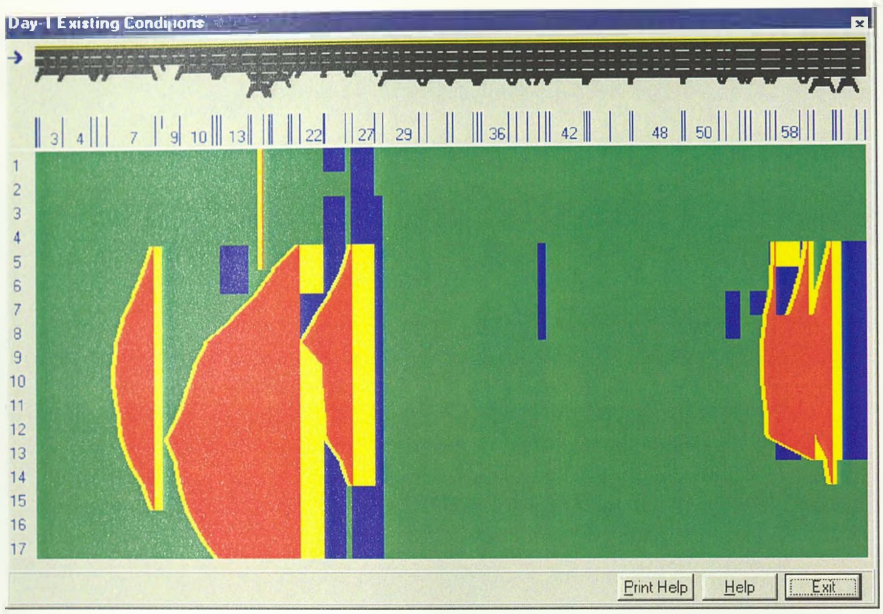
Southbound AM add aux lane Lynn to Moorpark, 4th lane Moorpark off to Moorpark on (but keep 3 lanes from Wendy to Lynn) (worse)



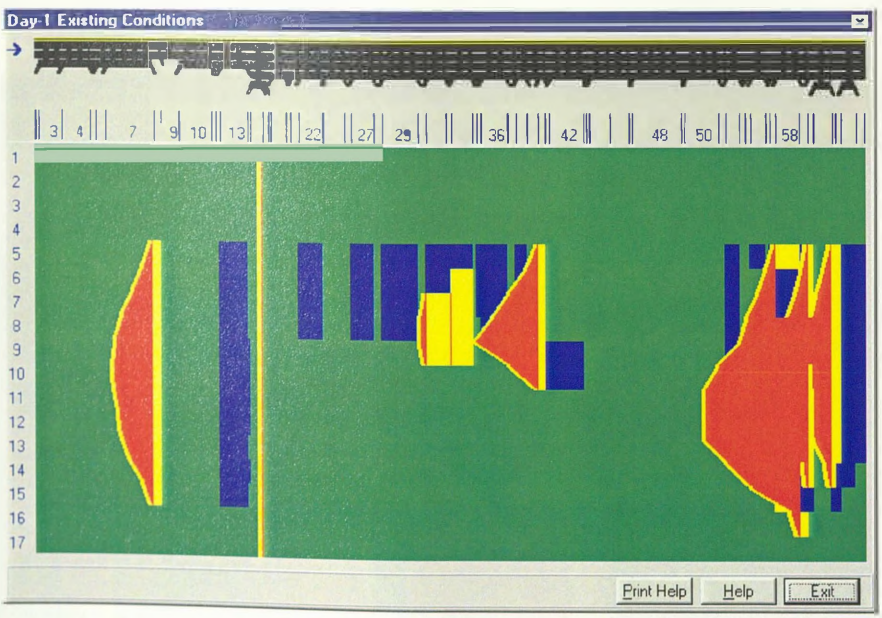
Southbound AM add 4th lane from Wendy off to Moorpark on, aux lane Lynn Moorpark, 4th lane Del Norte to Carmen



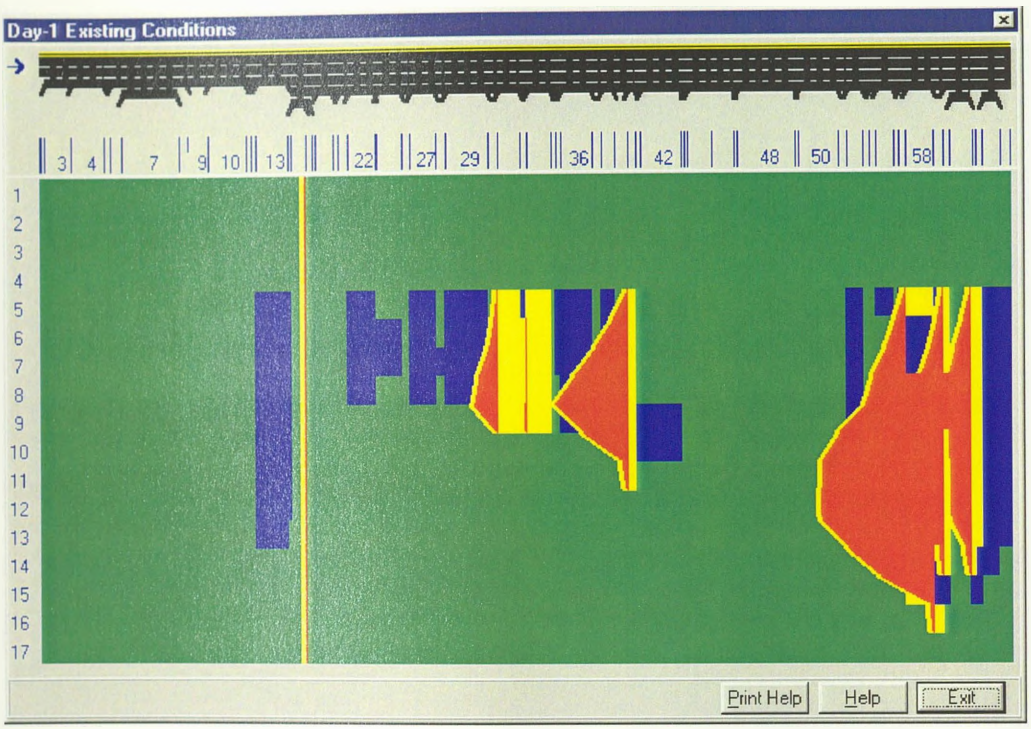
Southbound AM add 4th lane from Wendy off to Moorpark on, aux lane Lynn to Moorpark, 4th lane Del Norte to Camarillo Springs(and climbing lane)



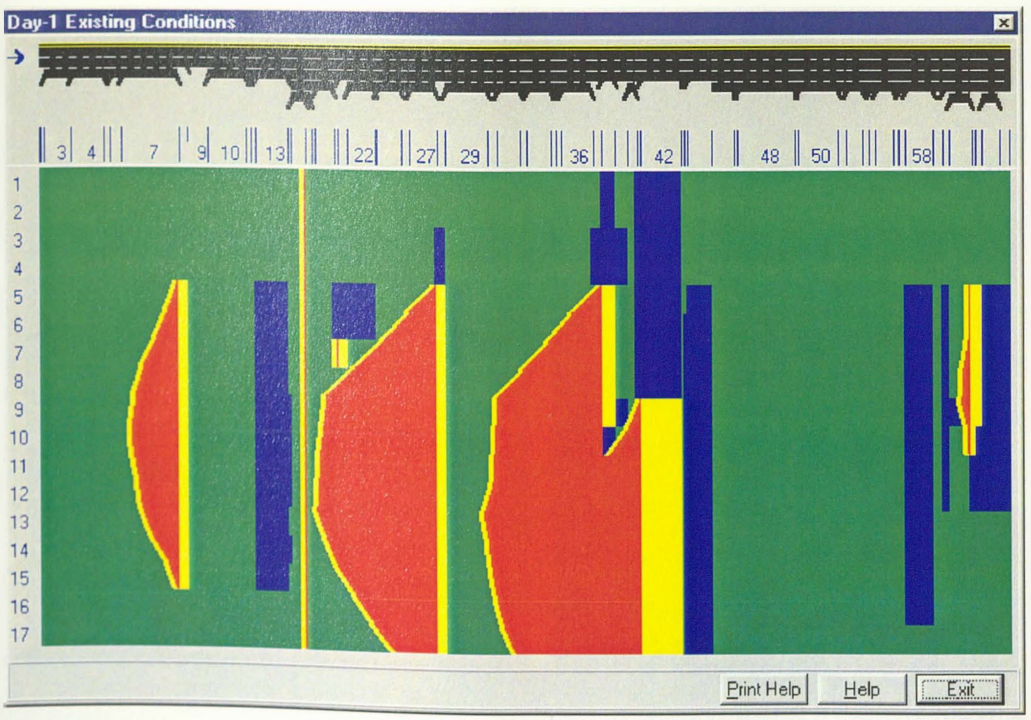
Southbound AM add 4th lane from Wendy off to Moorpark on, aux lane Lynn to Moorpark, 4th lane Vineyard to Camarillo Springs (and climbing lane)



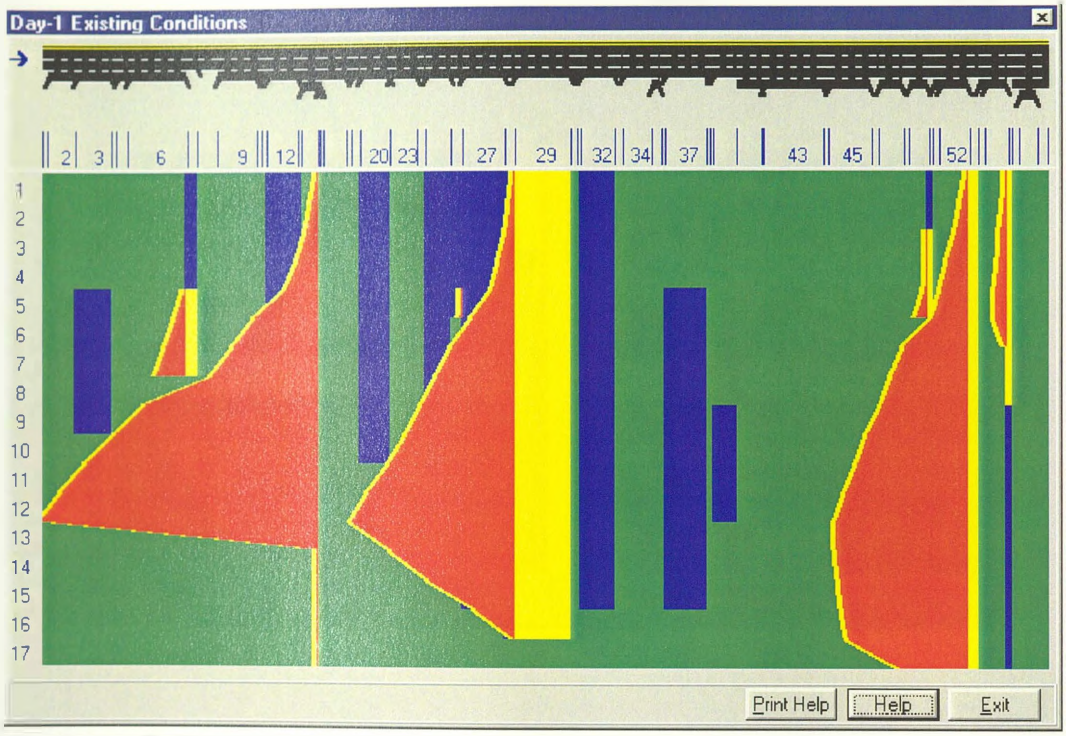
Southbound AM add 4th lane from Wendy off to Moorpark on, aux lane Lynn to Moorpark, 4th lane Vineyard to Camarillo Springs, additional lane Seaward to Telephone



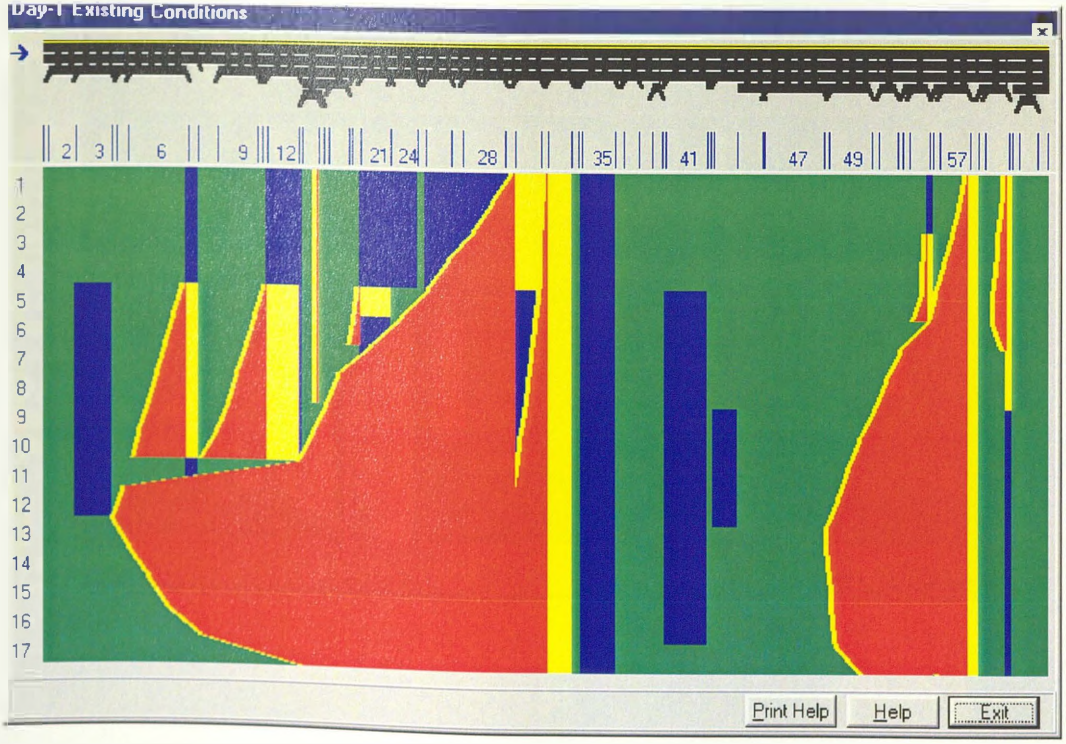
Southbound AM 4th lane Vineyard to Del Norte, Wendy to Moorpark (just to test order)



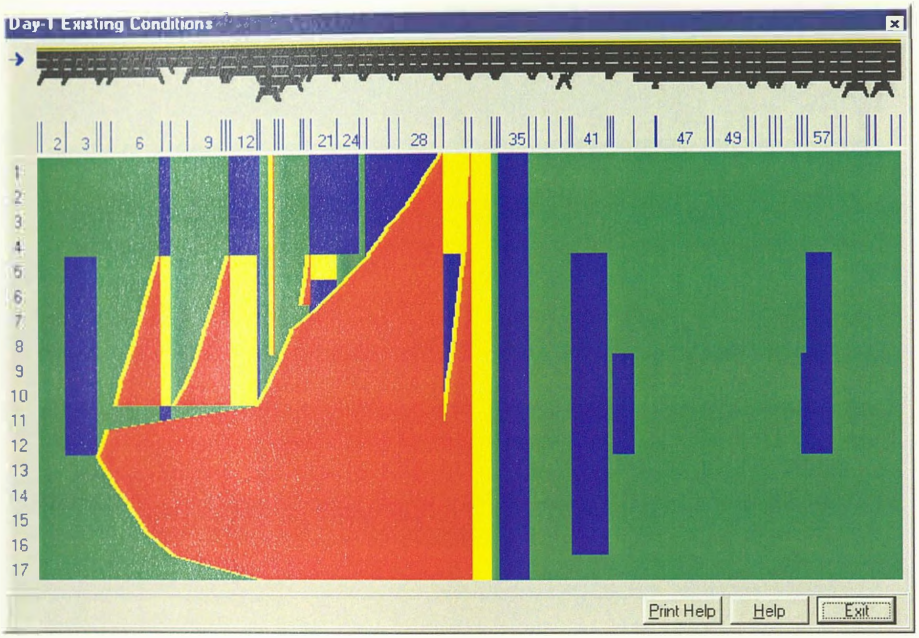
Southbound PM Existing



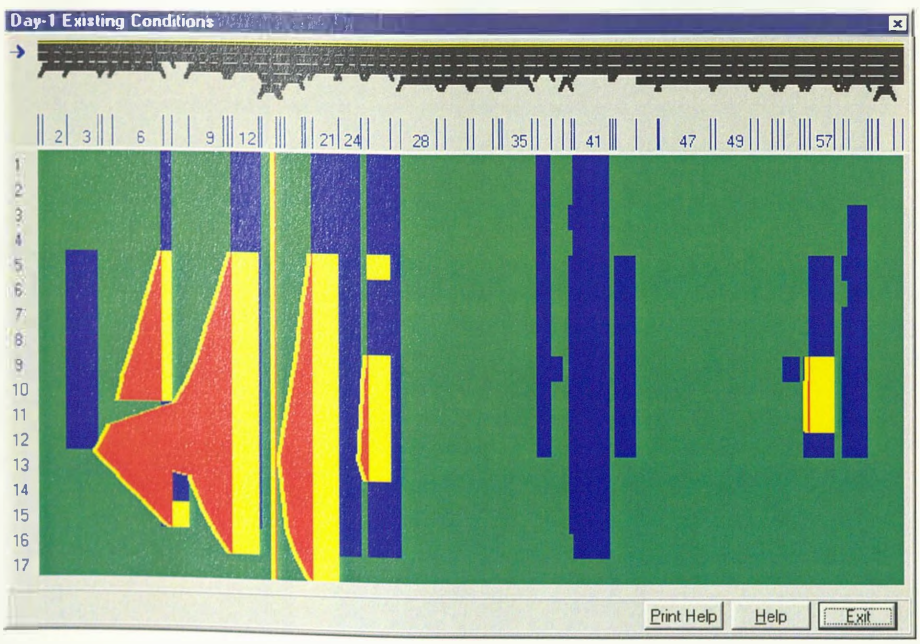
Southbound PM No Build Straight Growth



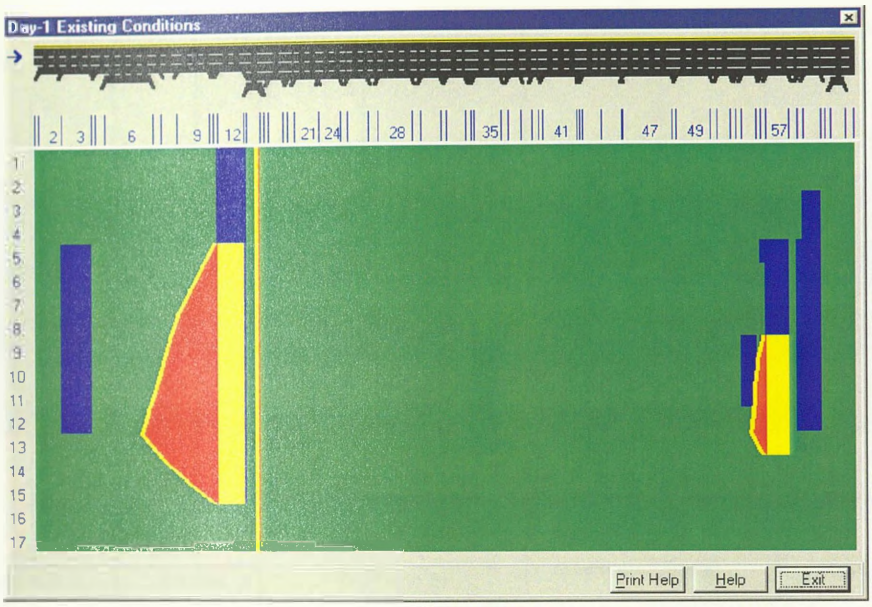
Southbound PM No Build, 4th lane Wendy off to Moorpark, aux lane Lynn to Moorpark (but same without aux lane)



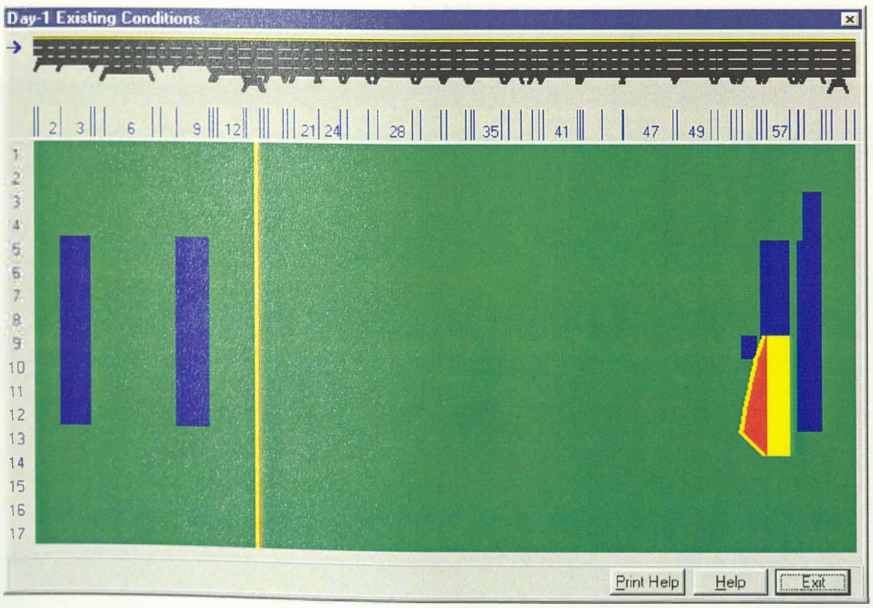
Southbound PM No Build, 4th lane Wendy off to Moorpark, aux lane Lynn to Moorpark, 4th lane Del Norte to Carmen



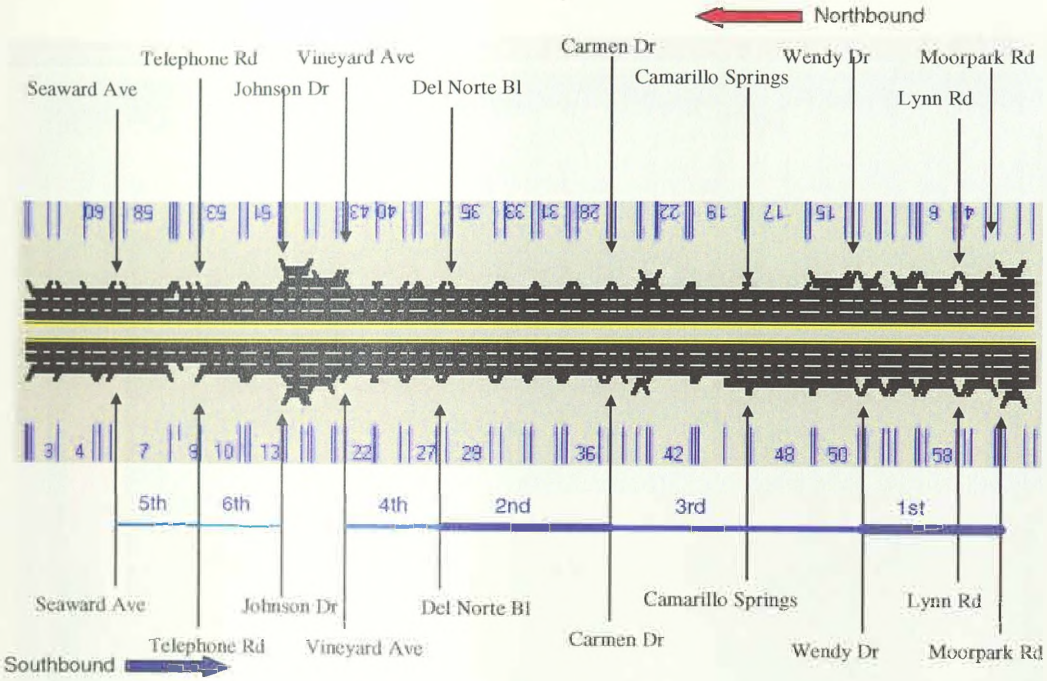
Southbound PM 4th lane Wendy off to Moorpark, 4th lane Vineyard to Cam Spgs (add climbing lane), add lane Seaward to Telephone



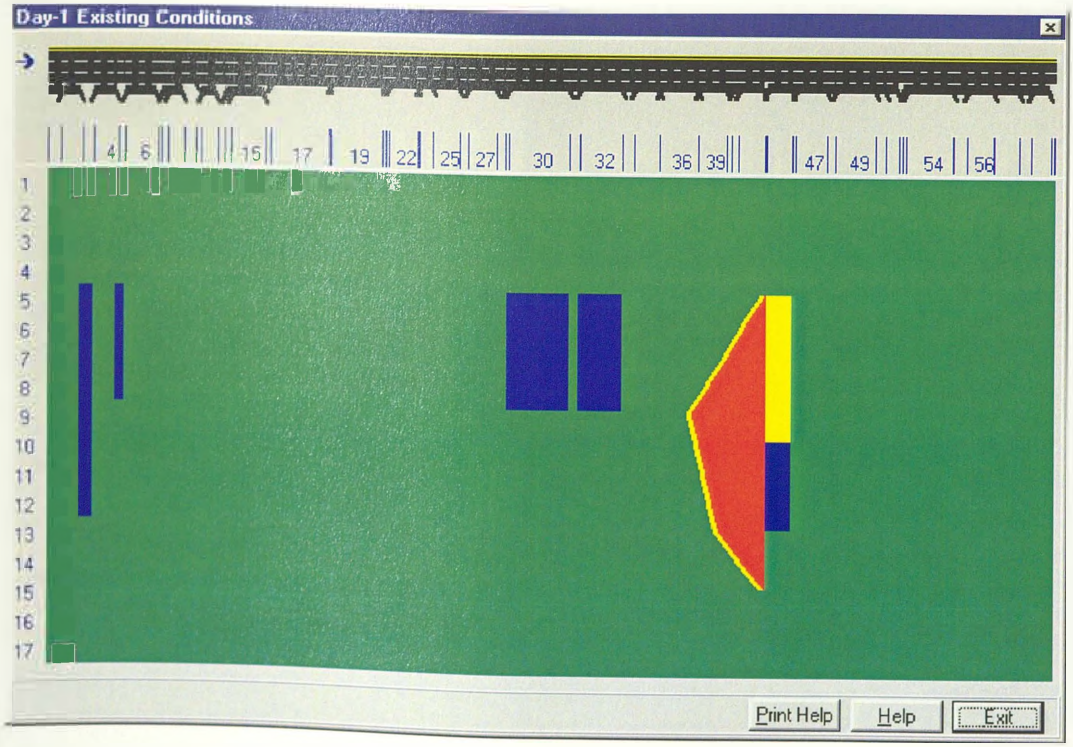
Southbound PM 4th lane Wendy off to Moorpark, 4th lane Vineyard to Cam Spgs, add lane Seaward to Telephone, 4th lane Victoria to Johnson



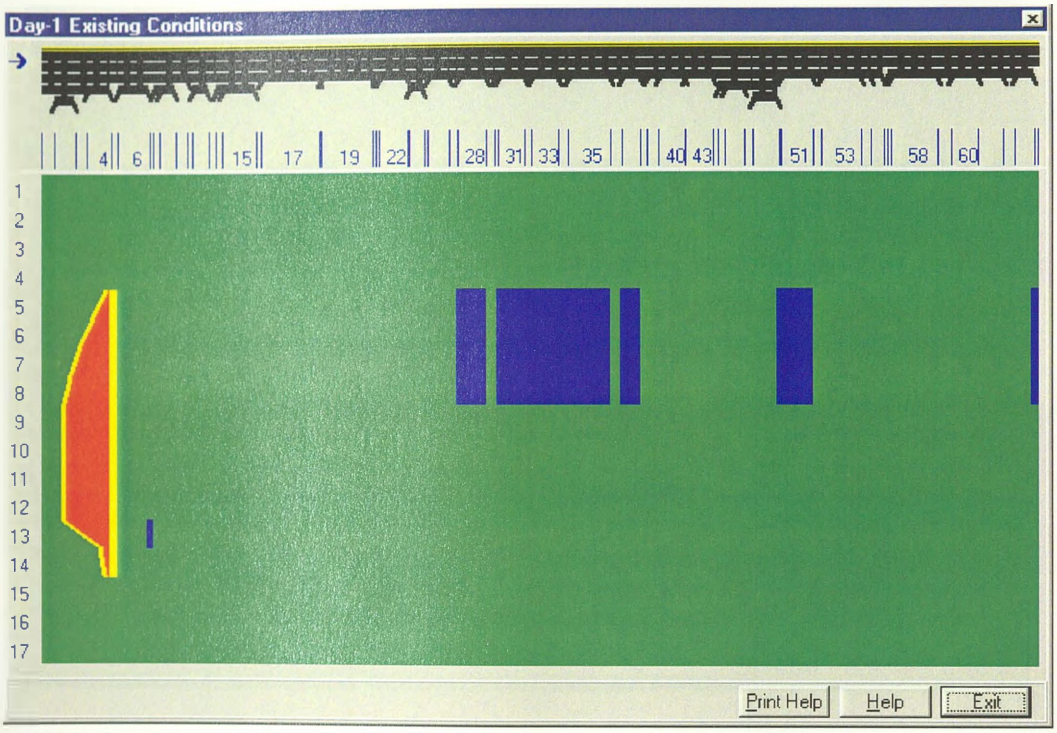
Prioritized, Favoring Southbound



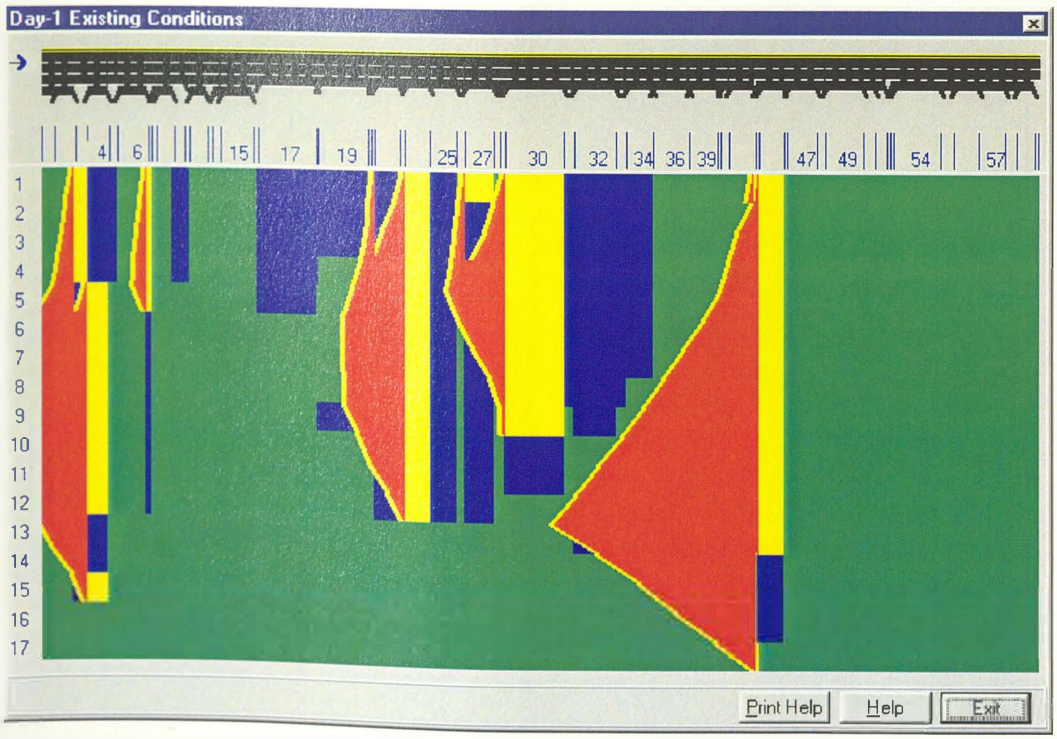
Northbound AM Existing



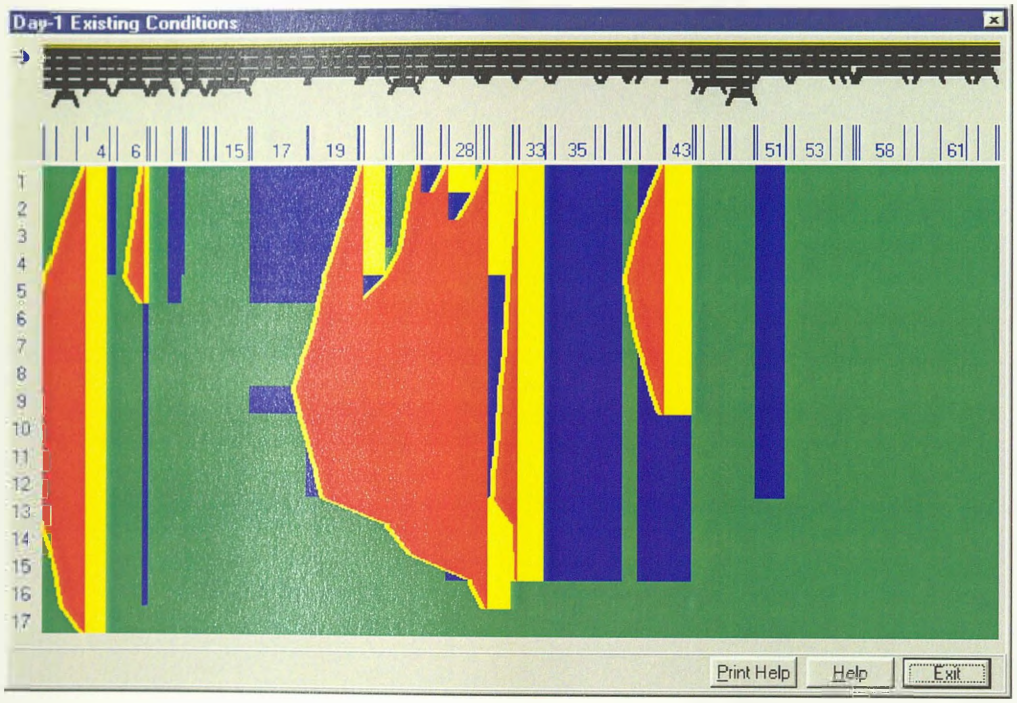
Northbound AM No Build Model



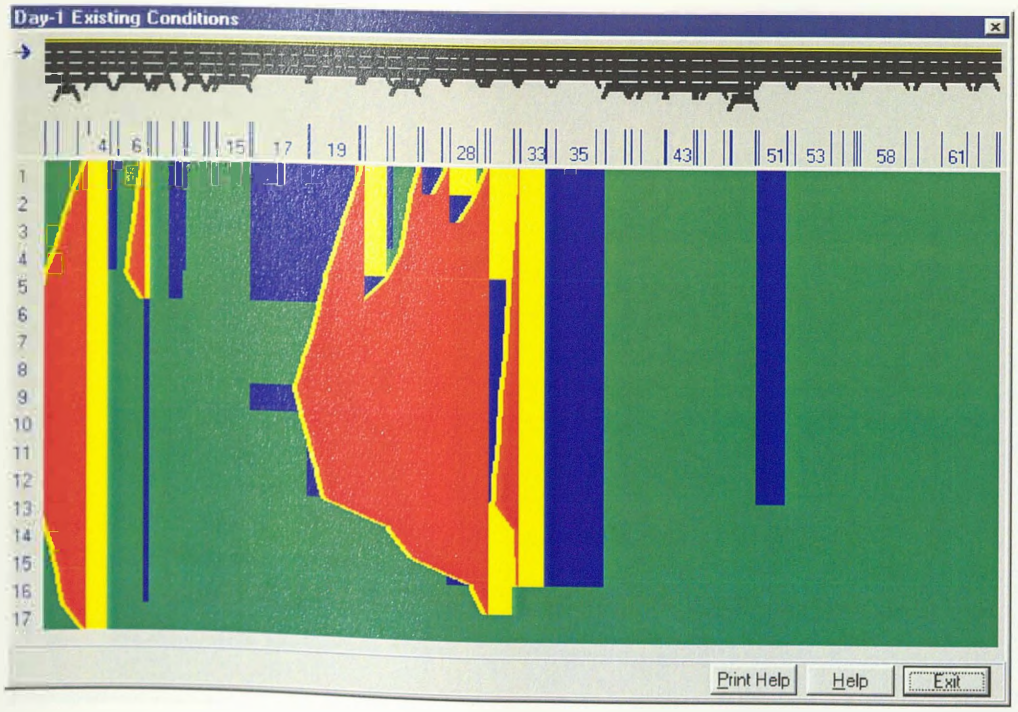
Northbound PM Existing



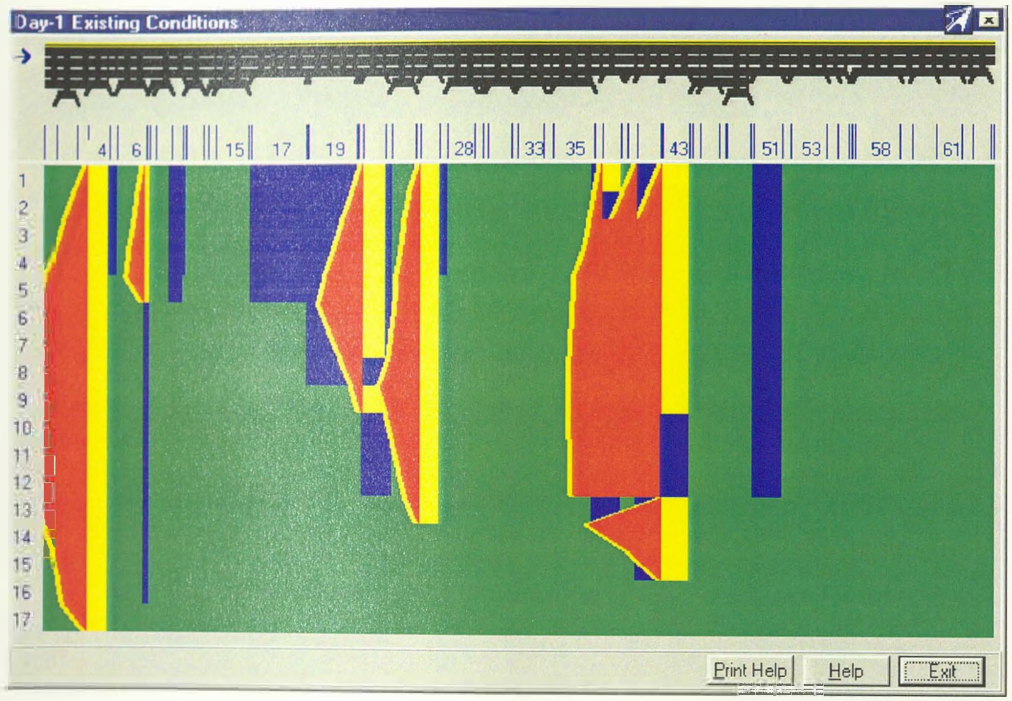
Northbound PM No Build Model



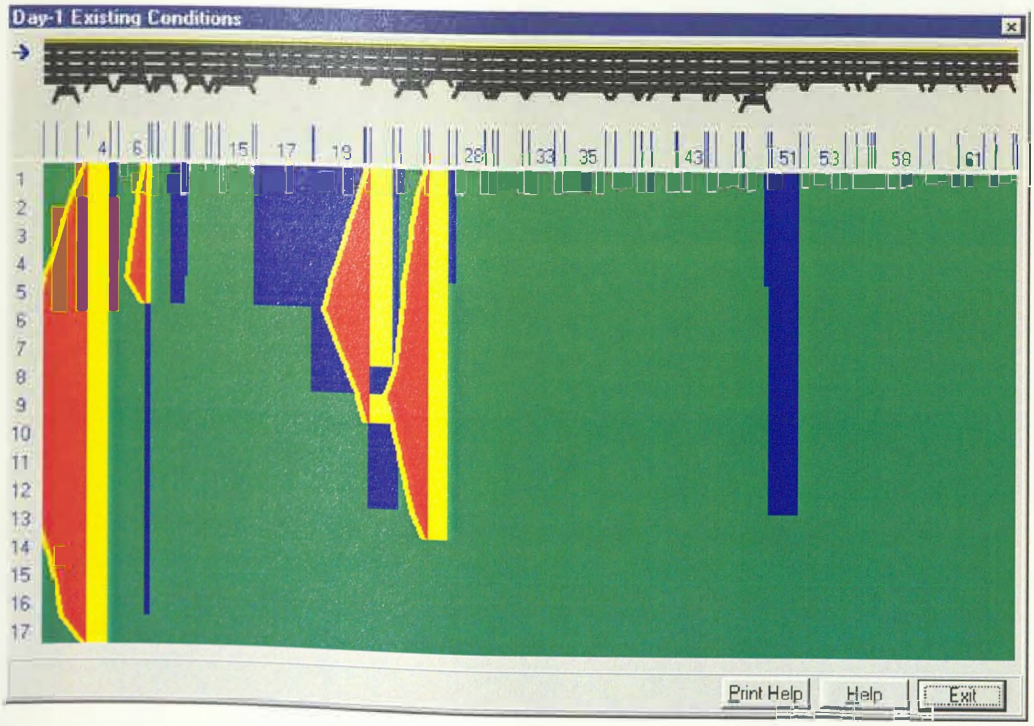
Northbound PM, 4th lane Del Norte to Vineyard



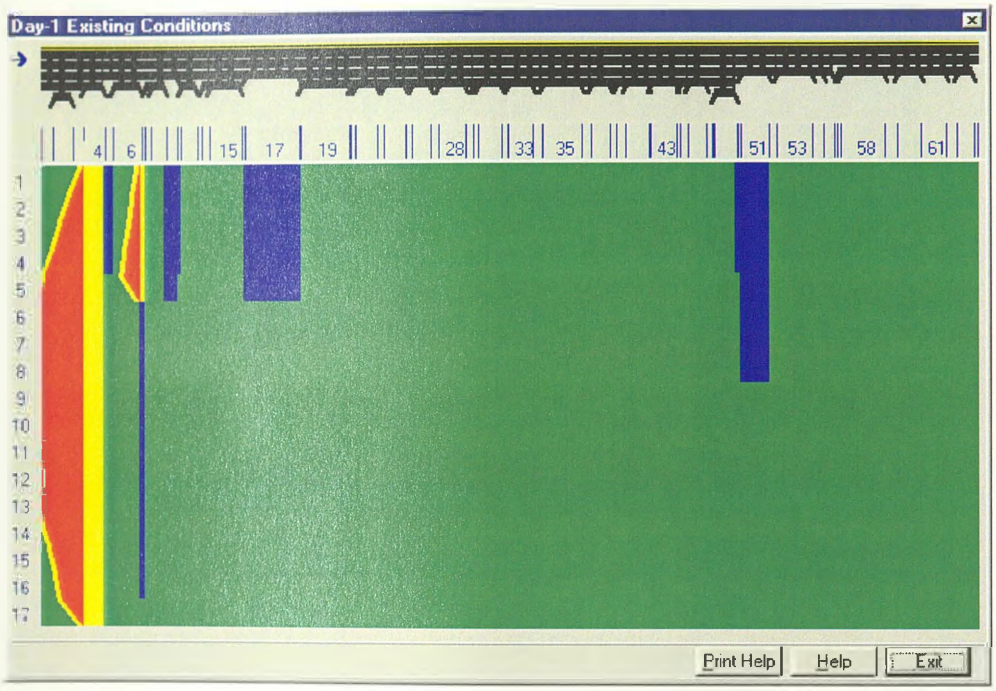
Northbound PM, 4th lane Carmen to Del Norte



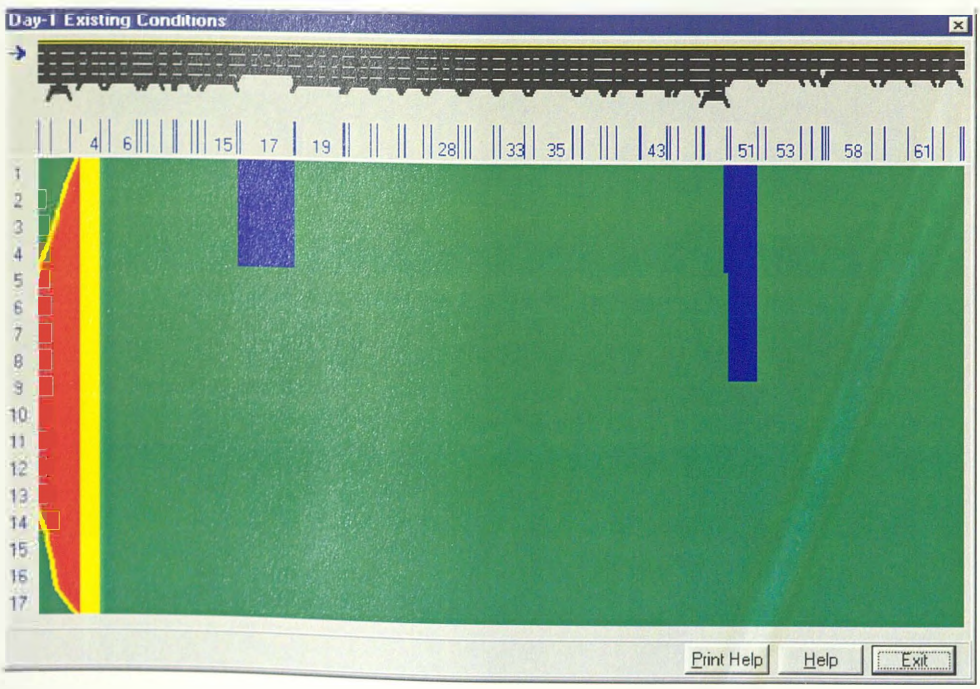
Northbound PM, 4th lane Carmen to Vineyard



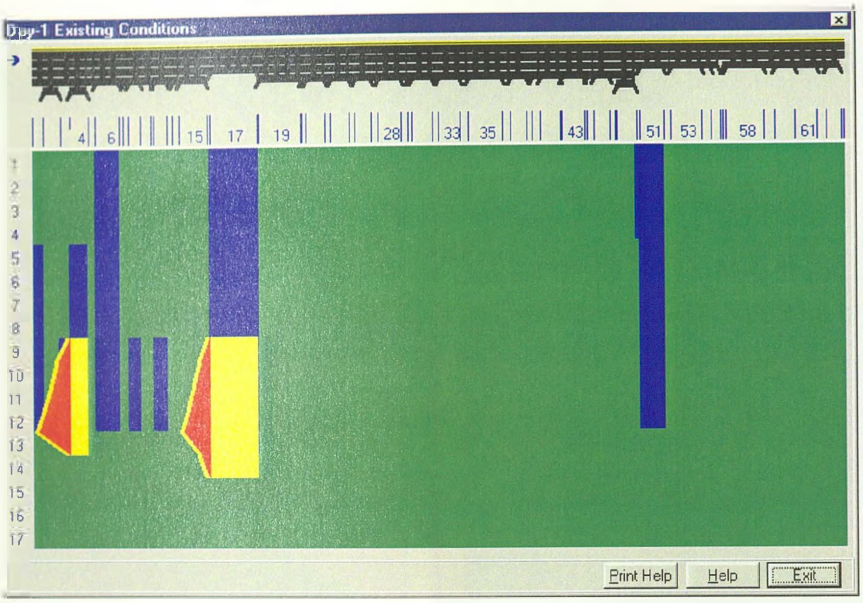
Northbound PM, 4th lane Cam Spgs to Vineyard



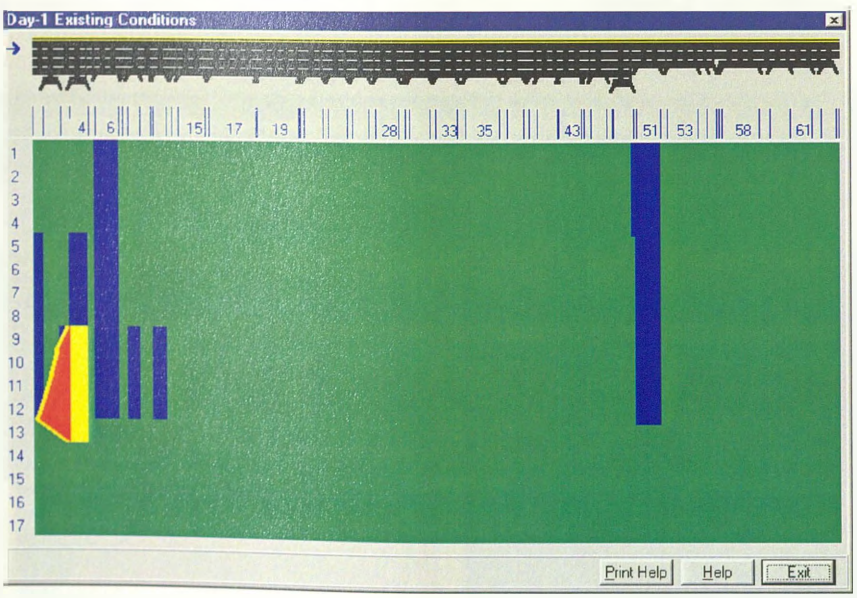
Northbound PM, 4th lane Cam Spgs to Vineyard, add 4th lane Lynn to Wendy



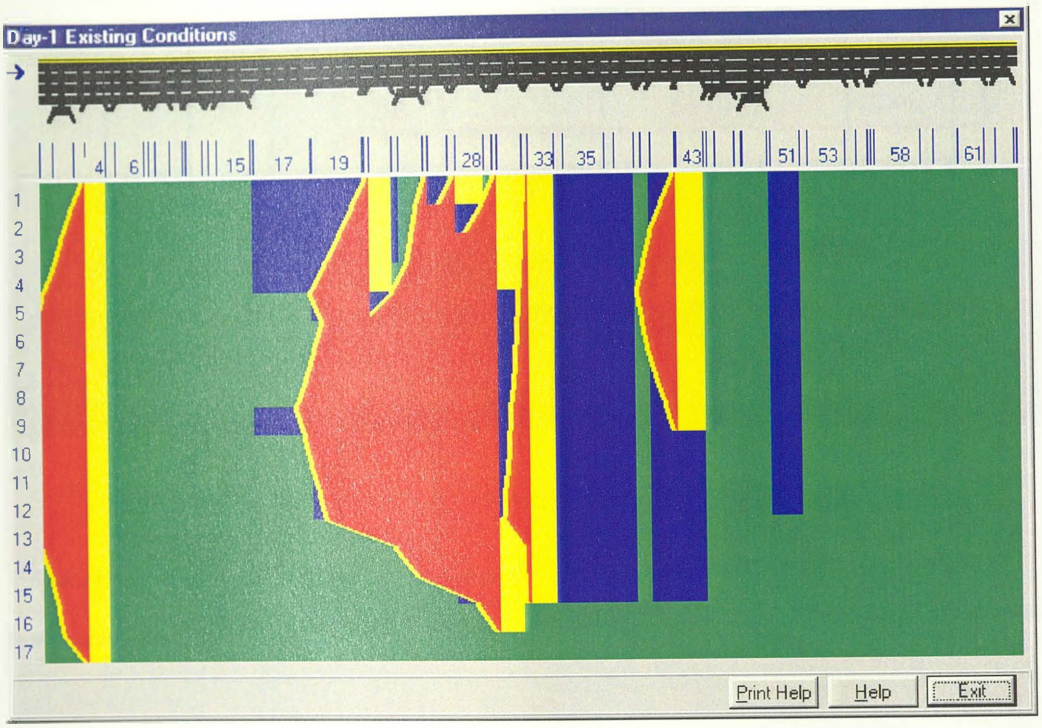
Northbound PM, 4th lane Cam Spgs to Vineyard, add 4th lane Lynn to Wendy, add aux lane Moorpark to Lynn



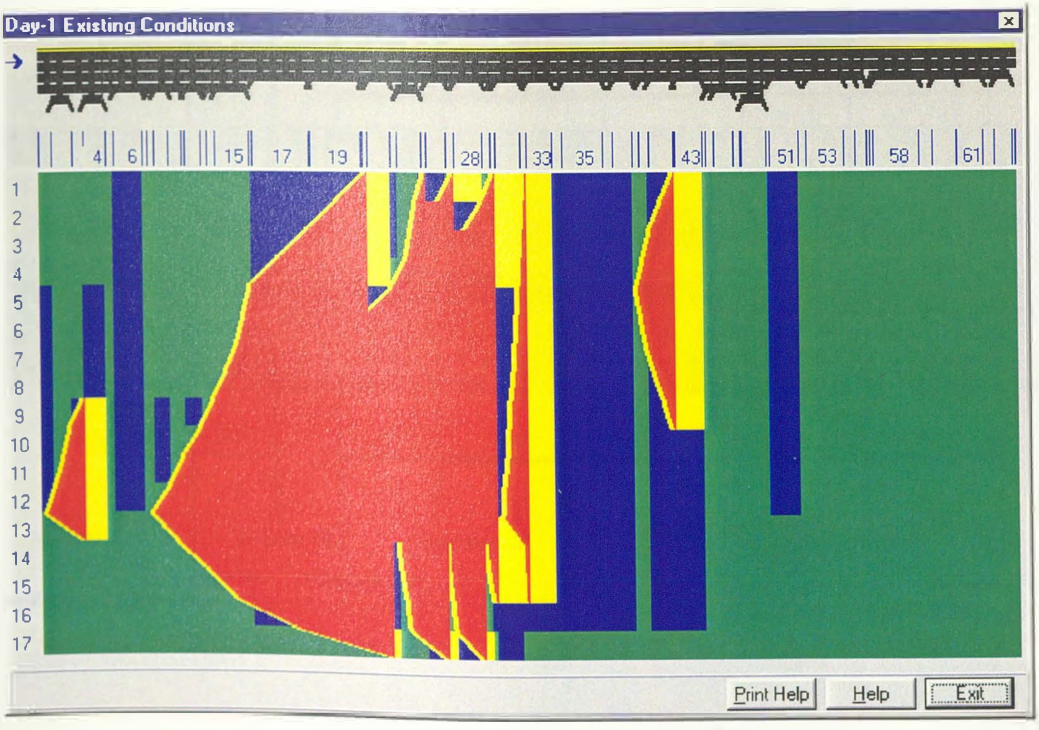
Northbound PM, 4th lane Cam Spgs to Vineyard, add 4th lane Lynn to Wendy, add aux lane Moorpark to Lynn, 4th lane down the grade



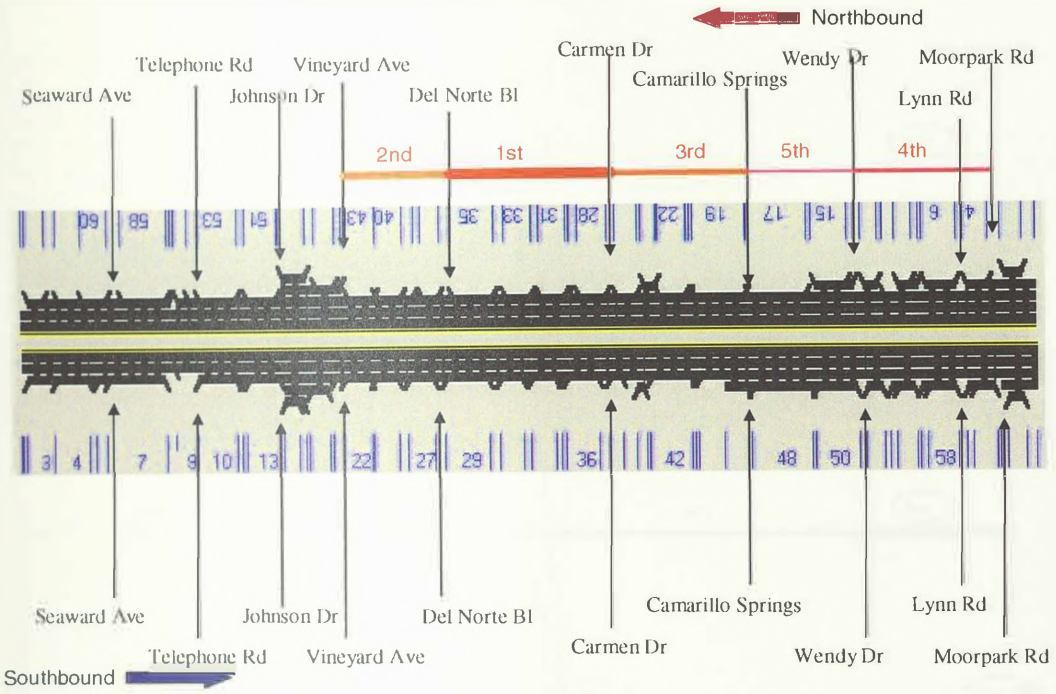
Northbound PM add 4th lane Lynn to Wendy



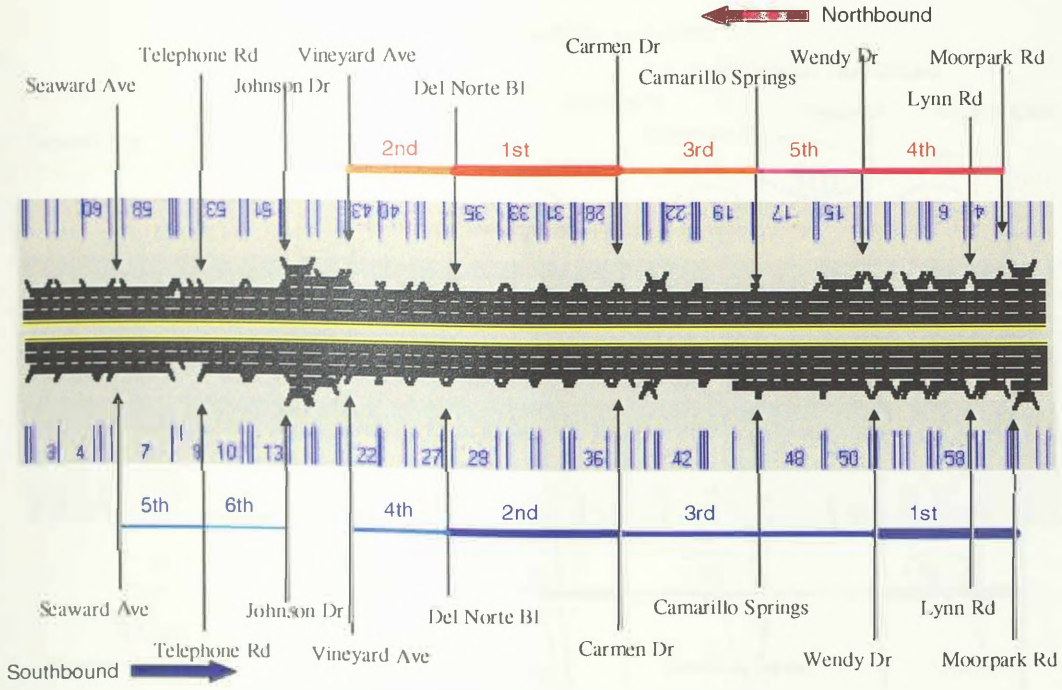
Northbound PM add 4th lane Lynn to Wendy, aux lane Moorpark to Lynn



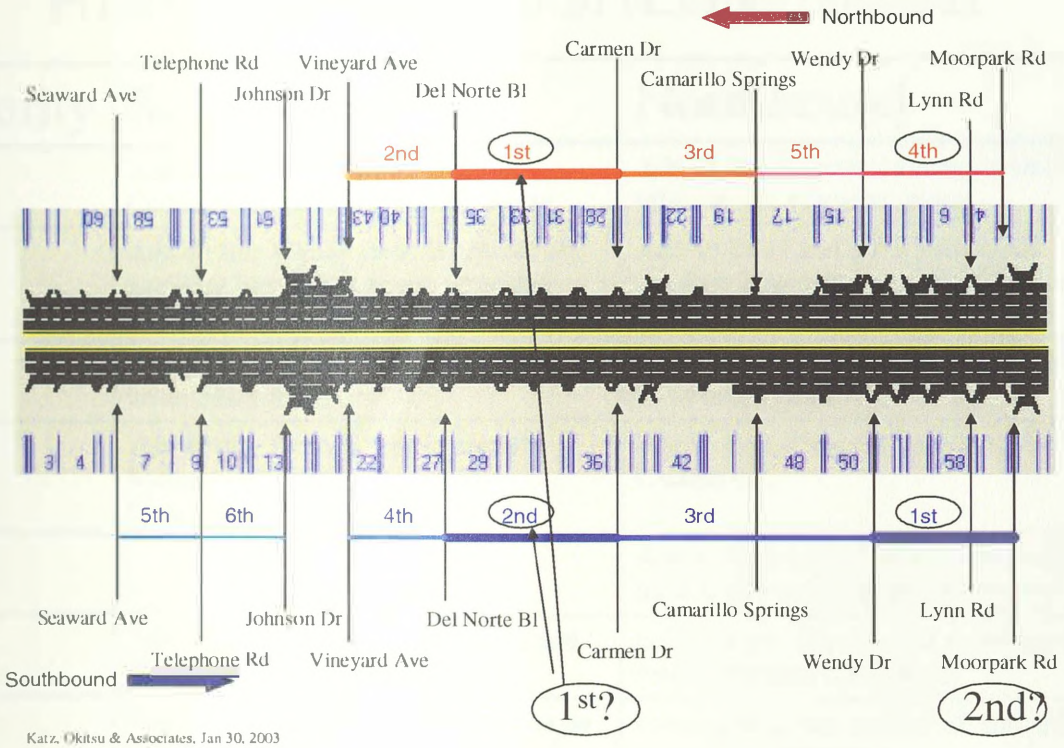
Prioritized, Favoring Northbound



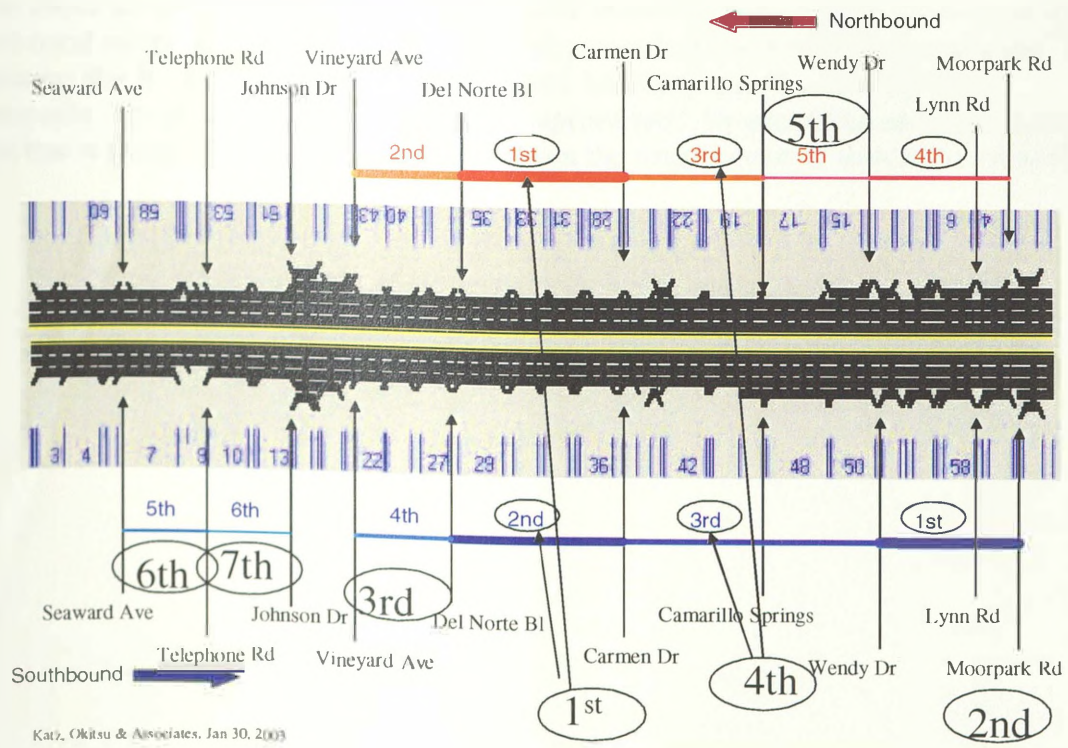
Prioritized, Assuming Directional Improvements



Prioritized, Assuming Both Directions



Prioritized, Compromise (1st thru 7th)



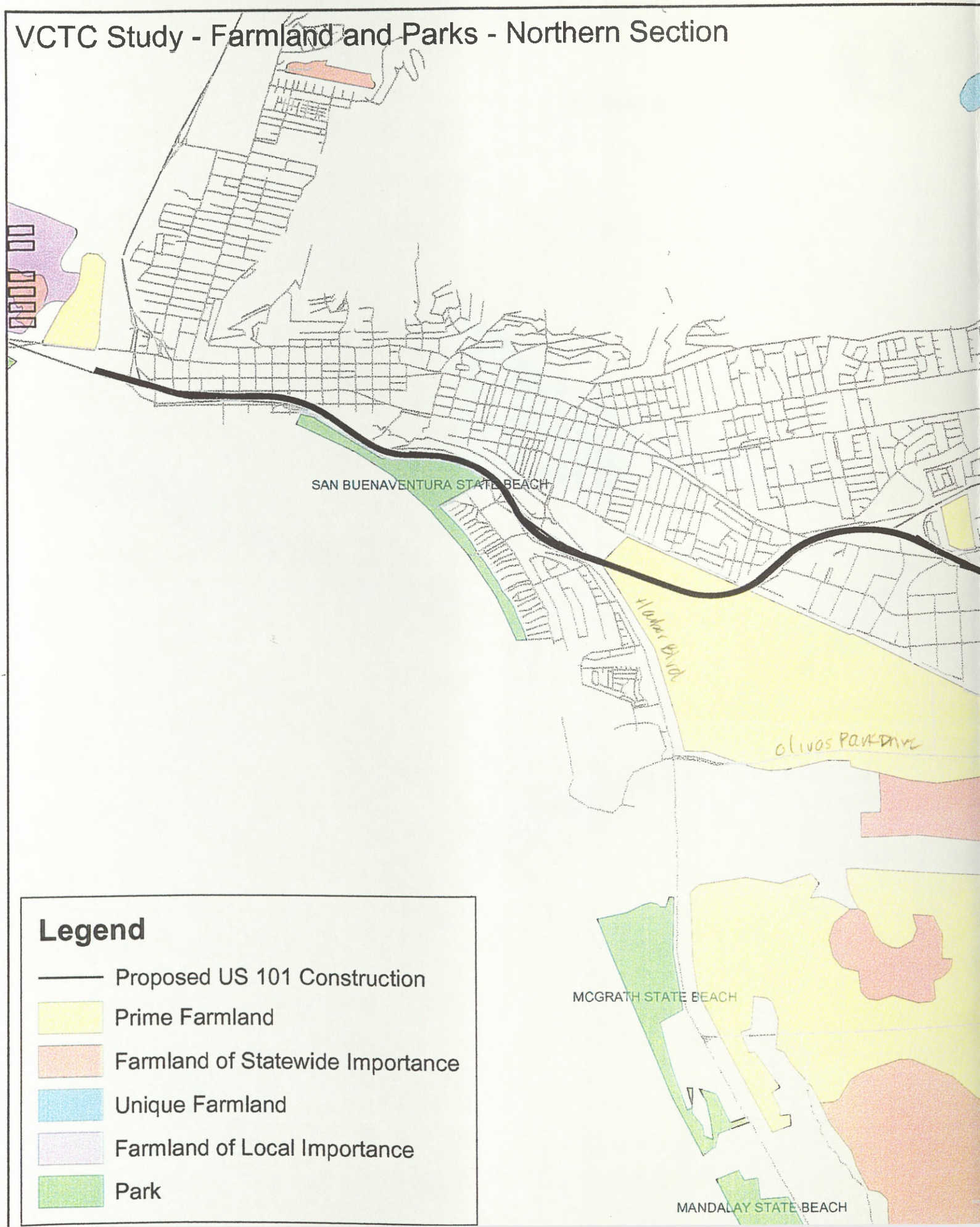
Prioritized Segmentation (Compromised)

Priority	Southbound	Northbound
1st	Add 4th lane Del Norte on-ramp to Carmen off-ramp (no auxiliary lanes)	Add 4th lane Carmen on-ramp to Del Norte off-ramp (no auxliliary lanes)
2nd	Add 4th lane Wendy on to Moorpark off, auxiliary lane only between Lynn and Moorpark	Add 4th lane Lynn off to Wendy on, auxiliary lane only between Moorpark and Lynn
3rd	Add 4th laneVineyard off to Del Norte on, no auxiliary lanes	Add 4th lane Del Norte off to Vineyard on, no auxiliary lanes
4th	Add 4th lane Carmen off to Camarillo Springs, add climbing lane from Camarillo Springs to Wendy off	Add 4th lane, Camarillo Springs on to Carmen on
5th		Add 4th lane down Conejo Grade from truck scales to Camarillo Springs on
6th	Add 4th lane Seaward on to 126 off, add 3rd lane 126 off to Telephone on	(not required, but consider additional lane from Telephone to Seaward)
7th	Add 4th lane Telephone on to Johnson on	(not required, but consider 4th lane from Johnson to Telephone)

The table above assumes that freeway improvements cannot be separated at the median, so that the northbound widening can be accomplished independent of the southbound widening. The table assumes that both northbound and southbound widening must be accomplished simultaneously. The priorization is therefore "compromised", by providing an implementation sequence that is not quite optimal, but the best given the requirement of simultaneous widening.

APPENDIX E – ENVIRONMENTAL MAPS

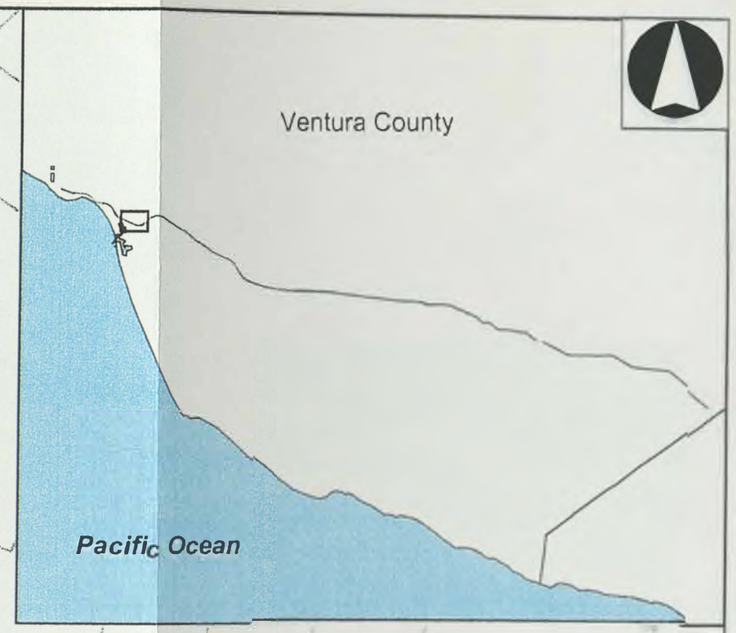
VCTC Study - Farmland and Parks - Northern Section




0
0.5
1
2
3
4
Miles

VCTC Study - Farmland and Parks - Eastern Section

Rancho Dr
Dos Caminos Ave
Valmore Ave
Peninsula St
Lemon Grove Ave



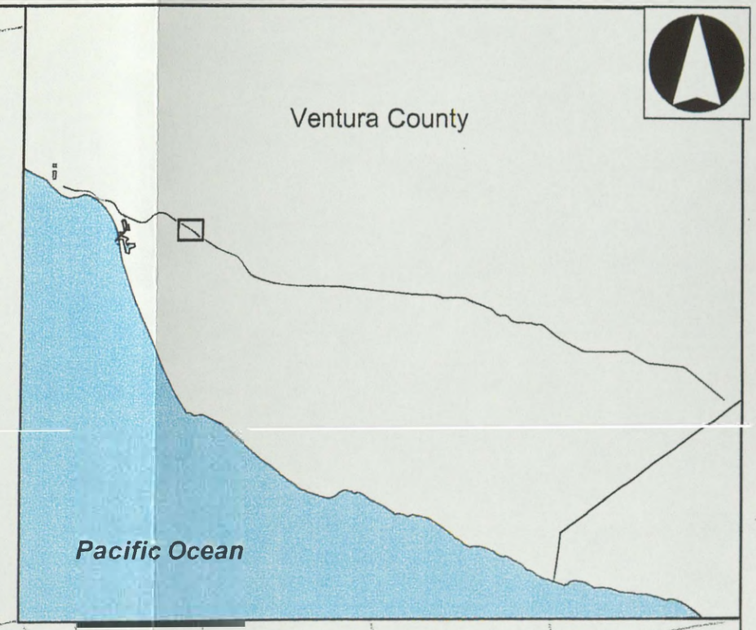
Legend

- Proposed US 101 Construction
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Park

Approximate total length of roadway through prime farmland:
0.8 miles (~4200 feet)

0 0.05 0.1 0.2 0.3 0.4 Miles

VCTC Study - Farmland and Parks - Eastern Section



Saratoga Ave

Victoria Ave

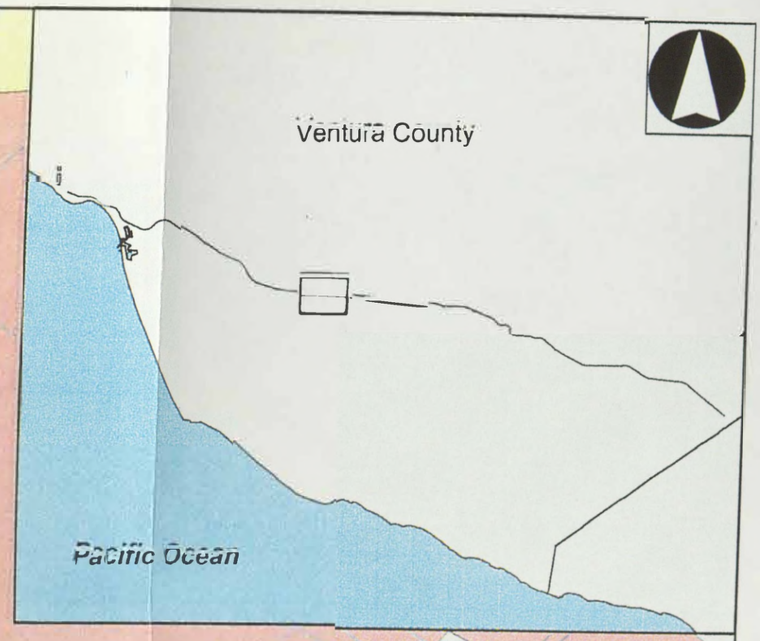
Approximate total length of roadway through prime farmland:
0.27 miles (~1440 feet)

Legend

- Proposed US 101 Construction
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Park

0 0.05 0.1 0.2 0.3 0.4 Miles

VCTC Study - Farmland and Parks



Central Ave

Friedrich Rd

Del Norte Blvd

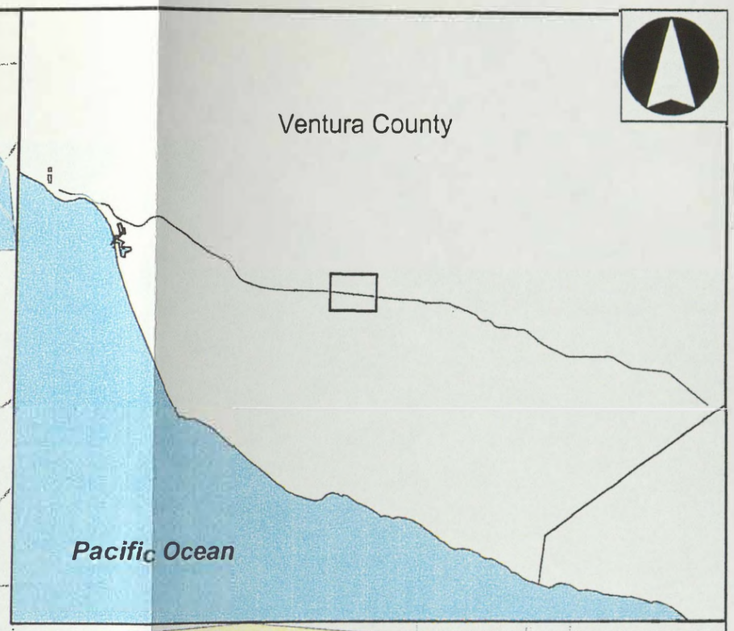
Approximate total length of roadway through farmland of statewide importance:
1 mile (5280 feet)

Legend

- Proposed US 101 Construction
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Park

0 0.125 0.25 0.5 0.75 1 Miles

VCTC Study - Farmland and Parks



Ponderosa Dr

Bajo Aqua Ave

Las Posas Rd

Legend

- Proposed US 101 Construction
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Park

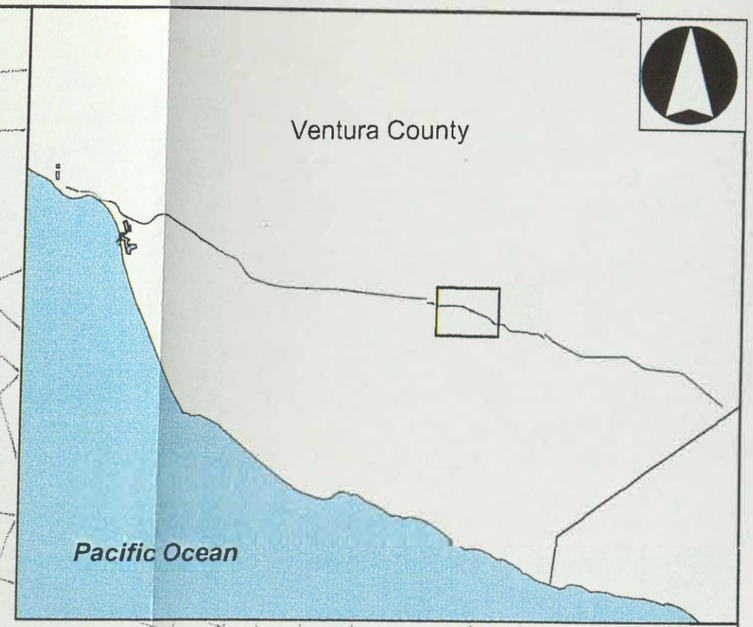
Approximate total length of roadway through farmland of statewide importance:
1.25 miles (~6600 feet)

Approximate total length of roadway through prime farmland:
0.21 mile (~1100 feet)

Approximate total length of roadway through unique farmland:
0.17 mile (~900 feet)

0 0.125 0.25 0.5 0.75 1 Miles

VCTC Study - Farmland and Parks



PV Road 2

Legend

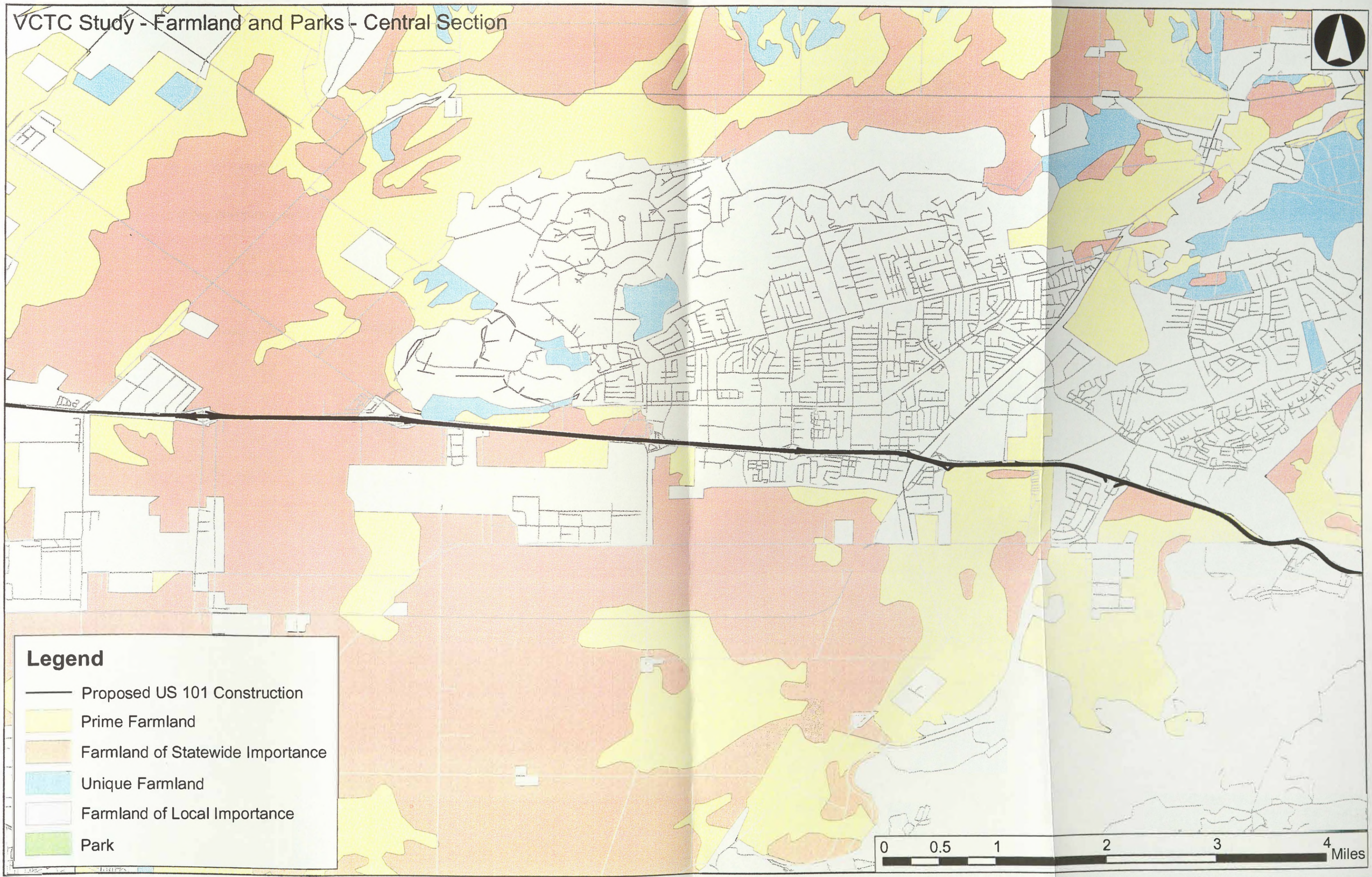
- Proposed US 101 Construction
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Park

Approximate total length of roadway through farmland of statewide importance:
0.53 miles (~2800 feet)

Approximate total length of roadway through prime farmland:
1.45 mile (~7700 feet)

0 0.125 0.25 0.5 0.75 1 Miles

VCTC Study - Farmland and Parks - Central Section

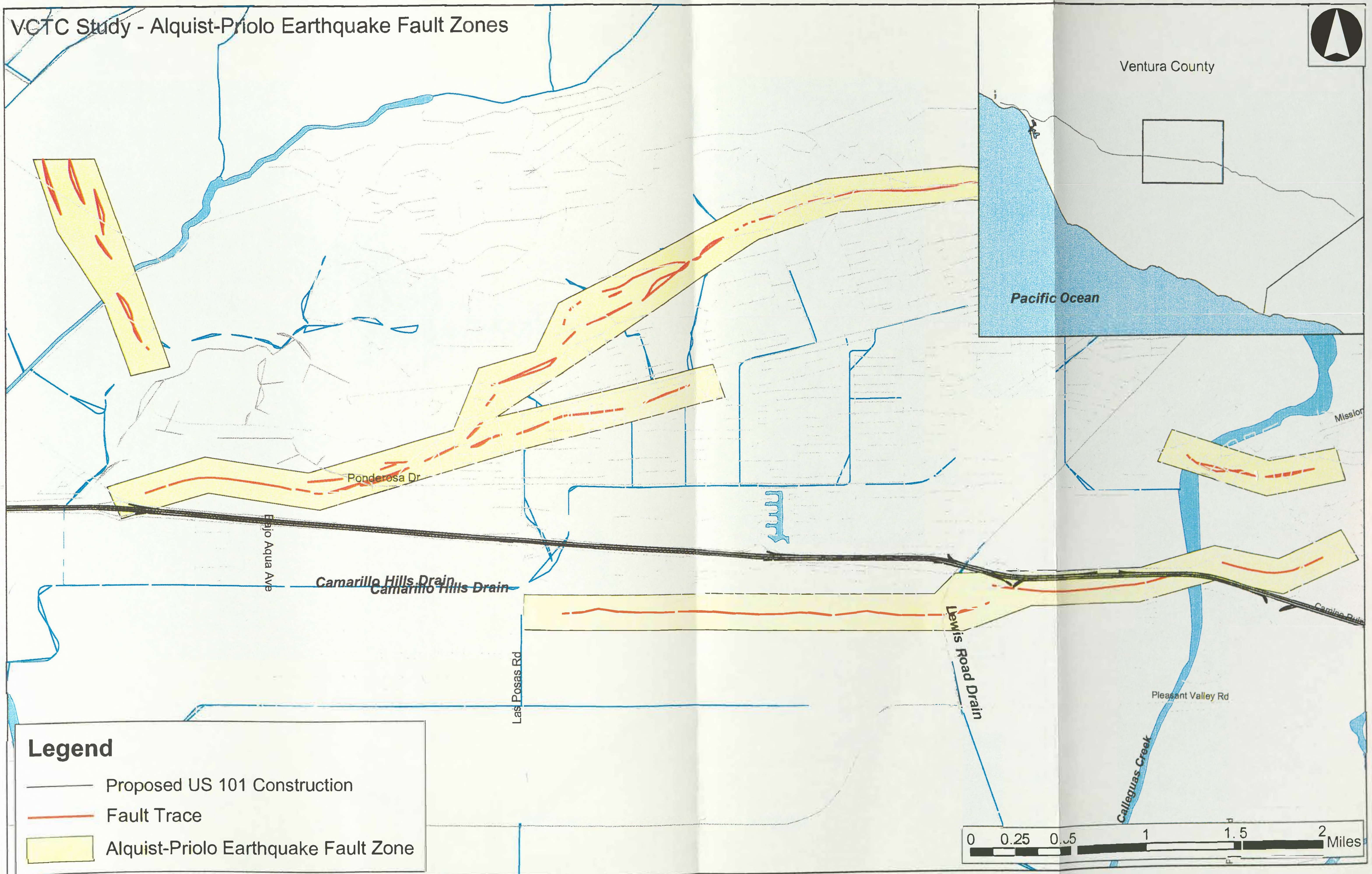


VCTC Study - Farmland and Parks - Eastern Section

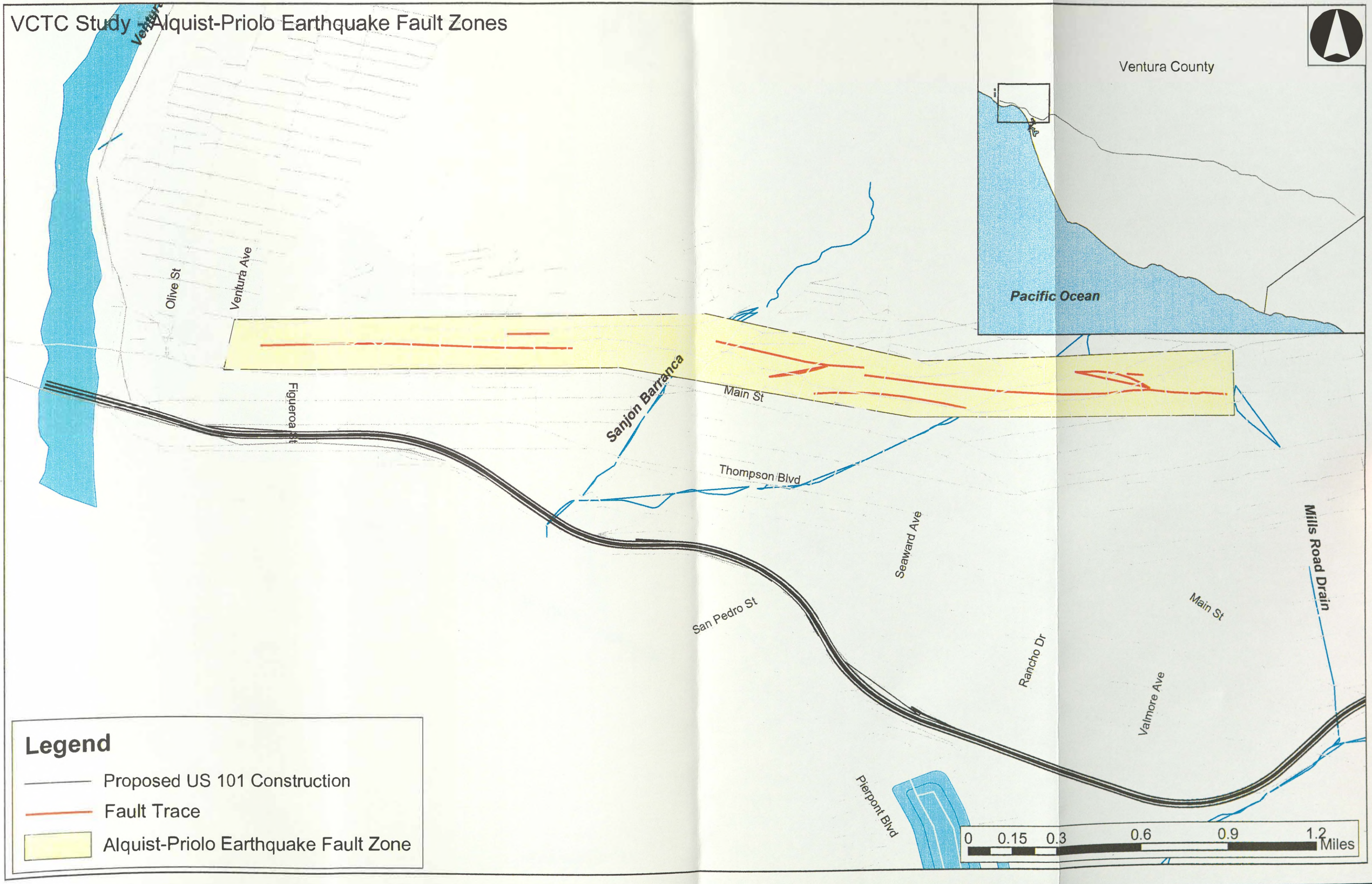
Legend

- Proposed US 101 Construction
- Prime Farmland
- Farmland of Statewide Importance
- Unique Farmland
- Farmland of Local Importance
- Park

0 0.5 1 2 3 4 Miles


VCTC Study - Alquist-Priolo Earthquake Fault Zones
Ventura County
Pacific Ocean
Ponderosa Dr
Barajo Aqua Ave
Camarillo Hills Drain
Camarillo Hills Drain
Las Posas Rd
Lewis Road Drain
Pleasant Valley Rd
Calleguas Creek
Mission
Legend
Proposed US 101 Construction
Fault Trace
Alquist-Priolo Earthquake Fault Zone
0 0.25 0.5 1 1.5 2 Miles

VCTC Study - Alquist-Priolo Earthquake Fault Zones



Legend

- Proposed US 101 Construction
- Fault Trace
- Alquist-Priolo Earthquake Fault Zone

VCTC Study - Water Features

Ventura River
Olive St
Ventura Ave
Figueroa St
Sanjon Barranca
Main St
Thompson Blvd
Seaward Ave
San Pedro St
Rancho Dr
Main St
Valmore Ave
Mills Road Drain
Barlow Barranca
Arundell Barranca
Telephone Road Drain
Portola Rd
Saratoga Ave
Pierpont Blvd
Beachmont St

Ventura County
Pacific Ocean

Legend

- Proposed US 101 Construction
- Streams
- Lakes/Rivers
- 100-yr flood hazard
- 100-yr flood contained in channel <3m wide

0 0.25 0.5 1 1.5 2 Miles

VCTC Study - Water Features

Telephone Road Drain

Portola Rd

Saratoga Ave

Victoria Ave

Santa Clara River

Ventura County

Pacific Ocean

Friedrich Rd

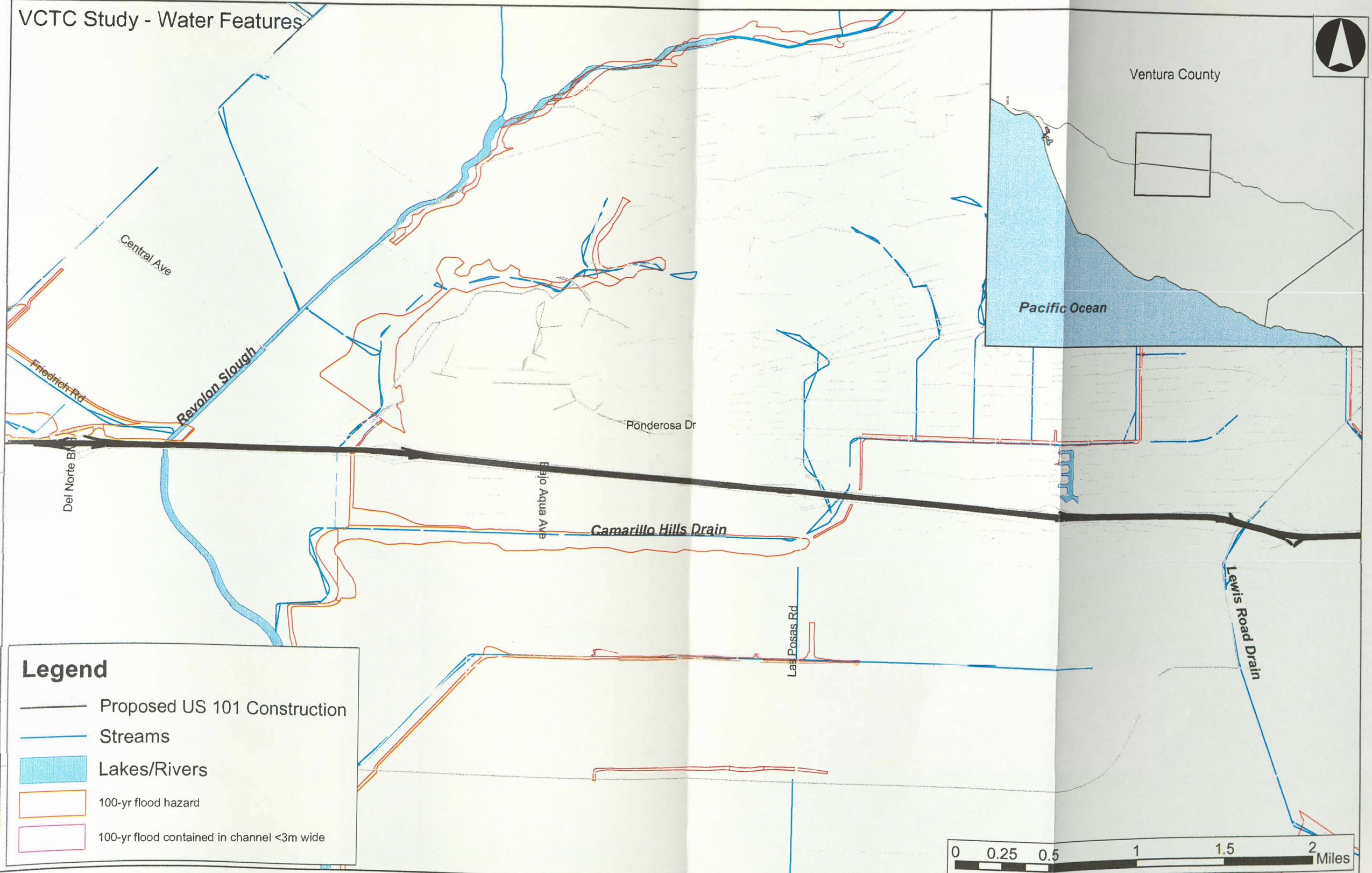
Del Norte Blvd

Legend

- Proposed US 101 Construction
- Streams
- Lakes/Rivers
- 100-yr flood hazard
- 100-yr flood contained in channel <3m wide

0 0.25 0.5 1 1.5 2 Miles

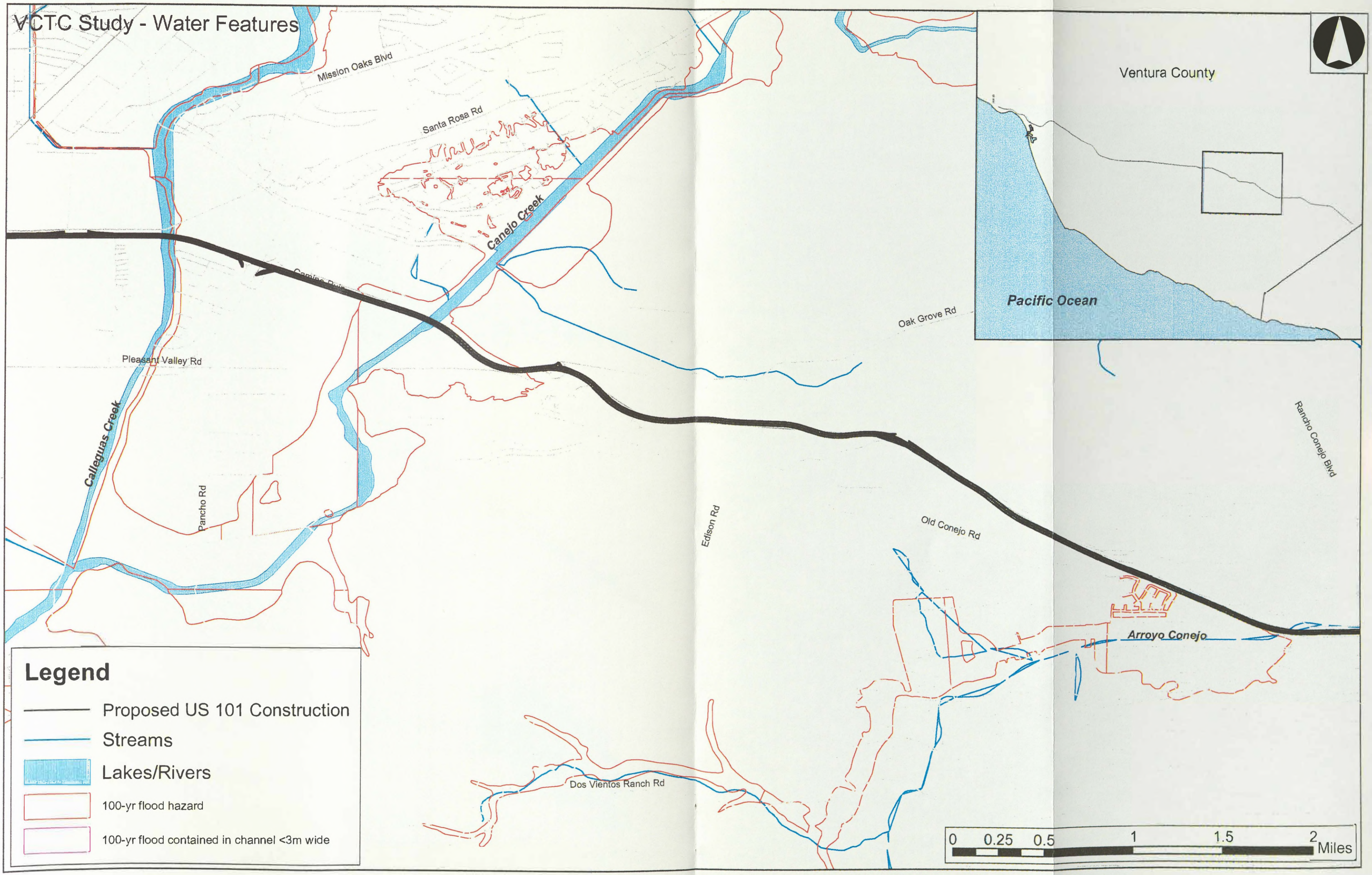
VCTC Study - Water Features



Legend

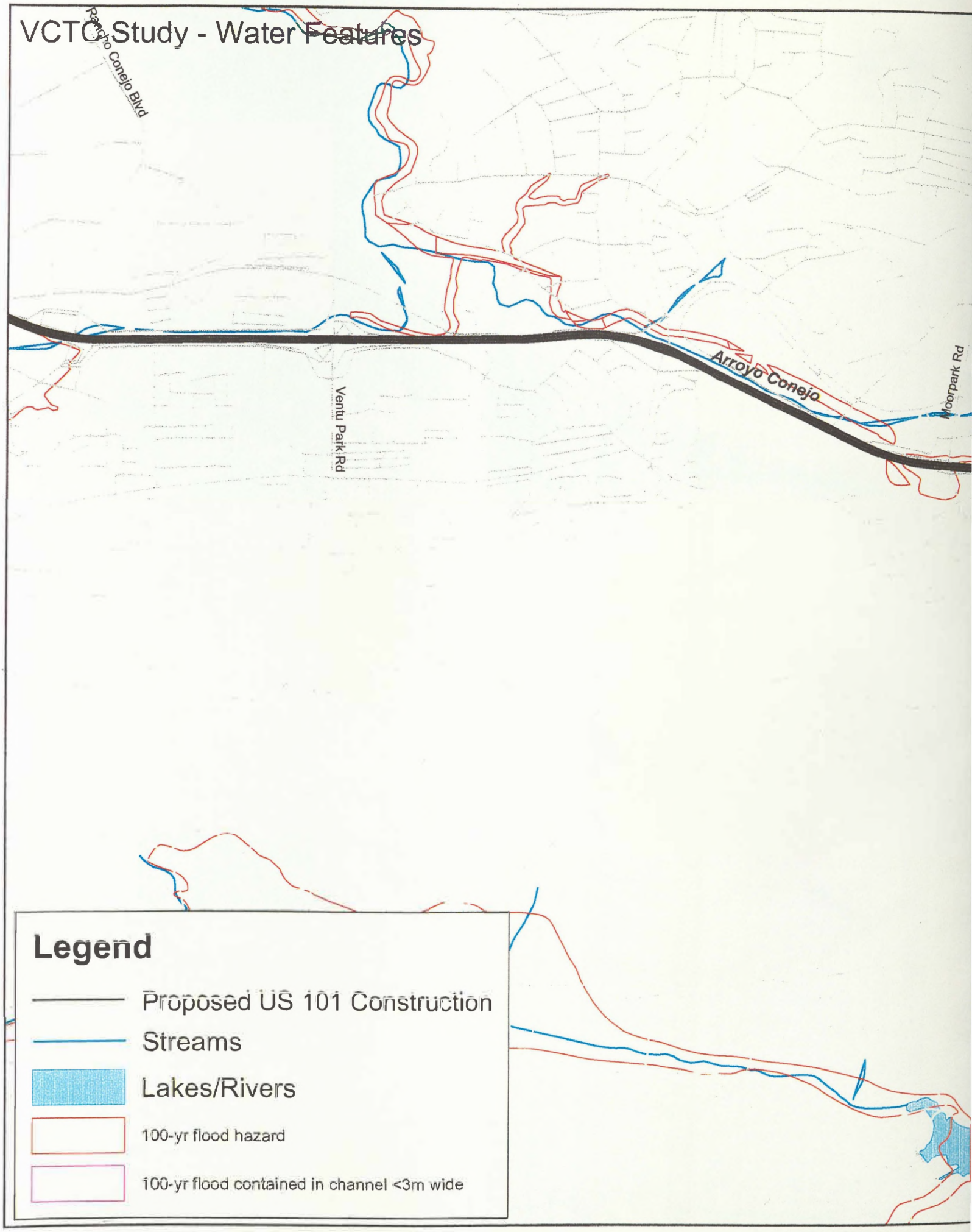
- Proposed US 101 Construction
- Streams
- Lakes/Rivers
- 100-yr flood hazard
- 100-yr flood contained in channel <3m wide

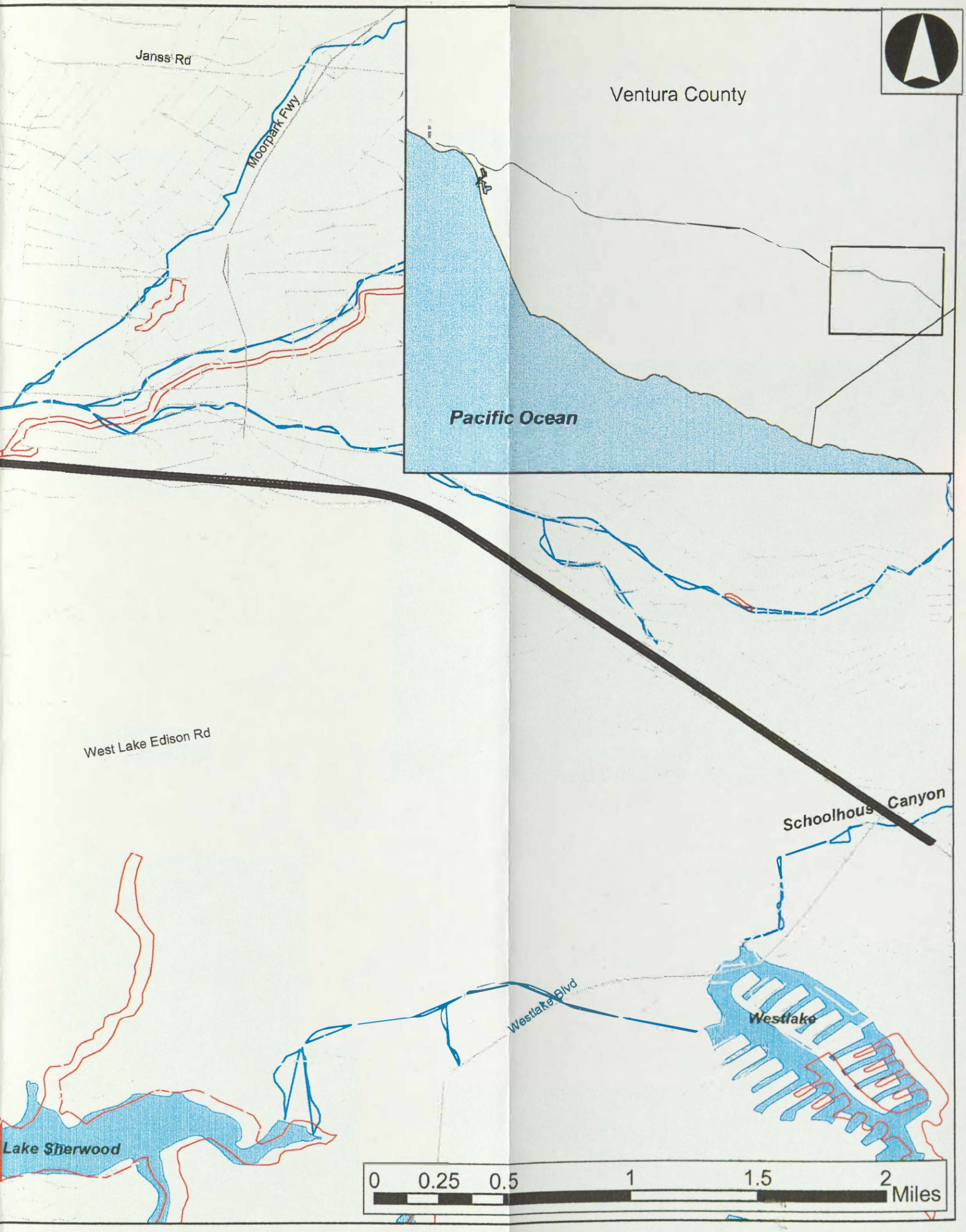
VCTC Study - Water Features



Legend

- Proposed US 101 Construction
- Streams
- Lakes/Rivers
- 100-yr flood hazard
- 100-yr flood contained in channel <3m wide


VCTC Study - Water Features
Rancho Conejo Blvd
Ventu Park Rd
Arroyo Conejo
Moorpark Rd
Legend
Proposed US 101 Construction
Streams
Lakes/Rivers
100-yr flood hazard
100-yr flood contained in channel <3m wide


Janss Rd
Moorpark Fwy
Ventura County
Pacific Ocean
West Lake Edison Rd
Schoolhouse Canyon
Westlake Blvd
Westlake
Lake Sherwood
0 0.25 0.5 1 1.5 2 Miles

VCTC Study - CNDDB Federal Species Status

LILY

SOUTHERN SYCAMORE ALDER RIPARIAN WOODLAND

ARROYO CHUB

0.168 mi.
0.270 km.
887 ft.

0.009 mi.
0.014 km.
48 ft.

RAYLESS RAGWORT

2.00 mi.
3.219 km.
10560 ft.

VALLEY OAK WOODLAND

Ventu Park Rd

Janss Rd

Moorpark Fwy

Ventura County

Pacific Ocean

Westlake Blvd

CALIFORNIA ORCUTT GRASS

1.897 mi.
3.053 km.
10016 ft.

West Lake Edison Rd

Westlake Blvd

Legend

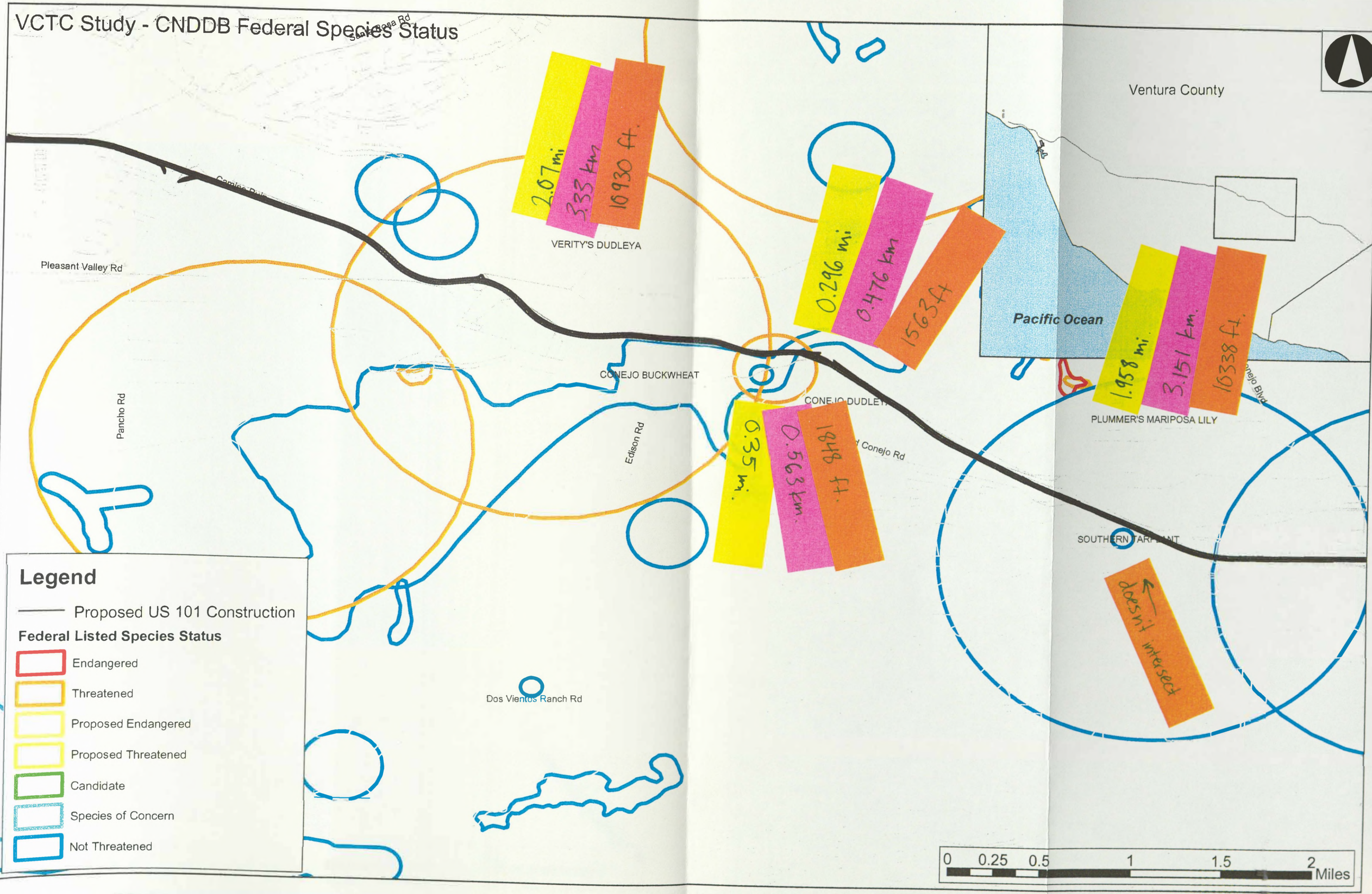
Proposed US 101 Construction

Federal Listed Species Status

- Endangered
- Threatened
- Proposed Endangered
- Proposed Threatened
- Candidate
- Species of Concern
- Not Threatened

0 0.25 0.5 1 1.5 2 Miles

VCTC Study - CNDDB Federal Species Status



Legend

Proposed US 101 Construction

Federal Listed Species Status

- Endangered
- Threatened
- Proposed Endangered
- Proposed Threatened
- Candidate
- Species of Concern
- Not Threatened

VCTC Study - CNDDB Federal Species Status

Portola Rd

Saratoga Ave

Victoria Ave

Ventura County

Pacific Ocean

WESTERN YELLOW-BILLED CUCKOO

0.326 mi.

0.525 Km

1721 ft.

Legend

Proposed US 101 Construction

Federal Listed Species Status

- Endangered
- Threatened
- Proposed Endangered
- Proposed Threatened
- Candidate
- Species of Concern
- Not Threatened

0 0.15 0.3 0.6 0.9 1.2 Miles

VCTC Study - CNDDB Federal Species Status

0.12 mi.
0.193 km
634 ft

SOUTHERN STEELHEAD

NOTE: Southern Steelhead species area is also classified as Southern Steelhead Stream (Federal Not Threatened): likely a habitat designation for the endangered species.

MONARCH BUTTERFLY

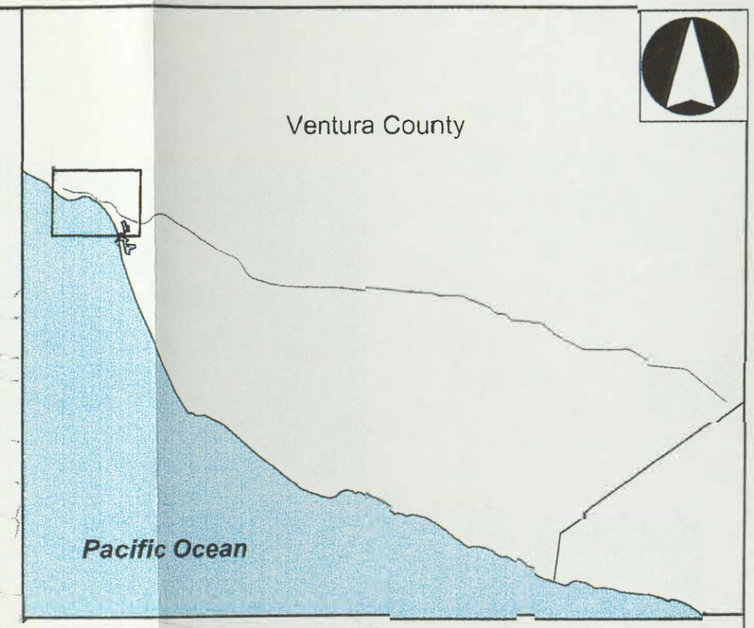
0.27 mi
0.434 km
2411 ft

Olive St
Ventura Ave
Figueroa
Hemlock St
Main St
Thompson Blvd
San Pedro St
Preble Ave
Rancho Dr
Dos Caminos Ave
Peninsula St
Pierpont Blvd
Beachmont St

0.373 mi
0.600 km
1969 ft

MONARCH BUTTERFLY

MONARCH BUTTERFLY



Legend

Proposed US 101 Construction

Federal Listed Species Status

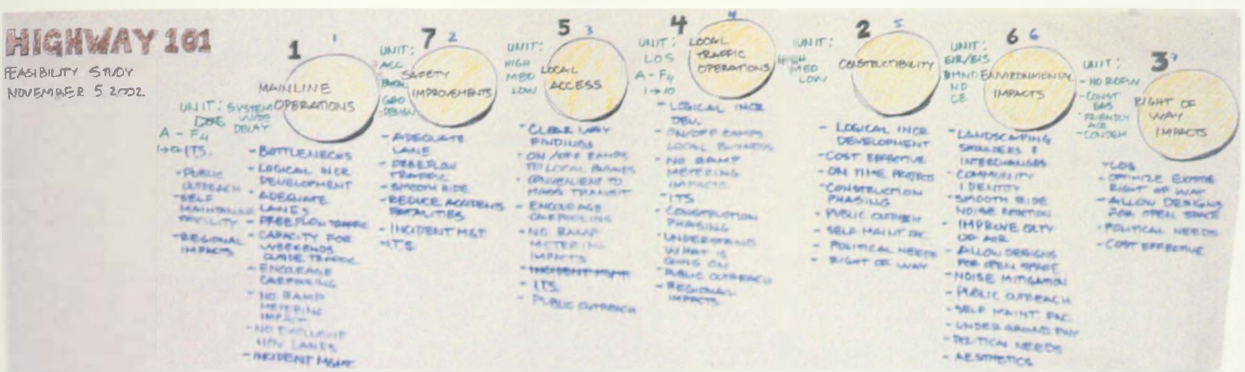
- Endangered
- Threatened
- Proposed Endangered
- Proposed Threatened
- Candidate
- Species of Concern
- Not Threatened

0 0.15 0.3 0.6 0.9 1.2 Miles

Appendix F – Ranking Criteria

On November 5, 2002, in the City of Camarillo, a workshop was conducted with the Technical Advisor Committee members in order to develop a ranking criteria for developing the Phase Implementation Plan for US 101. The workshop involved discussing the current problems with the Corridor and collectively establishing some values that are important to the community and how those values can be used to achieve the desire outcomes. The group agreed that the major challenge in achieving the desired outcome is overcoming the congestion and bottlenecks that currently exist on US 101.

In identifying the desire outcomes, seven parameters were selected to establish the ranking criteria. These included, (1) mainline operations, (2) safety improvements, (3) local access, (4) local traffic operations (5) constructability, (6) environmental impacts, (7) right of way impacts. Consensus was achieved on the scoring and ranking criteria to prioritize improvements. As the study proceeded, however, it became apparent that the cost of the proposed improvements could be considered as one project. As such, the ranking criteria were solely based on the mainline operations.




US HIGHWAY 101
FEASIBILITY STUDY
NOVEMBER 5, 2002
VALUES
DON'T WASTE PUBLIC MONEY
FREE FLOWING TRAFFIC
AESTHETICS
RETENTION OF OPEN SPACE
CONNECTIONS BTWN CITY STREETS & HWY-LINKS, SAFETY
PUBLIC INPUT-PROCESS
RETAIN CURRENT COMMUNITY CONDITIONS
NO GROWTH → SLOW GROWTH
CONFORM TO STANDARDS DURING PROCESS
LANE CLOSURES
PROTECTING ENVIRONMENT
ALT. MODES OF TRANSPORTATION
SAFETY
MAINTENANCE
NOISE REDUCTION
ECONOMIC REVENUES
QUALITY OF LIFE
TRAVEL RELIABILITY PREDICTABILITY
SECURITY & EMERGENCY ISSUES
BOTTLENECKS
WEEKEND IMPACT CONTINUOUS NORTHBOUND
AM/NM
PM
23 THOUSAND CARS
SOUTHBOUND
DESIRED OUTCOMES
NO BOTTLENECKS
LOGICAL INCR DEVELOPMENT
CLEAR WAY FINDING
ADEQUATE AUX LANES
LANDSCAPE INTERCHANGES & SHOULDER
RIGHT OF WAY
FREE FLOW TRAFFIC
ADEQUATE LANES
COST EFFECTIVE
CAPACITY FOR WEEKENDS
COMMUNITY IDENTITY
ON TIME, PROJECTS
SMOOTH RIDE
ON & OFF RAMPS TO LOCAL BUSINESS
REDUCE ACCIDENTS & FATALITIES
IMPROVED AIR QUALITY - POLLUTION
ALLOW DESIGN FOR OPEN SPACE
CONVENIENT TO MASS TRANSIT
ENCOURAGE CAR POOLING
NO RAMP METERING
NO H.O.V. LANES
BICYCLE
NOISE ATTENUATING FEATURES - PLANTING
INCIDENT MGMT
COMMUNICATION RESPONSE ITS
CONSTRUCTION PHASING
UNDERSTAND WHAT IS GOOD
PUBLIC OUTREACH
COORDINATION
TIME OF CLOSURES
REDUCE FREQ & COST OF MAINT.
SELF MAINT FACILITY
NO FINANCIAL CONSTRAINTS
UNDERGROUND UTILITIES

APPENDIX G – DATA DELIVERY

Geographic Information System (GIS)

A Geographic Information System (GIS) was developed to support this feasibility study and to generate the corridor layouts. This GIS was created using ESRI's (Environmental Systems Research Institute) ArcGIS software suite (version 8.3 of ArcInfo). Spatial data are stored in ArcView shapefile format and personal geodatabase format (annotation only). Imagery is stored in MrSID compressed format. All spatial data are stored in California State Plane Coordinates, Zone 5, NAD83, Meters.

All GIS data created for this project are stored on two CD-ROMs. The folder and file structure of these CDROMS are as follows:

CD #1 – Contains spatial data used to create the layouts. Data are from a variety of sources.

VCTC_101\
- GIS\
  - MAPS\
    - REPORT_MAPS\
      - Contains ArcGIS format .mxd map files used to create layouts.
    - PDF_DRAFT_MAPS\
      - PDF files of draft maps used for workshop
    - PDF_FINAL_MAPS\
      - PDF version of final maps as shown in report
  - DATA\
    - BOUNDARY\
      - Spatial data for boundaries (boundary of study, Ventura County, etc.)
    - CADASTRE\
      - Spatial data for Ventura County parcels.
    - IMAGERY\
      - Imagery for study area, stored in MrSID format. 1-meter resolution.
    - LAND_STATUS\
      - Spatial data for land use for Ventura County.
    - TABLES\
      - Data tables related to spatial elements.
    - TRANSPORTATION\
      - Spatial data related to transportation features.
      - NOTE: The PROPOSED.SHP file contains the proposed improvements for the corridor.

CD #2 – Contains an archive of spatial data purchased from Ventura County for this project. All of these data have been re-projected from NAD27 to NAD83, California State Plane coordinates.

ARCHIVE (VENTURA_CO_CD)\
MAPPING\ - Spatial data pertaining to base map layers (water, roads, land use, etc.)
POLITICAL\ - Spatial data pertaining to political boundaries
SPECIAL_DISTRICTS\ - Spatial data pertaining to special districts (sewer/water services, etc.)

To access and use the GIS, copy the contents of the CD-ROMs to a local hard drive, retaining the folder structure as described above. If edits are to be performed, then remove the read-only attributes from the files using the appropriate Operating System tools (e.g. Windows Explorer).

Once the files have been copied, start ArcMap and load layers manually, or open any one of the .mxd files already stored in the GIS\MAPS\REPORT_MAPS\ folder. (NOTE: ArcGIS version 8.3 must be installed on the user's machine).