101 in Motion
final report

July, 2006

101 IN MOTION
CREATING TRANSPORTATION SOLUTIONS

101 In Motion
Final Report

Prepared for:

SANTA BARBARA COUNTY
ASSOCIATION OF GOVERNMENTS

In cooperation with:

County of Santa Barbara
Caltrans District 5
Cities of Santa Barbara, Goleta, Carpinteria, Santa Maria, Lompoc and Buellton
Air Pollution Control District
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Executive Summary

Based on a policy directive to find long term solutions to the growing congestion problem along 27 miles of the Highway 101 corridor in Southern Santa Barbara County, the *101 in Motion* Team worked for over two years to develop a package of solutions that has broad based community support.

An extensive Stakeholders Advisory Committee (SAC) was recruited from throughout the County. Members of the SAC include representatives of the business community, major employers, commuters, environmental interests, automobile advocates, alternative transportation advocates, non-profit community organizations, neighborhood and homeowner's associations. A Technical Advisory Group (TAG) composed of technical experts from the local jurisdictions and emergency services providers, performed review and analysis of data. Public workshops allowed the public to express their ideas on possible solutions to be studied.

After two years of study, public outreach, and consensus building the final *101 in Motion* consensus package, unanimously recommended and approved by the SAC, TAG, and Steering Committee, a subcommittee of the SBCAG Board. The consensus package was approved by the SBCAG Board in October 2005, and is described on the next page.

"This is a model of how transportation planning should be done."
— R. Gregg Albright, Caltrans District Director

101 in Motion Planning Process

- Community Ideas
- 8 Alternative Packages and Early Action Projects
- 4 Screened Packages
- One Preferred Package of Projects
- Action Plan

Final Adopted Consensus Package

The final *101 in Motion* long-term solution to solve congestion on the Highway 101 Corridor in southern Santa Barbara County is the result of over 2 years of study and community consensus building, which involved: 5 community workshops, over 60 presentations to organized groups, outreach at 14 different activity centers (County Fair, Earth Day Festival, farmer's markets, etc), 30 Technical Advisory Committee Meetings, 12 Stakeholder Advisory Committee Meetings, and 12 Steering Committee Meetings.

Add a Lane and a Train **Cost: $626 million**

- Add a carpool/HOV lane both directions south of Milpas to Ventura County Line
- Add commuter Rail from Camarillo/Oxnard to Goleta with stops in Carpinteria, Santa Barbara and Goleta

Facilitate Transit and Carpool Use **Cost: $62 million**

- Designate new lanes south of Milpas as HOV/Carpool
- Increase express bus services to North County
- Connect local bus and shuttles with rail and regional services
- Bus priority on selected streets through signal priority, queue jumps, bulb-outs at bus stops, etc.

Manage Demand **Cost: $27 million**

- Provide vanpool/carpooling/trip reduction incentives
- Encourage telecommuting and flexwork/flextime
- Vary parking rates as feasible by jurisdiction
- Individualize Marketing

Improve Operations and Communications **Cost: $28 million**

- Add capacity and install meters at selected ramps
- Use Intelligent Transportation System technology to inform the traveling public and smooth operations including:
- Freeway service patrol
- 511 phone and internet traffic and transit reports
- Variable message signs
- GPS real-time of arrival information at bus stops

Phase Improvements North of Milpas **Cost: $90 million**

- Implement operational improvements required to address current congestion hot spots
- Proactively work to reduce peak period traffic through aggressive demand management and rideshare programs
- Monitor need for additional 101 improvements following implementation of operational improvements, commuter rail, TDM and rideshare, ITS and General Plan updates
- Add auxiliary lanes and/or additional lanes if needed, funds are available, and there is community support

Project Implementation & Monitoring

Due to the time required to implement many of the projects in this consensus package, SBCAG shall conduct an annual evaluation to ensure that all the projects are being implemented in a timely and cost effective manner.

Funding Plan

The total cost of the Program is $833 million (in 2006 dollars). This cost includes both project development and capital costs of $610 million (73 percent of the total) and $223 million in on-going operation of the proposed transit and demand management services (27 percent).

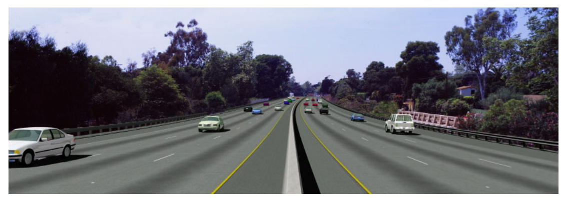
The proposed funding plan for the 101 In Motion Program is part of a larger 30-year proposed expenditure plan under consideration by SBCAG and the cities of Santa Barbara County. The expenditure plan maximizes all major existing local, state, and federal sources, and supplements existing sources with regional funding from the renewal of Measure D.

Key 101 in Motion Project Elements

Add a Lane and a Train

Add Carpool Lanes Milpas to County Line
This element will widen the two-lane section from the County line to Cabrillo/Hot Springs Road interchange by adding one carpool lane in each direction. Also, it will convert the approved northbound auxiliary lanes to full lanes between Cabrillo/Hot Springs and Milpas Street interchanges and make these carpool lanes. With widening of Highway 101 a number of bridges, undercrossings and overcrossings will need to be lengthened or rebuilt in order to accommodate the additional lanes.

Use of the new lanes will be restricted to vehicles with two or more persons, including carpools, vanpools and buses, to encourage increased ridesharing and transit use, and discourage solo auto use. These lanes can also be used by single-occupant Inherently Low Emission Vehicles (ILEV).



A new lane south of Milpas to the Ventura County Line presents two possible alternative design solutions; several concepts for one location are shown above and at right. The community will have extensive opportunities to discuss the design options prior to a final decision.

Interchange and Ramp Improvements
As part of the widening of Highway 101 between the County Line and Milpas, the interchanges at Cabrillo/Hot Springs and at Sheffield Drive will be reconstructed to replace the left-hand on-and off-ramps with standard right-hand ramps. Some other ramps will need to be lengthened and/or widened to accommodate the added traffic by 2030 and to correct geometric deficiencies. There are already plans to reconfigure the Linden and Casitas Pass interchanges as operational improvements independent of the 101 In Motion project.

The initial construction includes the widening of the mainline on Highway 101 to permit two general purpose lanes plus a carpool lane in each direction. During the mainline widening phase some shoulders may temporarily be substandard where the narrow bridges and undercrossings occur. Construction of mainline widening will consist of three approximately 4-mile segments that will be sequenced to reduce delays to the traveling public.

Commuter Rail
This element is a commuter rail line from Camarillo to Goleta with stops in Oxnard, Ventura, Carpinteria, and Santa Barbara, for a total of 47.8 miles (20 miles within Santa Barbara County). In order to implement a commuter rail system in the South Coast region, improvements to the existing rail corridor will need to be constructed. These will include installing passing sidings in Summerland and Oxnard, layover tracks in Oxnard and Goleta which will likely require additional right-of-way, purchase of rolling stock, and constructing improvements such as additional parking at existing stations. Vehicles could be standard commuter rail cars like those used by Metrolink that are connected to a diesel locomotive, or self propelled diesel powered vehicles (DMUs) that can operate as single units or coupled as train sets.

Commuter rail systems are typically less expensive to construct than other fixed rail systems when they use existing rail tracks. The proposed right-of-way is owned by Union Pacific Railroad who will have to agree to use of their R/W for commuter service.

The Commuter Rail element is entirely contingent on renewal of Measure D, the transportation sales tax measure. To enable an early start-up, the 101 In Motion Implementation Plan assumes an initial pilot service, the pilot service will comprise two round trips per day with minimal capital acquisition. Rolling stock would be leased and track expansion/modifications will be help to a minimum. Agreements with Union Pacific on any required capital improvement and the use of their tracks, as well as agreements with a service operator (Metrolink) and the County of Ventura must be secured prior to the start of the pilot service.

Facilitate Transit and Carpool Use

Commuter Express Bus Service

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This element will significantly increase the number of commuter express buses offered between north Santa Barbara County and major work sites on the South Coast. Commuter Express Bus service between Ventura County and the South Coast will also continue. Phased implementation of this expanded service will begin as soon as a renewal of Measure D is approved by voters.

Connecting Services at Rail Stations and Transit Hubs

Connecting bus and shuttle van services to major employment sites will be provided to complete commuter rail trips and are assumed in this package of improvements. Additionally, connecting local bus service between express bus transit hubs and the major employment centers will be improved. Implementation of this element is entirely contingent on approval of renewal of Measure D transportation sales tax measure. This service will begin with the introduction of the Pilot Commuter Rail Program (estimated to be 2011).

Bus Priority Treatments

This element provides both facilities and service for upgraded express and local bus operations by giving buses priority on selected streets. Priority treatment will be through the extension of a green light by several seconds at selected intersections to allow a bus to continue through, an extra lane at appropriate intersections to allow buses to skip ahead of the queue, bulb-outs at bus stops, and transfer facilities at rail stations to transition passengers to local bus collector-distributor lines. Implementation of this element is largely at the discretion of the local jurisdictions along with involvement from Metropolitan Transit District.

Carpool / Vanpool Pricing Incentives

This component of the package will increase financial incentives to carpoolers and vanpoolers by providing monthly payments to offset a portion of the start-up costs and in maintaining an active carpool or vanpool. Although incentives are currently being used to some degree on the South Coast, the continuation and possible expansion of this element is entirely contingent on voter approval of a renewal of the transportation sales tax (Measure D). Implementation responsibility for this element lies with SBCAG's Traffic Solutions.

Manage Demand

Work Schedule Adjustments
A number of non-traditional schedules are in use by many South Coast companies, agencies, institutions and other employers throughout areas affected by congestion.

These schedules include options such as the "4/40," where employees work 10 hours a day, 4 days a week, or the "9/80," where employees work 9 hours a day, and work 9 days over a two-week period. Flextime is another option, where employees work with their employer to set their own convenient hours, which could include working from home or remote facilities. Many working parents appreciate the flexibility of these non-traditional schedules. A flexible work schedule program is currently being implemented on a targeted based with some South Coast employers, however the continuation and expansion of the program is entirely contingent on renewal of Measure D, the county's transportation sales tax measure.

Variable Parking Rates as Feasible by Location
With this element, at the discretion of the jurisdiction, cars that arrive during off-peak periods at designated locations would pay less to park than cars arriving during peak periods. Implementation of this element is at the discretion of the City of Santa Barbara, County of Santa Barbara, City of Goleta and UCSB.

Individualized Marketing
The concept of Individualized Marketing is a simple step-by-step approach to changing personal travel behavior through direct contact with households. It encourages people to consolidate their trip-making and make greater use of public transport, walking and cycling as alternatives to car travel by offering them personalized travel information and a package of incentives to try out new ways of getting around. Current SBCAG initiatives will be continued and expanded with measures tailored specifically to encourage ridesharing and use of alternative modes. This element is completely contingent on renewal of Measure D, and implementation is assumed to be immediately following voter approval.

Improve Operations and Communications

Ramp Metering
This element will signalize and meter many of the on-ramps along the entire 27-mile Highway 101 Corridor to more efficiently regulate the entry of 101 traffic and buffer freeway flow from the adverse effects of random traffic surges and peaking at on-ramps. Ramp widening and some interchange reconfiguration will be necessary to adequately store ramp metered vehicles for periodic release, and minimize backup and queuing on surface streets. The plan for this element assumes implementation in geographic increments and will require extensive coordination with the respective local jurisdictions.

Intelligent Transportation System Elements
Intelligent Transportation Systems (ITS) will include highway and transit components. The highway components will comprise: vehicle detectors, closed circuit video cameras,

advanced traveler systems (ATS) including providing real time traffic information to motorists via Highway Advisory Radio (HAR), changeable message signs, cell phones and the Internet. A Traffic Management Center, the center of a comprehensive ITS system, would tie all the ITS field elements together.

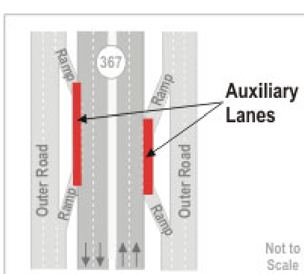
The purpose of these ITS elements are to improve communications with motorists as to the conditions on the freeway to allow them to make routing choices before they enter the congested zones. Freeway service patrol is also included to reduce the time needed to remove vehicles from the roadway following a breakdown or accident. The ITS Transit component will comprise GPS based vehicle locating to provide passengers real time information on arrival times for the next bus or train.

Delivery of ITS elements will in part be guided by the Central Coast Strategic Deployment Plan approved by SBCAG and Caltrans in 2000. Two ITS elements have recently been installed. Closed circuit cameras allow travelers to monitor Highway 101 at Patterson avenue via the internet (http://video.dot.ca.gov/), and variable message signs at the Highway 101/Highway 154 Northbound intersection/offramp. These two elements are part of Phase 1 of the ITS implementation, which is funded through existing Federal Earmark funds. Subsequent phases will be funded through the renewal of Measure D, and potentially State Highway Operation and Protection Program (SHOPP) funds.

Phase Improvements North of Milpas

By proactively working to reduce peak period traffic through aggressive demand management and rideshare programs it is hoped that the need for major improvements North of Milpas can be eliminated or delayed. Part of the 101 in Motion Program will be to monitor the need for additional 101 improvements following implementation of operational improvements at "hot spots", commuter rail, TDM and rideshare, ITS and General Plan updates.

Operational Improvements
This component will improve the flow and safety on the US-101 travel lanes by making operational improvements at existing and near-term congestion "hot spots" north of Milpas. Operational improvements will include adding auxiliary lanes or full lanes between on-ramps and off-ramps, modifications to ramps and ramp locations, and/or additional over crossings or under crossings for local traffic. Existing and projected near-term congestion hot spot locations include the area between Las Positas Road and Castillo Street.



The 101 In Motion Implementation Plan assumes immediate implementation of the demand management and rideshare programs, and two sequential phases of operational improvements for the area north of Milpas. The first phase of this work would commence with the completion of the widening of 101 south of Milpas.

REPORT SUMMARY

Purpose of the 101 In Motion Project

Recognizing that congestion has diminished the quality of life and economic vitality of the South Coast, the purpose of the 101 In Motion project has been to develop an action plan consisting of short-term and long-term solutions that will reduce congestion along the Highway 101 corridor in Santa Barbara County. The project has been designed to engage the local community in a dialogue about the present and future of the 101 corridor with the intent of developing a consensus-based, implementable strategy for solving current and future transportation deficiencies.

This Final Report documents the process used to develop and evaluate alternative solutions for reducing congestion in the 101 Corridor, and presents the adopted solution package and Action Plan for funding and implementing these improvements.

The 101 in Motion project has been governed by the Santa Barbara County Association of Governments (SBCAG) Board of Directors (Board), who are the decision making body who adopted the set of improvement projects described in this Final Report. Policy direction for *101 in Motion* was provided by a Steering Committee (SC), which consists of eight members of the SBCAG Board. There was also a Technical Advisory Group (TAG), consisting of member agency staff, who provided technical direction; a Stakeholder Advisory Committee (SAC) whose purpose was to represent the diversity of interests in the community and provide feedback and advice to the consultant team, TAG, SC and SBCAG Board on the *101 in Motion* program; and a consultant team who was hired to provide technical and public outreach expertise in conducting the *101 in Motion* program for SBCAG.

Adopted Improvement Plan

After two years of study, public outreach, and consensus building the final 101 In Motion consensus package recommended by the Steering Committee, SAC and TAG, and unanimously adopted by the SBCAG Board following a public hearing is a hybrid of elements from the final four alternative packages.

The adopted package includes a major highway capacity improvement south of Milpas Street, widening to six lanes between Milpas Street and Carpinteria, to accommodate a new High Occupancy Vehicle (HOV) lane in each direction, and commuter rail between Ventura County and Goleta. These flagship projects are complemented with enhancements to the bus system, including express bus service to North County, better connecting services to the rail stations, and improved regional bus services from Ventura County and within the South Coast. Expanded demand management programs are included to promote flexible work hours and telecommuting and include other marketing measures directed at individuals in order to encourage single occupant vehicle drivers into carpools and onto buses. Intelligent Transportation System (ITS) technologies are also added to improve the flow of information about traffic conditions to allow drivers to make better informed choices about traveling in the 101 corridor. Examination of the sensitivity of the travel forecasts to potential land use changes suggest that improvements to the highway north of Milpas to Goleta should be targeted at current congestion hot spots since impending changes to General Plans could significantly impact future traffic growth. Possible steps that could be taken in these land use plan updates to encourage alternatives to automobile use are presented in the Report appendices. Progress on all the elements in the Adopted Improvement Plan for the 101 Corridor will be evaluated on an annual basis to insure the elements are being implemented in an expeditious manner.

The adopted package of improvements is fully consistent with the policy direction given by the SBCAG Board at the outset of the 101 In Motion project and consists of:

Add a Lane and a Train

- Add a Carpool/HOV lane both directions south of Milpas to County Line
- Add commuter rail, Camarillo/Oxnard to Goleta

Facilitate Transit and Carpool Use

- Designate new lanes south of Milpas as HOV (Carpool)
- Increase express bus services to North County
- Connect local bus and shuttles with rail and regional services
- Bus priority on selected streets through signal priority, queue jumps, bulb-outs at bus stops, etc.

Manage Demand

- Provide vanpool/carpool/trip reduction incentives
- Encourage telecommuting and flexwork/flextime
- Vary parking rates as feasible by jurisdiction
- Individualize marketing

Improve Operations and Communications

- Add capacity and install meters at selected ramps
- Use Intelligent Transportation System technology to inform the traveling public and smooth operations including:
  - Freeway service patrol
  - 511 phone and internet traffic and transit reports
  - Changeable message signs
  - GPS real-time of arrival information at bus stops

Phase improvements north of Milpas

- Implement operational improvements required to address current congestion hot spots
- Proactively work to reduce peak period traffic through aggressive demand management and rideshare programs
- Monitor need for additional Highway 101 improvements following implementation of operational improvements, commuter rail, TDM and rideshare, ITS and General Plan updates
- Add auxiliary lanes and/or additional lanes if needed, funds are available, and there is community support

Project Implementation and Monitoring

Due to the time required to implement many of the projects in the adopted package, SBCAG shall conduct an annual evaluation to insure that all of the projects are being implemented in a timely and cost-effective manner.

Figure RS-1 shows the main physical elements in the Adopted Improvement Plan.

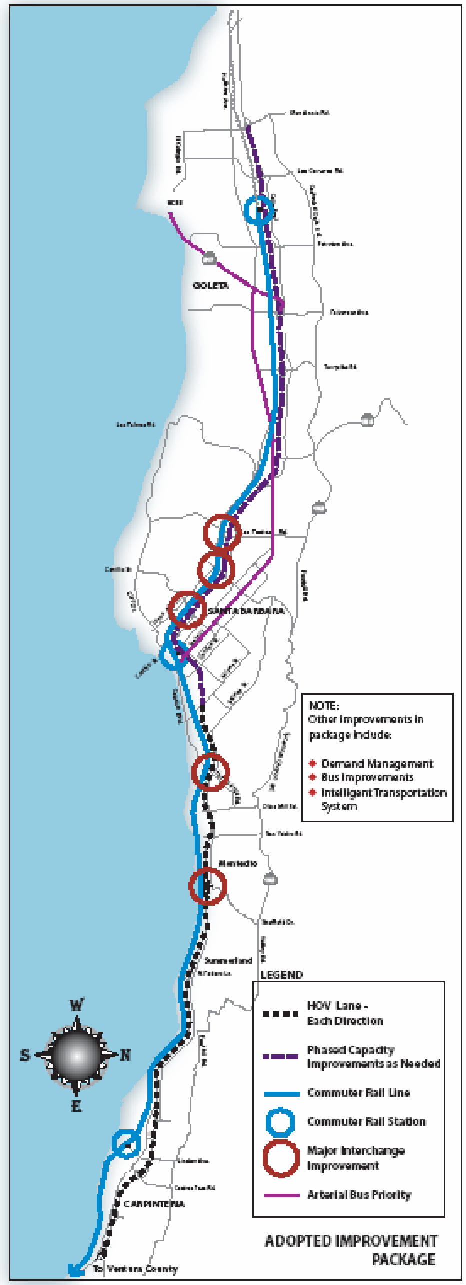


Figure RS-1 Adopted Improvement Plan

Primary Benefits, Costs and Impacts of the Adopted Improvement Plan

The main benefits of the adopted set of improvement projects are a major reduction in delays to travelers, increased safety, enhanced modal choices, and improved regional economy. More specifically, by 2030 the Adopted Improvement Plan is projected to:

- Keep the duration of congestion on Highway 101 to only 1-2 hours per day, rather than from early morning to eight at night, which would be the case if nothing is done.

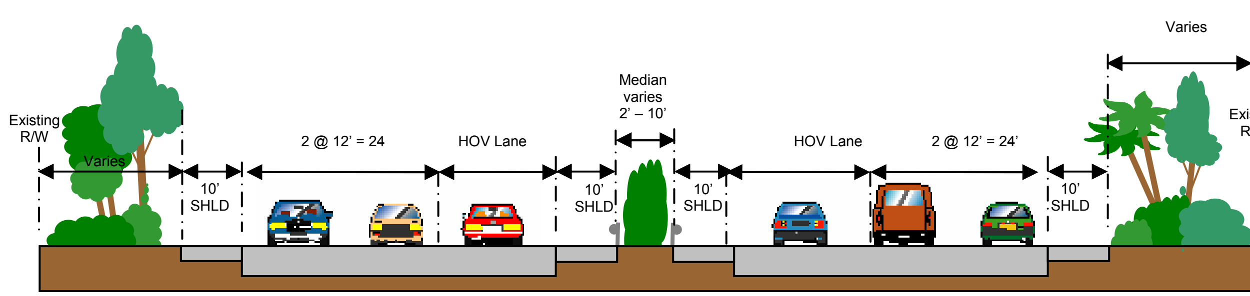
- Shave 15-20 minutes off of the commute time from Carpinteria to Downtown Santa Barbara via either the freeway or commuter rail.
- Reduce traffic on local streets in neighborhoods that parallel Highway 101.
- Eliminate a total of 16,500 person hours of delay each day.
- Significantly reduce the accident potential along Highway 101 by providing much smoother flow.
- Increase modal choices that will give commuters increased options to driving alone and result in 3,800 fewer single occupant vehicle trips on Highway 101 each day.
- Allow for continued economic prosperity in the South Coast, that otherwise would be stymied by the extreme levels of congestion in the corridor.
- The relative contribution of the individual elements in reducing congestion South of Milpas are: Commuter Rail/Transit 15 %, Demand Management 4%, HOV lane designation 13%, and Highway 101 widening 68%.

The costs and impacts associated with the Adopted Improvement Plan consist primarily of:

- Funding the approximately $600 million in capital costs and on-going operations and maintenance costs will require funding from a combination of sources including the existing and renewed Measure D local transportation sales tax and matching funds from state and federal sources.
- Visual impacts are expected due to reduced landscaping within the Highway 101 right-of-way and the addition of noise walls in certain locations. The extent of visual impacts can be softened through the careful application of context sensitive design and a replacement landscaping program.
- Increased traffic will occur on streets that intersect with the Highway 101 on and off-ramps. Improvements to these cross-streets, and/or new freeway crossings at selected locations will be needed, and programmed for outside of the 101 in Motion improvements.
- Increased noise and traffic delays can be expected during construction of the new lanes on Highway 101.
- Approvals from the UPRR, Coastal Commission and other agencies are needed for the Adopted Improvement Plan to be implemented.

Each of the elements in the Adopted Improvement Plan is described in more detail below:

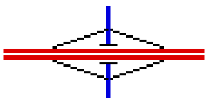
Add Carpool Lanes Milpas to County Line
The existing Highway 101 typical cross section between the County Line and Milpas Street consists of two 12-foot lanes in each direction. This element will widen the two-lane section from the County line to Cabrillo/Hot Springs Road interchange by adding one High Occupancy Vehicle (HOV) carpool lane in each direction (for 11.3 miles). Also, it will convert the northbound auxiliary lanes that are currently programmed as operational improvements to full lanes between Cabrillo/Hot Springs and Milpas Street interchanges and makes these carpool lanes (1.5 miles). With widening of Highway 101 a number of bridges, undercrossings and overcrossings will need to be lengthened or rebuilt in order to accommodate the additional lanes.



Add 1 HOV lane in each direction

Use of the HOV lanes will be restricted to vehicles with two or more persons, including carpools, vanpools and buses, to encourage increased ridesharing and transit use, and discourage solo auto use. HOV lanes can also be used by single-occupant Inherently Low Emission Vehicles (ILEV).

Interchange and Ramp Improvements



Classic diamond.

As part of the widening of Highway 101 between the County Line and Milpas, the interchanges at Cabrillo/Hot Springs and at Sheffield Drive will be reconstructed to replace the left-hand on-and off-ramps with standard right-hand ramps. Some other ramps will need to be lengthened and/or widened to accommodate the added traffic by 2030 and to correct geometric deficiencies. There are already plans to reconfigure the Linden and Casitas Pass interchanges as operational improvements independent of the 101 In Motion project.

Commuter Rail

This element is a commuter rail line from Camarillo to Goleta with stops in Oxnard, Ventura, Carpinteria, and Santa Barbara, for a total of 47.8 miles (20 miles within Santa Barbara County). In order to implement a commuter rail system in the South Coast region, improvements to the existing rail corridor will need to be constructed. These will include installing passing sidings in Summerland and Oxnard, layover tracks in Oxnard and Goleta which will likely require additional right-of-way, purchase of rolling stock, and constructing improvements such as additional parking at existing stations. Vehicles could be standard commuter rail cars like those used by Metrolink that are connected to a diesel locomotive, or self propelled diesel powered vehicles (DMUs) that can operate as single units or coupled as train sets.

Commuter rail systems are typically less expensive to construct than other fixed rail systems when they use existing rail tracks. The proposed right-of-way is owned by Union Pacific Railroad who will have to agree to use of their R/W for commuter service

Commuter Express Bus Service

CLEAN AIR EXPRESS

A SERVICE OF THE SANTA BARBARA COUNTY ASSOCIATION OF GOVERNMENTS

This element will significantly increase the number of commuter express buses offered between north Santa Barbara County and major work sites in the City of Santa Barbara and Goleta. Commuter Express Bus service between Ventura County and the South Coast will also continue.

Connecting Services at Rail Stations and Transit Hubs

Connecting bus and shuttle van services to major employment sites will be provided to complete commuter rail trips and are assumed in this package of improvements. Additionally, connecting local bus service between express bus transit hubs and the major employment centers would be improved.

Bus Priority

This element provides both facilities and service for upgraded express and local bus operations by giving buses priority on selected streets. Priority treatment will be through the extension of a green light by several seconds at selected intersections to allow a bus to continue through, an extra lane at congested intersections to allow buses to skip ahead of the queue, bulb-outs at bus stops, and transfer facilities at rail stations to transition passengers to local bus collector-distributor lines.

Carpool / Vanpool Pricing Incentives

Currently, ridesharing and alternative modes of transportation are subsidized in part. This component of the package will increase financial incentives to carpoolers and vanpoolers by providing monthly payments to offset a portion of the start-up costs and in maintaining an active carpool or vanpool.

Work Schedule Adjustments

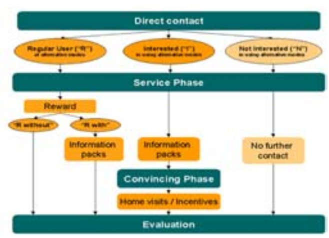
A number of non-traditional schedules are in use by many South Coast companies, agencies, institutions and other employers throughout areas affected by congestion. These schedules include options such as the “4/40,” where employees work 10 hours a day, 4 days a week, or the “9/80,” where employees work 9 hours a day, and work 9 days over a two-week period. Flextime is another option, where employees work with their employer to set their own convenient hours, which could include working from home or remote facilities. Many working parents appreciate the flexibility of these non-traditional schedules. This component will comprise a focused effort on expanding the existing programs in the South Coast.

Variable Parking Rates as Feasible by Location

With this element, at the discretion of the jurisdiction, cars that arrive during off-peak periods at designated locations would pay less to park than cars arriving during peak periods.

Individualized Marketing

The concept of Individualized Marketing is a simple step-by-step approach to changing personal travel behavior through direct contact with households. It encourages people to consolidate their trip-making and make greater use of public transport, walking and cycling as alternatives to car travel by offering them personalized travel information and a package of incentives to try out new ways of getting around. Current SBCAG initiatives will be continued and expanded to target potential opportunities and match the opportunities with measures tailored specifically to encourage ridesharing and use of alternative modes.



Source: Social Data

Ramp Metering

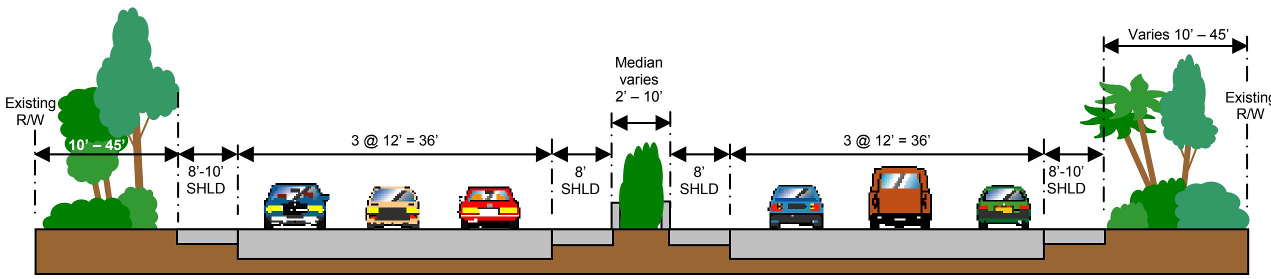
This element will signalize and meter many of the on-ramps along the 27- mile Highway 101 Corridor to more efficiently regulate the entry of 101 traffic and buffer freeway flow from the adverse effects of random traffic surges and peaking at on-ramps. Ramp widening and some interchange reconfiguration will be necessary to adequately store ramp metered vehicles for periodic release, and minimize back-up and queuing on surface streets.

Intelligent Transportation System Elements

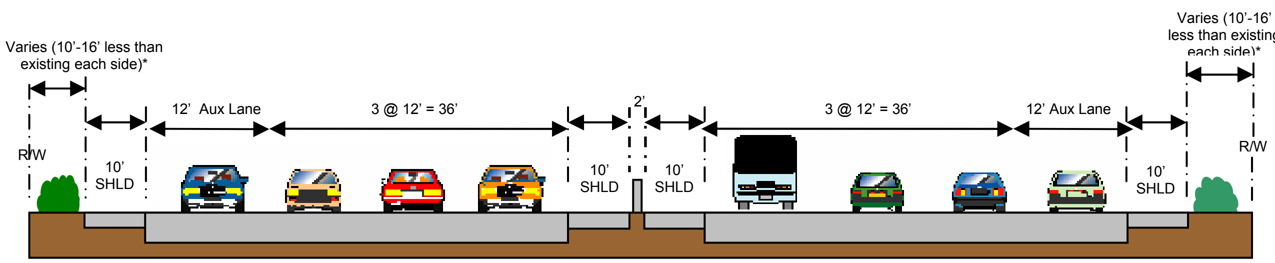
Intelligent Transportation Systems (ITS) will include highway and transit components. The highway components will comprise: vehicle detectors, closed circuit video cameras, advanced traveler systems (ATS) including providing real time traffic information to motorists via Highway Advisory Radio (HAR), changeable message signs, cell phones and the Internet. A Traffic Management Center, the center of a comprehensive ITS system, would tie all the ITS field elements together.

The purpose of these ITS elements is to improve communications with motorists as to the conditions on the freeway to allow them to make routing choices before they enter the congested zones. Freeway service patrol is also included to reduce the time needed to remove vehicles from the roadway following a breakdown or accident. The ITS Transit component will comprise GPS based vehicle locating to provide passengers real time information on arrival times for the next bus or train.

Highway 101 between Milpas and Fairview
Highway 101 has already been widened to 3-lanes in each direction between Milpas Street and Fairview Avenue..

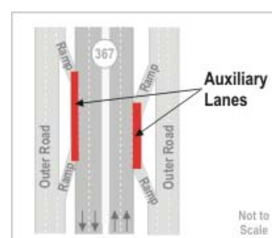


Typical Existing 6-Lane Section



*May require additional R/W

Add Auxiliary Lanes at Existing Congestion Hot Spots



This component will improve the flow and safety on the US-101 travel lanes by making operational improvements at existing and near-term congestion "hot spots". Operational improvements will include adding auxiliary lanes or full lanes between on-ramps and off-ramps, modifications to ramps and ramp locations, and/or additional over crossings or under crossings for local traffic. Existing and projected near-term congestion hot spots include locations between Las Positas Road and Castillo Street.

Auxiliary lanes help to smooth the flow of traffic by buffering the mainline flow from the friction experienced at interchange on-ramps and off-ramps, especially where exits and entries are closely spaced. Auxiliary lanes would be done instead of adding a continuous lane. Its effectiveness in reducing congestion would be about one-third of a full lane, but could be converted to a full lane in the future by rebuilding and widening through the interchange.

Any further capacity improvements of 101 north of Milpas will be evaluated following implementation of commuter rail and the TDM and ITS measures, and the improvements at the "hot spot" locations. This will also allow a re-evaluation based on pending updates to the General Plans in the western portion of the corridor.

Monitoring Program
Due to the time required to implement many of the projects in the 101 In Motion Improvement Program, SBCAG will conduct an annual evaluation to insure that all of the projects are being implemented in a timely and cost-effective manner.

Image of Proposed Highway 101 Widening

Figure RS-2 show an artist's view of what the widening of Highway 101 south of Milpas Street might look like.

Figure RS-2 Visual simulation of possible widening looking North beyond Olive Mill Road

Study Process

The 101 In Motion process consisted of an integrated set of technical and public outreach activities aimed at identifying an implementation program consisting of community supported solution elements that best solve the corridor's existing and long range deficiencies. As depicted in Figure RS-3 an iterative screening/ consensus building process was used to first mix and match a broad range of solution ideas to form 8 alternative packages of improvements (Round 1), from which 4 Final Alternative Packages were picked (Round 2), with the final implementation Plan being selected in the end (Round 3). The final step in the process involved development of a funding/implementation plan for the adopted package of improvements.

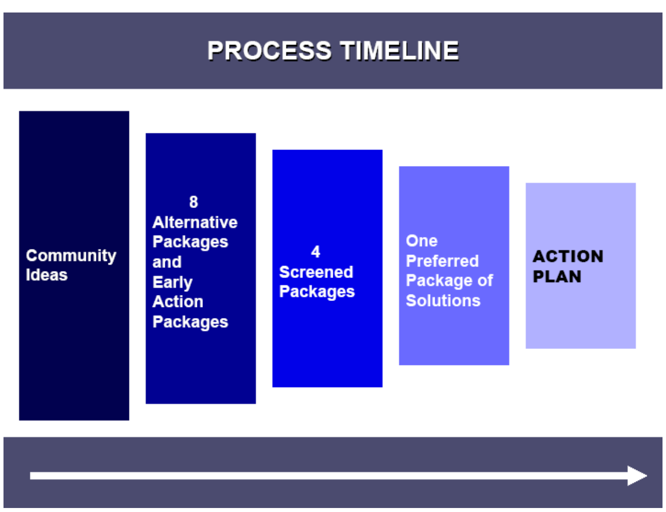


Figure RS-3 *101 In Motion* Technical Process

Community Input

Based on a broad policy directive to find long term solutions to the growing congestion problem along 27 miles of the Highway 101 corridor in Southern Santa Barbara County, the 101 in Motion Team worked for over two years to develop a package of solutions that has broad based community support.

A diverse Stakeholders Advisory Committee (SAC) was recruited from throughout the County. Members of the SAC included representatives of the business community, major employers, commuters, environmental interests, automobile advocates, alternative transportation advocates, non-profit community organizations, neighborhood and homeowner's associations.

A Technical Advisory Group (TAG) composed of technical experts from the local jurisdictions and emergency services providers, provided review and analysis of data.

Building strong community support into the process of making technical decisions was essential to reaching consensus. The public outreach effort strived to educate and involve the diversity of stakeholders affected by congestion on the Highway 101 Corridor.

The public outreach plan had several key themes:

- Early involvement of the public prior to the development of any plans or alternatives
- A "go to them" effort that will enable stakeholders to involve themselves with minimal effort
- Proactive public relations activities to spread the word extensively
- Casting a wide net to reach the many people whose voices are rarely heard, while maintaining contact with those who are regular participants on transportation issues

Community Outreach

Since the initiation of the 101 in Motion Project in November 2003, SBCAG staff and the consulting team actively worked with the community to provide education about the process, the results of the analyses during each step, and the consensus recommendations.

Community input included:

- Five community workshops (4 in the South Coast, 1 in North County)
- 13 activity center booths
- 54 community presentations
- Broad based Countywide Stakeholder Advisory Committee (SAC) held 11 meetings open to the public
- Technical Advisory Committee (TAG), with representation from Cities, County, MTD, Caltrans, SBCAPCD, CHP and VCTC, held 31 meetings to review data and make recommendations.
- The Steering Committee (SC) of the Board met to receive information and give direction 11 times.

Additionally, members of the community were encouraged to attend the South Coast Subregional Committee (which served as the 101 In Motion Steering Committee) and the SBCAG Board meetings to express their views on the 101 in Motion project.

101 Corridor Problems and Needs

Corridor problems and needs are summarized in the table below:

A. Recurrent Traffic Congestion	Travel demand is overwhelming existing capacity of the South Coast segment of US 101. Most current congestion is in the section south of Milpas Street. This pattern is projected to worsen over the next twenty-five years and spread to much of the day unless ways can be found to address the supply-demand imbalance.

B. Constraints of the Physical Setting	The natural setting of the corridor with the mountains on one side and the ocean on the other, along with distinctive vegetation in the median and along much of the right-of-way makes driving along US 101 a scenic experience. These natural features coupled with the built environment in the corridor present challenges to physically widening 101.
C. Design Deficiencies	Non-standard highway design features such as inadequate weave distances, acceleration lanes that are too short, insufficient ramp storage, left-side egress and entry locations, reduced shoulder widths, and missing interchange ramps and access points contribute to congestion and result in operational and safety problems on Highway 101.
D. Discontinuity of Arterial Network	The street system in the corridor offers limited alternative parallel routes to US 101 for many trips. This lack of continuous alternative routes via the arterial street network contributes to excessive US 101 traffic.
E. Insufficient Mode Choice	Due to funding limits there is a lack of alternative transportation modes with sufficient geographic coverage, frequent service, and reasonable cost serving the travel markets that use the 101 Corridor. This plus free or inexpensive parking provided at worksites has contributed to a high level of auto dependency in the corridor.
F. System Management	The 101 corridor lacks a comprehensive deployment of freeway management, incident management and travel information electronic/communication devices needed to make full use of it's capacity potential.
G. Population and Employment Density and Growth	Population in the County has been forecast to increase by 30 percent between 2000 and 2030. Countywide employment is projected to increase by 44 percent over the same period. Even with this growth, the relatively low density of jobs and housing in the County presents challenges to effectively serving trips by transit.
H. Jobs-Housing Imbalance	Long distance work commutes from Ventura County and north Santa Barbara County are increasingly necessary due to the limited supply and the high cost of housing on the South Coast, forcing those drawn to local jobs to commute longer and longer distances in search of affordable housing.
I. Safety	The number and severity of accidents on the section of US 101 from Milpas to the County Line are high when compared to similar highways state-wide. Congestion on US 101 is a major contributor to these accidents and impedes access to accident scenes by emergency vehicles.

Development and Evaluation of Alternative Solutions

The process used to develop and then evaluate alternative solution concepts and packages of concepts was iterative and dove-tailed with the public outreach process. During the project development/evaluation process a wide range of possible solutions identified at the outset of the project was sequentially screened through a series of steps to result in a final adopted consensus package.

The individual steps in the solution identification/ evaluation process consisted of:

<u>Community Ideas Phase.</u> After the Consultant Team had compiled a long list of solution concepts that had been proposed in the past for relieving congestion in the 101 Corridor, and added concepts that have been used elsewhere, three community open house/workshops were held at different locations throughout the County. At these open house/public workshops attendees were briefed on the nature of the corridor's problems and the projects goals and objectives, were provided a summary of potential solution concepts, and were asked to state their preferences and suggest additional concepts. Following the workshops, the ideas

that emerged were sorted into "big idea" solution concepts and "complementary" solution concepts. There were over 30 concepts in each category.

Initial Screening. The intent of the initial phase of the screening process was twofold; 1) to evaluate the broad range of "big idea" or "primary" solution concepts generated during the Community Ideas phase in terms of how well each alternative concept could be expected to perform against a comprehensive set of evaluation criteria, and 2) to identify those solution concepts that are seriously flawed by reason of multiple low rankings across a range of evaluation criteria, or, in some cases, by exceptionally low performance potential, overwhelming community/environmental negatives or a total lack of implementation feasibility. The initial screening was used to help guide stakeholders and decision makers when they went about combining the "big idea" solution concepts into logical packages of improvements for more detailed comparative evaluation. The initial screening resulted in several concepts being dropped so that only the most reasonable and feasible concepts advanced into the packaging phase.

Development of 8 Alternative Packages. To develop alternative packages of solution concepts separate roundtables were held with the TAG and SAC, and then jointly with both committees to reach consensus on the 8 alternative packages to be evaluated. The roundtables consisted of a Delphi/ consensus building process where the groups filled out the cells in a large matrix that had 8 "titles" or themes that they picked for each of the packages across the top as column headings and the four categories of solution options (capacity enhancement, alternative modes, demand management, and operational management/ land use) as the row headings. Prior to these roundtables, a package of read aheads was provided that contained information on the magnitude of the congestion; further descriptions of each of the 33 candidate solution elements; a spreadsheet of the candidate solutions showing information for each of the 33 solution concepts relative to their rough order of magnitude costs, approximate level of congestion relief expected, most significant adverse impacts or other consequences, and how long they would take to implement.

Once the SAC and TAG identified the 8 alternative packages the broader public was then queried as to their reactions to these 8 packages. The recommended packages from the SAC, TAG and public outreach were presented to the SC for selection of the 8 packages to go through the screening process.

Evaluation of the 8 Alternative Packages. Technical analyses were performed for the 8 Alternative Packages selected by the SC for evaluation. Each package was put through a screening process wherein the package as a whole was evaluated against the 22 performance criteria that had been developed by the TAG and SAC for use on the project. Two of the 8 packages showed serious flaws early in the analysis and based on the recommendations of the TAG and SAC were dropped by the SC from further consideration. A series of meetings with the TAG and SAC wherein the results of the evaluation of the remaining 6 packages were discussed eventually led to recommendations as to which elements of the 6 Alternative Packages should be used to develop the final 4 packages. Another round of public outreach was used to obtain public input on the TAG and SAC recommendations and resulted in the SC adopting a set of project elements that were to be used in developing the final 4 packages.

Development of the Final 4 Alternative Packages. Using a similar process as was described for developing the 8 Alternative Packages, the TAG and SAC separately and then jointly identified 4 packages for detailed evaluation. The 4 packages were hybrids of the previous 6 packages. These packages were presented to the public at various forums before being adopted by the SC and then the full SBCAG Board for evaluation.

Evaluation of the Final 4 Alternative Packages. Each of the final alternative packages was screened against the 22 performance criteria that were used in the Round 2 evaluation, although at a more robust level of detail. The results of the evaluation showed how each of the elements in the package performed as well as how each package overall performed.

Selection of the Consensus Improvement Package. The Adopted Improvement Plan for the 101 Corridor is a composite of the best elements of the Final 4 Alternative Packages. It was arrived at after 8 meetings of the TAG, 3 meetings of the SAC, two meetings of the SC and numerous public forums with local government decision makers and neighborhood, business and institutional stakeholder groups. The SBCAG Board unanimously adopted the Consensus Plan on October 20, 2005.

Proposed Funding Plan

The Adopted Improvement Plan is estimated to require $833 Million in 2006 Dollars to construct and operate. As shown in Figure RS-8, the proposed funding plan calls for 43 percent of funding to be derived from the Regional Program component of the renewal of Measure D, 35 percent from the Regional Improvement Program component of the State Transportation Improvement Program (STIP-RIP), 13 percent from the Interregional Improvement Program component of the State Transportation Improvement Program (STIP-IIP), with the remaining 9 percent from Federal Earmarked funding and Other sources.

Figure RS -8
101 In Motion Improvement Program
Proposed Funding Sources
With Measure D Regional Funding
Total: $833 Million (2006 Dollars)

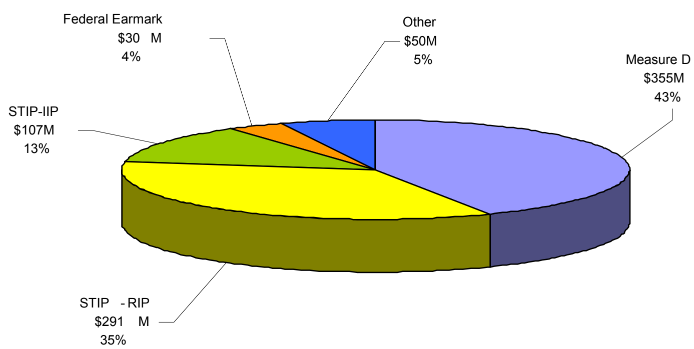
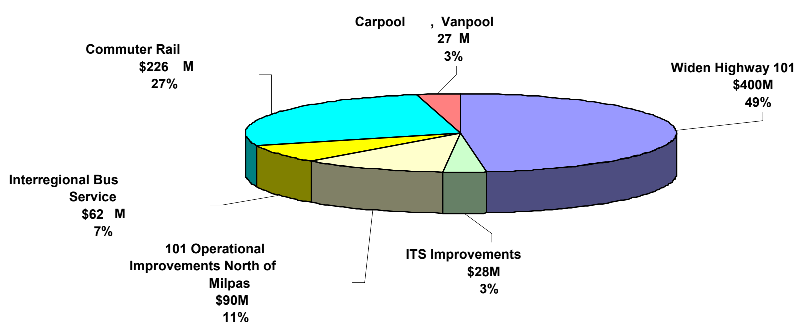


Figure RS-9 shows the cost by program element:

Figure RS – 9
101 In Motion Improvement Program
Cost by Program Element
Total: $833 Million (2006 Dollars)



Of the $833 million cost of the 101 In Motion Program, 73 percent is for capital costs related to highway widening, operational improvements, and commuter rail, and 27 percent for on-going operations and maintenance of commuter rail, connecting bus, interregional bus, and carpool/vanpool services.

Approximately 52 percent of the cost of the 101 In Motion Program is for Highway 101 Widening and ITS improvements south of Milpas; 27 percent for initiation and on-going operation of Commuter Rail and connecting bus service to rail stations and transit hubs; 11 percent for Highway 101 Operational Improvements north of Milpas; with the remaining 10 percent for operation of Interregional Bus and Carpool/Vanpool services and construction of Priority Treatments.

Assuming voter approval of the Measure D renewal, all of the capital components of the 101 In Motion Program would be implemented by 2027, with operation of proposed commuter rail, bus, and carpool/vanpool services continuing through the 2040 sunset year of the Measure. Many of the components will be offering congestion relief well before 2027.

The renewal of Measure D will be pivotal in the ability to implement the 101 In Motion Improvement Program.

In addition to contributing 43 percent of total proposed funding for the 101 In Motion Improvement Program, Measure D regional funding is the only potential source that is both fungible (interchangeable) and flexible with regard to use. Measure D regional funds are the only source that can be pledged for repayment of debt service on bonds issued to accelerate implementation of the 101 In Motion Program. In addition, with commuter rail, bus, and vanpool operating costs comprising 27 percent of the cost of the Program, the ability to flexibly use these funds for both capital and for on-going operations is critical.

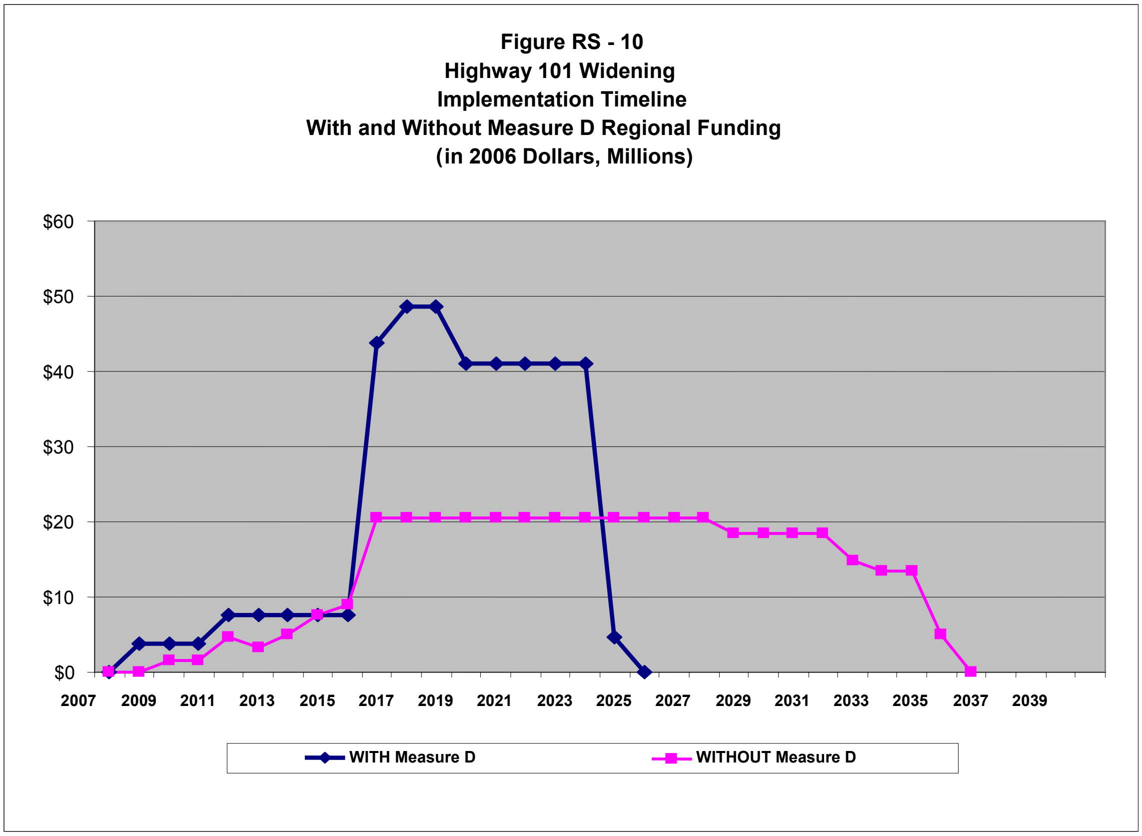
Consequence on Funding Plan if Measure D is Not Renewed

SBCAG would be unable to implement the 101 In Motion's comprehensive multimodal improvement program without funding from the renewal of Measure D. With its annual funding from the State Transportation Improvement Program-Regional Improvement Program (STIP-RIP) limited to an estimated $15 million per year, SBCAG would have to commit 85 percent of the STIP-RIP funds it is projected to receive over the next three decades to the 101 In Motion Program. Even with this level of funding committed, only three of the six project elements in the 101 In Motion Program could be completed by 2040: Highway 101 Widening, ITS Improvements, and Operational Improvements North of Milpas.

More realistically, in the absence of Measure D funding for other priority projects, there would be competing county-wide projects in need of STIP-RIP funding that could reduce the annual funding available for the 101 improvements. As a result, even the 101 Widening, ITS, and Operational Improvement elements might not be completed within the 2007-2040 timeframe. Beyond these, there would be insufficient funding for implementation of the other elements of the 101 In Motion Program or for other high priority projects county-wide.

In the absence of regional funding from renewal of Measure D, the 101 Commuter Rail, 101 Interregional Bus Service, and 101 Carpool and Vanpool services would not be implementable. In addition to funding being insufficient for capital costs, there would be no source of funds that could be used for the operating costs of these services. With all other sources of transit operating funds already over-subscribed, SBCAG would have no other source of funds for operations. These three elements of the 101 In Motion Program would not be implementable.

As shown in Figure RS-10, in the absence of funding from the renewal of Measure D, completion of the Highway 101 Widening would be delayed by a minimum of 11 years. With Measure D funding, the 101 Widening is projected to be completed in three phases: 2019. 2021, and 2023. In the absence of Measure D funding, each phase would take longer to fund and construct, with completion extended to 2030, 2032, and 2034 respectively.



In the absence of funding from the renewal of Measure D, completion of the ITS Improvements and Operational Improvements North of Milpas would also take longer to complete. Completion of the ITS Improvements would be extended by four years, from 2012 to 2016. Completion of the Operational Improvements would be extended by 12 years, from 2028 to 2040.

Tolling was evaluated but is not proposed as a source of funding for the Highway 101 Widening. Consideration was given to constructing the new High Occupancy Vehicle lanes on Highway 101 as High Occupancy Toll (HOT) lanes and tolling vehicles with one or two occupants. HOT lane toll revenues were projected to generate only a small portion (12.5 percent) of the funding for the widening, without significantly reducing the time needed to fund project completion. In addition, tolling would reduce the congestion relief and cost-effectiveness of the widening project by diverting users from the highway to local streets as a result of removing an incentive to form 2-person carpools.

In November 2006, the Statewide ballot will include a proposal to authorize up to $19.9 billion in general obligation bonds for transportation capital improvements. If approved by the voters, the Highway 101 Widening could potentially compete for an estimated $22.5 million in bond funding county-wide through this measure. Even if all of the State bonds were used for the 101 widening it would only represent approximately 5 percent of the project cost. The bond measure would also provide an estimated $48 million county-wide to assist in funding repair of local streets and roads and transit capital projects.

While this analysis has focused on costs and revenues in constant 2006 dollars, the findings without Measure D being renewed would be more onerous if considered in terms of Year of Expenditure (YOE) dollars inclusive of inflation. In the absence of revenue streams such as Measure D that grow with inflation, the remaining revenue sources available to SBCAG through the STIP Regional and Interregional Improvement Programs do not keep pace with inflation.

Implementation Plan

The Implementation Plan for 101 In Motion reflects the steps required to deliver each of the thirteen elements contained in the Adopted Improvement Plan. The thirteen elements are:

- #1 Widening of Highway 101 from Milpas to Ventura County Line
- #2 Commuter Rail between city of Camarillo and City of Goleta
- #3 Operational Improvements on Highway 101 between Milpas and Fairview
- #4 Commuter Express Bus Service
- #5 Connecting Bus Service at Rail Stations and Transit Hubs
- #6 Bus Priority Treatments
- #7 Carpool/Vanpool Pricing Incentives
- #8 Work Schedule Adjustments
- #9 Variable Parking Rates as Feasible by Location
- #10 Individualized Marketing
- #11 Ramp Metering
- #12 Intelligent Transportation System Elements
- #13 Monitoring Program

Implementation Steps and Responsible Agencies

The Implementation Plan reflects a proactive step by step approach to project delivery and assumes voter approval of the Measure D sales tax renewal in November 2006. The plan identifies key decision points and issues that must be addressed in the future as implementation occurs. Several of the elements are to be implemented soon after the renewal of Measure D and will require further planning, refinement, design, environmental review, and permitting etc. As the Financial Plan shows, all of the projects/elements require some degree of sales tax funding for timely implementation. A few elements such as Commuter Rail, Connecting Bus Service, and all the demand management elements are entirely dependent on the sales tax for funding of operation and maintenance costs.

It should be noted that the dates and timelines shown in the Implementation Plan are tentative and the project scopes shown are conceptual. Both are based on a planning level analysis using information available at the time the study was conducted. The implementation schedule will be refined on an on-going basis as the improvement program progresses.

#1 Widening of Highway 101 from Milpas to Ventura County Line:
The Implementation Plan for this element assumes early start activities such as surveying and traffic analyses to be funded by existing Measure D Sales Tax Revenue. In an effort to accelerate project delivery, some design and right-of-way would proceed at-risk after consensus is reached on the preferred alternative treatments and the Draft Environmental Document is approved yet prior to a Record of Decision on the Final EIR/EIS. The initiation of right of way at risk is considered particularly beneficial given the potential for extensive right-of-way requirements from UPRR. To allow opening of the widened sections of Highway 101 as soon as possible, design and construction is proposed to be implemented in two overlapping phases. The initial construction includes the widening of the mainline on Highway 101 to permit two general purpose lanes plus an HOV lane in each direction. During the mainline widening phase some shoulders may temporarily be substandard where the narrower bridges and undercrossings occur. Construction of mainline widening will consist of three approximately 4-mile segments. Opening to traffic of the first segment of the mainline widening is projected to occur by 2019 and completion of all mainline construction is projected to occur by 2023. HOV designation for the new third lane will not be applied until completion of the mainline widening of all three segments. Prior to completion, as mainline segments are completed, the new third lane will be used as a general purpose lane. The replacement of substandard overcrossings/undercrossings and reconstruction of interchanges as necessary will occur in parallel and subsequent to the mainline widening. Completion of all of overcrossings/undercrossings/interchange work is projected to occur by 2024. Implementation responsibility for this element lies with Caltrans/SBCAG in close coordination with the local jurisdictions.

#2 Commuter Rail between City of Camarillo and City of Goleta:
The Commuter Rail line is entirely contingent on approval of the new transportation sales tax measure. For purposes of the Implementation Plan it is assumed that Metrolink will be responsible for operations and maintenance for the Commuter Rail line. Other options are discussed in Appendix D. To enable an earlier start-up the Implementation Plan assumes an initial pilot service. The pilot service will comprise 2-round trips per day with minimal capital acquisition. Rolling stock will be leased and track expansion/modifications will be kept to a minimum. Agreements with UPRR on any required capital improvements and use of UPRR tracks as well as agreements with a service operator (Metrolink) and the County of Ventura must be secured prior to start of the pilot service. Implementation responsibility for this element is as yet to be defined however it will likely at a minimum include SBCAG and VCTC or a joint powers agency represented by both agencies. Opening of the pilot service is proposed for FY 2010/2011, and full service by FY 2016/2017.

#3 Operational Improvements on Highway 101 between Milpas and Fairview:
The Operational Improvements on Highway 101 between Milpas Street and Fairview Avenue will be implemented in phases, with the first phase focused on existing and near-term “hot spot” locations. Since the west end of the 101 corridor will be more affected by future land use decisions than the already built up east end, the nature and extent of further operational improvements will be gauged through the on-going monitoring program (Element #13). The Implementation Plan proposes two sequential phases of operational improvements. Each of these phases could include one or more individual improvement projects consisting of adding auxiliary lanes, full lanes, and/or interchange improvements . Completion of this element would coincide with completion of Element #1 (Widening of Highway 101 south of Milpas) in 2022. Implementation responsibility for this element lies with Caltrans/SBCAG in close coordination with the local jurisdictions.

#4 Commuter Express Bus Service:
This element expands commuter bus service between North County and the Cities of Goleta and Santa Barbara. It will provide additional alternative transportation capacity between North County and the cities of Santa Barbara and Goleta in the same way that the Commuter Rail program will do between Ventura and the cities of Santa Barbara and Goleta. The Implementation Plan proposes moving forward with a phased bus expansion program as soon as the new Measure D Sales Tax is approved.

#5 Connecting Bus Service at Rail Stations and Transit Hubs:
This element is entirely contingent on approval of the new transportation sales tax measure. It is required to support the proposed commuter rail service and as such its timing coincides with the completion of the pilot Commuter Rail service. Implementation responsibility for this element lies with MTD.

#6 Bus Priority Treatments:
While regional funding will be used, the implementation of this element is largely at the discretion of the local jurisdictions along with involvement by MTD. The scope of improvements will include upgrading existing buses to allow buses an extended green light at select intersections. In addition, possible infrastructure improvements at intersections will include providing an extra lane to allow a bus to skip ahead through an intersection, bulb-outs at bus stops, and transfer facilities at rail stations. Implementation timeline will occur as funding is available and local jurisdictions and MTD elect to implement these bus priority improvements.

#7 Carpool/Vanpool Pricing Incentives:
Although incentives are currently being used to some degree on the South Coast, the continuation and perhaps expansion of this program is entirely contingent on approval of the new transportation sales tax measure. The implementation of this element which includes carpool subsidies as well is proposed to be immediate following approval of the new transportation sales tax measure. Implementation responsibility for this element lies with SBCAG’s Traffic Solutions.

#8 Work Schedule Adjustments:
A flexible work schedule program is currently being implemented on a targeted scale with South Coast employers, however the continuation and expansion of this program is entirely contingent on approval of the new transportation sales tax measure. The continuity of this element is proposed to be immediate following approval of the new transportation sales tax measure. Implementation responsibility for this element lies with SBCAG’s Traffic Solutions.

#9 Variable Parking Rates as Feasible by Location:
Implementation of this element is at the discretion of the City of Santa Barbara, County of Santa Barbara, City of Goleta and UCSB. It is a voluntary program. The Implementation Plan proposes that initial assessment studies would occur in 2007. Implementation responsibility for this element would fall to the respective local jurisdictions.

#10 Individualized Marketing:
This demand management element would be a new program and is entirely contingent on approval of the new transportation sales tax measure. The implementation of this element is proposed to be immediate following approval of the new transportation sales tax measure. Implementation responsibility for this element would be SBCAG's Traffic Solutions.

#11 Ramp Metering:
Ramp metering applies to the entire 101 corridor from the Ventura County line to Winchester Canyon in Goleta. Ramp metering can only occur where there is sufficient ramp length and width to accommodate the queues that accompany ramp metering. Also, ramp meters need to be installed in such a way that they don't result in overloading the non-metered locations if traffic shifts due to the meters. The Implementation Plan for the ramp metering therefore reflects the need for the identification of problem areas and the subsequent implementation of a phased ramp metering program. The plan proposes implementation in geographic increments and will require extensive coordination with the respective local jurisdictions. Implementation responsibility for this element lies with Caltrans/SBCAG in close coordination with the local jurisdictions.

#12 Intelligent Transportation Systems Elements:
The implementation plan for this element uses a phased approach. Each phase will be sequential and will be delivered through contracts administered by SBCAG, Caltrans, or local agencies. SBCAG and Caltrans will refer to the "Central Coast Strategic Plan Deployment Plan", approved in June 2000 when determining an implementation schedule. A master cooperative agreement between Caltrans and SBCAG will be developed and close involvement by Caltrans will be ongoing. The first phase (Phase I) will be funded through existing Federal Earmark funds. Subsequent phases will be funded through the new transportation sales tax measure and potentially SHOPP funding.

#13 Monitoring Program:
The objective of the Monitoring Program is to assess on an annual basis the progress and phasing requirements for the various 101 In Motion elements. The outcome of each annual monitoring effort will shape future implementation priorities. The initial step will be to develop performance measures for each element in 101 in Motion. The monitoring effort will be led by SBCAG but will involve members of all the jurisdictions who participated in defining the 101 Improvement Plan.

1.0 INTRODUCTION

The purpose of the 101 In Motion project is to develop an action plan consisting of short-term and long-term solutions that will reduce congestion along the Highway 101 corridor in Santa Barbara County. This congestion has diminished the quality of life and economic vitality on the South Coast. The project was designed to engage the local community in a dialogue about the present and future of the 101 corridor with the intent of developing a consensus-based, implementable strategy for solving current and future transportation deficiencies.

This Final Report documents the process used to develop and evaluate alternative solutions for reducing congestion in the 101 Corridor, and presents the adopted solution package and Action Plan for implementing these improvements.

1.1 Historical Background

Concerns about growing congestion on Highway 101 in Santa Barbara County go as far back as 1974, when Caltrans sponsored a study to examine the feasibility of expanding the existing road system from four to six lanes between the Ventura County Line and the Hollister Avenue Overcrossing (P.M. 26.9). Ten years later, in 1983, after limited infrastructure improvement, SBCAG continued examination of the area, developing a corridor study that identified Highway 101 capacity deficiencies along the South Coast. As a result of this study, by 1992, Caltrans had expanded Highway 101 to six lanes between Fairview Avenue in Goleta and Milpas Street in Santa Barbara, and was prepared to continue widening from Milpas Street to Carpinteria.

Over $70 million in State Transportation Improvement Program (STIP) funds and $15 million in Measure D sales tax revenue had been set aside for widening south of Milpas Street. However, on releasing a Draft EIS/EIR for widening in 1993, Caltrans met with substantial community opposition to the plan and, in response to local concerns, SBCAG commissioned an alternatives analysis that examined the deployment of multi-modal solutions that did not require widening of Highway 101. In 1995, the *Highway 101 Alternatives Study* was completed and, shortly after, SBCAG approved a program of operational improvements in lieu of previously programmed widening. By 1999, SBCAG was prepared to go one step further, funding a supplementary program of enhanced transit and Transportation Demand Management (TDM) services.

Recognizing that these initiatives, while improving conditions, did not address the full extent of the congestion problem on Highway 101, SBCAG directed the preparation of the *South Coast Highway 101 Deficiency Plan*. The *Deficiency Plan* by SBCAG was prepared in cooperation with the County of Santa Barbara, the cities of Santa Barbara and Carpinteria, the Air Pollution Control District, Caltrans, and the Metropolitan Transit District. The *Deficiency Plan* documented the existing problems and offered short-term strategies aimed at improving transit, managing travel demand, and providing intelligent transportation system enhancements as well as previously programmed operational improvements Highway 101 and adjacent roads. The deficiency plan proposed 34 short-term improvement projects which were adopted by SBCAG and local cities in 2002.

In adopting these 34 short-term projects, the *Highway 101 Deficiency Plan*[1] acknowledged that the plan did not address the long-term freeway congestion issues of the South Coast. Within the 5-10 years that these projects were to be implemented, traffic volumes were expected to increase, and that more freeway sections, if not all, within the study area were expected to reach LOS E during peak travel times. With this understanding, the Deficiency Plan recommended that a community consensus process and implementation process be developed to comprehensively address longer-term Highway 101 deficiencies from the Ventura County Line to Winchester Canyon.

The *101 In Motion* project evolved from this recommendation with the goal of bringing together the full range of South Coast community members to formulate and implement a long-range improvement strategy based on local values. Once approved, the projects resulting from 101 In Motion will be incorporated into the Highway 101 Deficiency Plan and the Regional Transportation Plan for Santa Barbara County.

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[1] The South Coast Highway 101 Deficiency Plan. *June 2002. p. vi.*

The *101 in Motion* project has been governed by the Santa Barbara County Association of Governments (SBCAG) Board of Directors (Board), who are the decision making body who adopted the set of improvement projects described in this Final Report. Policy direction for *101 in Motion* was provided by a Steering Committee (SC), which consists of eight members of the SBCAG Board. There was also a Technical Advisory Group (TAG), consisting of member agency staff, who provided technical direction; a Stakeholder Advisory Committee (SAC) whose purpose was to represent the diversity of interests in the community and provide feedback and advice to the consultant team, TAG, SC and SBCAG Board on the *101 in Motion* program; and a consultant team who was hired to provide technical and public outreach expertise in conducting the *101 in Motion* program for SBCAG.

1.2 Study Process

The 101 In Motion process consisted of an integrated set of technical and public outreach activities aimed at identifying an implementation program consisting of community supported solution elements that best solve the corridor's existing and long range deficiencies. As depicted in Figure 1-1 an iterative screening/ consensus building process was used to first mix and match a broad range of solution ideas to form 8 alternative packages of improvements (Round 1), from which 4 Final Alternative Packages were picked (Round 2), with the final implementation Plan being selected in the end (Round 3). The final step in the process involved development of a funding/implementation plan for the adopted package of improvements.

The process used during 101 in Motion was consistent with an "Alternatives Analysis" (AA) that is part of the federally mandated metropolitan transportation planning process as specified by 23 CFR Part 150 FTA/FHWA Joint Final Rule on Metropolitan and Statewide Planning. An Alternatives Analysis is a locally managed study that relies to a large extent on the information on regional travel patterns, problems and needs generated by the regional transportation planning process. The Federal Transit Administration (FTA) requires that an AA be performed for a project to be considered eligible for "New Starts" funding. The identification, consideration, and analysis of alternatives are key to the National Environmental Protection Act (NEPA) process as well.

An Alternatives Analysis is required to:

- Develop a well-justified purpose and need statement.
- Rigorously explore and objectively evaluate all reasonable alternatives and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- Devote substantial treatment to each alternative considered in detail including the proposed action so that reviewers may evaluate their comparative merits.
- Include reasonable alternatives not within the jurisdiction of the lead agency.
- Include the alternative of no action.
- Indicate how and why the range of alternatives was developed and screened, what criteria were used, and what kind of public and agency input was used in the development and screening of alternatives.

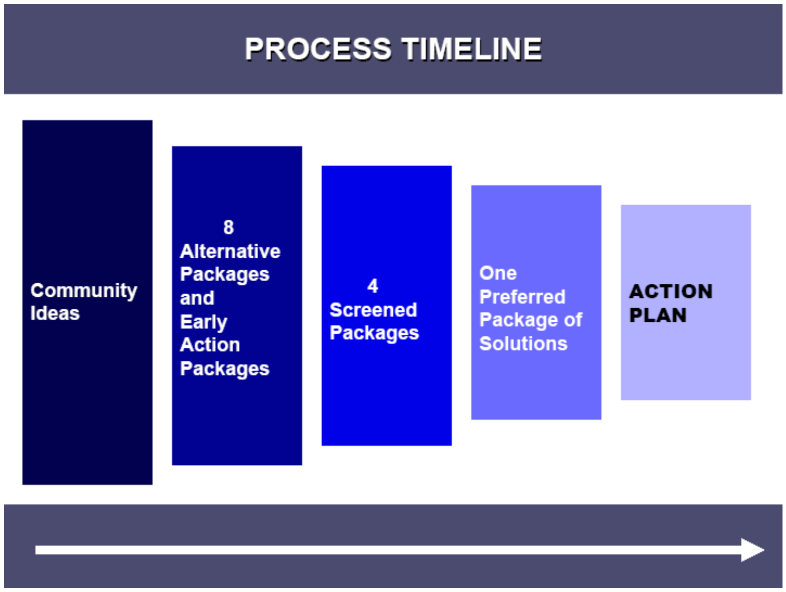

Figure 1-1 *101 In Motion* Technical Process

1.2.1 How *101 In Motion* Fits into the Larger Project Development Context

101 In Motion fits into a larger framework of transportation project development in California. Table 1-1 outlines the general process that SBCAG and Caltrans follow in order to develop major transportation projects related to freeways and highways such as Highway 101. Major transit or rail projects follow a slightly different series of steps, but the project phases and general principles are approximately the same. Consequently, 101 In Motion represents an important bridge between the region-wide long range transportation planning efforts led by SBCAG and the project development activities that are typically undertaken by Caltrans, the Federal Highway Administration, and other responsible agencies.

Table 1-1

SBCAG/Caltrans Project Development Process

Project Phase	Steps
Planning / Feasibility Studies	1. *Identify Project Need and Scope.* Work at this stage focuses on transportation problems and solutions. It establishes objectives and preliminary scoping. If a major project such as added lanes to a freeway or highway is involved, studies of alternative corridor level solutions are performed to compare potential transportation investments before deciding what to build (e.g., "101 In Motion" Corridor Study). 2. *Prepare Project Initiation Document or Project Study Report.* Project initiation documents for larger, more complex projects are called Project Study Reports (PSRs). Before a PSR can be approved, sufficient information is needed to determine the project's cost, design concept and scope, and schedule. One of the purposes of 101 In Motion is to determine which projects should be included in the overall corridor solution package and be advanced into PSRs 3. *Secure Project Programming.* Before formal project studies can commence for State-funded projects, the project must be programmed. Funding sources are identified and projects are included in the Regional Transportation Plan , Regional Transportation Improvement Program (RTIP) and State Transportation Improvement Program (STIP).

Project Phase	Steps
Environmental / Preliminary Engineering	4. *Prepare Draft Project Report.* Work activities in this step include preliminary engineering and various studies, including surveys and mapping, traffic forecasts and modeling, value analysis, hydraulic studies, right of way and utilities issues, railroad issues, geotechnical information, and multi-modal issues. 5. *Perform Environmental Impact Studies*. Environmental effects that must be considered include those on the natural environment, architectural and cultural issues, relocation impact studies, social issues, and hazardous materials, involving as many as a dozen separate studies depending upon the project. Less intrusive projects may achieve environmental approval with a short form, whereas more intrusive projects will require a full Environmental Impact Report (EIR) in accordance with the California Environmental Quality Act (CEQA), and if federal funds are involved, an Environmental Impact Statement (EIS) in accordance with the National Environmental Protection Act (NEPA). 6. *Secure Project Approval*. For projects with significant environmental effects, a formal review and comment period is required, which may include a public hearing. Selection of a preferred alternative must be documented as well as any changes in the project as a result of public comment. If federal funding is involved, the project must be approved by FHWA. Approval of a state project (no federal funds involved) is by the California Transportation Commission.
Final Design / Right of Way	7. *Prepare Plans, Specifications, and Estimates (PS & E).* In this step, detailed plans, specifications, and estimates are prepared and final right of way requirements are determined. 8. *Obtain Approvals, Agreements, and Permits.* Public agencies protect resources under their jurisdiction by requiring mitigation of project effects or through approvals and permits. Examples include: Section 404 Permit and National Pollutant Discharge Elimination System Permit for water resources or Concurrence with the National Historic Preservation Act for cultural issues. If the project results in Caltrans' ceding a portion of a state highway back to a local agency, a Relinquishment Agreement is executed at this stage. 9. *Acquire Rights of Way*. Key activities include appraisals, railroad and utility involvement, negotiations, and purchase. 10. *Complete Project Design*. Plans, specifications, and estimates are finalized.
Construction	11. *Prepare & Advertise Contract*. Funds requests are approved and final project documents and bid package are assembled for advertising for award of construction contract. 12. *Conduct & Complete Construction Project*. Includes construction activities, completed as-built plans, final contract estimate, completion of right of way activities, and completion of project mitigation measures.

Source: Adapted from Caltrans Publication "How Caltrans Builds Projects," October 1998.

As can be gathered from Table 1.1, 101 in Motion is in a relatively early step in project development. The SBCAG and Caltrans processes integrate engineering requirements, public involvement, state and federal approvals and funding commitments, and is governed by a multitude of laws and regulations pertaining to programming, environmental effects, right of way acquisition, and contracting for construction. Some of these steps can overlap and often do; however, a project must obtain key approvals at different intermediate stages before it is ultimately implemented in its final form. At each stage, the specificity of the project definition and level of analyses become more detailed. This means that alternatives examined in the 101 In Motion project are at a "broad-brush" or conceptual level. In addition, environmental analysis during a corridor study is preliminary and tends to focus on identifying environmental constraints and providing "order of magnitude" evaluative information from an environmental perspective on the different alternative packages under consideration. Following the completion of the 101 In Motion Study the preferred package of improvements that has been selected will then undergo further analysis and public scrutiny in the formal National Environmental Policy Act (NEPA)/California Environmental Quality Act (CEQA) process. This approach helps ensure that the more costly detailed environmental and engineering studies are devoted to only those alternative concepts that are reasonable and acceptable to the community.

1.3 Role of Community Outreach

Public participation was core to 101 in Motion, which had as an objective building strong community support into the process of making technical decisions. The public outreach effort strived to educate and involve the diversity of stakeholders affected by congestion on the Highway 101 Corridor in order to reach agreement on a package of improvements.

The public outreach plan had several key themes:

- Early involvement of the public prior to the development of any plans or alternatives
- A "go to them" effort that will enable stakeholders to involve themselves with minimal effort
- Proactive public relations activities to spread the word extensively
- Casting a wide net to reach the many people whose voices are rarely heard, while maintaining contact with those who are regular participants on transportation issues

Community Input

Since the initiation of the 101 in Motion Project in November 2003, SBCAG staff and the consulting team actively worked with the community to provide education about the process, the results of the analyses during each step, and the consensus recommendations.

Community input included:

- Five community workshops (4 in the South Coast, 1 in North County)
- 14 activity center booths
- 54 community presentations
- Broad based Countywide Stakeholder Advisory Committee (SAC) held 11 meetings open to the public
- Technical Advisory Committee (TAG), with representation from Cities, County, MTD, Caltrans, SBCAPCD, CHP and VCTC, held 31 meetings to review data and make recommendations.
- The Steering Committee of the Board met to receive information and give direction 11 times.

Additionally, members of the community were encouraged to attend the South Coast Subregional Committee (which served as the 101 In Motion Steering Committee) and the SBCAG Board meetings to express their views on the 101 in Motion project.

Outreach activities during each of the four phases of 101 in Motion are discussed in subsequent sections of this Report.

2.0 EXISTING AND FUTURE CONDITIONS

2.1. *101 in Motion* Analysis Area

As shown in Figure 2-1, the primary corridor examined in this project is a 2-mile band on each side of U.S. 101, stretching from the Ventura County Line on the south to Winchester Canyon on the north, a distance of approximately 27 miles. Because many trips that occur in the 27-mile corridor begin and end elsewhere, a larger area is included for analysis purposes. The larger area includes north Santa Barbara County and west Ventura County.

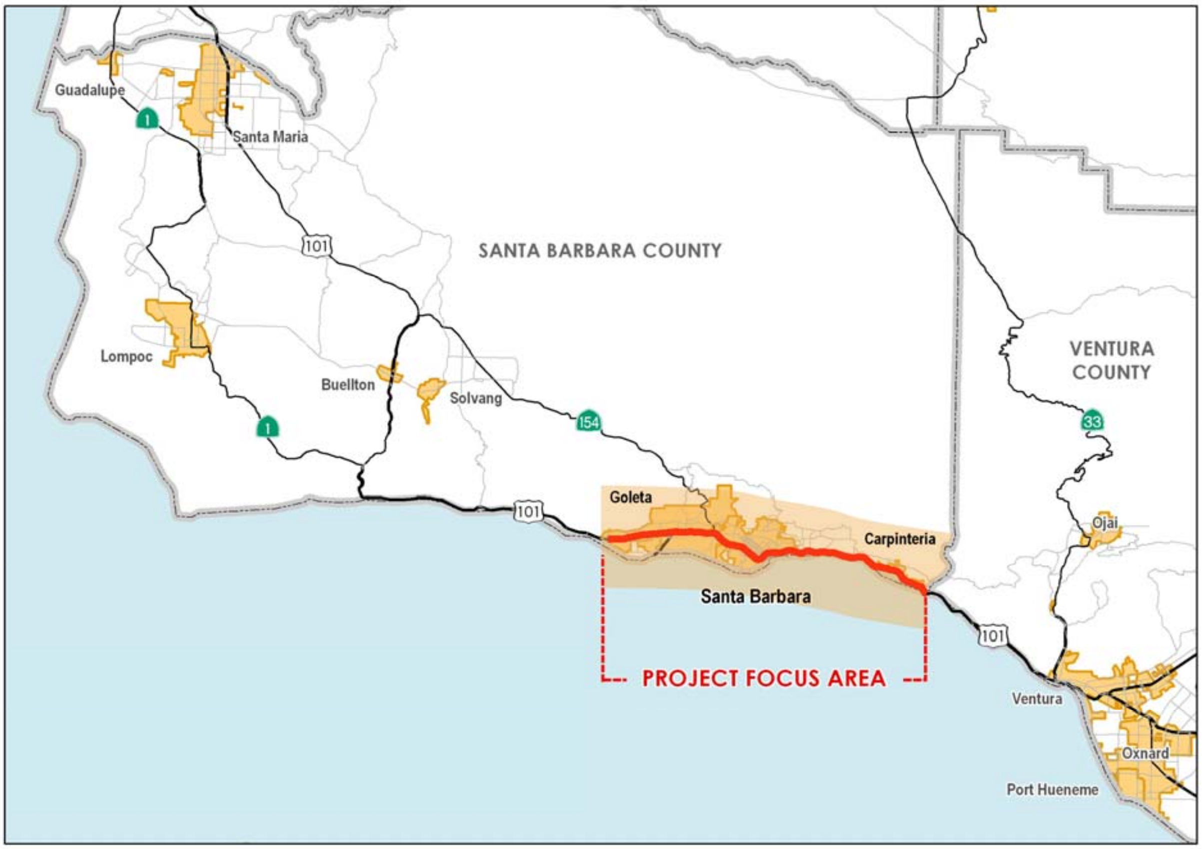

Figure 2-1 Project Setting

2.2 Existing and Future Conditions

2.2.1 Demographic and Socioeconomic Trends

This section describes past, current, and future projections of demographic and socioeconomic data for communities inside the *101 In Motion* project focus area from Winchester Canyon to the Ventura County Line. It briefly touches on data for Ventura County as well. Among the factors examined are population, employment, age, land use forecasts, and jobs-housing data. An analysis of this information provided a basis for determining trends and factors which could influence the need for and type of transportation improvements to be made in the corridor. Better understanding of the market segments demanding transportation service in Santa Barbara County aided in development of effective, fiscally responsible solutions to existing and future congestion.

2.2.1.1 Population

Census data for 2000 shows that population in Santa Barbara County is clustered around five main city centers: Santa Barbara (154,500), Santa Maria (110,700), Lompoc (58,300), Goleta (27,500), and Carpinteria (19,100). Smaller clusters of people are located in Solvang (18,000), Guadalupe (6,100), and Buellton (3,800). Of the 399,000 people living in the county in 2000, 201,000 lived in the South Coast with the greatest concentrations of people in the cities of Santa Barbara and Goleta. Figure 2-2 shows the population density by census block groups in the South Coast.

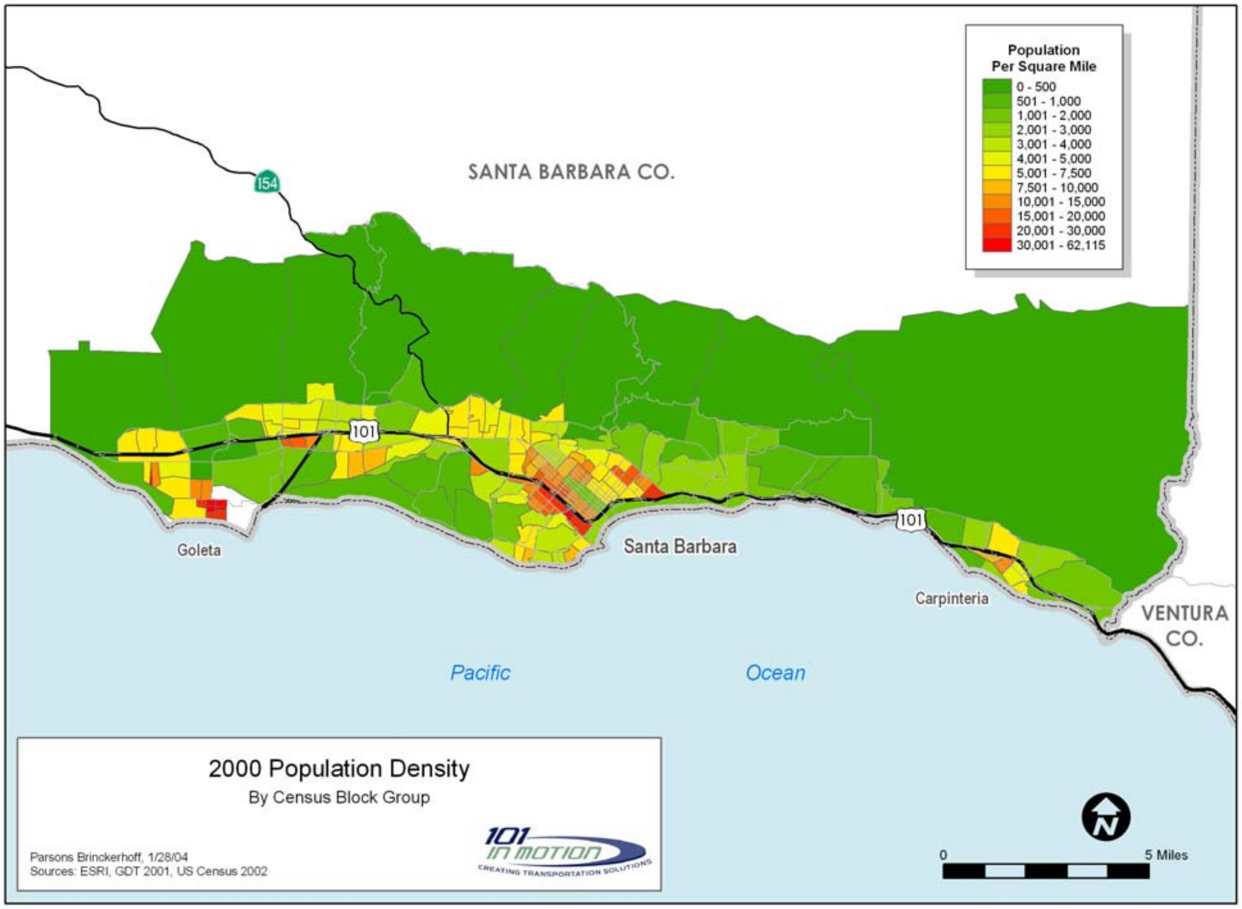

Figure 2-2 2000 Population Density by Census Block Group in South Coast
Source: ESRI, GDT 2001, US Census 2002

Between 2000 and 2030 the South Coast is expected to increase by 39,500 people—an increase of 20 percent. North County is expected to grow by 82,000 people—an increase of 41 percent. A further breakdown by jurisdiction in the South Coast shows that the cities of Carpinteria, Santa Barbara, and Goleta are expected to increase by 11, 14, and 25 percent, respectively, between 2000 and 2030. The unincorporated areas in the South Coast are forecast to grow by 27 percent.[2] (See Table 2-1).

2000-2030 Regional Population Growth Forecast by Subregion – Santa Barbara County							
Jurisdiction	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**
South Coast Subregion	**201,000**	**208,900**	**216,800**	**224,900**	**232,100**	**236,300**	**240,500**
City of Carpinteria	14,200	14,800	15,000	15,300	15,500	15,800	16,000
City of Santa Barbara	89,600	90,500	92,700	94,900	97,200	99,400	101,700
City of Goleta	27,500	29,900	32,300	33,000	33,400	33,900	34,300
Carpinteria - Unincorporated	4,900	5,200	5,600	5,900	6,200	6,600	6,900
Santa Barbara - Unincorporated	64,900	68,500	71,200	75,800	79,700	80,500	81,400
Remainder of County	**198,300**	**226,300**	**245,500**	**262,500**	**272,500**	**276,600**	**280,300**
County Total	**399,300**	**435,200**	**462,300**	**487,400**	**504,600**	**512,900**	**520,800**

Table 2-1 2000-2030 Regional Population Growth Forecast by Subregion
Source: *Regional Growth Forecast 2000-2030*. December 2002.

In Ventura County, population is expected to grow as well, with over 30 percent growth expected county-wide by 2030.

2.2.1.2 Employment Forecast

A number of key trends are expected to impact employment growth in the South County. First, Santa Maria is expected to remain an important retail-service center and increase its share of total county employment. At the same time, in absolute terms, more individuals are predicted to live in the Santa Maria area and commute to South County for jobs. Second, Lompoc will likely serve as a source of affordable housing for those who work in the South Coast, resulting in increased commutes from this area. Finally, employee densities in downtown Santa Barbara are projected to continue to increase as businesses respond to high rents and maximization of available space.[3] While the number of jobs is expected to grow, fewer and fewer employees for the South Coast job pool are expected to reside locally. Table 2-2 illustrates the forecasted employment by subregion over time.

2000–2030 Employment Forecast by Subregion								
Jurisdiction (Subregion)	**2000**	**2005**	**2010**	**2015**	**2020**	**2025**	**2030**	**Total Change**
South Coast	108,207	116,678	124,539	132,245	140,081	147,622	155,331	**47,124**
Lompoc	20,157	21,602	22,990	24,377	25,775	26,941	28,293	**8,136**
Santa Maria*	41,508	45,075	48,121	51,322	54,393	57,847	60,927	**19,419**
Santa Ynez	8,528	9,145	9,770	10,396	11,011	11,630	12,249	**3,721**
County Total	**178,000**	**193,000**	**205,000**	**218,000**	**231,000**	**244,000**	**257,000**	**79,000**
* includes Guadalupe and Cuyama areas								

Table 2-2 2000-2030 Employment Forecast by Subregion
Source: *Regional Growth Forecast 2000-2030*. December 2002.

The percent of all County jobs within each subregion forecast over 30 years is expected to remain the same, with the South Coast subregion maintaining 60percent of the employment through 2030.

Employment is expected to grow more rapidly between 2000 and 2010, and then as available land is developed, employment growth is expected to slow. Overall, the County's employment is expected to grow by 44 percent by 2030.

2.2.1.3 Age Distribution

Table 2-3 shows the percent distribution of population by age group for Santa Barbara County in both 2000 and as projected for 2030.

[3] Regional Growth Forecast 2000-2030. *December 2002. p. 6.*

2000-2030 Age Distribution (Santa Barbara County)					
	Age 0-19	**Age 20-44**	**Age 45-59**	**Age 60+**	
2000	28%	36%	19%	17%	100%
2030	31%	30%	14%	25%	100%

Table 2-3 2000-2030 Age Distribution (Santa Barbara County)
Source: *Regional Growth Forecast 2000-2030*. December 2002.

As in many parts of the country, the population is getting older in Santa Barbara County as the Baby Boomer generation ages. Countywide, those individuals age 60 and over are predicted to increase from 17 to 25 percent of the population between 2000 and 2030. While the 0-19 age groups is projected to increase slightly, the in-between age groups, from 20-44 and 45-59 are both expected to decrease as a percent of total population. This suggests that, in the future, Santa Barbara County will experience increased demand for services aimed at the elderly population and, simultaneously, a relative percent decline in working age population. Furthermore, as long-time residents living in the South Coast age, less of the working population will live near where 60 percent of the jobs are in the County, the South Coast, forcing more individuals to commute long distances in search of jobs.[4]

2.2.1.4 Jobs-Housing Relationship

The South Coast is one of the least affordable housing markets in the United States, with an average home price in excess of $1 million in 2005. By contrast, housing prices have escalated more slowly in northern Santa Barbara County, increasing 22.3 percent over the past decade, and are lower than on the South Coast, with an average home price of $356,000 in 2004 in the Santa Maria area.[5] Homes in Ventura County to the south have a median price of $596,000 (October 2005 sales).[6] While less expensive than homes on the South Coast, they are more expensive than in northern Santa Barbara County.

Rental rates on the South Coast have also increased dramatically during the past decade, exceeding $1,200 per month on the South Coast, compared to approximately $730/month in Santa Maria and $660/month in Lompoc. These statistics help to explain the growing numbers of people residing far from their work place on the South Coast, affecting the region's travel patterns and increasing work trip lengths.[7]

Forecasts for commercial, retail, and industrial employment compared to theoretical build-out under existing regulations indicate that the South Coast region will face a shortage of space as it approaches 2030. Experts forecast that employment densities will continue to increase and that additional capacity will be developed in some areas through redevelopment. As new employees require more housing, household size is expected to increase, reflecting both higher housing costs and ethnic and cultural changes in the population.[8] As jobs and affordable housing move farther apart, and congestion worsens, more and more workers will be forced into spending more time in their commutes.

2.2.2 Transportation Systems and Travel Characteristics

This section describes the transportation systems and travel characteristics of the project area for the base case in the past, present, and expected in the future forecast year of 2030.

[4] Regional Growth Forecast 2000-2030. *December 2002. pp. 28-33.*
[5] www.homescentralcoast.com, *Accessed March 15, 2004*
[6] DataQuick Research, www.DataQuick.com, *Accessed November 15, 2005*
[7] Regional Growth Forecast 2000-2030. *December 2002. pp. 96-100 and* Regional Housing Needs for Santa Barbara County, *December 2002.*

[8] Regional Growth Forecast 2000-2030. *December 2002. pp. 9-10.*

2.2.2.1 Magnitude of Travel

At the regional level, between 1991 and 2001, annual traffic growth on all State routes in Santa Barbara County remained relatively steady at approximately 1-2 percent per year. As the principal north-south roadway, US 101, however, experienced significant growth in the mid-1990s (over 6 percent between 1996 and 1997). While growth has slowed in recent years, the ten-year average remains 4.7 percent for the entire corridor—well above that of other routes in Santa Barbara County. At the Ventura County line, the increase was as high as 10 percent during this two-year period, with volumes climbing to 66,000 vehicles per day. Highway 101 between Mission Street and Las Positas continues to have the highest traffic volumes in the county. Over the 1991-2001 period, the average annual traffic growth in this segment was 2.3 percent, with current average daily traffic (ADT) reaching 141,000 vehicles per day.[9]

Between 2000 and 2030 average daily traffic on Highway 101 is forecast to grow by approximately 30 percent south of Milpas Street, 20 percent between Milpas Street and Turnpike Road, and 45 percent north of Turnpike Road.

2.2.2.2 24-Hour Distribution of Traffic

Traffic distribution for interregional travel is characterized by two distinct peaks (7-9 a.m. and 4-6 p.m.). A typical weekday distribution of traffic in the South Coast on Highway 101 can be seen at the four locations shown in Figures 2-3 to 2-6. As can be seen in these Figures, the directional distribution of traffic along Highway 101 varies with the location in the corridor, with a pronounced directional split occurring at the more outlying locations (in the vicinity of Los Carneros Road and at Bailard Avenue), and a more balanced directional split closer in (in the vicinity of Las Positas Road and near Cabrillo Boulevard/ Hot Springs Road).

Also of significance is that the relative magnitude of the peak period traffic compared to mid-day traffic is less pronounced in the vicinity of Las Positas and near Cabrillo/ Hot Springs compared to near Los Carneros Road and Bailard Avenue.

The peak periods for traffic volume are generally associated with the commute to work and the commute home. Home to work trips generally occur between 7-9 a.m. and work to home trips between 4-6 p.m. The afternoon period tends to have a greater diversity in trip types, including more shopping, recreational, and other discretionary trips. As a result, P.M. Peak period volumes tend to be higher than those in the morning.

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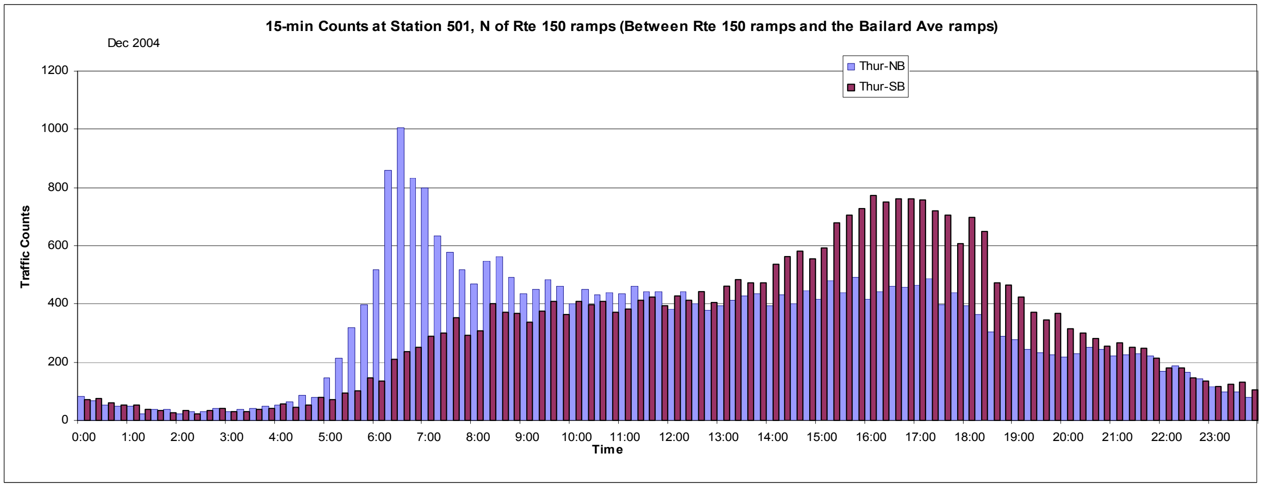
[9] 2001 Travel Trends Report for Santa Barbara County. *October 2002. p. 2.*



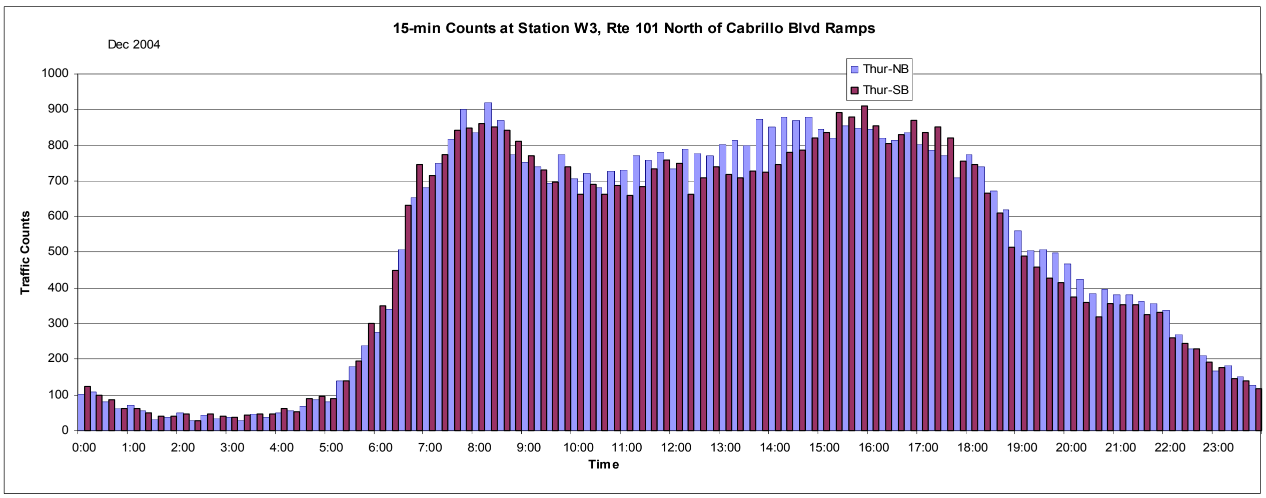
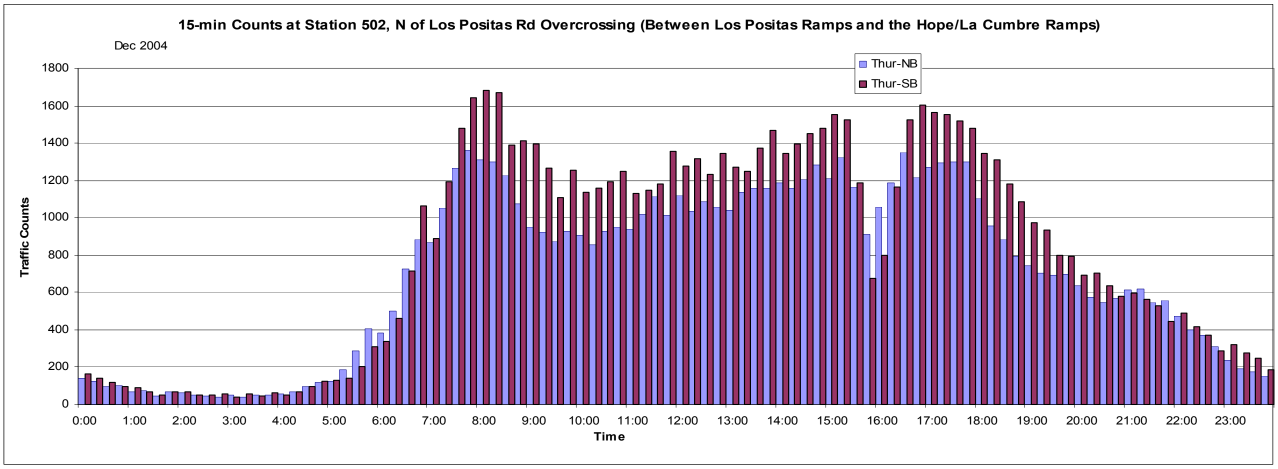


Figure 2-3 15-Minute Traffic Counts on US 101 at Bailard Avenue in December 2004
Figure 2-4 15-Minute Traffic Counts on US 101 at Cabrillo Boulevard in December 2004



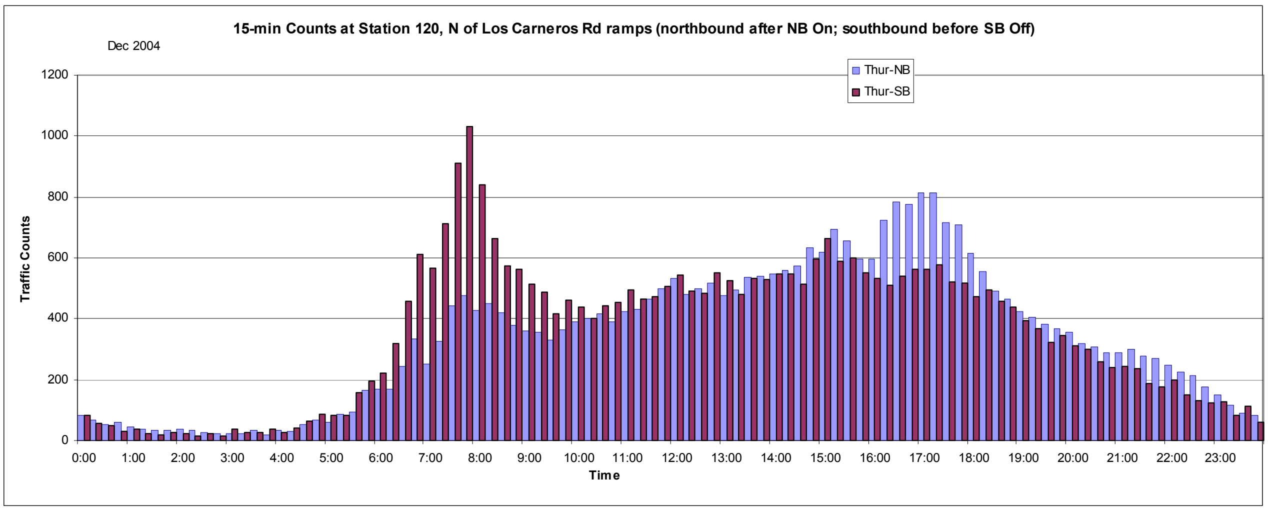


Figure 2-5 15-Minute Traffic Counts on US 101 at Las Positas Road in December 2004
Figure 2-6 15-Minute Traffic Counts on US 101 at Los Carneros Road in December 2004
Source: Caltrans Traffic Counts.

2.2.2.3 Travel Patterns

Data compiled from the 2002 Commuter Profile aids in describing travel patterns in the South Coast. Because the worst congestion occurs during the morning and evening commute times, analyses focus on these peak periods.

The most significant number of peak period commute round-trips are: internal to the City of Santa Barbara (38,620), from Goleta to Santa Barbara (10,300), Santa Barbara to Goleta (8,780), internal to Goleta (6,360), Lompoc to Santa Barbara (3,940), Lompoc to Goleta (3,480), Caprinteria to Santa Barbara (2,420), internal to Carpinteria (1,820), Santa Barbara to Montecito (1,800), and Santa Maria to Goleta (1,500). [10]

In addition, there are large numbers of trips commuting from Ventura County to Santa Barbara County (15,600 round trips). Of these, 8,640 are destined to the City of Santa Barbara, 3,800 to Carpinteria, 2,070 to Goleta, 700 to Montecito and Summerland, and the balance to elsewhere in the County.[11] These trips by Ventura County commuters to the South Coast represent a significant contribution to overall congestion each day.

[10] *2002 Commute Profile, SBCAG 2002*
[11] *2002 Commute Profile, SBCAG 2002*

Caltrans traffic counts on Highway 101 in the South Coast show that average weekend traffic volumes are actually higher than average weekday traffic volumes. Weekend traffic is highly directional, strongly favoring the northbound direction on Saturday, with a correspondingly heavy southbound flow on Sunday. The highest number of observed vehicles on Highway 101 occurs southbound during the Sunday peak period. This weekend peak period use is typically higher during the summer and/or holiday weekends.

Previous studies have shown that during the weekday peak periods approximately 5 to 8 percent of traffic on Highway 101 is traveling through the South Coast with no origins or destinations within the South Coast. The previous surveys also found that during the weekday midday period, 35 percent of drivers heading southbound were traveling through the South Coast with no origins or destinations within the South Coast. During the Sunday afternoon peak period, 25 percent of southbound 101 drivers traveling through the South Coast had no origins or destinations within the South Coast. [12]

This suggests that, by far, the most effective strategies for reducing congestion and improving service on Highway 101 will emphasize the reduction of intra-county commute trips and commute trips by Ventura County residents. Trips passing completely through Santa Barbara County during the commuter peak hours are relatively small by comparison, and weekend congestion is strongly contributed to by through travelers for which local measures may have little effect. Potential solutions however were evaluated from the standpoint of reducing weekend congestion as well as weekday congestion.

2.2.2.4 Mode Choice

Mode choice is the means of transportation chosen by commuters. When asked in 2000 how they traveled to work the previous week, just over 7 out of 10 Santa Barbara and Goleta commuters responded that they drive alone. Of the remaining commuters, 14.8 percent carpool and vanpool, 6.9 percent bicycle or walk, 4.1 percent take transit, 0.2 percent telecommute, and 0.65 percent are part of a trip elimination or compressed work week program. (See Figure 2-7).

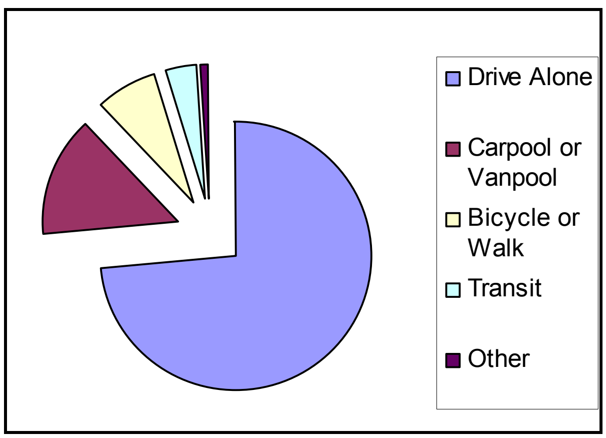


Figure 2-7 Existing Mode Spilt

2.2.2.5 Goods Movement

In addition to acting as a major commute corridor, Highway 101 is the primary goods movement route along the South Coast. Freight volumes along this route, while less than on the parallel I-5 through the Central Valley, are nonetheless critical to the State's economy and to national and international trade. This is especially true for fresh-packed produce grown in the area and for wines bottled in the region. These commodities are generally moved by truck to Los Angeles or San Francisco where they meet final demand or continue towards final markets. The lack of sea or air cargo facilities in the county means local goods shipped out of Southern California must be transported by trucks along Highway 101 or by rail using the Union Pacific track that parallels Highway 101 for much of the corridor.

[12] Alternatives Analysis of Highway 101 Corridor: Final Report. *May 1995. pp. 20-28.*

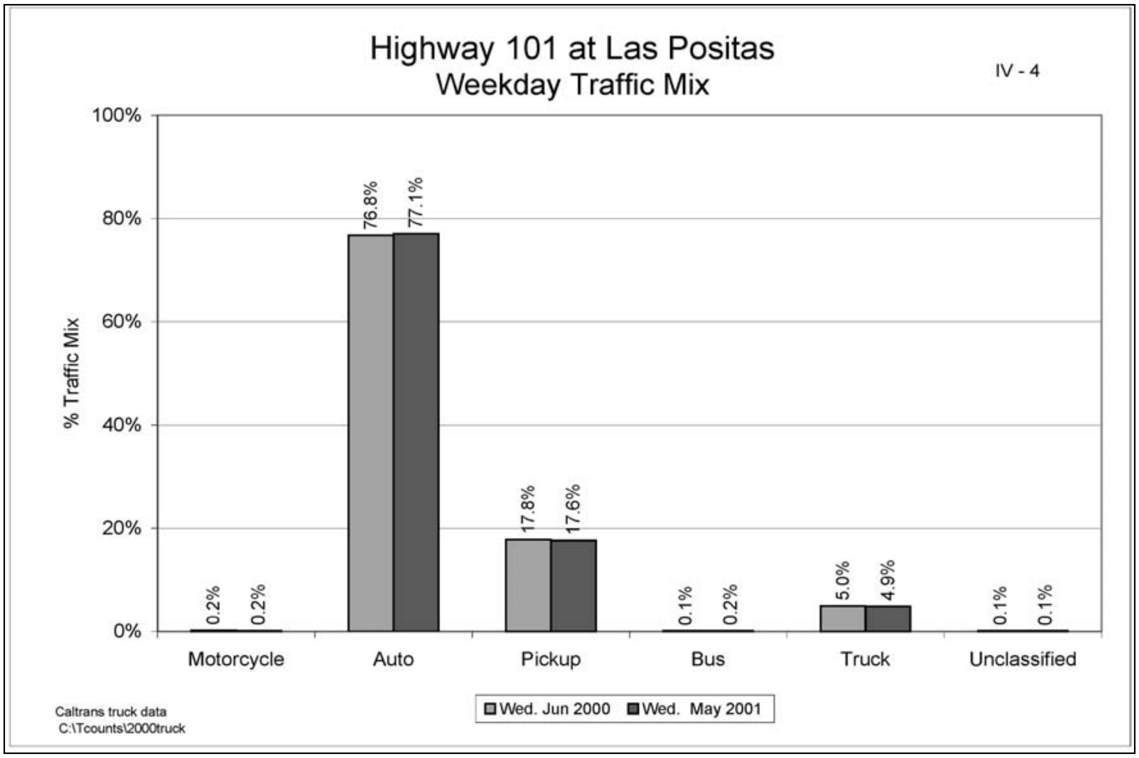


Figure 2-8 Highway 101 Weekday Traffic Mix (Las Positas)
Source: *SBCAG 2001 Travel Trends Report*. October 2002.

As indicated in Figure 2-8, approximately 95 percent of vehicles on Highway 101 are automobiles, pickups, and panel trucks. Commercial truck traffic with 2 to 5+ axles and semi's make up most of the remaining 5 percent of corridor traffic, with buses constituting about one-tenth of one percent and motorcycles constituting about two-tenths of one percent. Between 2000 and 2001, total truck traffic on a 24-hour basis has remained extremely stable with no indication that increased truck volumes are a key factor in increased corridor congestion.

As shown in Figure 2-9, within the truck-based 5 percent of total corridor traffic, semis (3-6 axle) and unit trucks (2 axle) dominate, each constituting about 40 percent of total truck traffic. Twenty-four counts at Las Positas indicates the highest truck volumes occur between 7:00 a.m. and 3:00 p.m.

Given that trucks account for only 5 percent of all trips on Highway 101 in the South Coast, and with most truck trips occurring in times other than the evening commute peak period, there appears to be limited potential for significantly reducing congestion through better truck freight management in the 101 corridor.

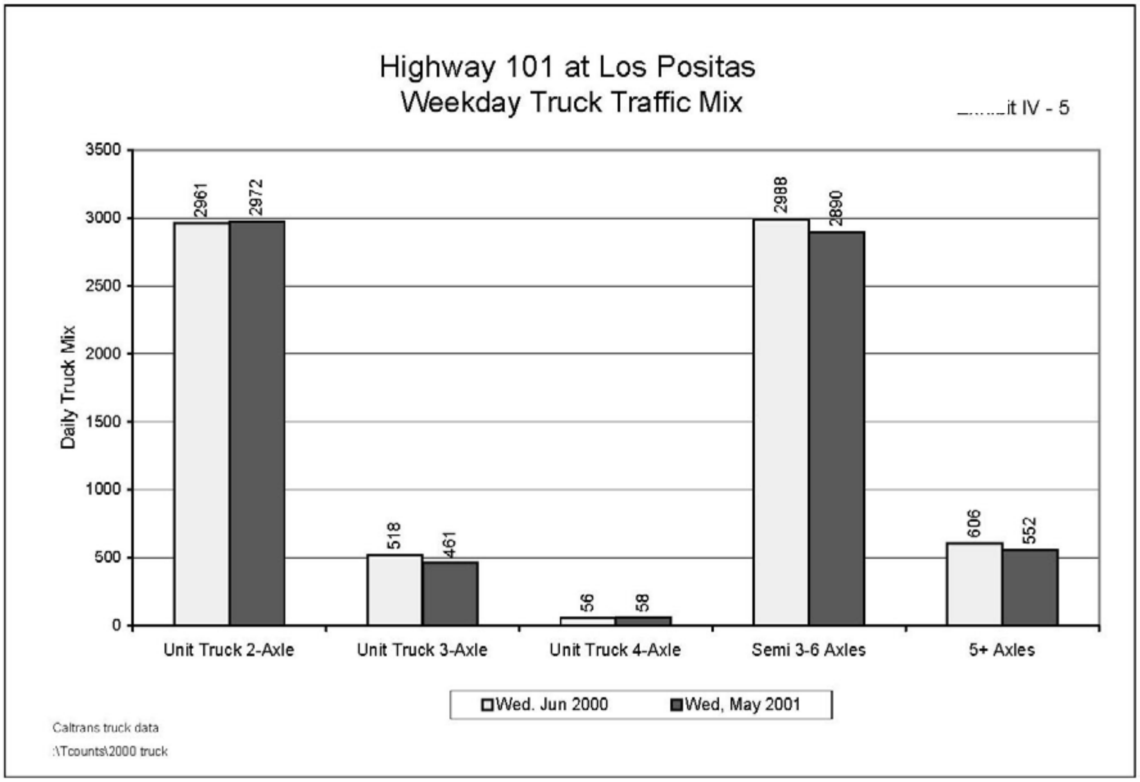


Figure 2-9 Highway 101 Weekday Truck Traffic Mix (Las Positas)
Source: *SBCAG 2001 Travel Trends Report*. October 2002.

2.2.2.6 Safety Characteristics

The number of accidents occurring on Highway 101 between the Ventura County Line and Winchester Canyon increased commensurate with traffic growth over the last five years (Figure 2-10). Accidents typically occurred on weekdays (Monday-Friday) with the highest percentage during the evening peak hour (4 p.m. to 5 p.m.). Several facts derived from recent accident data reveal characteristics of a freeway experiencing congested peak hour commuter conditions. One characteristic is that 47 percent of the collisions occur during the commute hours (6 a.m. to 9 a.m. and 3 p.m. to 6 p.m.). Also pointing to congestion being a source of accidents is that accidents were more prevalent in the southbound direction of travel in areas north of downtown and more prevalent in the northbound direction of travel in areas south of downtown (see Figure 2-10). Another characteristic related to congestion, shown in Figure 2-11, is that most accidents were rear-end accidents. Additionally, congestion on Highway 101 and local major arterials can impede access to accident scenes by emergency vehicles.

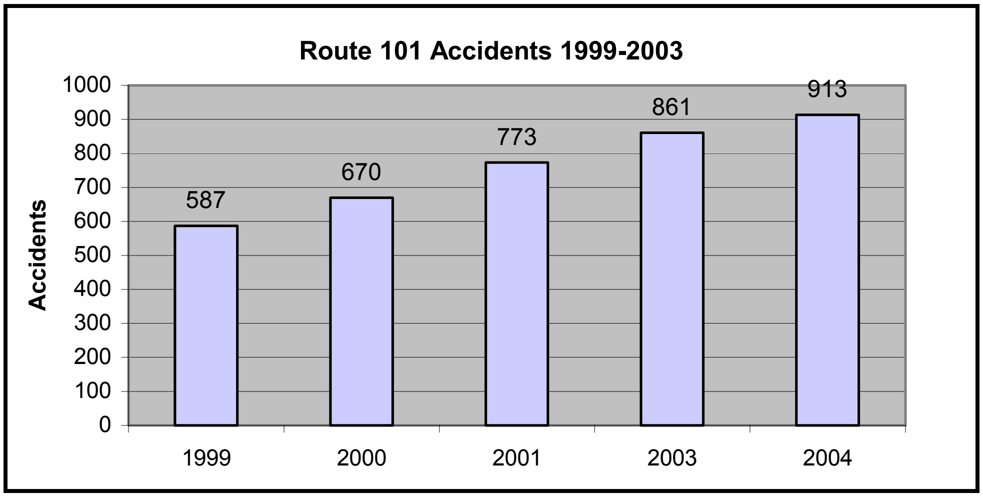


Figure 2-10 US 101 Accidents (1999-2003)
Source: *Caltrans TASAS Selective Records*

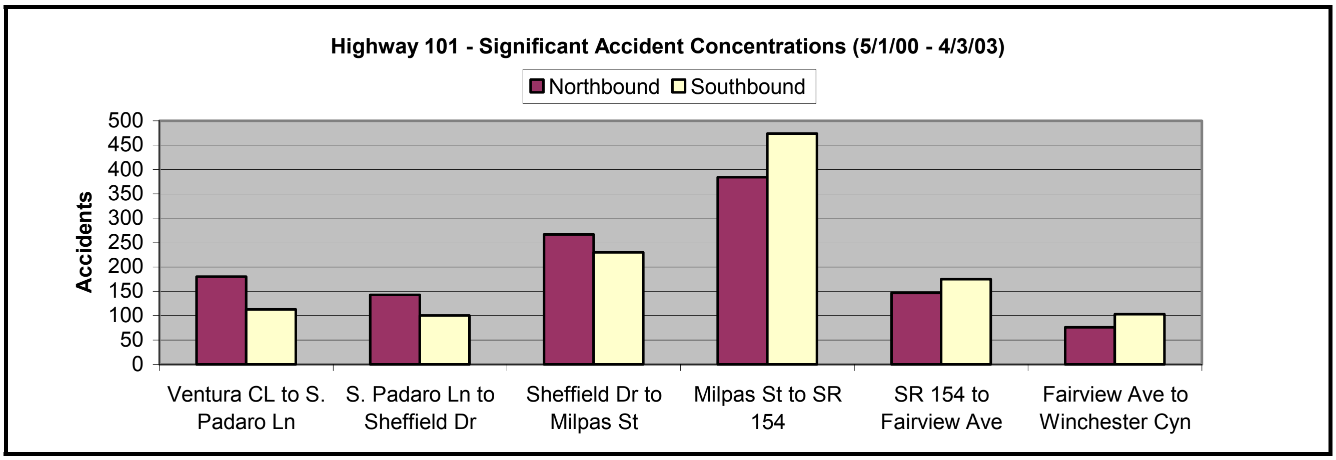


Figure 2-11 US 101 Significant Accident Concentrations (2000-2003)
Source: *Caltrans TASAS Selective Records.*

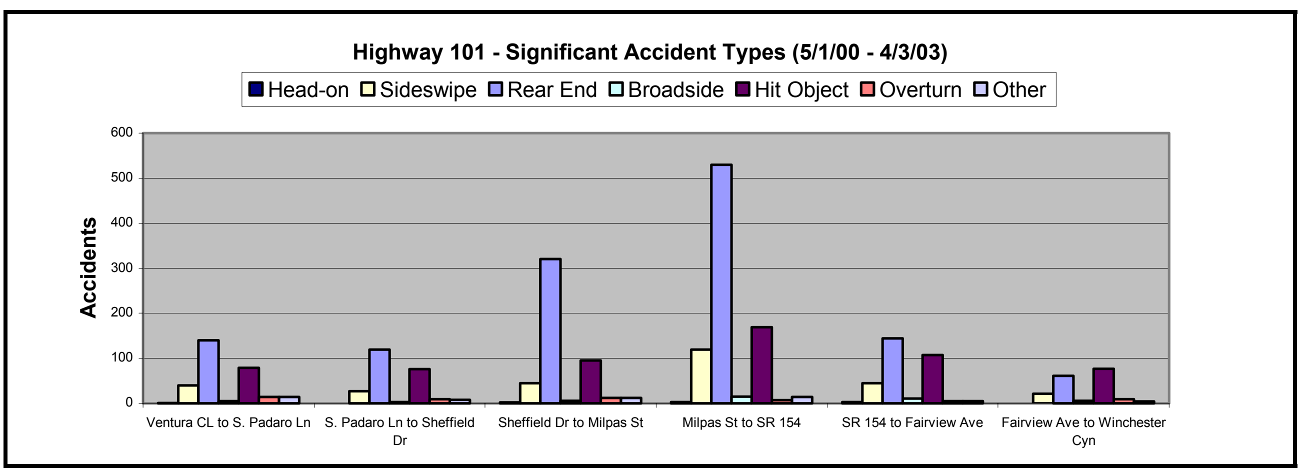


Figure 2-12 US 101 Significant Accident Types (2000-2003)
Source: *Caltrans TASAS Selective Records.*

2.2.2.7 Air Quality

Santa Barbara County met the federal standards for all pollutants in 2004, and met the state standards for all pollutants except for ozone. As shown in Figure 2-13, Santa Barbara County has significantly lowered the number of state and federal ozone exceedance days over the past fifteen years.[13]

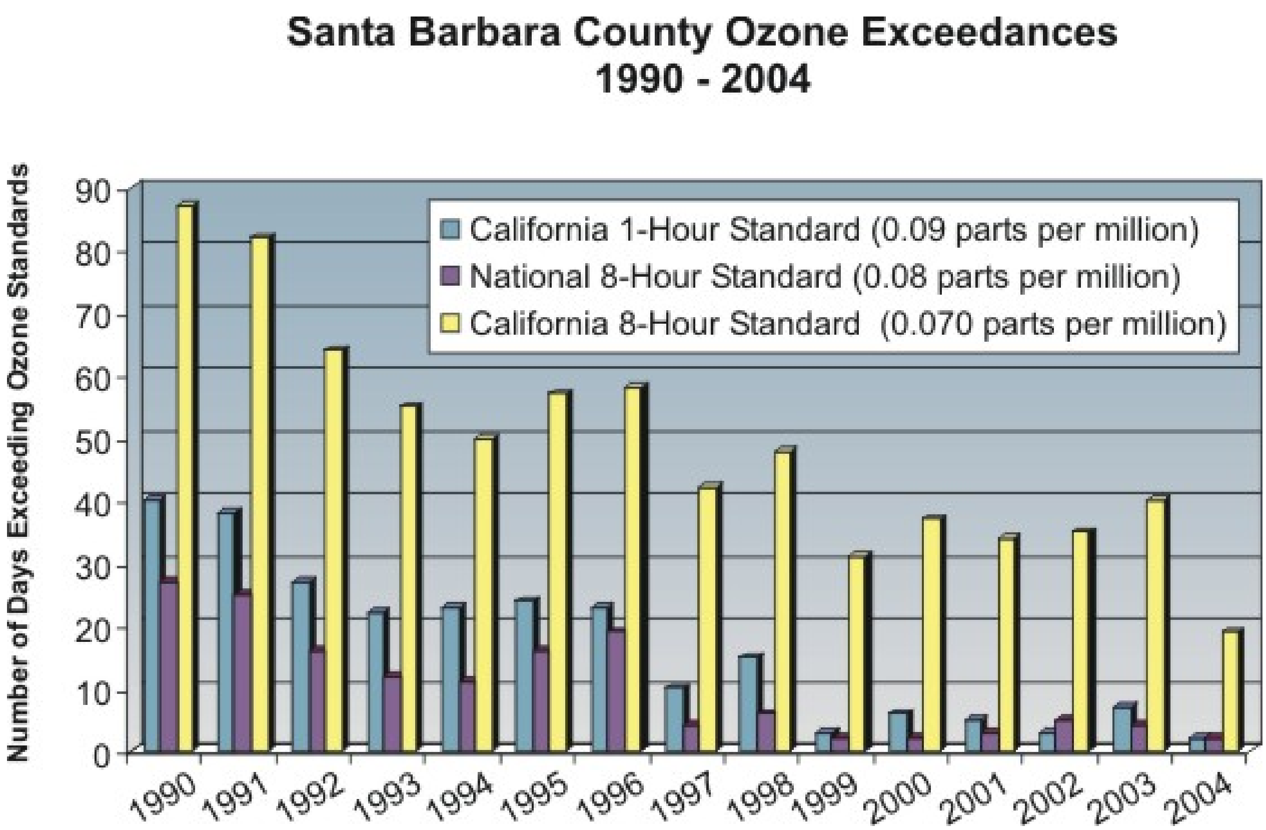


Figure 2-13 Santa Barbara County Ozone Exceedance Days
Source: Air Pollution Control District 2004 Annual Air Quality Report, 2005.

2.2.3 Existing Facilities and Services

2.2.3.1 Roadways

Highway 101 is the major thoroughfare for the South Coast, spanning the entire length of Santa Barbara County as the backbone to the area's street and highway network. It is also the principal intercity highway connecting coastal cities between Los Angeles and San Francisco. Highway 101 is six lanes wide from the Ventura-Santa Barbara County line to just north of State Route 150, a distance of 1.1 miles. From here to Milpas Street (11.2 miles), Highway 101 is a four-lane facility. At Milpas Street, the freeway widens to six lanes until Fairview Avenue. From Fairview Avenue northward to Winchester Canyon Road, it is a four-lane freeway again. There are 26 full or partial interchanges on Highway 101 within the South Coast, spaced an average of 1.1 miles apart.

Highway 101 carries about two-thirds of all east-west traffic along the South Coast. A system of arterial streets complements Highway 101 by serving shorter trips and distributing traffic between Highway 101 and the local street system. Many arterials have limited continuity and capacity and do not provide a viable

[13] *Air Pollution Control District 2002 Annual Air Quality Report, www.sbcapcd.org/sbc/2002aqrpt.htm.*

alternative route for most trips made on Highway 101. The primary parallel arterials to Highway 101 are Via Real / Ortega Hill Road / Jameson Lane / Coast Village Road/ Old Coast Highway from Santa Ynez Avenue in Carpinteria to Hot Springs Road in western Montecito; Cabrillo Boulevard / State Street/ Hollister Avenue from eastern Santa Barbara to Ellwood; and Cathedral Oaks Road/ SR 192 from SR 150 to Glen Annie Road. Sections of Calle Real, Carpinteria Avenue, and Modoc Road are also used as alternative routes for shorter trips. Among the arterial gaps are the discontinuities on Calle Real between Glen Annie Road and Los Carneros Road; and Calle Real between Patterson Avenue and Turnpike Road.

2.2.3.2 System Performance

Roadway Capacity is defined as the maximum hourly rate at which persons or vehicles can reasonably be expected to traverse a point or uniform section of a lane or during a given time period under prevailing roadway, traffic and control conditions.

◊ *Roadway conditions* refer to the geometric characteristics of the street or highway, including: the type of facility (e.g. freeway, rural highway, urban street, etc.) and it's surrounding environs; the number of lanes; lane and shoulder widths; lateral clearances; design speed; distance between on and off-ramps and horizontal and vertical alignments.

◊ *Traffic conditions* refer to the characteristics of the traffic stream using the roadway. This is defined by the distribution of vehicle types (e.g. large trucks, small trucks and autos) in the traffic stream; the distribution of traffic amongst the available lanes; and the amount of weaving between lanes particularly between on and off-ramps.

◊ *Control conditions* refer to the types of specific design of traffic control devices and restrictions on use of a given roadway. Traffic control devices on non-limited access roadways include traffic signals, stop signs, roundabouts, etc. Use restrictions include special lanes such as carpool lanes on freeways, and turn restrictions on city streets.

The capacity of a section of roadway can vary significantly depending on the combination of roadway, traffic and control conditions applicable to that section. In planning studies such as 101 in Motion generalized assumptions must be made regarding capacity values. A set of assumed capacity values for Highway 101 was established by the project's Technical Advisory Group (TAG) and consists of :

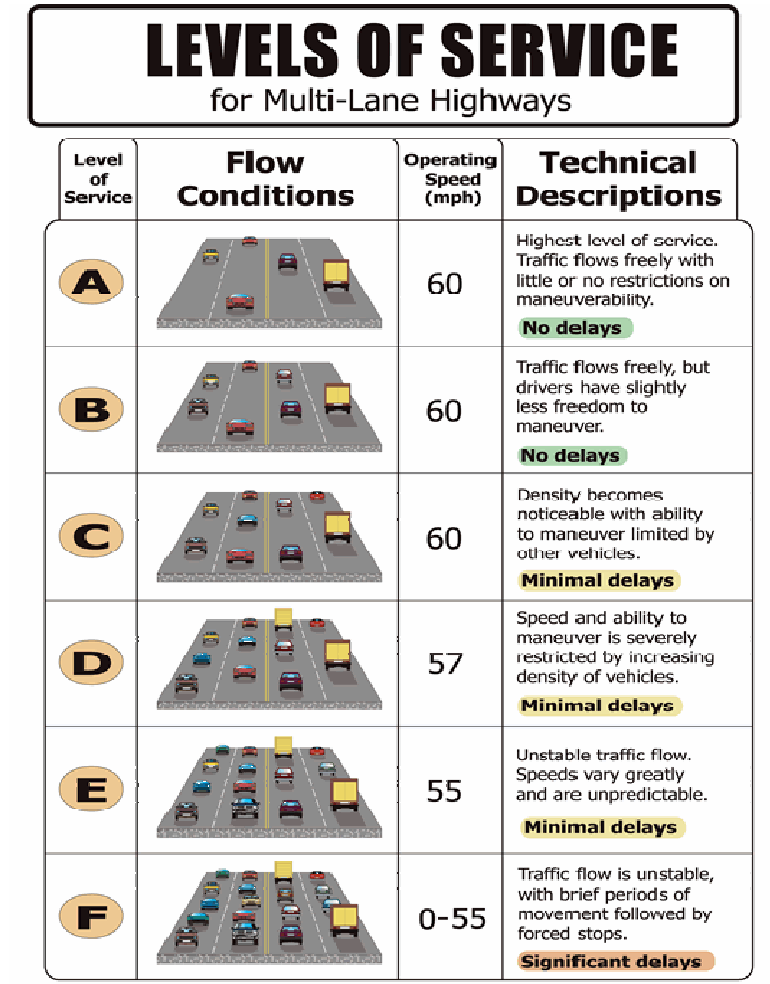
- Pre-widened conditions South of Milpas: 1,900 vehicles per hour per lane (vphpl)
- Remaining general purpose lanes South of Milpas post-widening: 2,150 vphpl
- Existing lanes North of Milpas: 2,150 vphpl.
- Carpool lanes: 1,850 vphpl
- Auxiliary lanes: 900 vphpl

Roadway level-of-service (LOS) is a qualitative measure describing operational conditions within a traffic stream. LOS definition generally describes these conditions in terms of such factors as speed, freedom to maneuver, stability of traffic flow, and delays. Six levels of service are defined using letter designations, from A to F, with LOS A representing the best operating conditions and LOS F the worst. LOS D is the minimum service level acceptable in the SBCAG Congestion Management Program. Figure 2-14 depicts the density of traffic that occur at each LOS level.

Figure 2-15 shows the P.M. Peak Hour traffic volumes as recorded in 2000 compared to the available capacity at different points along Highway 101. The volumes (shown in the bars) reflect northbound separately from southbound. Based on Caltrans annual count data, between 2000 and 2004 peak hour traffic has grown by 3.4 percent in the stretch from the Ventura County Line to Milpas Street; 4.8 percent between Milpas and Fairview; and 14.2 percent between Fairview and Winchester Canyon. The capacity (shown as the red horizontal line) varies for the different segments of Highway 101 consistent with the number of lanes and operational conditions. Actual freeway capacity varies segment by segment depending on whether the segment is basic freeway, a weave area, merge area or has other conditions that affect capacity such as curves and grades. The TAG established generalized capacity values for planning purposes on the 101 in

Motion project that assume a per lane capacity of 1,900 vehicles per hour in the four-lane section south of Milpas Street, 2,150 vehicles per hour per lane for the existing six-lane segment, and 2,150 vehicles per hour per lane for the four-lane segment north of Fairview Avenue. Where auxiliary lanes occur they were assigned a capacity value of 900 vehicles per hour.

Where new lanes are added to the existing four lane segment, they are assumed to bring the per lane capacity up to 2,150 vehicles per hour for the entire cross section, with the assumption being that existing geometric constraints in south of Milpas would be corrected along with the widening. High Occupancy Vehicle (HOV) lanes where proposed in the future are assumed to have a capacity value of 1,850 to reflect the need to keep these lanes free flowing.



Source: 2000 HCM, Exhibit 21-3, Speed-Flow Curves with LOS Criteria for Multi-Lane Highways

Figure 2-14 Levels of Service for Multi-Lane

As shown in Figure 2-15, using these capacity values the southbound segment of Highway 101 south of Milpas is highly congested (operating at LOS F conditions) during the afternoon peak hour. There are some sections that exceed the design capacity (where the bars extend beyond the capacity line) causing the peak to spread into adjacent hours. During the afternoon peak hour the southbound lanes in the existing 6-lane section are operating at LOS E between Turnpike Road and Mission Street, with some segments approaching LOS F. While it doesn't show in Figure 2-15, the segment between Mission Street and Garden Street often operates at LOS F during a portion of the peak hours. North of Turnpike Road the freeway is operating at LOS C during the afternoon peak hour, although there are some times when traffic backs-up here as well for brief periods. The morning peak levels of service are similar although the peak direction of travel is opposite the afternoon peak direction. Figure 2-15 also shows the effects of the added capacity that will occur with the operational improvements scheduled between Milpas Street and Cabrillo/Hot Springs Road. The operational improvements include the addition a full lane southbound, an auxiliary lane northbound between Cabrillo/Hot Springs and Salinas Street, and a third lane added between Salinas Street and the existing six lane segment north of Milpas Street. Whereas this segment is operating at LOS F today, with the Operational Improvements the LOS southbound in the P.M. Peak will improve to LOS C, and the northbound LOS will improve to LOS D in the A.M. Peak.

If improvements and enhancements are not made to the transportation system in the South Coast to reduce vehicles trips or increase system capacity, travel demand will exceed capacity in a growing number of areas, creating well below-standard LOS on a daily basis.

Projections of future conditions on Highway 101 are shown in Figure 2-16, and indicate that without improvements the LOS will be F for almost the entire corridor, with the section south of Milpas exceeding the freeway capacity by 20 percent or more. Under these strained conditions stop-and-go congestion would start early in the morning and continue all day until 8:00 p.m.

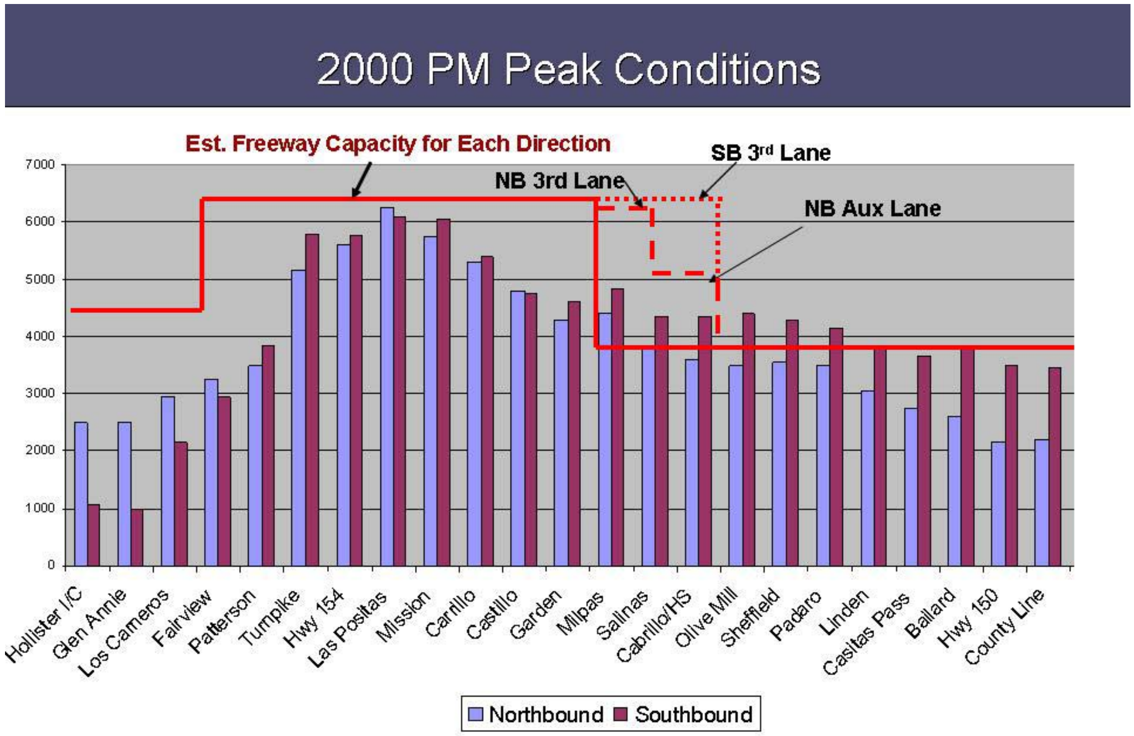


Figure 2-15 2000 P.M. Peak Hour Traffic on Highway 101

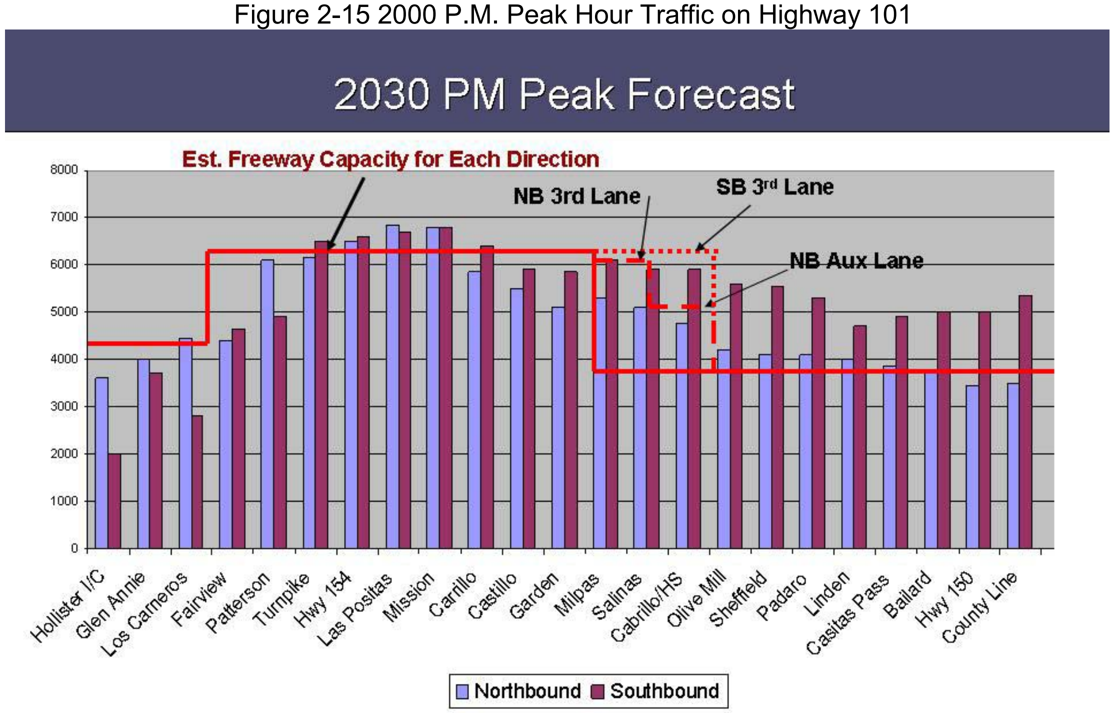


Figure 2-16 Forecast 2030 P.M. Peak Hour Traffic on Highway 101

2.2.3.3 Existing Transit Services

Transit serving the South Coast is provided by one fixed route operator, one demand response service, three regional commuter transit services and one inter-city transit service. The largest operator, Santa Barbara Metropolitan Transit District (MTD), provides fixed route service in the South Coast area. Easy Lift Transportation provides demand-response service within MTD's service area. The Vista Coastal Express provides bi-directional service between Ventura County and the South Coast, the Clean Air Express offers weekday uni-directional commuter service between Lompoc and Santa Maria and the South Coast, and the MTD Valley Express provides peak period commuter service between the Santa Ynez Valley and Goleta/ Santa Barbara.

By far the largest transit program in the South Coast is that provided by MTD with almost 97 percent of all South Coast transit ridership in FY 2004/05.

MTD's fixed route service uses a fleet of 96 buses with total annual ridership over 7 million. This service includes bus routes throughout the area and shuttle operations serving downtown, the waterfront, commuter lots, and the zoo. The farebox recovery ratio in FY 2004/05 was 47 percent, which is better than the industry average.

The Clean Air Express is a commuter bus program that currently provides service to residents of northern Santa Barbara County who commute to jobs in Santa Barbara and Goleta with 11 roundtrips each weekday.. In FY 2004/05, the Clean Air Express had 127,435 boardings and a farebox recovery ratio of 63 percent.

Vista Coastal Express is an intercommunity bus service operating between Ventura County and Santa Barbara, with peak hour service to Goleta. Vista Coastal Express provides 12 daily northbound trips and 15 southbound trips on weekdays and 9 roundtrips on weekends. Vista Coastal Express is a joint program administered between SBCAG and the Ventura County Transportation Commission (VCTC) as part of the VISTA intercity bus program, and had 113,895 boardings in FY 2004/05 which is a 25 percent increase from FY 2003/04. Vista Coastal Express has a farebox recovery ratio of 63 percent.

2.2.3.4 Rideshare Programs

Traffic Solutions, a division of SBCAG, is responsible for implementing the Ridesharing and Transportation Demand Management (TDM) programs throughout Santa Barbara County. Traffic Solutions integrates its' rideshare function (rider matching services and vanpool formation) and the Countywide TDM Program implementation function. Promotional campaigns intended to facilitate Santa Barbara's City/County TDM Program include radio advertisements, email campaigns, individualized marketing, and employer outreach. These promotional efforts are also intended to generate TV, radio and newspaper coverage to enhance the TDM marketing campaigns.

Traffic Solutions manages a free web-based carpool match list service to provide potential carpoolers with the contact information of other commuters with a similar commute pattern. Potential carpoolers can receive a carpool match list instantly by visiting the Traffic Solutions website (and creating an account, which can be updated at any time. Traffic Solutions staff handles anyone interested in carpooling who do not have access to the internet. In FY2005, the carpool match list service eliminated an estimated 1.15 million vehicle miles traveled in SB Co.

Vanpools carry seven to fifteen commuters and are normally leased from a vanpool vehicle provider and operated by private individuals (UCSB operates and subsidizes its own vanpool program). Traffic Solutions offers several vanpool incentive programs, including a New Rider Rebate and a Quick Start subsidy, and facilitates vanpool formation by acting as a liaison between vanpool companies and groups of commuters interested in starting a vanpool. Traffic Solutions also maintains a list of known vanpools operating in the region, contact information for these vanpools, and any available seats the vanpools have on the Traffic Solutions website.

2.2.3.5 Passenger and Freight Rail

Amtrak's Coast Starlight and Pacific Surfliner trains are operated by Amtrak under an agreement with the state, and operate on the Union Pacific rail alignment in the South Coast. There are six round trips between Goleta and San Diego on the Pacific Surfliner, with two trains continuing to San Luis Obispo. There is one daily roundtrip by the Coast Starlight which travels between Los Angeles and Seattle. Buses connect the Santa Barbara station to north county communities. A daytime feeder bus links Santa Barbara County with Amtrak San Joaquin trains at Bakersfield.

Between 1992 and 2000, total annual rail ridership in the corridor increased from 239,000 to 412,000 persons, an increase of over 20 percent per year. Highest ridership levels typically come in spring and summer months as tourist and leisure travel to the area increases.

In addition to the existing Amtrak passenger service, rail freight operations in the county are provided along the same rail line by the Union Pacific Railroad Company.

Existing freight and intercity passenger service levels utilize most of the all available track time slots through the predominately single track sections in Santa Barbara County. (From the Tamien Caltrain station in Santa Clara County south to Raymer in the San Fernando Valley the line is basically single track). Between Goleta and the Ventura/ Santa Barbara County line the only passing siding is in the City of Santa Barbara. The next passing sidings to the south are in Seacliff and in the City of Ventura. The rail line through the South Coast is owned by Union Pacific. Some reduction in current utilization and/or increase in track capacity would likely be needed to accommodate new passenger trains.

2.2.3.6 Bicycle-Pedestrian Facilities

The 2005 SBCAG Metropolitan Transportation Plan includes a system of bikeways providing access throughout major population centers as well as linkages among such centers and recreational destinations in the region. The bikeway system can provide inter-modal access to park-and-ride facilities for inter-city transit or rail users in addition to accommodating single-mode trips related to work, education, shopping or recreation. In the South Coast communities especially, the bikeway system provides an alternative to intra-city automobile travel. Because Highway 101 can act as a barrier to pedestrians and bicyclists, appropriate facilities for multi-modal cross-highway movements need to be taken into account in planning and design work related to highway interchanges and over and under-crossings.

The City of Santa Barbara and the County have adopted bicycle master plans. These master plans comprise a comprehensive bikeway network which includes existing and planned bicycle routes. The majority of the bicycle routes in the county are designated as Class II bike lanes (i.e., a bike lane indicated by a painted line on the road). The Regional Bikeway Plan in the SBCAG MTP identifies a system of regionally significant bikeways within the county that links the major population centers and, within centers, major trip origin and destinations.

In its efforts to promote bicycling as a commute alternative, the Santa Barbara Bicycle Coalition was formed by grassroots bicycle advocates in 1991. The Coalition provides bicycle commuting information, distributes legislative updates pertaining to bicycling, promotes bicycle path maintenance, and interfaces with local agencies and SBCAG to promote better bicycle planning in Santa Barbara County.

South Coast cities and the county have a commitment to improve bicycle routes and provide bicycling incentives. The jurisdictions actively pursue state, federal, and local funding to complete missing segments in their adopted Bikeway Elements and Bicycle Master Plans. Several programs in the county are being implemented which provide incentives for bicycling. The County and the City of Santa Barbara have both programmed funds to provide consistent bikeway signage. The City of Santa Barbara continue to install secure bicycle lockers at various activity centers, transit stops, off-street parking structures, park-and-ride lots and in public parking lots in an effort to encourage bicycle parking in the downtown area. Bicycle racks are provided on most MTD buses. Bike transport is also provided on Clean Air Express, Valley Express and Vista Coastal Express buses. The purpose of these facilities is to encourage the use of the bicycle as a feeder to transit service. The County has a policy of installing detector loops sensitive to bicycles at intersections with bike lanes when signal installation or modification is planned at intersections. The City of Santa Barbara uses loop detectors in the bike lane where there are separate bike lanes at signalized intersections. All of the city-maintained loop detectors are sensitive to bicycles if they are positioned directly over them.

2.2.3.7 Programmed Improvements

In all areas of Santa Barbara County, the focus is on maintaining the existing roadway and transit systems and completing the already programmed regional Measure D projects and the bikeway network. Enhancements to the intercity rail service and application of technological improvements to the transportation system are other parts of the countywide improvement strategy. In the South Coast the regional strategy initially emphasizes implementation of the operational improvements already programmed by SBCAG, travel demand management, and alternative mode choices based on the expressed preferences in regional policies and community plans.

The *South Coast Highway 101 Deficiency Plan*, working with both public agency staff and the general public, identified 36 potential short-term improvement projects. These projects span the full range of potential solutions: Transportation System Management; Transportation Demand Management; Intelligent Transportation Systems; transportation and rail improvements; and capacity enhancement. Each project's potential effectiveness at peak hour congestion relief, systemwide circulation enhancement, collision reduction, aesthetic sensitivity, and environmental sensitivity, was then evaluated. The resultant project list is shown in Table 2-4.

In the short term, the South Coast Strategy involves a three-pronged approach: travel demand management; development of alternative modes; and, selective capacity expansion of the existing roadway system. Completing missing links in the regional bikeway network and implementing the MTD's South Coast Transit Plan projects will serve to promote use of alternative modes. Increased advertising of alternative modes, employer inducements for shifting to off peak travel, and selective operational improvements such as ramp metering and auxiliary lanes are the travel demand management strategies. Capacity expansion projects are proposed to close gaps or increase facility capacity, for example, the Highway 101 Operational Improvements. These improvements include auxiliary lanes on the north bound sections of Highway 101 between Evans and Sheffield, Hot Springs and Salinas, and Salinas and Milpas, lengthening of the south bound on ramp at Eucalyptus Lane, interchange improvements to Hot Springs/Cabrillo Blvd., and, extension of the third lane southbound from Milpas to Hot Springs. Other roadway improvements include the Los Carneros Road widening, improvements to Cathedral Oaks and Hollister Avenue (arterials parallel to Highway 101). Table 2-4 shows the current status of the short-term projects.

Table 2-4
Highway 101 Corridor Short Term Projects

Project Classification	Project Sponsors	Scale of Benefit	Effectiveness (Qualitative)	Project Status[1]
US 101 Operational Improvements – Currently Programmed				
a. Add 3rd SB lane on Milpas Overcrossing and construct new SB loop off-ramp &	Caltrans/City of SB	Spot	Medium	Construction begins in 07
Milpas to ¼ mile beyond Cabrillo – add 3rd SB lane; a NB auxiliary lane from Cabrillo Blvd to Salinas Street and a 3rd NB lane from Salinas St to beyond Milpas St to conform to the downtown 6-lane section &	Caltrans/City of SB	Spot	Medium	Construction begins in 07
Improve US 101 / Hot Springs / Cabrillo interchange	Caltrans/City of SB	Spot	Low	Construction begins in 07
b. Improve Evans / Ortega Hill intersection	County of SB	Spot	Low	
c. Evans to Sheffield – add NB auxiliary lane & bike lane	County of SB	Spot	Low/Medium	Construction begins early 06
d. Lengthen SB on-ramp at Eucalyptus Lane	Caltrans/County of SB	Spot	Low	Completed
e. Reconstruct, connect, and improve US 101 interchanges at Casitas Pass Road and Linden Avenue	Caltrans/City of Carpinteria	Spot	Low	EIR to be completed in late 07; Construction begins in 11
f. Construct road extension of Via Real east of Casitas Pass Road	Caltrans/City of Carpinteria	Spot	Low	EIR to be completed in late 07; Construction begins in 11
Transportation Demand Management				
Enhance TDM Data Collection, TDM Program Coverage Promotional Activities, Monitoring & Education	SBCAG/City of SB/County of SB	Regional	Low/Medium	
Construct Freeway Express Transit Stops in Bailard/Casitas/Linden I/C Reconstruction	Caltrans/ City of Carpinteria/ County of SB	Corridor	Low/Medium	

Project Classification	Project Sponsors	Scale of Benefit	Effectiveness (Qualitative)	Project Status[1]
Construct Park-and-Ride Lot at the Junction of US 101 and Route 33	Caltrans	Corridor	Low/Medium	
Transit				
Santa Barbara / Fairview Express Bus Service	SBMTD/County of SB	Corridor	Medium	
Carpinteria / Goleta Express Bus Service	SBMTD/County of SB	Corridor	Medium	
Commuter Rail Study - LA / Ventura to Santa Barbara	SBCAG/City of SB/County of SB	Indirect	Medium	
Santa Barbara / Carpinteria Express Bus Service	SBMTD/City of Carpinteria/City of SB	Corridor	Medium	
Develop Scheduled Public Transit Service Between Ventura and Carpinteria / Santa Barbara / Goleta	SBCAG/Ventura Ct Trans Commission	Corridor	High	
Westside/Goleta Express Bus Service	SBMTD/County of SB	Corridor	Medium	
Santa Barbara / UCSB / Express Line 24 Service Extension	SBMTD/County of SB	Corridor	Medium	
Clean Air Express Service Expansion Between Ventura and Carpinteria / Santa Barbara / Goleta	APCD/SBCAG	Corridor	Medium	
Enhanced Clean Air Express Promotion and Marketing	APCD/SBCAG	Indirect	Low/Medium	
Goleta Feeder Shuttle	SBMTD/County of SB	Spot	Low/Medium	
Goleta Noon Hour Shuttle	SBMTD/County of SB	Spot	Low/Medium	
Carpinteria Noon Hour Shuttle	SBMTD/City of Carpinteria/City of SB	Spot	Low/Medium	
Patterson / Turnpike Shuttle	SBMTD/County of SB	Spot	Low/Medium	
If Demand Warrants - Purchase Smaller Capacity Vehicles (20 to 25 Passengers) for CAE Service	APCD/SBCAG	Corridor	Low/Medium	
Establish Clean Air Express Stops With Signage and Amenities	SBCAG/Ventura Ct Trans Commission	Corridor	Low	
Intelligent Transportation Systems				
Traffic Management Center - Integrated Freeway and Arterial Control -Traffic Information	Caltrans/CHP/SBCAG	Regional	Medium/High	
Transit Operations - Vehicle Tracking / Passenger Counts / Electronic Fare Collection / Surveillance / Communications	SBMTD	Spot	See Transit	
Transit Traveler Information (Real-Time Scheduling Information / Interactive Traveler Info)	SBMTD/AMTRAK	Regional	See Transit	
Highway Advisory Radio - Junction of US 101 / Route 154 (north and south junctures)	Caltrans/CHP/SBCAG	Corridor	See TMC	
Network Surveillance - CCTV & Loop Detectors on US 101 Between Ventura Cty Line and Buellton	Caltrans/CHP/SBCAG	Corridor	See TMC	
Road Weather Information Sign - Sensors on US 101 Between Ventura Cty Line and Buellton	SBCAG (40 Boxes)	Corridor	See TMS	
Smart Call Boxes on US 101 Between Ventura Cty Line and Hollister Avenue	CHP/SBCAG (5 Locations)	Corridor	See TMS	
Changeable Message Sign - Junction of US 101 / Route 154 & Junction of US 101 / Route 1	Caltrans/CHP	Regional	See TMS	Planned for 101 and 154 (N & S) interchanges.
Incident Management System - CAD System for US 101	SBCAG/CHP	Corridor	See TMS	

[1] Programming dates sourced from 2002 STIP. Due to budgetary issues, dates will most likely change when 2004 STIP is adopted.

Source: SBCAG, *October 2005.*

2.3 Summary of Problems and Needs for Improvements

Analysis of current and projected conditions in the Highway 101 corridor, as well as stakeholder input, has led to the identification of eight problem areas that were addressed in the 101 In Motion project. These are presented in Table 2-5.

Table 2-5 Highway 101 Corridor Problems and Needs

Problem/Need	Description
A. Recurrent Traffic Congestion	Travel demand is overwhelming the existing design capacity of the South Coast segment of US-101 and related interchanges in the peak periods. Under current conditions, high volumes have led to congested levels of peak hour service throughout 22 lane-miles[14] in the A.M. Peak and 27 lane-miles in the P.M. Peak of the 128 lane-miles in the South Coast corridor. Most of the current congestion is in the 51 lane-miles south of Milpas Street. The traffic overload causes backups both on and off the freeway. This pattern is projected to worsen over the next twenty-five years and spread to much of the day

[14] *Lane-miles refer to the number of lanes times the highway segment length (e.g. a four-lane, 3 mile segment of US-101 has 12 lane-miles.)*

Problem/Need	Description
	unless ways can be found to address the supply-demand imbalance.
B. Constraints of the Physical Setting	The natural setting of the corridor with the mountains on one side and the ocean on the other, along with distinctive vegetation in the median and along much of the right-of-way makes driving along US 101 a scenic experience. These natural features coupled with the built environment in the corridor present challenges to physically widening 101 as well as to creating alternative highway, roadway or rail solutions.
C. Design Deficiencies	Non-standard highway design features such as inadequate weave distances, acceleration lanes that are too short, insufficient ramp storage, left-side egress and entry locations, reduced shoulder widths, and missing interchange ramps and access points contribute to congestion and result in operational and safety problems in the South Coast section of U.S. 101.
D. Discontinuity of Arterial Network	The street system in the corridor offers limited alternative parallel routes to U.S. 101 for many trips. This lack of continuous alternative routes via the arterial street network contribute to excessive US 101 traffic.
E. Insufficient Mode Choice	A lack of alternative transportation modes with sufficient geographic coverage, frequent service, and reasonable cost serving the travel markets that use the 101 Corridor has contributed to a high level of auto dependency in the corridor. There are insufficient operating fund subsidies to permit expansion of the bus network. One reason for this is that during the work trip 70% of autos have one occupant, and free or inexpensive parking is provided at worksites.
F. System Management	The 101 corridor lacks a comprehensive deployment of freeway management, incident management and travel information electronic/communication devices needed to make full use of it's capacity potential. These and other Intelligent Transportation System (ITS) features have proven effective in improving operations on transportation facilities and services elsewhere.
G. Population and Employment Density and Growth	Population in the County is forecast to increase in absolute terms by 121,000 people (30 percent) between 2000 and 2030. Countywide employment is projected to increase by 44 percent over the same period. Even with this growth, the relatively low density of jobs and housing in the County presents challenges to effectively serving trips by transit.
H. Jobs-Housing Imbalance	Long distance work commutes are increasingly necessary due to the limited supply and the high cost of housing on the South Coast, forcing those drawn to local jobs to commute longer and longer distances in search of affordable housing. While South County is growing slowly, North County's growth is accelerating, resulting in an overall shift in population to the north.
I. Safety	The number and severity of accidents on the section of US 101 from Milpas to the County Line are high when compared to similar highways state-wide. Congestion on US-101 is a major contributor to these accidents and impedes access to accident scenes by emergency vehicles.

2.3.1 Goals and Objectives

Understanding the overall challenges involved in addressing recurrent traffic congestion, physical constraints; design, system management, and safety deficiencies; discontinuity of the arterial network; insufficient mode choice; continued population and employment growth; and the jobs-housing imbalance, combined with the overarching community outreach goals for the 101 In Motion project and goals established in existing countywide and South Coast city/community planning documents led to a set of objectives that were used to identify potential solutions. The objectives also reflect input during the public outreach process. The set of objectives, shown in Table 2-6 in no particular order, reflect what will be needed to correct the real-world problems identified above and reflect the values and aspirations of the South Coast Communities. These goals and objectives were used in the development of alternative solutions and are embodied in the Adopted Improvement Plan.

Table 2-6 101 In Motion Goals and Objectives

Objective	Description
Objective 1	Provide a comprehensive multimodal transportation system of facilities and services that is balanced, coordinated, safe, cost effective, environmentally sound and meets the public's need for the movement of people, goods and services.
Objective 2	Improve the transportation linkages between communities in the corridor, and between the South Coast communities, North County and Ventura County.
Objective 3	Provide demand management strategies and viable mode choice options that encourage changes in behavior that result in reduced travel by single occupant vehicles during peak periods.
Objective 4	Assure that all transportation system improvements emphasize safety, efficiency, and preserving the visual ambience and history and heritage of the communities in the corridor.
Objective 5	Promote alternative transportation modes to reduce traffic congestion and air pollution
Objective 6	Seek new revenue/ funding sources and make efficient use of limited local transportation funds where possible to obtain federal funds.
Objective 7	Encourage land use and growth patterns that enhance the livability of corridor communities for current and future generations.
Objective 8	Encourage sustainability of the natural environment by minimizing the use of non-renewable natural resources during construction and operations.
Objective 9	Assure balance by ensuring equitable distribution of benefits and impacts for individual communities or stakeholder groups.
Objective 10	Provide solutions that offer lasting benefits, and are capable of being phased over time.

2.3.2 SBCAG Board Policy Direction

On October 16, 2003, the SBCAG Board adopted policy direction for the Highway 101 Implementation Plan, which was later renamed "101 in Motion".

The policy directed that:

1) The Implementation Plan shall result in a project or set of projects that will increase the capacity by adding lanes and reduce congestion on Highway 101.

2) Highway 101 widening options shall include a minimum additional mixed flow lanes, High Occupancy Vehicle lanes, High Occupancy Toll lanes, reversible lanes and/or use of the highway shoulders and re-striping for additional lanes within the present right-of-way.

3) In addition to widening Highway 101, the Implementation Plan shall include other projects providing congestion relief including those that increase corridor capacity (e.g. rail and bus transit), reduce regional travel demand, expand alternative transportation modes and improve operation and management of the transportation system.

4) The Implementation Plan shall include an analysis of alternative congestion relief projects which may be used in support of the NEPA and/or CEQA environmental review process during the next phases of project development.

These directives served to shape the alternative solutions that were considered and are met by the Adopted Improvement Plan.

2.3.3 Evaluation Criteria

Having identified the nature and magnitude of transportation problems in the 101 In Motion corridor and the objectives for correcting these problems, criteria were developed by the TAG, with the SAC's input, for evaluating success at attaining the objectives. Three major categories of evaluation criteria were developed: transportation performance, community and environmental considerations, and implementation feasibility. Within each category, key criteria were identified and are shown in Table 2-7. This set of criteria evolved through input from the public and decision makers and were applied during each step of the screening process.

Table 2-7 Evaluation Criteria

Category	Evaluation Criteria
Transportation Performance	• Improve Mobility • Reduce Duration of Congestion • Reduce Duration of Travel Delays • Improve Safety • Provide Options/Increase Choices • Improve Trip Reliability • Provide Longevity of Improvements • Reduce Goods Movement Delays
Community/ Environmental Considerations	• Minimize Impacts to Natural Environment • Minimize Neighborhood Impacts • Minimize Air Quality Impacts • Minimize Noise Impacts • Minimize Visual Impacts • Contribute to Economic Vitality • Provide Equity Among Stakeholders • Contribute to Sustainability
Implementation Feasibility	• Provide Cost-Effective Projects • Achieve Physical & Operational Feasibility • Achieve Technological Feasibility • Minimize Institutional Constraints • Minimize Impacts During Construction • Provide Project Phaseability (Including Early Action Alternatives)

3.0 EVALUATION METHODOLOGY

3.1. Development and Evaluation of Alternative Solutions

The identification of problems through an evaluation of existing and projected future baseline performance combined with the overarching goals of the 101 In Motion project and goals contained in existing South Coast planning documents resulted in the formulation of an initial set of objectives and criteria that were used to identify and then evaluate the relative merits of alternative solutions in the 101 corridor. Working with the community and decision makers to identify a package of solutions to longstanding and growing problems (recurrent traffic congestion; physical constraints; design, system managements, and safety deficiencies; discontinuity of the arterial street network; insufficient mode choice; operational deficiencies; continued population and employment growth; and the jobs-housing imbalance) was the focus of 101 In Motion. The ten objectives described in Section 2.3 were used to identify and define candidate solutions to address the deficiencies in the South Coast Highway 101 Corridor. These alternative solutions were then evaluated using criteria for transportation performance, community/ environmental considerations, and implementation feasibility as a way to assist the community and decision makers to reach consensus on a specific set of improvements and action steps that will help solve the problems while being responsive to the community's values.

The process used to develop and then evaluate alternative solution concepts and packages of concepts was iterative and dove-tailed with the public outreach process. During the project development/evaluation process a wide range of possible solutions identified during the Community Ideas Phase was sequentially screened through a series of steps to result in a final adopted consensus package.

<u>Community Ideas Phase.</u> After the Consultant Team had compiled a long list of solution concepts that had been proposed in the past for relieving congestion in the 101 Corridor, and added concepts that have been used elsewhere, three community open house/workshops were held at different locations throughout the County. At these open house/public workshops attendees were briefed on the nature of the corridor's problems and the projects goals and objectives, were provided a summary of potential solution concepts, and were asked to state their preferences and suggest additional concepts. Following the workshops, the ideas that emerged were sorted into "big idea" solution concepts and "complementary" solution concepts. There were over 30 concepts in each category.

<u>Initial Screening.</u> The intent of the initial phase of the screening process was twofold; 1) to evaluate the broad range of "big idea" or "primary" solution concepts generated during the Community Ideas phase in terms of how well each alternative concept could be expected to perform against a comprehensive set of evaluation criteria, and 2) to identify those solution concepts that are seriously flawed by reason of multiple low rankings across a range of evaluation criteria, or, in some cases, by exceptionally low performance potential, overwhelming community/environmental negatives or a total lack of implementation feasibility. The initial screening was used to help guide stakeholders and decision makers when they went about combining the "big idea" solution concepts into logical packages of improvements for more detailed comparative evaluation. The initial screening resulted in several concepts being dropped so that only the most reasonable and feasible concepts advanced into the packaging phase.

<u>Development of 8 Alternative Packages</u>. To develop alternative packages of solution concepts separate roundtables were held with the TAG and SAC, and then jointly with both committees to reach consensus on the 8 alternative packages to be evaluated. The roundtables consisted of a Delphi/ consensus building process where the groups filled out the cells in a large matrix that had 8 "titles" or themes that they picked for each of the packages across the top as column headings and the four categories of solution options (capacity enhancement, alternative modes, demand management, and operational management/ land use) as the row headings. Prior to these roundtables, a package of read aheads was provided that contained:

- The magnitude of the congestion problem (using the peak hour maps and bar charts of projected volumes vs. capacity by direction and location from the 2000 and 2030 model forecasts), and an explanation of the underlying assumptions and how the forecasts should be used;

- Further descriptions of each of the 33 candidate solution elements including photos of the different technologies and conceptual cross-sections of the highway alternatives;
- A spreadsheet of the candidate solutions showing information for each of the 33 solution concepts relative to their rough order of magnitude costs, approximate level of congestion relief expected, most significant adverse impacts or other consequences, and how long they will take to implement. These data while broad-brush at this point were viewed as necessary so that the mixing and matching of individual elements could be done with an appreciation of their relative costs, effectiveness and consequences.
- Some broad guidelines to be used in creating the alternative packages.

The broader public was then queried as to their reactions to the 8 packages. The recommended packages from the SAC, TAG and public outreach were presented to the SC for selection of the 8 packages to go through the screening process.

Evaluation of the 8 Alternative Packages. Technical analyses were performed for the 8 Alternative Packages selected by the SC for evaluation. Each package was put through a screening process wherein the package as a whole was evaluated against the 22 performance criteria that had been developed by the TAG and SAC for use on the project. Two of the 8 packages showed serious flaws early in the analysis and based on the recommendations of the TAG and SAC were dropped by the SC from further consideration. A series of meetings with the TAG and SAC wherein the results of the evaluation were discussed eventually led to recommendations as to which elements of the 6 Alternative Packages should be used to develop the final 4 packages. Another round of public outreach was used to obtain public input on the TAG and SAC recommendations and resulted in the SC adopting a set of project elements that were to be used in developing the final 4 packages.

Development of the Final 4 Alternative Packages. Using a similar process as was described for developing the 8 Alternative Packages, the TAG and SAC separately and then jointly identified 4 packages for detailed evaluation. The 4 packages were hybrids of the previous 8 packages. These packages were presented to the public at various forums before being adopted by the SC and then the full SBCAG Board for evaluation.

Evaluation of the Final 4 Alternative Packages. Each of the final alternative packages was screened against the same 22 performance criteria that were used in the Round 2 evaluation, although at a more robust level of detail. These performance criteria are grouped into three categories, Transportation; Community/Environmental Considerations; and Implementation Related Criteria. The results of the evaluation showed how each of the elements in the package performed as well as how the package overall performed.

Selection of the Consensus Improvement Package. The Adopted Improvement Plan for the 101 Corridor is a composite of the best elements of the Final 4 Alternative Packages. It was arrived at after 8 meetings of the TAG, 3 meetings of the SAC, two meetings of the SC and numerous public forums with local government decision makers and neighborhood, business and institutional stakeholder groups. The SBCAG Board unanimously adopted the Consensus Plan on October 20, 2005.

The methodologies used during each phase of screening of the alternatives is described in the remainder of Section 3.0. Section 4.0 presents the alternatives that were evaluated and the evaluation findings.

3.2 Evaluation Criteria and How They Were Applied

Screening of the initial concepts and the subsequent evaluations of alternative improvement packages involved the application of the same set of 22 performance criteria. The purpose of the screening was to elicit the technical information needed to identify which alternatives and elements within the alternatives were most competitive and should therefore be carried into the subsequent evaluation stage of the project.

3.2.1 Development of Technical Data

Two initial steps were taken to create the baseline for the evaluation:

1. Travel Demand Forecasts. Forecasts of how each of the alternative solution packages would perform from a transportation usage and level of service standpoint were accomplished by running the recently developed and validated TransCad regional transportation forecasting model.

2. Physical Analyses. To assist in the evaluation of impacts and costs, the physical features of the alternative packages were defined and compared to corridor level opportunities and constraints. The opportunities and constraints include locations of sensitive plant and wildlife habitats, significant cultural resource sites, sensitive noise receptors, visual and aesthetic resources (including a rating of the relative quality of each landscape segment along Highway 101), and the location of low-income and minority populations. Additionally locations along Highway 101 and the UPRR alignment where the rights-of-way are most restricted and where the geometrics are most deficient were documented. Prototypical cross-sections and interchange improvement concepts were developed that best characterized each of the solution options at a conceptual level of detail. These were used to generalize the potential impacts and costs of the entire corridor.

3.2.2 Evaluation Criteria

Table 3-1 summarizes the measures for each criterion used in the screening of the initial concepts and each of the alternative improvement packages. The criteria are grouped under three categories: Transportation Performance, Community/Environmental Considerations, and Cost/Implementation.

Table 3-1

Evaluation Criteria Used in Evaluating the Alternative Improvement Packages

Transportation Performance Criteria	Objectives	Measures
Improve Mobility/ Increase Capacity	• Increase Peak Hour Person Trip Capacity • Reduce Peak Hour Corridor Person Trip Demand • Increase Network Connectivity	Added Person Trip Capacity, PPH Reduced Demand, PPH Reduced Number of Gaps and Lane Drops
Reduce Congestion	• Improve LOS to "D" or Better • Reduce Person Hours of Congestion	Number of "D" or Better Locations, Freeway and Arterials (identify areas that improve and those that worsen) Total Reduced Hours of Congestion
Reduce Travel Delays	• Reduce Person Hours of Travel Delays	Reduced Peak Period Travel Times Between Selected Origins and Destinations Reduced Person Hours of Delay
Improve Safety	• Reduce Corridor Accident Potential	Rating From 1-5 Based on Representative Accident Rates
Provide Options/Increase Choices	• Increase Utilization of Alternatives to SOVs	% Change in Projected Peak Hour Peak Direction Usage of Non-SOVs at Selected Screenlines
Improve Trip Reliability	• Increase On-time Trip Consistency	Roadways: Reduced Potential for Unforeseen Delays Based on Improved LOS Non-Roadway Elements: Degree of Separation From Conflicts
Improvement Longevity	• Lasting Congestion Relief and Other Transportation Benefits	Rating From 1-5 Based on Expected Benefits of Major Components beyond 2030

Improve Goods Movement	• Increased Goods Movement Capacity and Reduced Conflicts	Added Highway and/or Rail Capacity Usable for Freight Reduced Conflicts/ Regulatory Constraints
Community / Environmental Considerations	**Objectives**	**Measures**
Natural Environment	• Minimize Impacts	Type and Range of Acres Significantly Impacted and Requiring Mitigation
Neighborhoods	• Minimize Displacements • Minimize Traffic Impacts	Range of Number of Buildings Taken by Category Number of "D" or Better Arterial Locations, as an Indicator of Reduced Pressure for Use of Local Neighborhood Streets
Air Quality	• Minimize Impacts	Range of Emissions Reductions
Noise Impacts	• Minimize Impacts	Rating From 1-5 Based on Expected Major Changes in Noise Levels at Sensitive Receptors
Visual Impacts	• Minimize Impacts	Extent of Major New or Modified Visual Elements Affecting Existing Overall Community Visual Character and View sheds
Economic Vitality	• Minimize Impacts	Congestion Relief Potential Pricing and Job Creation Impacts
Stakeholder Equity	• Minimize Impacts	Rating From 1-5 of Degree of Disproportionate Impacts on Low Income or Minority Populations
Sustainability	• Minimize Impacts	Rating From 1-5 of Consumption of Non-Renewable Resources
Implementation Related Criteria	**Objectives**	**Measures**
Cost Effectiveness	• Maximize Congestion Relief Benefits in Relation to Costs	Annualized Capital Cost and O&M Cost / Reduced Congestion (PHPDPCE)
Physical Feasibility	• Appropriate to Context	Rating From 1 to 5 of Degree of Fit
Technological Feasibility	• Use Proven Technology Applications	Rating From 1 to 5 of Extent of Proven Technology
Institutional Constraints	• Minimize Obstacles	Rating From 1 to 5 of Degree to Which Institutional Issues Are Minimized
Construction Impacts	• Minimize Impacts	Rating From 1 to 5 of Degree to Which Disruption Is Minimized During Construction
Phaseability	• Independent Utility	Rating From 1 to 5 of Degree to Which Progressive Incremental Improvements Can Be Implemented As Needed

4.0 ALTERNATIVES CONSIDERED

4.1. Community Ideas Phase

The Community Ideas Phase began when the public outreach was launched in February 2004.This included the introduction of the new project name, logo, website, and hotline. During this phase a series of outreach activities was conducted, including community workshops, elected official briefings, media activities, and visits to activity centers and community events, throughout Santa Barbara County.

The initial round of public outreach reached stakeholders from Santa Barbara County and into Ventura County. The community was asked to identify issues of most importance to them when considering transportation solutions and what possible solutions they would like considered.

To generate further ideas from the public as well as get their reaction to previously proposed solutions, a comprehensive list of previous ideas for solving congestion in the 101 corridor were compiled from prior reports, studies and plans. Additionally, state-of-the-art solution ideas from other corridor projects that were considered potentially applicable to the 101 corridor were added to the list. The comprehensive list of possible solutions was presented to the public at open houses, workshops, community events and activity centers. Ideas not on the list that surfaced at these public outreach activities were added.

4.1.1 Public Outreach

The goal of the public outreach effort during the Community Ideas Phase was to gather and better understand the values of a broad spectrum of the community in order to determine what long-term solutions might be acceptable. These values were considered in developing screening criteria and a comprehensive list of possible solutions.

Outreach activities during the Community Ideas Phase included:

- 4 workshops were held to provide an opportunity for the pubic to learn more about the project and share ideas and opinions on values, problem areas and possible solutions. Each workshop included an open house with individual project information stations and experts available to answer questions, a brief presentation, and a community brainstorming session.

- 13 activity centers where people gather were visited to provide information the 101 in Motion project and elicit feedback on issues and potential solutions. By going to places where community members shop, conduct business, and congregate, the project team was able to gather feedback from those stakeholders who may not normally get involved through a process that does not require them to go to meetings. Fact sheets and questionnaires were provided in English and Spanish, and Spanish speaking team members were available.

- 15 city, county and state officials were briefed and contributed strategies for reaching their local constituencies.

- A Stakeholder Advisory Committee was formed from local leaders representing and serving as liaisons between their various constituencies and the project team. During this phase an informal retreat and three official meetings were held.

- Website in English and Spanish was created to provide information to the general public about the project. The website linked to the SBCAG website and the websites of partner agencies. The SBCAG website also featured information on 101 in Motion.

- Hotline, a toll free information line was established to solicit input to the project.

- Printed Materials: Printed materials used during this phase included outreach cards and a fact sheet in English & Spanish.

- SBCAG Newswire provided information on the launch of the project and periodic updates during the project.

- Database, over 2,400 individuals were included in the initial outreach data base. The database was used for communicating information on meetings and workshops to stakeholders and community groups via direct mail, email and fax.

- Media, the 101 in Motion public outreach program was launched at a press conference on February 20, 2004.

Over 1,800 stakeholders were reached during the Community Ideas Phase, and 509 stakeholders submitted feedback through the various outreach activities, via e-mail, mail, website and the hotline.

4.1.1.1 Summary of Public Input Received

There is a high level of awareness of transportation problems in the 101 Corridor. People who regularly participate in Santa Barbara's transportation issues were likely to do so again in every possible venue.

Generally, participants in the Phase 1 outreach wanted to see alternatives to automobiles to help alleviate congestion on Highway 101. Commuter rail is the alternative mode that received the most mention. About 35% of the participants, who filled out comment sheets at the workshops and activity centers mentioned that they would like to see a third lane added to Highway 101 in both directions. 10% of the comments from workshop participants residing within close proximity to the highway indicated the importance of avoiding construction to add lanes, and would rather designate an existing lane for carpools. About 5% of the workshop and activity center participants indicated that they were skeptical of the process because of pervious 101 planning efforts, but have said they would participate more actively as the alternative solution packages were developed and more detailed information became available.

4.1.2 Technical Screening Process and Eliminated Solution Concepts

The comprehensive list of solution ideas that emerged from the public outreach were then classified by the Consultant Team and project's Technical Advisory Group (TAG) into "big idea" or primary concepts (Appendix A Table 4.1) and complementary solutions (Appendix A Table 4.2).

The intent of the initial phase of the screening process was twofold; 1) to evaluate the 36 "big idea" solution concepts generated during the Community Ideas phase in terms of how well each alternative concept could be expected to perform against the comprehensive set of 22 evaluation criteria, and 2) to identify those solution concepts that are seriously flawed by reason of multiple low rankings across a range of evaluation criteria, or, in some cases, by exceptionally low performance potential, overwhelming community/environmental negatives or a total lack of implementation feasibility.

For the initial screening the ratings by the Consultant Team was in one of three levels from better to medium or neutral to worse using each of the 22 performance criterion as the bases for establishing the ratings. Since there was little quantitative information to base the ratings on at that point in the process, the results were documented in a *Consumer Reports* type matrix of filled-in circles, half-filled-in circles and open circles. Filled-in circles reflect the best rating (either most benefits or least adverse impacts); open circles the worst rating (either low benefits or high adverse impacts); and the half filled-in circles reflect a rating in between these two extremes. Appendix A Table 4.3 presents the Consultant Team's ratings of the 36 concepts.

Overall only three of the solution concepts generated through the public outreach process were deemed by the Consultant Team and TAG to be "seriously flawed". The SC agreed and the following solution concepts were dropped from further consideration:

- Eliminating the Shoulders and Re-striping the Existing Pavement on US 101 as the means of adding a lane;
- Building a New Bypass Freeway; and
- Implementing Elevated Guideway Transit

The remaining 33 solution concepts were approved by the SC to be carried forward into the next round of public outreach and evaluation where they were mixed and matched by the TAG and SAC into 8 alternative solution packages.

The rationale for recommending that the three solution concepts indicated above be dropped from further consideration is presented below:

4.1.2.1 Eliminate Shoulders and Re-stripe Existing Pavement

The existing pavement width in each direction on Highway 101 in the designated segment consists of two 12-foot travel lanes plus a 2 to 5 foot paved inside shoulder and a 4 to 8 foot paved outside shoulder. The existing pavement width is therefore around 30 to 37 feet in each direction. Assuming a minimum 2 foot inside shoulder and minimum 4 foot outside shoulder, the least pavement section that could be considered for accommodating three lanes in each direction would be 42 feet per direction. Travel lanes cannot be reduced below 12 feet in width.

At a minimum therefore it is not possible to merely re-stripe the existing pavement to accommodate an additional lane in each direction. There would need to be some widening of the existing pavement. The additional amount needed would vary between 5 and 12 feet in each direction. This would typically require widening into the median and modifications to bridge structures to provide adequate clearances.

The primary reason that this concept is "seriously flawed" is the danger it would pose to motorists and Caltrans maintenance workers. There would be no refuge area on either side of the freeway in the event of a vehicle malfunction or collision and for Caltrans workers doing roadside maintenance. At a minimum there needs to be at least one shoulder on the outside of the roadway. There is one alternative that calls for retaining the outside shoulders and using the inside shoulders as travel lanes as a means of minimizing the amount of pavement widening required. Another alternative that would reduce the amount of widening required calls for converting the median to a reversible travel lane while retaining the inside and outside shoulders on both sides of the roadway. Both of these are included among the concepts being recommended for further evaluation during the next round of screening.

4.1.2.2 New Bypass Freeway

This concept would involve either constructing a totally new freeway along the foothills adjacent to Los Padres National Forest, an off-shore freeway, an elevated viaduct over the existing 101 freeway, or significantly altering some existing highways (e.g. SR 166 and SR 33) to divert through traffic off of Highway 101 in the South Coast.

Justification for eliminating this alternative

The terrain that a new highway would have to traverse whether in-land, off-shore or elevated on a viaduct would make it extremely costly to construct, in excess of $2 billion. An inland highway would require major earthwork and structures that on similar highways (such as on the Orange County toll roads) has resulted in construction costs over $100 million per mile. An off-shore viaduct would be even more costly to construct. Additionally there would be severe environmental impacts, whether in the mountains above Santa Barbara or off shore. A mountain route would impact the Los Padres National Forest and an off shore route would have serious visual impacts and potential impacts on marine and coastal ecology. Also, the implementation time for such a project, assuming that it could achieve environmental and other regulatory clearances as well as funding would be decades. Additionally, there does not appear to be the demand for such a costly facility. Prior surveys in the 101 corridor indicate that the level of through traffic during the weekday commute peak hours is only around 5-8 percent of the traffic stream using Highway 101. Solving the weekday commute peak problems is the primary focus of the 101 In Motion project.

4.1.2.3 Elevated Guideway Transit

This includes technologies such as AVT, APM, and PRT. It does not include an elevated monorail system that uses a slender mono-beam and proven technology. That is a separate alternative. These technologies could follow an alignment along the 101 freeway corridor, or could follow the parallel Union Pacific (UP) rail corridor.

Advanced Vehicle Transit (AVT) is a concept in which automobiles and passengers are transported in private train compartments at high speeds along an elevated guideway following existing highway alignments. For more information refer to http://www.avt-train.com/main.html. Automated People Mover (APM) generally consists of vehicles having capacities between 12 to 100 people which run along dedicated guideways in a line-haul, fixed-schedule configuration. Examples of this technology are seen in major airports' people-mover systems (e.g. Dallas/Fort Worth, Miami, and Seattle). Personal Rapid Transit (PRT) consists of small (1 to 6 passenger), fully automated vehicles captive to an exclusive guideway with multiple stations available to all vehicles regardless of point of origin. It is a demand-based, direct origin-to-destination service that does not require transfers or stops. For more information refer to http://en.wikipedia.org/wiki/Personal_rapid_transit.

Justification for eliminating this alternative

Drawbacks to AVT, PRT and similar systems include:

- Visual: These systems require a dedicated, exclusive guideway. Exclusive guideways cannot interact with other modes of transportation and as such, must be either elevated or underground systems. Elevated structures and stations would be visually intrusive in a corridor that has previously expressed great concern over the preservation of existing vegetation and views.
- Right-of-Way: An alignment on either the 101 Highway Corridor or the UPRR right-of-way would require some acquisitions or easements for the column footings and air rights. Additional acquisitions/ easements would be necessary for the station platform base, parking, maintenance facilities, and possibly propulsion stations, depending on the technology.
- Proven Technology: There are no full-scale examples of AVT. APM systems are, for the most part, limited to private or single jurisdiction properties such as airports. Examples of PRT are limited to a small test site in Wales that was recently shut down due to lack of funding. There are no manufacturers of guideway systems or rolling stock for these technologies, which would require that the system be custom built.

The initial screening findings were used to help guide the TAG, SAC, stakeholders and decision makers when they went about combining the remaining "big idea" solution concepts into logical packages of improvements for more detailed comparative evaluation. The 33 primary solutions that remained included major physical projects such as adding lanes to the 101 freeway, interchange and ramp improvements, arterial gap closures, commuter rail, light rail, high speed ferries/catamarans, and bus rapid transit, as well as significant demand management, operational and land use policy solutions. In addition there were "add on" solutions, such as designating a new lane as a High Occupancy Vehicle (HOV) or High Occupancy Toll (HOT) lane.

4.2. Development and Initial Evaluation of 8 Alternative Packages

Using the findings from the initial screening of the 36 “big idea” solution concepts and additional technical data, 8 alternative packages of solutions were jointly developed by the TAG and SAC using a Delphi/consensus process. The 8 alternative packages were reviewed by the public and approved by the SC and SBCAG Board in November, 2004 for evaluation. Each of the packages contains a combination of capacity enhancement, alternative modes, demand management, and operational improvement elements. Table 4-1 shows the elements included in the Alternative Packages. A brief description follows:

Package #1 – ‘Add General Purpose Freeway Lanes’, would add one general purpose travel lane to Highway 101 in each direction from the Ventura County Line to Patterson Avenue. It would be paired with doubling express bus service from Ventura County to Santa Barbara/ Goleta, and from North County to Santa Barbara/ Goleta (Figure 4-1).

Package #2 – ‘Operational Improvements & Gap Closures’, would add auxiliary lanes to Highway 101 between on-and-off ramps from Milpas Street to Evans Avenue, and would complete the Calle Real gaps between Turnpike Road and Patterson Avenue, and Los Carneros Road and Glen Annie Road. It would be paired with doubling express bus service from Ventura County to Santa Barbara/ Goleta, and from North County to Santa Barbara/ Goleta (Figure 4-2).

Package #3 – ‘High Occupancy Toll (HOT) Lanes’, would add one standard HOT lane in each direction of Highway 101 from the Ventura County Line to Mipas, and auxiliary lanes in the existing six lane section from Milpas Street to Patterson avenue. It would be paired with doubling express bus service from Ventura County to Santa Barbara/ Goleta, and from North County to Santa Barbara/ Goleta (Figure 4-3).

Package #4 – ‘Reversible High Occupancy Vehicle (HOV) Lane’, would add one reversible HOV lane in the median of Highway 101 from the Ventura County Line to Milpas Street, and would complete the Calle Real gaps between Turnpike Road and Patterson Avenue, and Los Carneros Road and Glen Annie Road. It would be paired with doubling express bus service from Ventura County to Santa Barbara/ Goleta, and from North County to Santa Barbara/ Goleta.

Package #5 – ‘Commuter Rail & Complete Calle Real’, would add auxiliary lanes between on-and-off ramps to Highway 101 from Milpas Street to Evans Avenue and from Carrillo Street to Hope Avenue/La Cumbre Road; and would complete the Calle Real gaps between Turnpike Road and Patterson Avenue, and Los Carneros Road and Glen Annie Road. The transit element would be commuter rail service between Oxnard and Goleta, and doubling express bus service from North County to Santa Barbara/ Goleta (Figure 4-4).

Package #6 – ‘Bus Rapid Transit’, would convert the inside freeway shoulders for use as peak period bus lanes from Ventura County Line to Patterson Avenue, and would complete the Calle Real gaps between Turnpike Road and Patterson Avenue, and Los Carneros Road and Glen Annie Road. It would be paired with doubling express bus service from Ventura County to Santa Barbara/ Goleta, and from North County to Santa Barbara/ Goleta. Additionally, selected arterial lanes would be converted for bus priority use during peak periods.

Package #7 – ‘Dedicated Busway’, would have no freeway capacity improvements, and instead would create a busway mostly within the UPRR right-of-way from the County Line to Goleta. It would include doubling express bus service from Ventura County to Santa Barbara / Goleta and from North County to Santa Barbara/ Goleta. Additionally, selected arterial lanes would be converted for bus priority use during peak periods (Figure 4-5).

Package #8 – ‘HOV lanes + Commuter Rail’, would add HOV lanes to Highway 101 from the Ventura County Line to Patterson Avenue, and commuter rail service between Oxnard and Goleta. It would also double express bus service from North County to Santa Barbara/ Goleta (Figure 4-6).

In addition, all of the 8 Alternative Solution Packages would have demand management and operational improvements that include: Adjusting Work Schedules (FlexTime and FlexWork), Individualized Marketing, Ramp Metering, and Reducing Bus and Vanpool Fares. Some of the packages would also include: Intelligent Transportation Systems, Regulating Truck Delivery Hours, Transit Oriented Development, Variable Parking Rates, and Variable Speed Limits. Appendix 'A' provides further descriptions of these elements.

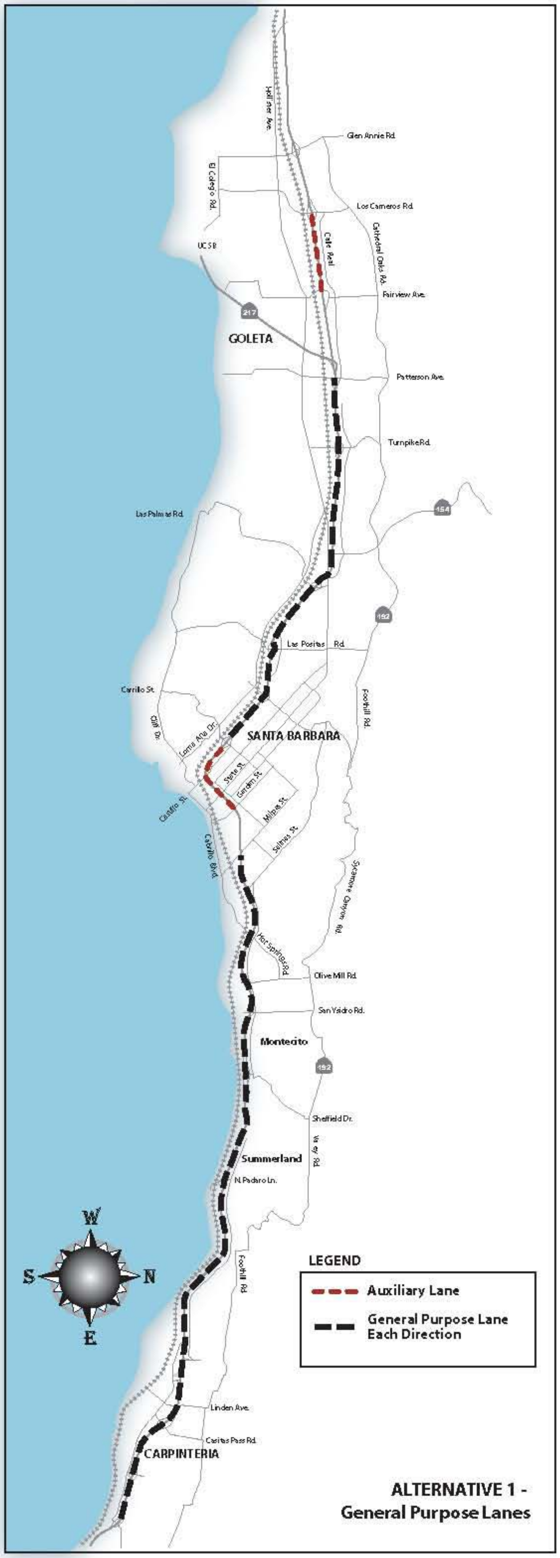


Figure 4-1 Package #1 – General Purpose Lanes

Figure 4-2 Package #2 – Operational Improvements/ Gap Closures

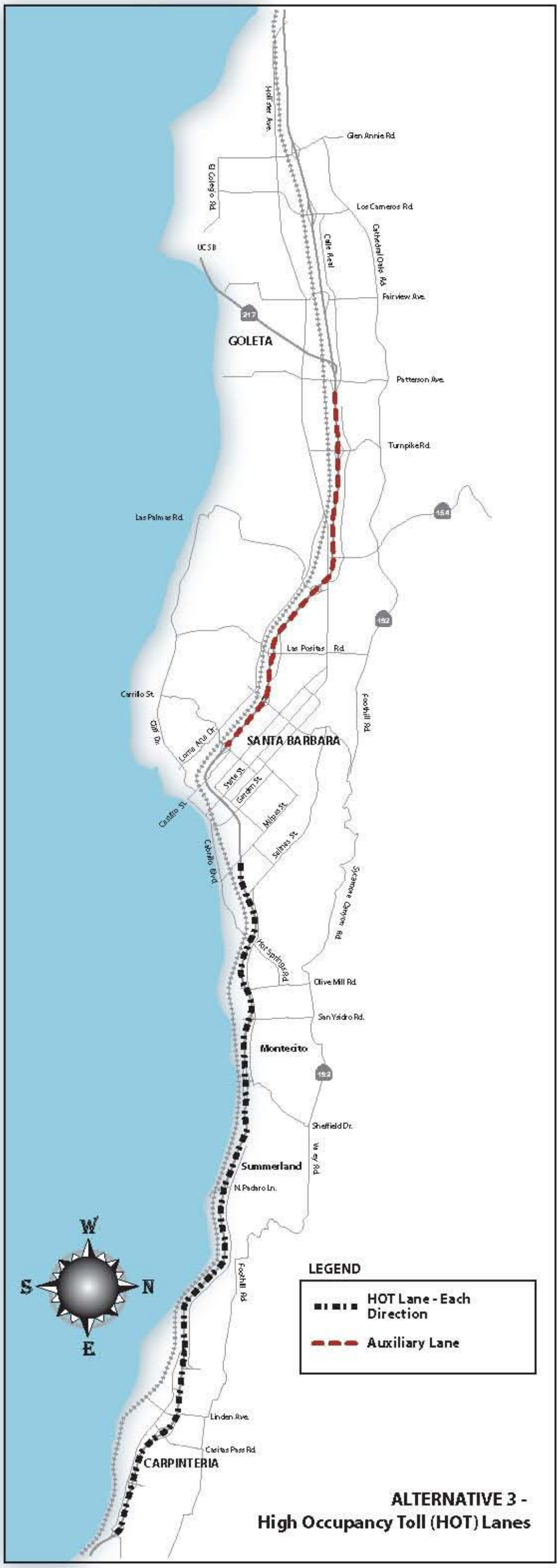


Figure 4-3 Package #3 - HOT Lanes

Figure 4-4 Package #5 – Commuter Rail

Figure 4-5 Package #7 – Dedicated Busway

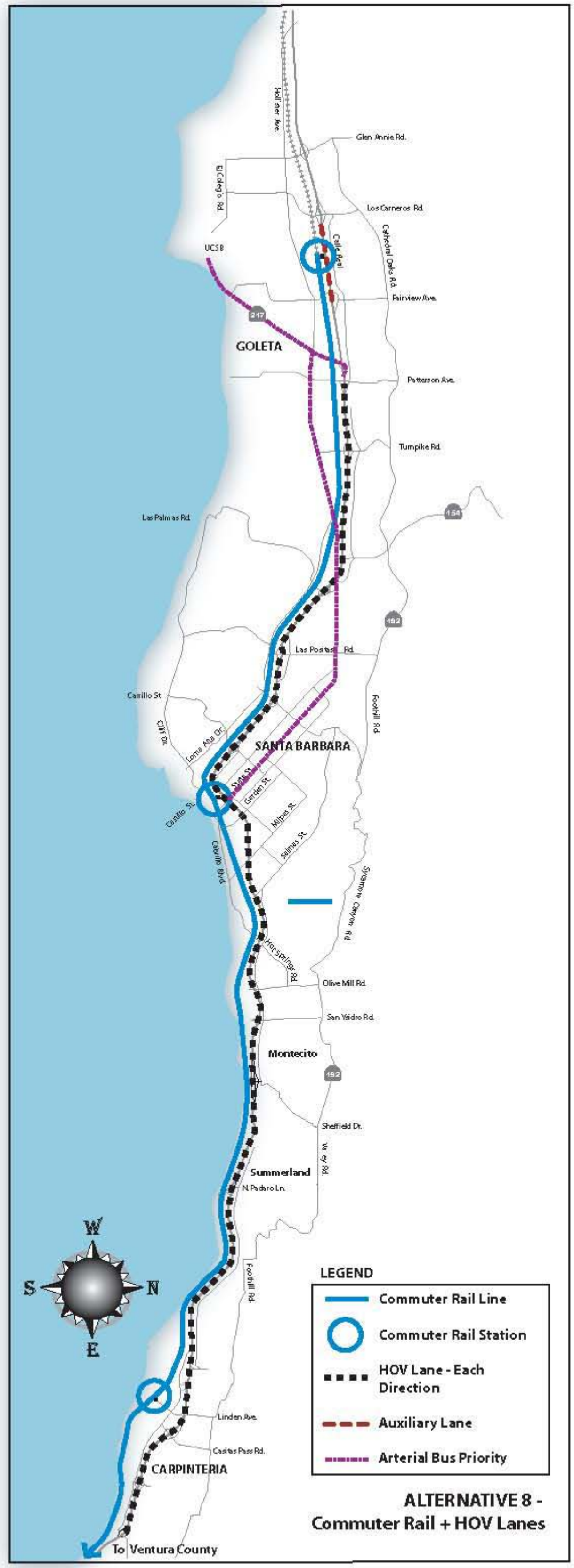


Figure 4-6 Package #8 – Commuter Rail + HOV Lanes

4.2.1 Elements Not Included in the 8 Alternative Packages

Not all of the 33 “big idea” solution concepts identified during the Initial Phase were selected by the TAG and SAC for inclusion in the 8 Alternative Packages. Most notably Light Rail and High Speed Ferries/ Catamarans were not chosen. Light Rail was not selected by the TAG and SAC due to its high cost and its not fitting the travel demand profile of the corridor. Light Rail costs on the order of $15-35 million per mile to construct and generally runs all day with service every 10 -20 minutes. The need in the corridor was judged to be more effectively met with commuter rail or express bus service in priority lanes.

While not included in any of the packages due to its expected relatively high cost per passenger to operate, the concept of high speed ferries was not rejected. Instead it is assumed to be a potential element in all of the packages, if the economics can be worked out so that the public subsidy is no greater per passenger than for commuter rail or express bus service. The TAG and SAC were particularly interested in further looking into the viability of using high speed ferry service as an option during construction of new lanes on Highway 101.

Additionally, while not specifically singled out in any of the alternative packages, the role of land use policies in affecting transportation patterns and usage is clearly recognized and included in all of the alternatives. Appendix G identifies some potential land use policies that could help reduce single occupant automobile travel in the South Coast.

4.2.2 Public Outreach

Following the identification of the 8 alternative packages by the SAC and the TAG in September 2004, the SBCAG Staff and consulting team presented the packages to the community by way of City Council and community organization meetings. Members of the public were invited and encouraged to attend these presentation and offer comments on which alternative packages should move forward for further analysis. In addition to the pubic meeting and organization presentations, the public was encouraged to participate through general media outreach, an email newsletter update, the website, and public events.

<u>Tools:</u>

- PowerPoint Presentations
- Website
- Hotline
- Media
- Email newsletter (October 2004)
- Fall 2004 Fact Sheet and Feedback Form

Between September 2004 and April 2005, 30 public outreach presentations were held.

The South Coast Subregional Planning Committee (SCSPC) is a Board subcommittee of the Santa Barbara County Association of Governments and also serves as the steering committee for 101 in Motion. The Steering Committee met five times during Phase II: Evaluation of 8 Alternative Solution Packages, each of these meetings were open to the public and time was allowed for public comment

In addition, the SBCAG Board held a Public Hearing on September 18, 2004.

Five of the outreach presentations were televised on public access television.

4.2.3 Initial Evaluation Findings and Elimination of 2 Alternatives

During the technical evaluation each of the 8 packages was put through a similar yet more rigorous screening process than was used in the initial screening of “big idea” concepts. As a first step during this phase of screening each of the 8 packages as a whole was evaluated against the 22 performance criteria that had been developed by the TAG and SAC to determine whether any of the packages were seriously flawed and should be dropped. This was consistent with the Steering Committee direction in November 2004 when the

SC adopted the TAG and SAC joint recommendations regarding the 8 Alternative Improvement Packages which were to receive further technical analysis. The SC also accepted the TAG and SAC recommendation that: "If an alternative was found to be seriously flawed during early evaluation steps, that the information be brought to the Steering Committee for consideration that the alternative(s) be dropped."

Two of the eight initial packages showed serious flaws in the early stages of the screening process. The TAG and SAC at their respective January 2005 meetings recommended that both Package #4 (Reversible HOV lane) and Package #6 (Add Peak Period Bus Only Lanes) be dropped from further consideration, with the understanding that this was to terminate further study or consideration of the major capacity enhancement options of these two packages, but that complementary (demand management and operational management) features would remain under consideration. There was also concern that the concept of Bus Rapid Transit not be lost, but be considered in conjunction with HOT/HOV lanes. The SC and SBCAG Board adopted the dropping of Packages #4 and #6 in February 2005. The rationale for dropping these two packages is presented below:

4.2.3.1 Rationale for Terminating Further Analysis of Alternative Package #4 – Reversible HOV Lane

Background:
This Alternative Solution Package features adding a reversible HOV lane in the median of Highway 101 between Milpas Street and the Ventura County line. The primary reasons for considering this alternative was that on first analysis it appeared that a reversible lane could be accomplished in the existing median, and thus would require less physical widening than adding a new lane in each direction, while still meeting the peak hour demands that are directional in nature.

Initial Evaluation Findings:
To provide a safe refuge for a vehicle that breaks down and a physical barrier between traffic traveling in opposing directions, the width between barriers straddling the reversible lane needs to be a minimum of 20-feet. As it turned out, the difference in overall pavement width between the reversible lane alternative and a cross-section which adds a lane in each direction is only 2-feet.

The reversible lane would have the following drawbacks:

- Eliminates any possibility of retaining median landscaping
- Requires replacement of all bridges due to interference of center supports
- Predominantly operates during the peak periods, thus would not provide congestion relief in non-peak commute hours without additional operational costs
- Has entry and exit points only at each end and at one intermediate point so that it would mostly serve Ventura County commuters and through traffic
- Adds operating costs to set-up and take down safety barriers at each end when traffic direction is changed
- Adds to the length of time required for emergency vehicles and tow trucks to reach an accident location
- Offers no capital cost savings over other alternative packages that add highway capacity

Alternative Packages #1, #3 and #8, which add travel lanes in both directions, provide similar or better operational and congestion relief benefits as Alternative Package #4 without the drawbacks cited above. As a result, Alternative #4 was dropped from further consideration.

4.2.3.2 Rationale for Terminating Further Analysis of Alternative Package #6 – Peak Period Bus Only Lanes

Background:
Alternative Solution Packages #6 added a peak period dedicated bus only lane in each direction on Highway 101 between Milpas Street and the Ventura County line. Along this section of 101 the existing inside shoulders would be widened to 16-feet (vs. 5-feet typically today), repaved to handle bus axle loads, and re-designated and signed for peak period bus only lane in each direction. The northbound lane would only be

used during the morning peak period and the southbound lane during the afternoon peak period. The bus only lanes would revert to be shoulders at all other times. This concept does not exist anywhere in California on the State Highway system (other than as a trial "interim" solution along one corridor in San Diego County) and would require design exceptions by Caltrans and FHWA for its non-standard features. (See photo in Figure 4-2 of a bus only lane using the shoulder in Ottawa, Canada).

The rationale for this alternative in the first place was that a bus only lane that uses a converted shoulder during peak periods would require less physical widening (approximately 6-feet less on each side of Highway 101) than adding a new general purpose or HOV/HOT lane in each direction. A new general purpose or HOV/HOT lane would add a 12-foot lane plus widen the existing inside shoulder to 10-feet to bring it up to current standards. A bus only lane as proposed would add 11-feet to the existing 5-foot shoulder rather than adding a whole new lane. This bus only lane would serve as a 16-foot wide shoulder during the off-peak hours when it wasn't being used as a bus only lane.

Figure 4-7 Bus Only Lane Example in Ottawa, Canada

Initial Evaluation Findings:
At present the Coastal Express carries approximately 200 commuters per day (400 boardings). In Alternative #6 with a peak period bus only lane and no other capacity enhancement to Highway 101, by 2030, projected ridership of the commuter and express bus services that would use the peak period bus only lanes would increase approximately eight-fold to around 1,700 commuters riding each weekday in each direction (3,400 boardings). Since the peak hour ridership is expected to be approximately 37 percent of the daily, this translates into approximately 630 peak hour passengers. This number of passengers would be carried in 14 buses during the peak hour which means that there would be one bus every 4.25 minutes during the peak hour on average. Typical standards in the industry used as thresholds to warrant a bus only lane is a minimum of 30 buses per hour with at least 60 buses per hour considered preferable by many agencies. For example, the El Monte busway along the I-10 freeway in Los Angeles carries over 50 buses per hour. The Shirley Highway bus lane in Washington D.C. and the bus only lanes in New Jersey leading to the Lincoln Tunnel in New York carry well in excess of 60 buses per hour during the peak period. The reason that thresholds have been established by transportation professionals is to avoid the empty lane syndrome, where motorists perceive that there is insufficient use to justify the expenditure of public funds. Also, providing a lane that appears usable by autos regardless of how it is signed and marked creates a temptation for motorists to use it to bypass congestion.

Another standard practice that is used in the transportation industry to establish whether priority should be given to specific users of a travel lane (e.g. buses, carpools, vanpools) is comparing the number of people who would use the lane if the priority were given vs. if the lane were a general purpose lane. In other words comparing the number of people using the lane rather than the number of vehicles. In the case of a bus lane vs. a general purpose or HOV lane being added along Highway 101 the bus only lane is projected to carry 630 people per hour, whereas a general purpose or HOV/HOT lane would likely serve 2,000 to 3,000 people per hour during the peak hour.

Moreover, even if all of the bus passengers were former drivers, diverting 630 auto drivers from the existing lanes on Highway 101 would not be sufficient to offset the projected congestion, even when all of the corollary transportation demand measures included in Alternative Package #6 are taken into consideration.

In summary, the shortcomings of the bus only lane concept in Alternative Package #6 are:

- Projected usage of the bus only lanes falls well below standard thresholds used in the transportation industry
- Only operates during peak periods, thus eliminating any congestion relief in non-peak hours , such as Summer Sunday afternoons
- Low usage of the bus only lanes could entice motorists to use them illegally to bypass congestion, thereby adding safety hazards and adding to enforcement costs
- Does not provide sufficient increases in corridor capacity or demand reduction to solve the congestion problem on Highway 101
- Offers no benefit to others traveling by HOV in carpools and vanpools

Based on a qualitative assessment of the foreseeable benefits and estimated costs, constraints and limitations in comparison to the initial findings of other packages cited above, further consideration of Alternative Package # 6 was terminated.

4.3. Evaluation of the Remaining 6 Alternative Packages

Appendix A Table 4.4 presents the results of the evaluation of the 6 Alternative Packages for all 22 evaluation criteria. Appendix 'A' provides back-up information on the assumptions and rationale behind the rating in each cell of the matrix.

Between January and March 2005, the TAG had eight meetings to review the results from this phase of technical evaluation, and the SAC had two meetings. Based on these reviews, nine of the 22 evaluation criteria appeared to provide the most useful information in identifying differences between the alternative packages (the key differentiators are in bold on the list below). Appendix A Table 4.5 shows the evaluation results for just this set of 9 criteria.

Transportation: A. Improve Mobility/Increase Capacity **B. Reduce Congestion** **C. Reduce Travel Delays** **D. Improve Safety** **E. Provide Options/Increase Choices** F. Improve Trip Reliability G. Improvement Longevity H. Improve Goods Movement	**Implementation Related Criteria** **Q. Cost Effectiveness** R. Physical Feasibility S. Technological Feasibility T. Institutional Constraints U. Construction Impacts **V. Phaseability**
Community/Environmental Considerations: **I. Natural & Built Environment** J. Neighborhoods K. Air Quality **L. Noise Impacts** **M. Visual Impacts** N. Economic Vitality O. Shareholder Equity P. Sustainability	

4.3.1 General Conclusions from Evaluation of the 6 Alternative Packages

The following are general conclusions that can be drawn from the Technical Evaluation of the 6 Alternative Packages shown in Appendix A Table 4.4, and summarized for a reduced set of criteria in Appendix A Table 4.5. Presentation of the evaluation general conclusions follows the three categories of criteria in sequence, 1) Transportation Performance; 2) Community/Environmental Considerations; and 3) Implementation Related Criteria.

4.3.1.1 Transportation Performance – General Conclusions

- Only Alternative Package #8 (Commuter Rail + HOV Lanes) would fully relieve congestion forecast by 2030 on Highway 101. Alternative Package #1 (General Purpose Lanes) would provide significant relief, but not meet the performance standard of LOS D. Package #3 (HOV Lanes South of Milpas) would provide congestion relief close to Package #1 for the area south of Milpas, but the auxiliary lanes on the existing 6 lane section would not produce significant congestion relief in this area.) Alternative Packages #7 (Dedicated Busway) and #2 (Operational Improvements/Gap Closures) would provide the least congestion relief. (See Appendix A Figures 4.1 to 4.6 for FY 2030 P.M. Peak Hour Flows & V/C Ratios)
- Alternative Packages #7 (Dedicated Busway) and #5 (Commuter Rail) would attract the most motorists out of their autos on to transit, but not in sufficient numbers to eliminate congestion on Highway 101.
- Projected commuter rail ridership in Alternative Package #5 would be comparable to some existing Metrolink lines. The level of commuter rail ridership in Alternative #8, although less than with Alternative #5, would be significant.
- Alternative Package #8, which provides for more stable traffic flow on the freeway than any of the other alternatives, while also attracting a significant number of motorists out of their cars in to transit, vanpools and carpools is rated as having the best safety performance. Alternative #7 (Dedicated Busway) is rated the poorest from a safety standpoint because it would do the least to reduce congestion on Highway 101 and introduces potential conflicts between buses and cross-street traffic at grade crossings and between buses and trains wherever the buses access and leave the busway.
- The HOV/HOT lanes in Alternative Packages #3 (HOT Lanes) and #8 (Commuter Rail + HOV Lanes) are projected to be well utilized and effective in helping to reduce congestion. Both Alternatives are projected to exceed Caltrans minimum usage guidelines for consideration of HOV lanes.
- The Calle Real extensions in Alternative Packages #2 and #5 between Glenn Annie and Los Carneros would be lightly used attracting approximately 150 P.M. Peak Hour trips, and between Patterson and Turnpike would attract approximately 270 P.M. Peak Hour trips. This would help reduce the traffic on Highway 101, but not enough to offset the projected freeway congestion.
- While primarily an operational and safety improvement, adding auxiliary lanes would provide about one-third the capacity of a full lane. A drawback is that the auxiliary lanes would require widening to the outside of the existing travel lanes, whereas full lanes can be added to either the inside or the outside. Widening to the outside often poses increased right-of-way impacts.

4.3.1.2 Community/Environmental Considerations – General Conclusions

As is standard for a corridor study, no detailed environmental impact analyses were performed. These more detailed environmental studies typically occur in conjunction with the environmental document once a preffered concept has been selected upon the conclusion of 101 in Motion. However, an environmental screening analysis was performed to identify environmental constraints and to provide “broad brush” evaluative information on the different proposals under consideration. Based on the relative importance to the community of different criteria as established through public outreach, and based on the preliminary screening analysis, three environmental concerns received a great deal of attention and scrutiny at this stage in the corridor study: (1) potential for right-of-way impacts, (2) visual quality, and (3) noise. The following discussion summarizes the key environmental findings associated with these three issues and indicates areas where further environmental analysis is needed to distinguish among the alternatives in the next round of alternatives analysis.

- In general, a new roadway on a new location is more disruptive to neighborhoods and to natural environmental resources compared to expanding or widening existing transportation facilities. Construction of new transportation infrastructure where none previously exists introduces noise and changes the existing visual context in a way that is markedly noticeable to the community. In addition, a new roadway on a new alignment is more apt to bisect or impact undisturbed biological resources of higher value due to the imposition of new structures and construction activities. This is especially true of the Calle Real Gap Closure segment between Patterson Avenue and Turnpike Road, in the vicinity of Patterson Avenue, which is included in Alternative Packages #2 and #5. It is also true of the new dedicated busway contained in Alternative Package #7 as new roadway facilities (bridges, retaining walls, sound walls) would be constructed adjacent to residential properties that line the UPRR right-of-way next to a single railroad track that is relatively unobtrusive. Because Alternative Packages #2 & #7 contain the gap closures, and Alternative #7 introduces traffic where none currently exists, these generally did not compare favorably to the other alternatives.

- The larger the footprint of the proposed alternative relative to available state highway or UPRR right-of-way, the greater the potential <u>right-of-way impact</u>. This pattern is largely related to the freeway options (General Purpose vs. HOT vs. HOV lanes) in those areas where the existing width of the state ROW is narrow and constrained. The addition of auxiliary lanes to the outside of the freeway could be especially problematic in some sections (Alternative Packages #2, #3, and #5) for residents living close to the existing freeway.

- Interchange modifications to Highway 101 were not defined and were therefore not included in the <u>right-of-way</u>/environmental assessment at the screening level. It was also assumed that the dedicated busway (Alternative Package #7) would entirely fit within the UP ROW and that any tracks would be relocated entirely within the existing UP ROW. Whether this turns out to be the case will influence the right-of-way impact assessment in subsequent study evaluations.

- In the environmental evaluation, Alternative Packages #1 and #8 benefited from assumed centerline shifts of the roadway as a method of widening to minimize impacts.

- With regard to the potential for <u>visual impacts</u>, the length of the proposed transportation facilities included in Alternative Packages #1 (General Purpose Lanes), #7 (Busway), and #8 (HOV Lanes) worked against these alternatives. Alternative Package #2 (Operational Improvements) and Alternative Package #5 (Commuter Rail) fared the best. Replacement landscaping was assumed as mitigation in the environmental evaluation for all alternatives.

- Proposed changes to Highway 101 (e.g., added travel lanes) would incrementally increase <u>noise levels</u> for adjacent sensitive receivers, but it will be difficult for residents to perceive this difference due to the high amount of traffic noise that they currently experience along the freeway. Caltrans protocol states that if noise levels along the freeway approach or exceed 67 dBA or if there is a substantial increase in noise levels (12 dBA), then noise attenuation must be considered. Since existing noise levels already exceed or approach 67 dBA in several areas, the various highway proposals included in the alternative packages for Highway 101 would meet this criterion and most neighborhoods would be eligible for sound walls based on previous noise analysis conducted in the Highway 101 Corridor. Several neighborhoods located adjacent to 101 do not currently have sound walls. If sound walls were to be constructed as part of the proposed project, many sensitive receivers would experience a reduction in existing freeway noise levels (i.e., a beneficial environmental impact). However, the construction of sound walls could result in a significant negative visual impact depending upon the views of the affected community. Because of the visual impacts, some communities might elect to not have the sound walls constructed if the increase in noise level was not significant and /or the added noise level at sensitive receivers could be mitigated through other means.

4.3.1.3 Implementation Related Criteria – General Conclusions

- Alternative Packages # 8 (Commuter Rail + HOV), #1 (General Purpose Lanes) and #3 (HOT Lanes) are the most cost-effective in terms of the relative travel time benefits vs. cost to construct and operate. Alternative Package #7 (Dedicated Busway) is the least cost effective by far. Cost effectiveness is defined as the annualized capital and annual operating cost of each alternative divided by the weekday average daily person hours of delay reduced. Capital costs were amortized over 30 years.
- From the standpoint of constraints to overcome, Alternative Package #2 (Operational Improvements) would be the easiest to implement, and Alternative Packages #1, #7 and #8 the most difficult.
- As far as the various Transportation Demand Measures included in the alternative packages, a comprehensive flexible work schedule program could have the greatest impact on reducing congestion at relatively low cost. Individualized marketing and ridesharing incentives could also be effective, but are comparatively more costly to implement.
- Controlling the amount of parking in Downtown Santa Barbara and/or using pricing incentives to encourage off-peak arrivals and departures would need to be done in a modest way so as not to affect businesses. As a result the relative impact on reducing congestion would also be modest.
- Increasing bus service would be more effective than reducing bus fares for attracting riders to express buses.
- Ramp metering can be an effective means of providing more stable flow to a freeway, but can only be implemented where the ramps are sufficient in length, width, and grade. There are many ramps in the corridor that do not presently have sufficient capability for ramp metering, and would require widening and/or lengthening.
- Intelligent Transportation System (ITS) elements would be comparatively cost effective in helping to provide congestion relief.

4.3.2 Elements Selected to be Included and Elements Selected to Be Dropped From Consideration in Developing the Final 4 Alternative Packages

Based on the foregoing evaluation findings and after much discussion, the TAG and SAC developed a set of recommendations to the Steering Committee as to which elements should be dropped and which should be retained and included in the final 4 alternative packages for further detailed evaluation. In addition, both committees continued to recognize the ability to intermix elements of one package with another in order to obtain the best final implementation strategy.

Following another round of public input, the Steering Committee adopted the following SAC and TAG recommendations at their April 2005 meeting:

4.3.2.1 Capacity Enhancements and Alternative Mode Elements

Capacity Enhancement and Alternative Mode Elements Advanced for Further Evaluation:

The SC agreed with the TAG and SAC that the following elements should be included in one or more of the final 4 alternative solution packages:

- Add 1 HOV/HOT Lane in each direction
- Add 1 General Purpose Lane in each direction
- Add Auxiliary Lanes (Milpas to Winchester Canyon)
- Commuter Rail
- Double Express Bus Service (North to Santa Maria & South to Ventura)
- Increase Connecting Local Bus Service
- Bus Priority on Selected Arterials

Capacity Enhancement and Alternative Mode Elements Dropped from Further Evaluation:

Calle Real Gap Closures: Calle Real Gap Closures has been thoroughly analyzed and, while it might result in a marginal increase in MTD route efficiencies, the SC agreed with the TAG and SAC recommendations that construction of two segments of Calle Real (between Turnpike and Patterson, and between Los Carneros and Glenn Annie) not be included in any future package for the following reasons:

1. The segment of Turnpike to Patterson would only result in use by approximately 270 P.M. Peak Hour trips, and the segment from Los Carneros to Glenn Annie would only result in use by 150 P.M. Peak Hour trips.
2. Not all of those trips would come from Highway 101, however all 270 would be added to surface street intersections resulting in more surface street congestion.
3. There could be extensive environmental impacts involved, including the need to construct a bridge to cross a wetland/stream west of Patterson, and loss of agricultural/orchard land west of Glenn Annie.
4. There would be impacts to existing residential areas including visual and noise impacts.
5. In order to attain an alignment with the existing Calle Real Patterson intersection alignment, it would be necessary to acquire several single family residences.
6. The estimated cost to construct both of these roadway segments, including bridge construction is $50 to $60 million.
7. The benefit of the Calle Real segment between Los Carneros and Glen Annie would not be fully realized until and if the Bishop Ranch were developed. As such, and since this development is not assumed in the travel model forecast, the extension of Call Real was shown to have limited value to congestion relief on Highway 101.

Dedicated Busway: This alternative contemplated the construction of a single, reversible lane busway between the Ventura County line and Garden Street, and a bi-directional busway between Garden Street and Patterson Avenue. The busway would be located within the Union Pacific Railroad (UPRR) right-of-way and/or other dedicated right-of-way. After extensive discussion, it was determined that the Dedicated Busway not be included in any of the final packages for the reasons listed below. However if commuter rail was deemed to be infeasible, it was agreed that the dedicated busway would be re-examined.

1. The Dedicated Busway (Alternative Package #7) was the worst performer in terms of congestion relief, and while it would attract the highest percentage of motorists out of their autos on to transit, they would not be in sufficient numbers to eliminate congestion on Highway 101.
2. The Dedicated Busway was rated the poorest from a safety standpoint because it would do the least to reduce congestion on Highway 101 and introduces potential conflicts between buses and cross-street traffic at grade crossings and between buses and trains wherever the buses access and leave the busway.
3. The Dedicated Busway could have significant noise and visual impacts to adjacent residential neighborhoods and some of the sensitive natural environments that the UPRR traverses.
4. The Dedicated Busway was the least cost-effective alternative package, and had the highest cost per hour of congestion relieved of all of the potential alternatives.
5. Unlike the HOV/HOT lane, the dedicated busway provides no incentive for those who might choose to use a carpool or vanpool.
6. The Dedicated Busway presents the risk that if it did not attract sufficient ridership, little potential use could be made of the busway. By comparison if express buses were to operate in a HOV or HOT lane, even if express bus ridership was not as great as expected the lanes would still be usable by other HOVs (i.e., carpools and vanpools), or even SOVs if that was determined to be the best course of action.

7. There are concerns that the UPRR might not be willing to permit the use of their right-of-way for a busway.
8. While there are a number of busways operating successfully in the U.S. and elsewhere, there are no known busways that operate in an active railroad right-of-way. This adds another element of risk to this particular application of the busway concept.

4.3.2.2 Demand Management Elements

Demand Management Elements Advanced for Further Evaluation:

Based on the technical evaluation, several Demand Management elements appear to significantly reduce traffic congestion, at a relatively low cost. Several of them could potentially be initiated as Early Results projects. Based on the preliminary findings the SC adopted the TAG and SAC recommendations that the following Demand Management elements continue as a part of all packages in the next phase of analysis (Evaluation of Final 4 Alternative Packages):

Individualized Marketing: There are two components to Individualized Marketing which show promise to reduce congestion. 1) Work with individual commuters to understand current travel behavior and develop personalized advice on how to use mode alternatives, better chain trips, change trip timing, etc.; and 2) develop a targeted marketing campaign to build or increase ridership on the specific transit improvements being proposed in each package. The goal of this latter component is to fill seats on these new services by targeting key origins and destinations via direct mail, free trial rides, etc.

Provide Ridesharing Incentives: This includes Reducing Vanpool Fees by 20% and offering Financial Incentives for Carpooling.

- Reducing Vanpool Fees. Vanpool demand, with respect to fares, is fairly elastic[15]. A recent study by the Florida Department of Transportation estimated the price elasticity of vanpool fares as -1.5. Thus a 20 percent reduction in fares could increase vanpooling by as much as 30 percent.
- Carpooling Financial Incentives. Involves working with employers and Traffic Solutions to implement an alternative mode subsidy equal to $2 per day. The subsidy could be in form of cash, gasoline cards, debit cards, scrip at retailers, or cash equivalent prize drawings. The subsidy could be offered to any qualifying commuter willing to “try” or “switch” from driving alone to an alternative mode. It would be limited to three month eligibility with some “club” membership arrangement for private sector subsidy after the public incentive period.

Adjust Work Schedules (FlexWork): A significant reduction in peak hour traffic appears feasible by working with major employers and Traffic Solutions to implement compressed work weeks (3/36, 4/40, and 9/80), “telecommuting” part-time, and flex-time to reduce peaking issues for commute traffic using Highway 101.

Variable Parking Rates: Under the variable parking rate system proposed, discounts could be offered to commuters who arrive and park prior to the peak hour. Many buildings in downtown Los Angeles successfully use this strategy. This strategy may also work at UCSB, where large numbers of staff and faculty pay for parking. Loss of parking revenue would need to be considered or countered with a peak price increase. In addition, this would need to be tied to residential parking restrictions (new or expanded) to minimize impacts to neighboring residential areas, from people seeking “free” parking within reasonable walking distance.

“Rapid Bus”: The concept of a “Rapid Bus” consists of strategies that provide preferential treatment for buses on arterials, and include traffic signal priority, queue jumpers and bus bulb-outs at stops. Signal priority extends the green light for 10 seconds when activated by a bus within 100 feet of the intersection, enabling it to avoid having to wait for the next signal cycle. Queue-jumpers are separate lanes added to

[15] *If demand is elastic, a price decline will cause usage to rise. If demand is inelastic, a change in price will not cause a change in usage.*

an intersection that allow a bus to advance before other traffic proceeds. Bulb-outs are located on streets with curb parking, and are used to form bus stops by extending the sidewalk in place of the curb parking at the bus stop location.

These strategies would be coupled with limited-stop service, use of low floor buses for faster boarding, and other low cost strategies that reduce travel times and improve schedule reliability.

Demand Management Elements Dropped from Further Evaluation:

Based on the technical evaluation, three Demand Management elements did not appear to have the potential to significantly reduce traffic congestion, or would result in disruption to the business community. As a result of the preliminary findings, the SC adopted the TAG and SAC recommendations that the following Demand Management elements not proceed into the next phase of analysis:

Limit Number of All-Day Parking Spaces: The study assumed a reduction of 500 future off-street "free" parking spaces in downtown Santa Barbara and major employment centers, over what would have been required under current parking/zoning for new development. Reducing the number of parking spaces also allows valuable downtown real estate to be used for other purposes. Reducing 500 future spaces was projected to result in a 100 fewer A.M. Peak Hour trips inbound and 100 fewer P.M. Peak Hour trips outbound per day in 2030. Not all of these of course would be users of Highway 101, so the effect of reducing congestion on the freeway would be small.

Limiting the number of spaces downtown has been strongly opposed by the downtown business community in the past, and current input from the business community indicates continuing opposition. In addition, limiting the number of all day parking spaces does not eliminate the need for other capacity enhancement elements. Also, limiting the number of all day parking spaces could instead increase impacts on downtown residential neighborhoods. Of additional concern was that this policy would not apply equally to all jurisdictions in the South Coast. It was agreed that while this element should not be included in any package, it should be considered as a tool in the "planner's tool kit" for each jurisdiction to consider in the context of their general plans.

Reduce Bus Fares by 20%: Transit demand, with respect to fares is fairly inelastic. Transit fare elasticities from numerous studies indicate that a 20 percent reduction in fare might increase ridership by 6 to 7 percent. Many studies have shown that reducing fares for commuter bus riders has less impact on increasing ridership than does increasing service and making service more reliable. The SC approved that reduction of bus fares by 20 percent not receive any further analysis, but that future analysis considers the benefits of funding increased commuter express services and route enhancements.

4.3.2.3 Operational Improvement Elements

Operational Improvement Elements Advanced for Further Evaluation:

Based on the technical evaluation of the alternatives, several Operational Management elements appear to have the potential to significantly reduce traffic congestion. Based on the preliminary findings, the SC adopted the TAG and SAC recommendations that the following Operational Management elements continue as a part of all packages in the next phase of analysis:

Ramp Metering: Ramp Metering has the capacity to reduce congestion by regulating traffic flow onto the freeway. Ramp metering will require physical modifications at some ramp locations to accommodate queue storage requirements and their associated right-of-way and construction costs.

Intelligent Transportation System: (ITS) elements, consisting of surveillance cameras, loop detectors, smart call boxes, changeable message signs, radio communications, and tow trucks in ready coordinated through the Caltrans traffic management center, would be comparatively cost effective in providing congestion relief.

Voluntary Restrictions on Delivery Hours: Restrictions on delivery hours is opposed as a mandatory program because of impact to businesses and adjoining neighborhoods by moving delivery time into early morning or evening hours. The business community, as represented by the Santa Barbara Industry Association is strongly opposed to this measure as a mandatory program. They are not necessarily opposed to a voluntary program. While recognizing that its effectiveness will likely be minimal, it was agreed that this be carried forward as a strictly voluntary measure. It could be used as an element of a marketing campaign to relieve congestion.

Operational Improvement Elements Dropped from Further Evaluation:

Variable Speed Limits: One element of ITS, variable speed limits was evaluated as an element in several packages. It appears to have a relatively low level of effectiveness (increasing capacity of a roadway by approximately 50 vehicles per hour), and a very small range of usefulness (i.e. once the roadway becomes over capacity it has no impact). In addition, there are enforcement issues, and as was pointed out by the CHP representatives on the TAG, stopping someone to ticket them produces further slowing as drivers "rubberneck." In addition, instituting variable speed limits would require a change in state legislation. For these reasons, variable speed limits was dropped from further consideration in any of the packages.

5.0 DEVELOPMENT AND EVALUATION OF FINAL 4 ALTERNATIVES

5.1 Development of Final 4 Alternative Packages

Using a similar consensus process as in the Round 2 alternatives development, the TAG and SAC identified separately and then jointly a set of four final alternative solution packages for detailed technical evaluation. The process involved mixing and matching the elements which passed the screening in the previous round. All of the resultant alternative packages are hybrids rather than exact matches with the previous round's alternatives. Figures 5-1 through 5-4 depict the Final 4 Alternative Packages for evaluation in Round 3 recommended by the TAG and the SAC and approved by the Steering Committee and SBCAG Board in April 2005 following a round of public input. Table 5-1 summarizes the elements in each package. The Final 4 Alternative Packages consist of:

> **Package A – 'Commuter Rail',** would add commuter rail service between Oxnard/Camarillo and Goleta, and double express bus service from North County to Santa Barbara/ Goleta. There is no highway widening with this package. (Figure 5-1)
>
> **Package B – 'HOV/HOT Lanes + Commuter Rail',** would add a High Occupancy Vehicle (HOV) or a High Occupancy Toll (HOT) lane in each direction on Highway 101 from the Ventura County Line to Patterson Avenue. It would be paired with commuter rail service between Oxnard/Camarillo and Goleta, and doubling express bus service from North County to Santa Barbara/ Goleta. (Figure 5-2).
>
> **Package C – 'HOV South/ Auxiliary Lanes North + Commuter Rail',** would add a High Occupancy Vehicle (HOV) lane in each direction on Highway 101 from the Ventura County Line to Milpas Street; auxiliary lanes in the existing 6 lane section; commuter rail service between Oxnard/Camarillo and Goleta, and doubling express bus service from North County to Santa Barbara/ Goleta. (Figure 5-3).
>
> **Package D – 'General Purpose Lanes',** would add a General Purpose lane in each direction on Highway 101 from the Ventura County Line to Patterson Avenue. It would be paired with doubling express bus service from North County to Santa Barbara/ Goleta. (Figure 5-4).

Table 5-1
Final 4 Alternative Packages for Evaluation

Package Theme	A - Commuter Rail	B - HOV/HOT Lanes + Commuter Rail	C - HOV South/Aux Lanes North + Commuter Rail	D - General Purpose Lanes
Capacity Enhancement		Add 1 HOV/HOT Lane each direction - *Milpas South*	Add 1 HOV Lane each direction - *Milpas South*	Add 1 General Purpose Lane each direction- *Milpas South*
		Add HOV/HOT Lane each direction - Carrillo to Patterson		Add 1 General Purpose Lane each direction - Carrillo to Patterson
		Add Auxiliary Lane NB - Fairview to Los Carneros & SB - Carrillo to Garden	Add Auxiliary Lanes in Existing 6-lane Section	Add Auxiliary Lane NB - Fairview to Los Carneros & SB - Carrillo to Garden
Alternative Modes	Commuter Rail	Commuter Rail	Commuter Rail	
	Double Express Bus Service to North County	Double Express Bus Service to North County	Double Express Bus Service to North County	Double Express Bus Service Both North and South
	Increase Connecting Local Bus Service	Increase Connecting Local Bus Service	Increase Connecting Local Bus Service	Increase Connecting Local Bus Service
	Bus Priority on Selected Arterials	Bus Priority on Selected Arterials	Bus Priority on Selected Arterials	Bus Priority on Selected Arterials
Demand Management	Individualized Marketing	Individualized Marketing	Individualized Marketing	Individualized Marketing
	Ridesharing Incentives	Ridesharing Incentives	Ridesharing Incentives	Ridesharing Incentives
	Adjust Work Schedules (FlexWork)	Adjust Work Schedules (FlexWork)	Adjust Work Schedules (FlexWork)	Adjust Work Schedules (FlexWork)
	Variable Parking Rates	Variable Parking Rates	Variable Parking Rates	Variable Parking Rates
Operational Mgmt / Policy	Ramp Metering	Ramp Metering	Ramp Metering	Ramp Metering
	Intelligent Transportation System	Intelligent Transportation System	Intelligent Transportation System	Intelligent Transportation System

Note: 1) If commuter rail is found to be infeasible, the busway concept should be reconsidered as a substitution.

Additionally, each of the four alternative solution packages would have further transit elements and demand management and operational improvements. All of the packages would include: Increasing Connecting Local Bus Service, Bus Priority on Selected Streets, Adjusting Work Schedules (FlexWork), Individualized Marketing, Ramp Metering, Ridesharing Incentives, Intelligent Transportation Systems, Voluntary Adjustments to Truck Delivery Hours, and Variable Parking Rates.

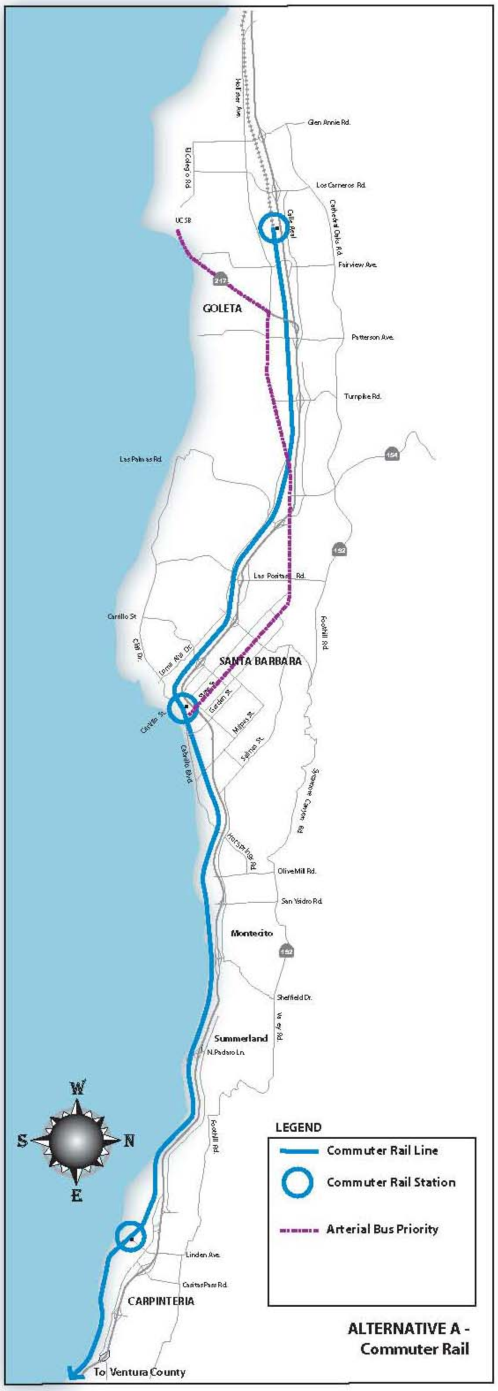


Figure 5-1 Package A – Commuter Rail

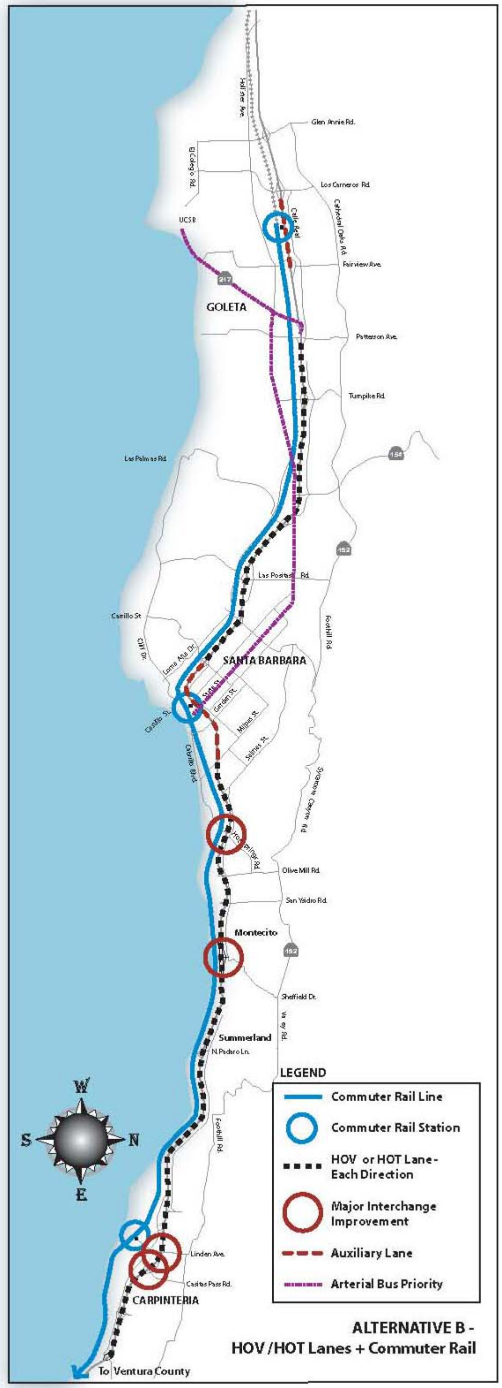


Figure 5-2 Package B – HOV/HOT Lanes + Commuter Rail

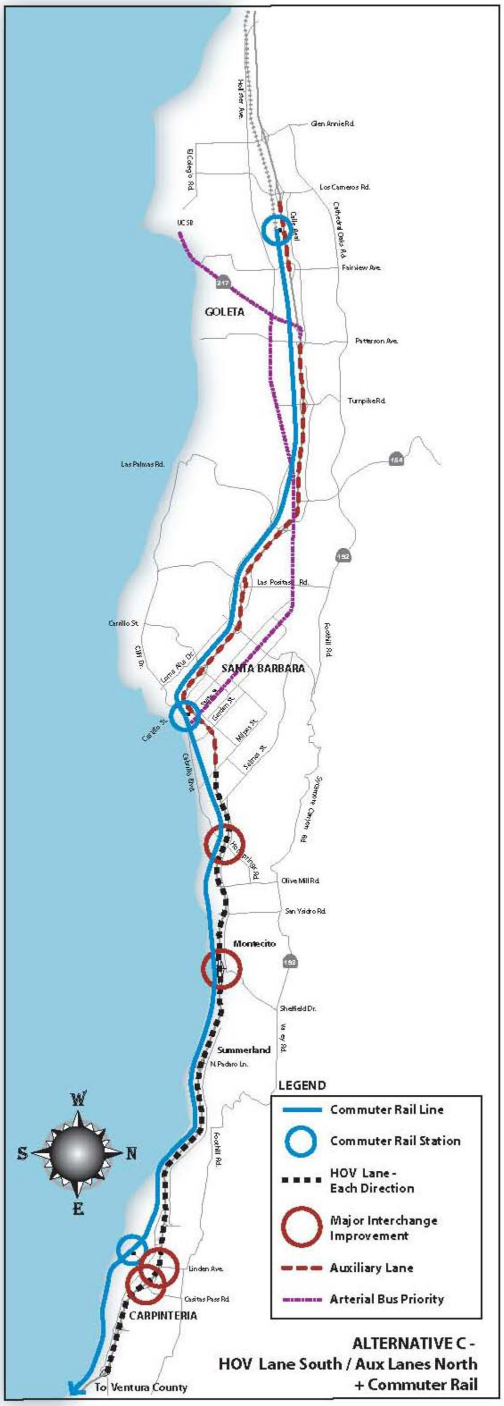


Figure 5-3 Package C – HOV + Aux Lanes + Commuter Rail

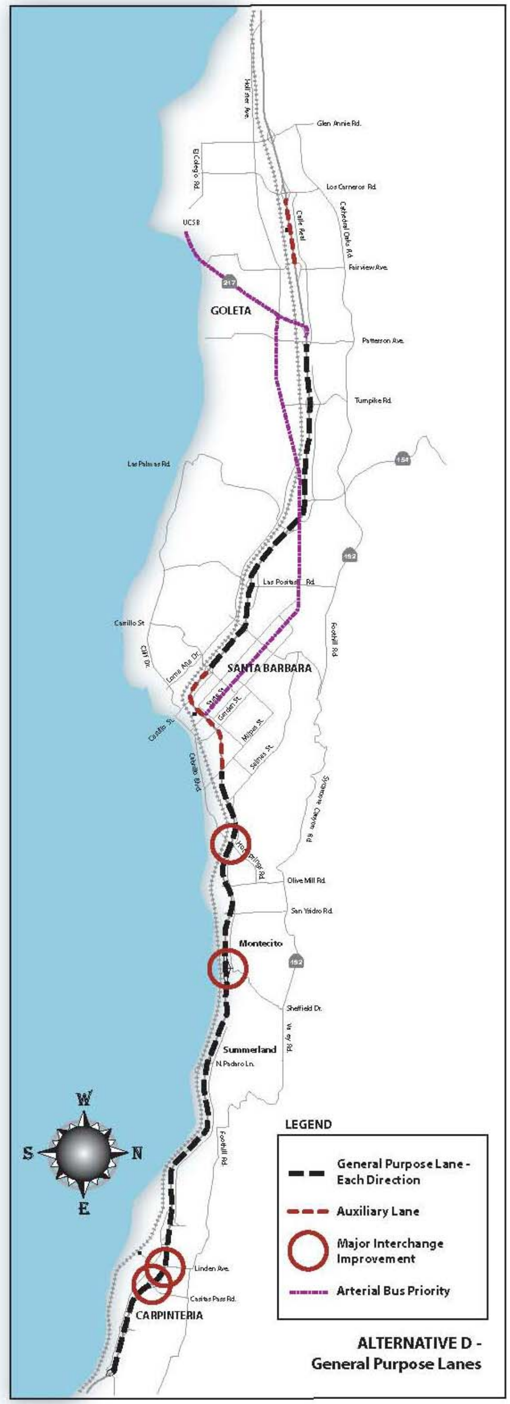


Figure 5-4 Package D – General Purpose Lanes

5.1.1 Public Outreach

At the April 6th, the *101 In Motion* Steering Committee (SBCAG South Coast Subregional Planning Committee) voted unanimously to approve the recommendation from the SAC and the TAG on the makeup of the four alternative solution packages which were to receive additional analysis and public input.

Following the Steering Committee adoption of the 4 alternative solution packages, the SBCAG staff and consulting team continued to update the community on the screening process by way of City Council and community organization meetings. Members of the public were invited and encouraged to attend these presentation and offer comments on the packages. In addition to the pubic meeting and organization presentations, the public was encouraged to participate through general media outreach, the website, and public events.

Between April and August the outreach focused on the process to reach the four solution packages. On August 3, 2005 the Steering Committee received the consultant team's evaluation of the Final Four Packages, and new presentation and information materials were developed to reflect the findings and conclusions about the four alternative packages.Tools used included:

- PowerPoint Presentations
- Website
- Hotline
- Media
- Spring 2005 Fact Sheet and Feedback Form

Between April and September 2005, 23 public outreach presentations were held. Four of these meetings were televised on public access television.

5.2 Evaluation of the Final 4 Alternative Packages

As part of the technical evaluation, each of the final alternative packages was screened against the same 22 performance criteria that were used in the Round 2 evaluation, although at a more robust level of detail. Table 5-2 presents a summary of the evaluation findings. Back-up information for the technical evaluation of the Final 4 Alternative Packages summarized in Table 5-2 is presented in Appendix B. These include a summary of the Highway101 widening assumptions (Appendix B Table 5.1), P.M. Peak Hour Flow Maps and Levels of Service, and supporting documentation for each of the evaluation criteria (Appendix B Tables A-1 to V-1). Additionally Appendix C provides back-up information for the highway widening conceptual capital cost estimates, and Appendix D presents the preliminary commuter rail assessment.

During the Round 2 evaluation, nine of the criteria were found to provide the most useful information in identifying differences between the alternative packages. The summary of general conclusions of the Final 4 Alternative packages focus on these nine key differentiators.

Before presenting the evaluation findings it should be understood that the transportation analyses performed during 101 In Motion relied on planning level working assumptions regarding roadway design features and the capacity values associated with these concept designs. In reality, highway capacity values vary sub-segment by sub-segment based on a number of factors including physical attributes such as lane and shoulder widths, type of terrain, significant grades, frequency and distance between on-and-off ramps, and operational aspects such as the proportion of trucks. To the degree appropriate during planning, these factors were taken into consideration in the transportation analyses. More definitive traffic analyses will be performed during the subsequent environmental and design phases of project advancement.

Also, it should be noted that the technical evaluation is based on the currently adopted regional growth forecasts (summarized in Appendix F). These forecasts envision a 20 percent growth in population for the South Coast by 2030 and a 40 percent growth in employment. The effects of a significantly constrained growth forecast were analyzed in a sensitivity analysis performed by SBCAG. The findings from the sensitivity analysis are summarized in Section 5.3 of this Report. The land use sensitivity analysis indicated that if land development in the western portion of the corridor were significantly constrained, it could affect future travel patterns and thereby transportation facility needs in the western portion of the corridor where the greatest amount of vacant land planned for development exists. The findings indicate however that the projected congestion in the existing 4-lane section of Highway 101 south of Milpas Street would not be avoided even if there was only minimal population and employment growth in the South Coast.

Table 5-2
Evaluation of Final
Year 2030 Alternative Solution Packages

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	A Commuter Rail	B HOV/HOT Lanes + Commuter Rail	C HOV South/ Aux Lanes North + Commuter Rail	D General Purpose Lanes
Transportation A. Improve Mobility/ Increase Capacity	• Increase Peak Hour Person Trip Capacity	Added Person Trip Capacity, Person Trips per Hour (See Appendix B Table A.1) South of Milpas North of Carrillo	0 0	1,200 90	4.685 3,600	4,685 990	2,500 2,410
	• Reduce Peak Hour Corridor Person Trip Demand	Reduced Peak Hour Demand, Person Trips per Hour (See Appendix B Table A.2) South of Milpas North of Carrillo	0 0	-800 -130	-770 -290	-750 -130	-180 -120
	• Increase Network Connectivity	Reduced Number of Gaps and Lane Drops	0 gaps reduced 0 lane drops reduced	0 gaps reduced 0 lane drops reduced	0 gaps reduced 1 lane drop reduced/ 2 added	0 gaps reduced 1 lane drop reduced	0 gaps reduced 1 lane drop reduced/ 2 added
B. Reduce Congestion	• Improve LOS to "D" or Better	Number of "D" or Better Locations, Freeway and Arterials (identify areas that improve and those that worsen) (See Appendix B Tables B.1 for 34 intersections, and Table B.2 for 30 freeway, 24 ramp, and 15 arterial roadway segments)	0 intersections improved 0 intersections worsened 0 freeway segments improved 0 freeway segments worsened 0 ramps improved 0 ramps worsened 0 arterial segments improved 0 arterial segments worsened	12 intersections improved 0 intersections worsened 9 fwy segments improved 0 fwy segments worsened 2 ramps improved 0 ramps worsened 3 arterial segments improved 0 arterial segments worsened	3 intersections improved 7 intersections worsened 19 fwy segments improved 1 fwy segments worsened 0 ramps improved 6 ramps worsened 5 arterial segments improved 2 arterial segments worsened	1 intersection improved 8 intersections worsened 15 fwy segment improved 3 fwy segments worsened 0 ramps improved 7 ramps worsened 3 arterial segments improved 3 arterial segments worsened	2 intersections improved 10 intersections worsened 20 fwy segments improved 1 fwy segment worsened 0 ramps improved 7 ramps worsened 5 arterial segments improved 3 arterial segments worsened
	• Reduce Duration of Congestion	Peak Hours of Congestion on U.S. 101 (See Appendix B Figures B-1 to B-20) <u>South of Hot Springs Rd.</u> AM Southbound PM Southbound AM Northbound PM Northbound <u>North of Carrillo</u> AM Southbound PM Southbound AM Northbound PM Northbound	 No Congestion 11.75 hours 13.5 Hours 13.5 Hours 2.25 Hours 3.75 Hours 1.75 Hours Minimal Congestion	 No Congestion 9.5 hours 12.5 Hours 12.5 Hours 2.25 Hours 2.25 Hours 1.5 Hours Minimal Congestion	 No Congestion 1 Hour Minimal Congestion Minimal Congestion 1 Hour Minimal Congestion 45 Minutes Minimal Congestion	 No Congestion 3.75 Hours Minimal Congestion Minimal Congestion 2.25 Hours 3 Hours 1.5 Hours Minimal Congestion	 No Congestion 3.5 Hours Minimal Congestion Minimal Congestion 45 Minutes Minimal Congestion 3 Hours Minimal Congestion
C. Reduce Travel Delays	• Reduce Person Hours of Travel Delays	Reduced Peak Period Travel Times by Auto Between Selected Origins and Destinations (minutes) (See Appendix B Table C.1)	Stearn's Wharf to Ventura: 59 Goleta to Carpinteria: 54 Dntn SB to Buellton: 67	55 49 67	39 35 64	40 36 65	43 39 64
		Reduced Peak Period Travel Times by Transit Between Selected Origins and Destinations (minutes) (See Appendix B Table C.2)	Stearn's Wharf to Ventura: 102 Goleta to Carpinteria: 98 Dntn SB to Buellton: 113	88 64 111	88 64 107	88 64 109	95 73 108
		Reduced Daily Person Hours of Delay (See Appendix B Table C.3)	0	5,630	18,680	14,360	15,730

Table 5-2
Evaluation of Final
Year 2030 Alternative Solution Packages

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	A Commuter Rail	B HOV/HOT Lanes + Commuter Rail	C HOV South/ Aux Lanes North + Commuter Rail	D General Purpose Lanes
D. Improve Safety	• Reduce Corridor Accident Potential	Rating From 1-5 Based on Relative Accident Potentials (See Appendix B Table D.1) Reduce Accident Potentials = 1 Baseline Rating/No Change = 3 Increase Accident Potentials = 5	3	3	1	2	1
E. Provide Options/ Increase Choices	• Increase Utilization of Alternatives to SOVs	Change in Projected Daily Usage of Non-SOVs (Commuter Bus/ Rail and HOV) on U.S. 101 (See Appendix B Table E.1)	0	Increase in Commuter Bus and Rail Usage = 2,960 Reduced SOVs Increase in HOV Usage = 900 Reduced SOVs Total Reduction in SOVs = 3,860	Increase in Commuter Bus and Rail Usage = 1,740 Reduced SOVs Increase in HOV Usage = 2,700 Reduced SOVs Total Reduction in SOVs = 4,440	Increase in Commuter Bus and Rail Usage = 1,430 Reduced SOVs Increase in HOV Usage = 2,000 Reduced SOVs Total Reduction in SOVs = 3,430	Increase in Commuter Bus and Rail Usage = 610 Reduced SOVs Increase in HOV Usage = 900 Reduced SOVs Total Reduction in SOVs = 1,510
F. Improve Trip Reliability	• Increase On-time Trip Consistency	Roadways: Reduced Potential for Unforeseen Delays Based on Improved LOS for Freeway and Arterial Segments LOS D or Worse in Base Case (See Appendix B Table B.2)	0 segments improved 0 segments worsened	12 segments improved 0 segments worsened	24 segments improved 2 segment worsened	18 segments improved 5 segments worsened	25 segments improved 4 segments worsened
		Transit Elements: Degree of Separation From Conflicts (See Appendix B Table F.2) Reduce Conflicts = 1 Baseline Rating/No Change = 3 Increase Conflicts = 5	3	2	1	2	3
G. Improvement Longevity	• Lasting Congestion Relief and Other Transportation Benefits	Rating From 1-5 Based on Expected Useful Life of Major Components (See Appendix B Table G.1)	5	4	1	3	2
H. Improve Goods Movement	• Increased Goods Movement Capacity and Reduced Conflicts	Added Highway and/or Rail Capacity Usable for Freight (See Appendix B Table H.1) Increase Capacity = 1 Baseline Rating/No Change = 3 Decrease Capacity = 5	3	2	1	1	1
		Reduced Conflicts/ Regulatory Constraints (See Appendix B Table H.2) Reduce Regulatory Constraints = 1 Baseline Rating/No Change = 3 Increase Regulatory Constraints = 5	3	3	4	4	2

Table 5-2
Evaluation of Final
Year 2030 Alternative Solution Packages

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	A Commuter Rail	B HOV/HOT Lanes + Commuter Rail	C HOV South/ Aux Lanes North + Commuter Rail	D General Purpose Lanes
COMMUNITY/ ENVIRONMENTAL CONSIDERATIONS							
I. Natural & Built Environment	• Minimize Impacts	Qualitative Rating Based on Level/ Quality of Environmental Resources Impacted (See Appendix B Tables I.1 and I.2)	Natural Environment 1 Built Environment 1	2 1	4 4	4 3	4 4
J. Neighborhoods	• Minimize Neighborhood Traffic Impacts	Number of "D" or Better Arterial Locations, as an Indicator of Reduced Pressure for Use of Local Neighborhood Streets (See Appendix B Tables J.1 and J.2)	0 intersections improved 0 intersections worsened 0 segments improved 0 segments worsened	12 intersections improved 0 intersections worsened 3 segments improved 0 segments worsened	3 intersections improved 7 intersections worsened 5 segments improved 2 segment worsened	1 intersection improved 8 intersections worsened 3 segment improved 3 segments worsened	2 intersections improved 10 intersections worsened 5 segments improved 3 segments worsened
K. Air Quality	• Minimize Regional Air Quality Impacts	% Change from No-Build: (See Appendix B Table K.4): VMT CO NOx ROG PM10 Rating: Significant Improvement =1 Significant Worsening = 5	 NA NA NA NA NA **3**	 2% -1% 12% 1% 1% **4**	 1% -5% 14% 0% 0% **4**	 3% -2% 14% 2% 1% **4**	 5% -1% 9% 2% 2% **4**
L. Noise Impacts	• Minimize Impacts	Rating From 1-5 Based on Expected Major Changes in Noise Levels at Sensitive Receivers (See Appendix B Table L.1) Existing Condition = 1 Noise Levels Increase = 5	W/ No Mitigation 3 W/ Mitigation NA	3 NA	4 2	4 2	4 2
M. Visual Impacts	• Minimize Impacts	Extent of Major New or Modified Visual Elements Affecting Existing Overall Community Visual Character and Viewsheds (See Appendix B Table M.1) Existing Condition = 1 Visual Elements Affected = Up to 5	1	1	4	3	4
N. Economic Vitality	• Minimize Impacts	Congestion Relief: Reduced Person Hours of Delay per Day (See Appendix B Table C.3)	0	5,630	18,680	14,360	15,730
		Potential Pricing and Job Creation Impacts (Direct Construction Person-Years of Jobs Created)	0	400	4,100 – 4,900	3,200 – 3,900	2,900 – 3,600
O. Stakeholder Equity	• Minimize Impacts	Rating From 1-5 of Degree of Disproportionate Impacts on Low Income or Minority Populations (See Appendix B Table O.1)	3	2	3 HOV 4 HOT	3	4
P. Sustainability	• Minimize Impacts	Rating From 1-5 of Consumption of Non-Renewable Resources (Appendix B Table P.1)	NA	2	4	4	4

Table 5-2
Evaluation of Final
Year 2030 Alternative Solution Packages

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	A Commuter Rail	B HOV/HOT Lanes + Commuter Rail	C HOV South/ Aux Lanes North + Commuter Rail	D General Purpose Lanes
IMPLEMENTATION RELATED CRITERIA							
Q. Cost Per Peak Hour of Delay Reduced	• Maximize Congestion Relief in Relation to Costs	Annualized Capital Cost and Annualized O&M Cost divided by Annual Person Hours of Delay Reduced (See Appendix B Tables Q.2 and Q.4)	Not applicable	$8.64	$12.18 – 15.72	$12.95 – 16.61	$10.25 – 13.76
R. Physical Feasibility	• Appropriate to Context	Rating From 1 to 5 of Degree of Fit (See Appendix B Table R.1) Ideal Condition = 1 Least Appropriate to Context = 5	1	2	5	4	5
S. Technological Feasibility	• Use Proven Technology Applications	Rating From 1 to 5 of Extent of Proven Technology (See Appendix B Table S.1) Proven Technology = 3 Technology Not Proven = 5	3	3	3	3	3
T. Institutional Constraints	• Minimize Obstacles	Rating From 1 to 5 of Degree to Which Institutional Issues Are Minimized (See Appendix B Table T.1) Ideal Condition = 1 Obstacles Not Minimized = 5	1	4	5	5	4
U. Construction Impacts	• Minimize Impacts	Rating From 1 to 5 of Degree to Which Disruption Is Minimized During Construction (See Appendix B Table U.1) Minimum Disruption = 1 Significant Disruption = 5	1	2	4	3	5
V. Phaseability	• Independent Utility	Rating From 1 to 5 of Degree to Which Progressive Incremental Improvements Can be Implemented as needed (See Appendix B Table V.1) Ideal Condition = 1 Interrelated Improvements = Up to 5	NA	3	3	3	4

5.2.1 General Findings from Evaluation of the Final 4 Alternative Packages

The following are general findings that can be drawn from the technical evaluation of the Final 4 Alternative Packages:

5.2.1.1. Transportation Performance – General Conclusions

- As can be seen in the 2030 A.M. and P.M. Peak Hour Flow & V/C Ratio maps in Appendix B Figures 5.1 to 5.10, Alternative Package B (Commuter Rail + HOV Lanes) would do the most to relieve congestion forecast by 2030 on Highway 101. Alternative Package D (General Purpose Lanes) would provide significant relief, but not meet the performance standard of LOS 'D' in a number of locations, including during the afternoon peak hour southbound between Milpas Street and S. Padaro Lane. Alternative Package C (HOV Lanes South of Milpas/Auxiliary Lanes North + Commuter Rail) would provide congestion relief close to Package B for the segment of Highway 101 south of Milpas Street, but the auxiliary lanes added in the existing 6-lane section would not offer sufficient congestion relief in this area, particularly between Las Positas Road and La Cumbre/Las Palmas Road during the P.M. Peak Hour. The No Build and Alternative Package A (Commuter Rail) would provide the least congestion relief with extreme congestion (LOS 'F' conditions) South of Cabrillo/Hot Springs Road northbound during the A.M. Peak Hour and in both directions during the P.M. Peak Hour. With Alternative A, the existing 6-lane section would be at LOS 'E' during the A.M. Peak Hour, and LOS 'E 'and 'F' during the P.M. Peak Hour.
- It is important to recognize in looking at the Peak Hour Flow & V/C Ratio maps that any of the locations shown as LOS F would in fact be "choke points" with queues often extending well beyond the limits shown in orange and red at each location. Also, it should be understood that the projected traffic volumes reflect expected changes in the distribution of traffic using the freeways vs. surface streets with each alternative, but do not reflect a possible reduction in peak hour trips by people who would shift the time of their trip to avoid peak hour congestion or avoid making their trip entirely in a highly congested situation, as projected in the No-Build condition and with Alternative A.
- The flow maps and Appendix B Table B.2 show the spot locations where congestion is projected by 2030 on Highway 101 with each of the alternative packages, but don't reflect the duration of time over which these conditions would occur. The Duration of Congestion at LOS F at two critical locations is shown for 2030 conditions in Table 5.3 and graphically in Appendix B Figures B-1 to B-20 that accompany Table 5-3 for each Alternative. What is most significant from Table 5.3 and the "peak spreading" graphics is the effect that Alternative A would have on extending the duration of peak period congestion compared to today.
    - By spreading the peak congestion (assuming no trip diversion) for the section south of Cabrillo/ Hot Springs to the County line, by 2030 with Alternative A (Commuter Rail) extreme stop-and-go congestion in the northbound direction is projected almost continuously from 7:00 a.m. to 8:00 p.m. daily, and continuously from 10:30 a.m. to 10:00 p.m. in the southbound direction (see Appendix B Figures B-2 and B-7). The duration of congestion with the No Build would be even more severe. With the other Alternatives the duration of the congestion would be much less than with either the No Build or Alternative A. In fact with Alternative B (Commuter Rail + HOV Lanes), the congestion would only be for a short period of time (less than an hour) in the southbound direction during the afternoon peak in 2030 (see Appendix B Figure B-3). The duration of congestion with Alternatives C (HOV Lanes South of Milpas/Auxiliary Lanes North + Commuter Rail) and D (General Purpose Lanes) would be between 3.5 and 4 hours (from 2:00 p.m. to 6:00 p.m.) in the southbound direction, with no congestion northbound in 2030. The reason that the duration of congestion is projected to be so long south of Cabrillo/Hot Springs Road with Alternative A in 2030 is that existing volumes approach capacity for much of the day today, and volumes are projected to grow by 25 percent by 2030, yet no additional capacity is added with this alternative.
    - The peak spreading analysis does not take into account that under extremely congested conditions, such as shown for Alternative A (Commuter Rail), some residents, workers and

visitors would choose to not make their trips at all. Further, if this level of congestion was allowed to exist over an extended period of time, some people would leave the area and some would choose not to move to or work in the South Coast in the first place.

- For the existing 6-lane section north of Carrillo, by 2030 the duration of congestion would be 2.25 hours in the A.M. Peak and 2.25 hours in the P.M. Peak southbound with Alternative A (Commuter Rail), and 1.5 hours northbound in the A.M. Peak. The duration of congestion would be similar with the No Build, although even longer in the P.M. Peak southbound. For Alternative B (HOV/HOT Lanes + Commuter Rail) the only congestion would be southbound during an hour in the A.M. Peak. Congestion with Alternative C (HOV/ Auxiliary Lanes + Commuter Rail) would last 2.25 hours southbound in the a.m. and 3 hours in the p.m.; in the northbound direction the congested period would be 1.5 hours in the a.m. For Alternative D (General Purpose Lanes) congestion would last 45 minutes in the a.m. southbound and 3 hours northbound in 2030.

Table 5.3

Estimated Duration of Congestion at LOS 'F' Based on Peak Spreading Analysis

	Existing	**No Build**	**Alternative A**	**Alternative B**	**Alternative C**	**Alternative D**
S. of Hot Springs						
AM Southbound	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion
PM Southbound	1.25 Hours	11.75 Hours	9.5 Hours	1 Hour	3.75 Hours	3.5 Hours
AM Northbound	1.25 Hours	13.5 Hours (Continuous from 6 AM – 7:30 PM)	12.5 Hours (Continuous from 7:15 AM – 7:45 PM)	Minimal Congestion	Minimal Congestion	Minimal Congestion
PM Northbound	Minimal Congestion	13.5 Hours (Continuous from 6 AM – 7:30 PM)	12.5 Hours (Continuous from 7:15 AM – 7:45 PM)	Minimal Congestion	Minimal Congestion	Minimal Congestion
N. of Carrillo						
AM Southbound	1 Hour	2.25 Hours	2.25 Hours	1 Hour	2.25 Hours	45 Minutes
PM Southbound	30 Minutes	3.75 Hours	2.25 Hours	Minimal Congestion	3 Hours	Minimal Congestion
AM Northbound	Minimal Congestion	1.75 Hours	1.5 Hours	45 Minutes	1.5 Hours	3 Hours
PM Northbound	Minimal Congestion	Minimal Congestion	Minimal Congestion	Minimal Congestion	Minimal Congestion	Minimal Congestion

See Back-up Figures in Appendix B (Appendix B Figures 5.1 to 5.10) for derivation of projected peak spreading.

- The difference in the level of congestion with each of the Alternatives is also reflected in the amount of person hours of delay forecast to be reduced. The daily hours of delay projected to be reduced in 2030 compared to the No Build condition is 5,600 with Alternative A, 18,700 with Alternative B, 14,400 with Alternative C, and 15,700 with Alternative D.

TABLE 5.4
ESTIMATED REDUCED PERSON HOURS OF CONGESTION PER WEEKDAY

	FY 2030	Alt A	Alt B	Alt C	Alt D
Total Vehicle Hours of Delay (hours)	24,603	20,123	8,880	12,572	11,251
Total Reduced Vehicle Hours of Delay		4,479	15,723	12,031	13,351
Persons per Vehicle 1.15					
Total Reduced Person Hours of Delay in Autos		5,151	18,081	13,836	15,354
Total Reduced Person Hours of Delay in Transit	0	480	600	520	380
TOTAL PERSON HOURS OF DELAY REDUCED	0	5,631	18,681	14,356	15,734

- The volume/capacity analyses indicate that by 2030 the southbound section of Highway 101 south of the SR 150 interchange would be over capacity with all the Alternatives. There are presently 3 lanes northbound but only 2 lanes southbound between SR 150 and Bates Road. Additionally, even with the most aggressive alternative, Alternative B (HOV/HOT Lanes + Commuter Rail), there are several other locations on Highway 101 where additional improvements may be needed, even though they don't show up as LOS 'F' in the current analysis. Further operational analyses are needed to determine this, but the suspect locations are those that are shown as LOS 'E" conditions on the flow maps. Additionally, with Alternative C (HOV/ Auxiliary Lanes + Commuter Rail), an operational analysis would be needed to better determine whether the proposed conditions would be adequate between the Las Positas and Hope Avenue/Las Palmas interchanges. This section shows up as LOS F in both directions during the P.M. Peak Hour using the broad brush capacity criteria.
- The traffic assignments using the SBCAG model show that by 2030 a number of the on-and-off ramps in the corridor will be over capacity ((6 ramps with Alternative A (Commuter Rail), 7 ramps with Alternatives B (HOV/HOT Lanes + Commuter Rail) and C (HOV/ Auxiliary Lanes + Commuter Rail), and 8 ramps with Alternative D (General Purpose Lanes)). The same 2 on-ramps and 3 off-ramps shown with '✔'s in Table 5-5 will need to be widened to two lanes to accommodate the projected volumes with all the Alternatives. Those shown with 'O's will need capacity improvements, but may not require adding a full lane for the entire ramp. It should be noted that there may be other ramps that require capacity improvements, since not all ramps were included in the comparative analysis.

Table 5-5 Highway 101 Ramps Requiring Additional Capacity

Ramp Location	Alternative A	Alternative B	Alternative C	Alternative D
Garden NB On-Ramp	✔	✔	✔	✔
Mission NB On-Ramp	✔	✔	✔	✔
Las Positas NB Off-Ramp	✔	✔	✔	✔
Carrillo SB Off-Ramp	✔	✔	✔	✔
Mission SB Off-Ramp	✔	✔	✔	✔
Las Positas SB On-Ramp		O		O
Patterson SB On-Ramp		O	O	O
Fairview SB On-Ramp	O	O	O	O

✔ = Needs to be widened to 2 lanes   O = Capacity improvement could be less than a full lane

- Relieving congestion on the freeway mainline by adding capacity would result in higher volumes at the freeway ramps and result in a degradation of the LOS on many of the surface streets that intersect with these ramps. Some parallel streets will benefit however from the freeway congestion being reduced. This would result from motorists who used the surface streets to avoid the freeway congestion returning to the freeway. The projected conditions are reflected in Appendix B Table B.1 for intersections and in Appendix B Table B.2 for arterial segments. Most of the intersections are at Highway 101 ramp locations. Out of the 34 intersections analyzed, with Alternative A 12 intersections that would be at LOS ‘E’ or ‘F’ with the No-Build would improve due to the diversion to commuter rail and transportation demand measures; 3 would improve and 7 would worsen with Alternative B; one would improve and 8 would worsen with Alternative C; and 2 would improve and 10 worsen with Alternative D. Further, there are 10 locations projected to be at LOS ‘F’ with Alternative A, 17 with Alternative B, 19 with Alternative C, and 18 with Alternative D. Fifteen of the intersections analyzed would be at LOS ‘F’ with No-Build conditions.

- Compared to the No-Build conditions, by 2030 travel times by auto would be substantially improved in Alternatives B (HOV/HOT Lanes + Commuter Rail), C (HOV/Auxiliary Lanes +Commuter Rail) and D (General Purpose Lanes); and improved minimally with Alternative A (Commuter Rail). Savings of 15 to 20 minutes in driving time would be possible during the peak hours between Santa Barbara and Carpinteria/Ventura County with Alternatives B, C and D compared to Alternative A or the No-Build condition. Travel times by transit between these same locations would improve significantly with Alternatives A, B and C with commuter rail; and less so with Alternative D.

- With regard to safety performance, information on highway accident trends statewide and in the Highway 101 corridor in the South Coast collected by Caltrans indicates that recurrent congestion is a major contributor to accidents. In particular, rear end collisions increase with congestion related queue formation and unstable flow. Accident rates for a given volume on urban freeways (in accidents per million vehicle miles of travel) are 40 – 50 percent higher on 4-lane freeways compared to 6-lane freeways. Even as both the 4-lane and 6-lane freeways approach their capacity limits the accident rates are higher on average for 4-lane freeways than the 6-lane freeways (1.25 vs. 1.10 accidents per million vehicle miles of travel). Additionally, the severity of accidents in the 101 corridor (measured by the percent fatal and injury accidents of total accidents), has been lower both as a rate and as an absolute number for the existing 6-lane segment compared to the 4-lane segment south of the Milpas interchange. Based on these Caltrans data, Alternative Package B (HOV/HOT Lanes + Commuter Rail), which provides for more stable traffic flow than any of the other alternatives is rated as having the best safety performance. The No Build and Alternative A (Commuter Rail) are rated the poorest from a safety standpoint because they would do the least to reduce congestion on Highway 101.

Alternatives A, B and C introduce potential conflicts between commuter rail trains and cross-street traffic at grade crossings.

- Alternative Packages B (Commuter Rail + HOV Lanes), A (Commuter Rail), and C (HOV Lanes South of Milpas/Auxiliary Lanes North + Commuter Rail) would attract the most single occupant motorists out of their autos on to transit and HOVs. The No Build and Alternative D (General Purpose Lanes) would do the least to reduce SOVs. (See Appendix B Table E.1).

- The HOV lanes in Alternative Packages B (HOV/HOT Lanes + Commuter Rail) and C (HOV/ Auxiliary Lanes + Commuter Rail) are projected to be well utilized and effective in helping to reduce congestion and exceed Caltrans minimum usage guidelines for consideration as HOV lanes. The projected HOV volumes by 2030 are so high (over 1,600 vph) during the A.M. and P.M. Peak Hours, that there would be little available capacity to allow SOVs paying a toll to use the HOV Lane if it was a HOT lane. By 2030 only about 20 percent of the 1,600 multi-occupant vehicles projected to use the HOV lanes during the peak hours would be in 3+ vehicles as opposed to 2+ occupant vehicles. If only 3+ vehicles were allowed to use the HOT lanes for free, the number of 3+ occupant vehicles would undoubtedly increase. Data from Houston, where they converted 2+ HOT lanes on I-10 to 3+ during specific peak hours resulted in far more 2+ carpoolers shifting to the shoulders of the peak hours where they could travel for free as 2+ HOVs rather than forming 3+ carpools. If the intent of considering HOT lanes is to generate revenue, it should be recognized that most existing HOT lane projects in the U.S. barely cover their operating and maintenance costs let alone generate surplus revenue to amortize capital costs. Moreover, no single lane HOT lane where there are adjacent free lanes has been able to generate surplus revenue.

  Taking these factors into consideration, the context in the Highway 101 corridor through the South Coast does not indicate that HOT lanes would be viable as a long-term means of reducing congestion or for paying for the capital costs of adding the lanes. HOV lanes on the other hand could be expected to be well utilized during the peak hours. Further analysis needs to be done in the subsequent project development phases to determine whether the HOV lanes should be designated as all–day or peak period only HOV lanes that are open to general traffic at other times.

5.2.1.2 Community/Environmental Considerations – General Conclusions

As is standard for a corridor study, no detailed environmental impact analyses were performed. These more detailed environmental studies occur in conjunction with the environmental assessment document once a preferred concept has been selected. In general however based on the relative importance to the community of different criteria as established through public outreach, and based on a broad-brush analysis of environmental factors and the amount of potential impact to the natural and built environment, the environmental issues of greatest concern at this stage are: (1) right-of-way impacts, (2) visual quality, and (3) noise. At this level of broad-brush screening for environmental impacts, the other environmental criteria were not found to readily distinguish among the elements in the alternative packages.

- The larger the footprint of the proposed alternative relative to available state highway or UPRR right-of-way, the greater the potential right-of-way impact. This pattern is largely related to the freeway options (General Purpose vs. HOV/HOT lanes vs. Auxiliary Lanes vs. No Widening) in those areas where the existing width of the state ROW is narrow and constrained. Reconstruction of interchanges also presents ROW impacts.

- In the environmental evaluation, Alternative Packages B (HOV/HOT Lanes + Commuter Rail), C (HOV/ Auxiliary Lanes + Commuter Rail) and D (General Purpose Lanes) benefited from assumed centerline shifts of the roadway as a method of widening to minimize impacts. Further reductions of environmental impacts might be achieved if reduced cross-sections rather than standard cross-sections are implemented in the most constrained locations. These would require design exceptions from Caltrans and FHWA, which are only considered when a project is further along in the project development process than the stage that 101 In Motion is at.

- With regard to potential impacts on the Natural Environment, no direct impacts would occur with the No Build and minimal impacts are anticipated with Alternative Package A (Commuter Rail). With Alternative Packages B (HOV/HOT Lanes + Commuter Rail), C (HOV/ Auxiliary Lanes + Commuter Rail) and D (General Purpose Lanes) there would likely be some impacts to the natural environment resulting from the centerline shifts toward the UPRR ROW. In the section from Sheffield Drive to South Padaro Lane, Highway 101 comes close to the coast, and there may be some impacts to the coastal bluff areas, which can lead to geologic instability as well as visual issues to this sensitive habitat area. In the vicinity of the Memorial Oaks, it is likely that there will be impacts to some of the 15 trees that are located on the south side of the freeway. The freeway also crosses several channels and natural waterways. Some of these contain small areas of wetland and/or associated riparian habitat. (See Appendix B Table I.1) Further environmental assessment will be performed at later stages of project development to fully determine impacts to the natural environment.
- Relative to potential impacts to the Built Environment, they would be no direct impacts with the No Build. There are a number of publicly owned park, recreational areas, and wildlife and waterfowl refuge areas that qualify as Section 4(f) resources in the 101 Study Area and that are currently situated close to the UPRR right-of-way. These could be affected indirectly by commuter rail service being added in Alternative Packages A, B and C. More direct impacts will occur where the proposed footprint of Highway 101 is predicted to exceed available state right-of-way and extends into adjacent properties. These occur with Alternative Packages B, C and D.
    - In the area of southbound 101 between San Ysidro Road and Sheffield Drive, four residential parcels would likely be impacted (partial acquisition) due to the added lanes.
    - In the Memorial Oaks area, preliminary studies show that the trees in the median would be preserved (approximately 21 trees), but there is a strong likelihood that up to 15 Memorial Oaks trees on the southbound side would need to be relocated or removed due to the added lanes.
    - The proposed auxiliary lane on the southbound side of Highway 101 between Carrillo Street and Garden Street would directly impact Montecito Street for a short section by as much as 12' in width depending upon how Highway 101 would be reconfigured to accommodate the proposed auxiliary lane. To minimize these direct impacts to Montecito Street as well as any related effects to the commercial properties that line Montecito Street, on-street parking could be relocated to off-street lots. The proposed auxiliary lane in conjunction with Montecito Street would be located very close to the Moreton Bay Fig (historic tree, planted in 1877), located at the corner of Chapala Street and Montecito Street. There is a risk that this local landmark would be directly impacted, unless a reduced cross-section rather than a standard cross-section is incorporated.
    - Encroachment into the UPRR right-of-way is predicted to occur in approximately seven segments, the level of encroachment ranges from approximately 4 feet to as much as 26 feet. In three of these seven segments, the level of encroachment into the UP right-of-way would likely require that the existing tracks be relocated (shifted south) within the existing UP right-of-way to accommodate the necessary separation between highway lanes. Any impacts to the UPRR right-of-way adds a level of complexity and cost to the project, as approval of the right-of-way acquisition and any track relocation would require the full cooperation of the Union Pacific Railroad.
    - The 101 Operational Improvements Project at Cabrillo/Hot Springs Road will eliminate the current median on-ramp to southbound Highway 101. However, two left-side median ramps will remain, and reconfiguration of this interchange into a full-diamond would likely require realignment of some adjacent arterials as well as have right of way impacts both north and south of the freeway. The impacts on the north side could be avoided if only the southbound ramp improvements are installed.
    - In general terms, Alternative C has fewer instances of encroachment into the UPRR right-of-way compared to Alternatives B (HOV/HOT Lanes + Commuter Rail) and D (General Purpose Lanes) (2 vs. 7). However, Alternative C (HOV/ Auxiliary Lanes + Commuter Rail) is more apt

to affect properties near the existing state right-of-way line because the auxiliary lanes that are added are added to the outside of Highway 101. (See Appendix B Table I.2).

- Proposed changes to Highway 101 (e.g., added travel lanes) with Alternative Packages B, C and D would incrementally increase noise levels for adjacent sensitive receivers, but it will be difficult for residents to perceive this difference due to the high amount of traffic noise that they currently experience along the freeway. (Alternative A is not predicted to result in marked change in noise levels compared to the Year 2030 Baseline Condition). Caltrans protocol states that if noise levels along the freeway approach or exceed 67 dBA or if there is a substantial increase in noise levels (12 dBA), then noise attenuation must be considered. Since existing noise levels already exceed or approach 67 dBA in most areas without sound walls today, it is expected that implementation of Alternatives B, C or D would meet the criterion and affected neighborhoods would be eligible for sound walls next to sensitive receivers where none currently exist. The construction of these sound walls would not only help mitigate the increased noise levels attributable to the new HOV/HOT lanes, general purpose or auxiliary lanes, but would also provide a marked benefit to those neighborhoods already experiencing high levels of freeway noise. With mitigation, the net result would be an improvement upon the 2030 Baseline Condition. However, the construction of sound walls could result in a significant negative visual impact depending upon the views of the affected community. Because of the visual impacts, some communities might elect to not have the sound walls constructed if the increase in noise level was not significant and /or the added noise level at sensitive receivers could be partially mitigated through other means. (See Appendix B Table L.1).

- With regard to the potential for Visual Impacts, the physical aspects of the added lanes in Alternative Packages B (HOV/HOT Lanes + Commuter Rail) and D (General Purpose Lanes) would affect approximately 20 segments out of the 28 segments between interchanges on Highway 101 in the South Coast. Alternative C (HOV/ Auxiliary Lanes + Commuter Rail) would affect 17 of the 28 segments. Adjustments were made in laying out the concept designs to preserve the existing vegetation to the greatest extent feasible either through freeway centerline shifts or through the provision of replacement landscaping. A minimum 6-foot landscaped median was assumed for this study and would be provided in most of the widened segments. This would be contingent upon adequate inside shoulders being provided to maximize future maintenance worker safety. A centerline shift towards the UPRR ROW is assumed for six of the 20 segments in Alternatives B and D, and two of the 17 segments in Alternative C. In these cases, one side of the freeway would remain untouched, a new 6-foot landscaped median would be provided, and the existing visual buffer on the southbound side between the freeway and the UPRR would be reduced or eliminated. In the remaining segments, it is presumed that the freeway would be widened symmetrically. In some cases, there would be no noticeable impact or only a minor impact to outside vegetation. In most cases, the existing vegetation on both sides of the freeway would be reduced and/or replaced leaving a thin visual buffer on either side. In a few segments, where it is particularly tight (e.g., Olive Mill Rd. to Sheffield Drive), landscaping in the median and most of the vegetation on the outsides of the freeway would need to be eliminated to avoid impacts to adjacent properties. These alternatives would also entail the provision of sound walls on both sides of the freeway next to sensitive receivers where none currently exist. These added noise barriers could be perceived as visually intrusive to both residents and motorists. HOV and HOT lanes (Alternatives B and C) require a buffer between them and the general purpose lanes which result in a somewhat wider cross-section than when adding a general purpose lane (Alternative D). Design exceptions to permit a reduced cross-section and/or context sensitive design elements will need to be considered to help reduce the visual impacts in the particularly tight areas. (See Appendix B Table M.1).

- The regional Air Quality analysis indicates that there are only slight differences in the air quality impacts that would be produced by the respective alternatives. For all the Alternatives compared to the No Build, carbon monoxide (CO) levels are forecast to improve slightly due to higher speeds on the roadway. Nitrogen dioxide (NO2) levels are projected to worsen slightly for all of the Alternatives compare to the No Build due to both an increase in Vehicle Miles Traveled and the contribution from the diesel commuter rail locomotives. However, the differences between the air quality impacts of the alternatives appear to be within the error band of the methods used in the analysis. Based on the analysis, air quality was found not to be a key differentiating factor between the alternatives.

- From a neighborhood traffic impact standpoint, relieving congestion on the freeway mainline by adding capacity as in Alternatives B, C and D would result in higher volumes at the freeway ramps and result in a degradation of the LOS on many of the surface streets that intersect with these ramps. With Alternatives B, C and D, some parallel streets would have reductions in traffic compared to the No-Build and Alternative A conditions resulting from motorists being able to use the freeway that would otherwise use parallel surface streets. The net result would be that some residents would incur increases in traffic, while some others would have reductions depending on whether they are located on streets that intersect with freeway ramps or are parallel to the freeway.

5.2.1.3 Implementation Related Criteria – General Conclusions

Tables 5-6 and 5-7 show the estimated Capital Costs and estimated Annual O & M Costs in millions of current (2005) dollars for each of the Alternative Packages. The capital costs are expressed as a range of costs to reflect different assumptions regarding contingencies and design features for highway widening. (See the Preliminary Capital Cost Estimate Tables in Appendix C for highway widening and in Appendix D for commuter rail). The cost for the commuter rail in Alternative A is more than in Alternatives B and C since longer trains would be needed to accommodate the higher number of passengers. This adds to both the capital cost for equipment and to the operating and maintenance cost. However, the higher operating cost is more than offset by the increased fare revenue from the added riders.

Table 5-6 Estimated Capital Costs (in Millions of 2005 Dollars)

	Alternative A	Alternative B	Alternative C	Alternative D
Highway				
Construction	$0	$332 - 377	$249 - 289	$289 – 327
ROW	0	68 - 75	57 - 59	25 - 31
Design/Const Adm	0	135 -155	102 - 119	117 - 133
Contingency	0	54 – 213	41 - 166	48 – 179
Subtotal	**$0**	**$589 - 820**	**$449 - 633**	**$478 - 671**
Commuter Rail				
Constr & Equip	76	62	62	0
ROW	7	7	7	0
Design/Const Adm	7	7	7	0
Contingency	3	3	3	0
Subtotal	**$93**	**$79**	**$79**	**$0**
Other				
Bus Capital	9	12	12	13
ITS	28	28	28	28
Subtotal	**$34**	**$37**	**$37**	**$41**
TOTAL	**$130**	**$708 – 939**	**$568 – 752**	**$519 – 712**

Table 5-7 Estimated Annual Net Operating and Maintenance Costs
(in Millions of 2005 Dollars)

	Alternative A	Alternative B	Alternative C	Alternative D
Highway	0.0	3.2	2.8	3.2
Transit				
Commuter Rail	3.3	4.1	4.1	0.0
Commuter Express Bus & Connecting Shuttles	1.3	1.1	1.1	0.7
Demand Management	0.4	0.4	0.4	0.4
TOTAL	**$5.0**	**$8.8**	**$8.4**	**$4.3**

Net of 2030 Base Case (No-Build) for highways, transit and demand management. Transit O&M costs are net of fare revenue.

- A full benefit/cost analysis is beyond the scope of this corridor study. Appendix B Table Q.1 however presents one measure of relative cost-effectiveness, the Cost per Peak Hour of Delay Reduced. Using this metric Alternative A actually achieves the best ratio, mostly because the costs to implement and operate it are so much less than the highway widening alternatives. These costs are in line with the minimal level of congestion relief offered with Alternative A (Commuter Rail). While the other alternatives offer much greater delay reduction, their costs to implement and operate are also much greater. Alternatives B (HOV/HOT Lanes + Commuter Rail), C (HOV/ Auxiliary Lanes + Commuter Rail) and D (General Purpose Lanes) are similar in the level of cost per peak hour of delay reduced using this formula.
- The cost per peak hour of delay reduced is limited as a metric and should not be taken as indicative of cost-effectiveness since it does not reflect other benefits that are expected to accrue from travel time savings, reduced accident costs, reduced fuel consumption, reduced parking costs due to diversions to transit and HOVs, or the effects on the local economy of each of the alternative packages. Benefits in reducing week-end congestion are also not reflected. All of these would point to benefits of Alternatives B, C and D compared to Alternative A (Commuter Rail) or the No Build.
- From the standpoint of Phaseability, measured by the independent utility of individual elements and ability to phase major elements, Alternative Packages A (Commuter Rail), B (HOV/HOT Lanes + Commuter Rail) and C (HOV/ Auxiliary Lanes + Commuter Rail) would be the easiest to phase. Alternative Package D (General Purpose Lanes) would be the most difficult. (See Appendix B Table V.1)

5.3 Potential Effects of Land Use Changes

From the outset of 101 In Motion it was recognized that solving the congestion problem in the corridor will take a combination of capacity enhancement and modal options to auto supported by an array of ridesharing, transportation demand management and transportation system operational improvements. In addition, the project's TAG and SAC recognized that complementary land use policies are essential for encouraging trip reduction and a shift to alternative modes of travel.

A subcommittee of the TAG and SAC was convened to perform a "sensitivity" analysis to address the effect land use changes might have on transportation needs. The purpose of this effort was to assess if major changes in local land use policies could impact traffic growth patterns and if these changes in traffic growth could impact the need for infrastructure improvements.

The Alternative Land Use scenario that was hypothesized by the subcommittee for sensitivity analysis was a significant departure from the present regional growth forecast in that it assumed there would be no further increases in vacant land devoted to housing or employment, rather jobs would increase based on increased density at existing job sites and household population would increased based on more people per household. The resulting increases in population and employment are substantially less (approximately 75 percent less) than assumed in the SBCAG Regional Growth Forecast 2000 – 2030. While the SBCAG Regional Growth Forecast estimates an increase of approximately 47,000 jobs and 8,000 housing units in the South Coast between 20000 and 2030, the Alternative Land Use Scenario would provide for just 12,000 new jobs and no new housing units. Approximately 8,700 new jobs would result from density increase. Employment due to pending and approved projects (620 new jobs) as described by the "County Open Lands Report" is also added for a grand total of 9,320 new jobs. The original South Coast year 2030 employment forecast is for 47,000 new jobs, so this would reflect an 80 percent reduction in forecasted employment growth.

These revised assumptions about future growth were fed into the regional travel model. The results of this analysis indicated that while the existing congestion problem in the eastern portion of the Highway 101 corridor would not be alleviated, a significant reduction in new development occurring in the west end of the corridor may forestall the need for major highway capacity improvements in the Goleta area.

The forecasts showed that during the P.M. Peak, Highway 101 between Milpas to Ventura County line would still expect to be in LOS E/F range since the 2030 Alternative Land Use Scenario would only reduce the traffic growth on Highway 101 by approximately 2-4 percent in this segment of the freeway.

In contrast, congestion on Highway 101 in the Goleta area could be expected to improve by at least one service level (from LOS E/F to LOS D/E). This is because traffic growth on Highway 101 between Milpas and Turnpike with the Alternative Land Use Scenario is forecast to drop 5 – 7 percent when compared to the 2030 Base Case forecast. The most notable reduction of traffic growth on Highway 101 (approximately 20 percent) would occur between Patterson Avenue and Glen Annie/ Storke Road.

Since the greatest amount of development potential in the South Coast is in the west end of the Highway 101 corridor, this area has the potential to be most significantly affected by significant changes in future land use. A conclusion therefore is that dramatic changes in local build out potential in land use plans could significantly affect the extent and timing of the need for new infrastructure improvements in the western portion of the corridor. The land use sensitivity analysis results suggest that with reductions in the potential job growth between now and 2030, proposed improvements to Highway 101 could be staged with the capacity improvements from Milpas Street South occurring first.

5.4 Conclusions from Technical Evaluation and Land Use Sensitivity Analysis

Conclusions that were drawn from the technical evaluation of the final 4 Alternative Packages and land use sensitivity analysis are:

- Based on the transportation performance and land use sensitivity analysis it is evident that widening of Highway 101 south of Milpas is needed now and will be needed more in the future if severe congestion is to be avoided. Even with implementation of the proposed TDM measures, operational improvements, and addition of commuter rail, widening would be needed. Without widening, stop-and-go congestion would not only occur during the peak hours, but it would extend to adjacent hours such that severe congestion would be continuous daily from 7:00 a.m. to 8:00 p.m. Even assuming constrained population and employment growth in the South Coast, the land use sensitivity analysis indicates that widening of Highway 101 south of Milpas will be needed in the future.

- Commuter rail service from Ventura County to Santa Barbara and Goleta would attract a substantial number of motorists out of their cars and serve as an alternative to Highway 101, particularly while the additional lanes were being constructed. Implementing commuter rail service will require lead time to obtain approvals and enter into operating agreements with UPRR and Ventura County, secure funding, construct the necessary capital improvements and purchase rolling stock before this service can begin. Realistically, this may take 4-5 years to accomplish.

- Improvements to many of the freeway ramps and intersections at the ends of these ramps will be required.

- There are a number of Transportation Demand Management (TDM) and operational improvements that can be implemented at relatively low cost that will help to reduce congestion early on and in the long-term. Some of these can be early start projects and serve to relieve congestion until more capital intensive improvements are implemented. They include:

  TDM
  - Adjustments to work schedules (FlexWork and FlexTime)
  - Individualized marketing
  - Ridesharing pricing incentives (reducing vanpool fees and start-up reimbursements for carpooling)
  - Variable parking rates at public lots and garages
  - Increased transit service
  - Bus priority on selected streets
  - Voluntary adjustments to freight delivery hours

  Operational Improvements
  - Ramp Metering
  - Intelligent Transportation Systems (surveillance and communications)
  - Ramp improvements and auxiliary lanes at bottleneck locations

- HOV lanes instead of HOT lanes are recommended for new lanes. Also, more people would be served by the added capacity with new HOV lanes than with new general purpose lanes. The projected usage of the HOV lanes would be substantial and would meet Caltrans warrants. The conditions which must be present for high occupancy toll (HOT) lanes to be financially successful are not projected to be present in the 101 corridor. Whether the HOV lanes are HOV lanes all day or peak period HOV and off-peak general purpose lanes needs further analysis during project development.

- Widening of Highway 101 could result in substantial impacts to the natural and built environment. Steps should be taken to design and construct the widening to minimize these impacts. Some ways to minimize these impacts include:
  - Avoiding displacement of residents and businesses
  - Adjusting the centerline of the freeway to avoid significant environmental constraints
  - Maintaining a reduced landscaped median to the maximum extent possible (6 foot is assumed) in areas where adequate shoulders can be constructed to assure maximum safety for future maintenance workers.
  - Considering reduced cross-section width involving design exceptions from applicable design standards at the most restricted locations where appropriate and only after adhering to the design exception process that requires that there be no compromise of safety of any stakeholder group.
  - Maintaining landscaping to the maximum extent possible on both sides of the freeway in accordance with the *101 Design Guidelines for the South Coast*, including replacement landscaping where existing landscaping needs to be reduced
  - Giving the affected communities the option of sound walls where noise criteria indicate that there will be a sufficient increase in noise levels at sensitive receivers to warrant consideration of sound walls. Where implemented, these sound walls would significantly improve noise conditions for neighborhoods already impacted by freeway noise, but are considered by some communities as visually obtrusive. "Green walls" (ivy covered sound walls) have been an acceptable solution in some communities for resolving the trade-off between noise or visual affects.
  - Using design elements that preserve the unique character of the corridor while meeting all applicable safety, operational and maintenance requirements.

- With regard to the existing 6-lane section of Highway 101, only the addition of full lanes as currently reflected in Alternatives B (HOV Lanes + Commuter Rail) or D (General Purpose Lanes) could potentially fully resolve projected 2030 congestion. However, the land use sensitivity modeling suggests that reductions in growth assumptions could lessen the need for freeway capacity improvements west of Milpas. The type of improvements needed in the existing 6-lane section should be revisited in the future to take into account changes in land use plans and policies by the County, City of Goleta, City of Santa Barbara and UCSB prior to undertaking major capital projects. This applies to the existing 4-lane section of Highway 101 west of Fairview Avenue as well.

6.0 ADOPTED IMPROVEMENT PLAN

After two years of study, public outreach, and consensus building, the final 101 In Motion consensus package recommended by the Steering Committee, SAC and TAG, and unanimously adopted by the SBCAG Board following a public hearing is a hybrid of elements from the final four alternative packages.

6.1 Adopted Improvement Plan

The adopted package includes a major highway capacity improvement south of Milpas Street, widening to six lanes between Milpas Street and Carpinteria, to accommodate a new High Occupancy Vehicle (HOV) lane in each direction, and commuter rail between Ventura County and Goleta. These flagship projects are complemented with enhancements to the bus system, including express bus service to North County, better connecting services to the rail stations, and improved regional bus services from Ventura County and within the south coast. Expanded demand management programs are included to promote flexible work hours and telecommuting and include other marketing measures directed at individuals in order to encourage single occupant vehicle drivers into carpools and onto buses. Telecommunications technologies are also added to improve the flow of information about traffic conditions to allow drivers to make better informed choices about traveling in the 101 corridor. Examination of the sensitivity of the travel forecasts to potential land use changes suggest that improvements to the highway north of Milpas to Goleta should be targeted at current congestion hot spots since impending changes to General Plans could significantly impact future traffic growth. Potential land use policies that could support reduced travel by automobiles are discussed in Appendix G. Progress on all the elements contained in the Adopted Improvement Plan will be evaluated on an annual basis to insure the projects are being implemented in an expeditious manner.

The consensus package of improvements is fully consistent with the community defined goals and objectives, and the policy direction given by the Board at the outset of the 101 In Motion project and consists of:

<u>Add a Lane and a Train</u>

- Add a Carpool/HOV lane both directions south of Milpas to County Line (Bates Road)
- Add commuter rail, Camarillo/Oxnard to Goleta

<u>Facilitate Transit and Carpool Use</u>

- Designate new lanes south of Milpas as HOV (Carpool)
- Increase express bus services to North County
- Connect local bus and shuttles with rail and regional services
- Bus priority on selected streets through signal priority, queue jumps, bulb-outs at bus stops, etc.

<u>Manage Demand</u>

- Provide vanpool/carpool/trip reduction incentives
- Encourage telecommuting and flexwork/flextime
- Vary parking rates as feasible by jurisdiction
- Individualize marketing

<u>Improve Operations and Communications</u>

- Add capacity and install meters at selected ramps
- Use Intelligent Transportation System technology to inform the traveling public and smooth operations including:
    - Freeway service patrol
    - 511 phone and internet traffic and transit reports
    - Changeable message signs

    - GPS real-time of arrival information at bus stops

<u>Phase Improvements North of Milpas</u>

- Implement operational improvements required to address current congestion hot spots
- Proactively work to reduce peak period traffic through aggressive demand management and rideshare programs
- Monitor need for additional 101 improvements following implementation of operational improvements, commuter rail, TDM and rideshare, ITS and General Plan updates
- Add auxiliary lanes and/or additional lanes if needed, funds are available, and there is community support

<u>Project Implementation and Monitoring</u>

- Due to the time required to implement many of the projects in the adopted package, SBCAG shall conduct an annual evaluation to insure that all of the projects are being implemented in a timely and cost-effective manner. Figure 6-1 shows the main physical elements in the Adopted Improvement Plan.

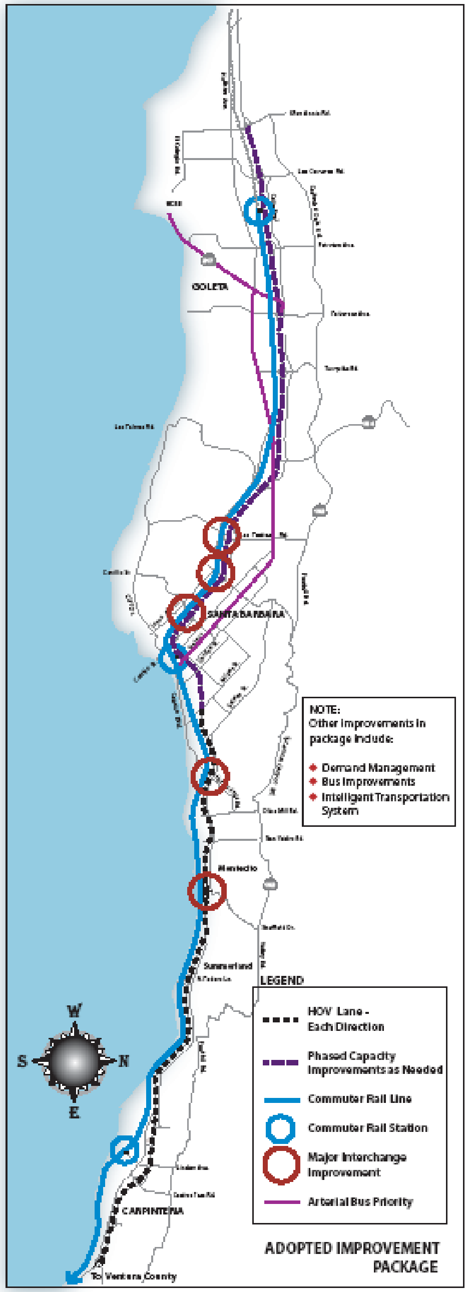


Figure 6-1 Adopted Improvement Plan

Each of the elements in the Adopted Improvement Plan is described in more detail below:

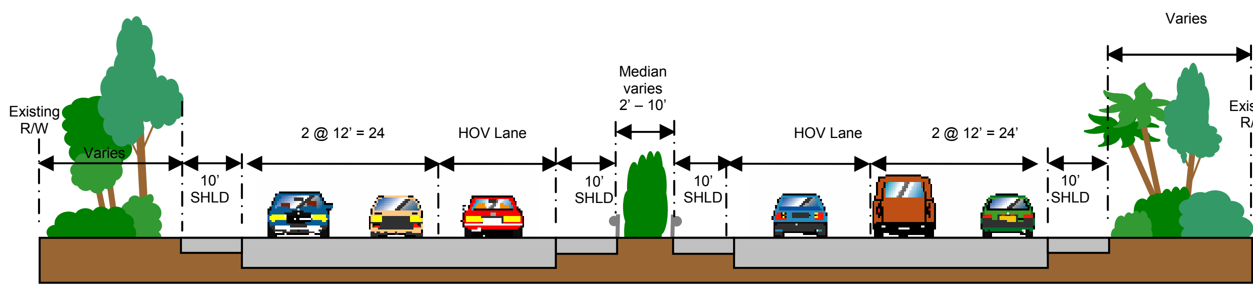
Add Carpool Lanes Milpas to County Line

The existing Highway 101 typical cross section between the County Line and Milpas Street consists of two 12-foot lanes in each direction. Outside shoulders are typically 8 to 10-feet wide, and inside shoulders are typically five-feet wide. The median varies from approximately 16-feet to 32-feet in width. The distance from the outside paved shoulder to the existing right-of-way varies between 10-feet and 45-feet on both sides of the freeway.

This element will widen the two-lane section from the County line to Cabrillo/Hot Springs Road interchange by adding one High Occupancy Vehicle (HOV) carpool lane in each direction (for 11.3 miles). Also, it will convert the northbound auxiliary lanes that are currently programmed as operational improvements to full lanes between Cabrillo/Hot Springs and Milpas Street interchanges and makes these carpool lanes (1.5 miles). (The currently programmed operational improvement project will add a full southbound lane between Milpas Street and Cabrillo/Hot Springs, so an additional lane is not required in this section). The addition of one lane in each direction will require widening the travelway pavement by at least 12-feet on each side and increasing the inside shoulders to be 10-feet each. The outside shoulders will also be increased to 10-feet in width where it is less than that today. To accommodate the new lanes and wider paved shoulders, some combination of the median and roadside vegetation will be removed. Where the vegetation is taken from would not have to be the same all along the 12.8 miles. It will vary to avoid losing the most valued landscaping.

In the most restricted locations in the corridor, consideration will be given to narrowing the inside shoulder width to reduce environmental impacts. The reduction in width of the inside shoulders would compromise safety by eliminating a refuge area for disabled vehicles and buffer area for Caltrans maintenance workers. A Design Exception will be required to justify an inside shoulder width of less than 10 feet. Caltrans has indicated that a 10 foot minimum inside shoulder width will be required where there is vegetation in the median, so a reduced inside shoulder width will only be considered where there is no landscaping in the median.

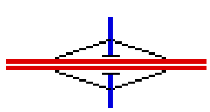
With widening of Highway 101 a number of bridges, undercrossings and overcrossings will need to be lengthened or rebuilt in order to accommodate the additional lanes. These will be at Bailard Avenue OC, Franklin Creek Bridge, Santa Ynez Avenue OC, Toro Canyon Creek Bridge, North Padaro Lane OC, Romero/ Buena Vista Creek Bridge, San Ysidro Creek Bridge, Oak Creek Bridge, Montecito Creek Bridge, Olive Mill Road OC, and possibly the Santa Monica Creek Bridge. Additionally, the Sycamore Creek Bridge and the Casitas Pass and Linden Avenue overcrossings will be replaced with longer spans prior to implementation of the 101 In Motion improvements as operational improvement projects.



Add 1 HOV lane in each direction

Use of the HOV lanes will be restricted to vehicles with two or more persons, including carpools, vanpools and buses, to encourage increased ridesharing and transit use, and discourage solo auto use. HOV lanes can also be used by single-occupant Inherently Low Emission Vehicles (ILEV). Access and egress to the US-101 HOV lanes from adjacent mixed flow lanes will typically be provided at two to three mile intervals.

Interchange and Ramp Improvements



Classic diamond.

As part of the widening of Highway 101 between the County Line and Milpas, the interchanges at Cabrillo/Hot Springs and at Sheffield Drive will be reconstructed to replace the left-hand on-and off-ramps with standard right-hand ramps. Some other ramps will need to be lengthened and/or widened to accommodate the added traffic by 2030 and to correct geometric deficiencies. There are already plans to reconfigure the Linden and Casitas Pass interchanges as operational improvements independent of the 101 In Motion project. Appendix C Table C- identifies the overcrossing and bridge locations requiring improvements.

Commuter Rail
This element is a commuter rail line from Camarillo to Goleta with stops in Oxnard, Ventura, Carpinteria, and Santa Barbara, for a total of 47.8 miles (20 miles within Santa Barbara County). In order to implement a commuter rail system in the South Coast region, improvements to the existing rail corridor will need to be constructed. These will include installing passing sidings in Summerland and Oxnard, layover tracks in Oxnard and Goleta which will likely require additional right-of-way, purchase of rolling stock, and constructing improvements such as additional parking at existing stations. Vehicles could be standard commuter rail cars like those used by Metrolink that are connected to a diesel locomotive, or self propelled diesel powered vehicles (DMUs) that can operate as single units or coupled as train sets.

Commuter rail systems are typically less expensive to construct than other fixed rail systems when they use existing rail tracks. The proposed right-of-way is owned by Union Pacific Railroad who will have to agree to use of their R/W for commuter service. Appendix D presents the preliminary feasibility assessment that was prepared as part of the 101 In Motion project for commuter rail service between Ventura County and the South Coast. Additional study of commuter rail is being performed as part of the LOSSAN Corridor Strategic Plan.

Commuter Express Bus Service
This element will significantly increase the number of commuter express buses offered between north Santa Barbara County and major work sites in the City of Santa Barbara and Goleta. Commuter Express Bus service between Ventura County and the South Coast will also continue.

CLEAN AIR EXPRESS
A SERVICE OF THE SANTA BARBARA COUNTY ASSOCIATION OF GOVERNMENTS

Connecting Services at Rail Stations and Transit Hubs
Connecting bus and shuttle van services to major employment sites will be provided to complete commuter rail trips and are assumed in this package of improvements. Additionally, connecting local bus service between express bus transit hubs and the major employment centers would be improved. Appendix J provides a summary of the proposed connecting services.

Bus Priority
This element provides both facilities and service for upgraded express and local bus operations by giving buses priority on selected streets. Priority treatment will be through the extension of a green light by several seconds at selected intersections to allow a bus to continue through, an extra lane at congested intersections to allow buses to skip ahead of the queue, bulb-outs at bus stops, and transfer facilities at rail stations to transition passengers to local bus collector-distributor lines.

Carpool / Vanpool Pricing Incentives
Currently, ridesharing and alternative modes of transportation are subsidized in part. This component of the package will increase financial incentives to carpoolers and vanpoolers by providing monthly payments to offset a portion of the start-up costs and in maintaining an active carpool or vanpool.

Work Schedule Adjustments

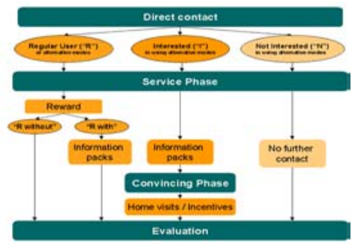
Traditional work schedules are 8 hour days, typically between 8 a.m. and 5 p.m. A number of non-traditional schedules are in use by many South Coast companies, agencies, institutions and other employers throughout areas affected by congestion. These schedules include options such as the “4/40,” where employees work 10 hours a day, 4 days a week, or the “9/80,” where employees work 9 hours a day, and work 9 days over a two-week period. Flextime is another option, where employees work with their employer to set their own convenient hours, which could include working from home or remote facilities. Many working parents appreciate the flexibility of these non-traditional schedules. This component will comprise a focused effort on expanding the existing programs in the South Coast.

Variable Parking Rates as Feasible by Location

With this element, at the discretion of the jurisdiction, cars that arrive during off-peak periods at designated locations would pay less to park than cars arriving during peak periods.

Individualized Marketing

The concept of Individualized Marketing is a simple step-by-step approach to changing personal travel behavior through direct contact with households. It encourages people to consolidate their trip-making and make greater use of public transport, walking and cycling as alternatives to car travel by offering them personalized travel information and a package of incentives to try out new ways of getting around. This motivates individuals to think about how they travel on a daily basis and provides support in the form of information to enable them to use environmentally friendly modes of transport when it is best for them. This concept is successful in Europe, Australia, and Portland, and pilot programs have begun in Bellingham WA, Cleveland, Sacramento, and Triangle Park NC.



Source: Social Data

Current SBCAG initiatives will be continued and expanded to target potential opportunities and match the opportunities with measures tailored specifically to encourage ridesharing and use of alternative modes. Individualized Marketing is a fairly new program to the United States, and will be most effective in conjunction with other demand reduction and alternative mode elements.

Ramp Metering

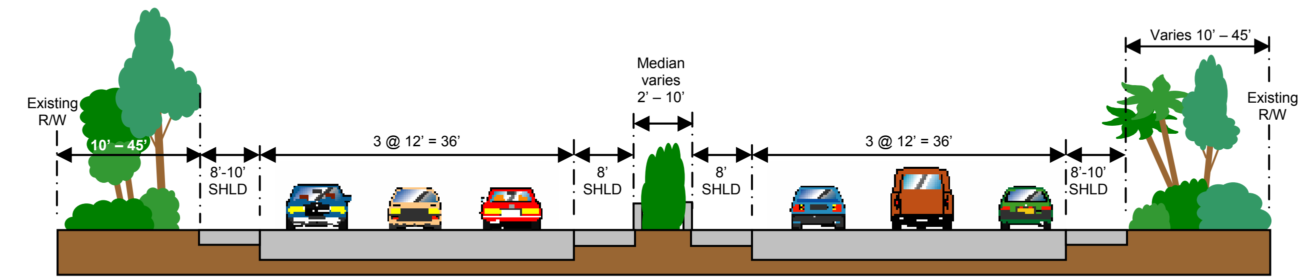
This element will signalize and meter many of the on-ramps along the 27- mile Highway 101 Corridor to more efficiently regulate the entry of 101 traffic and buffer freeway flow from the adverse effects of random traffic surges and peaking at on-ramps. Ramp widening and some interchange reconfiguration will be necessary to adequately store ramp metered vehicles for periodic release, and minimize back-up and queuing on surface streets.

Intelligent Transportation System Elements

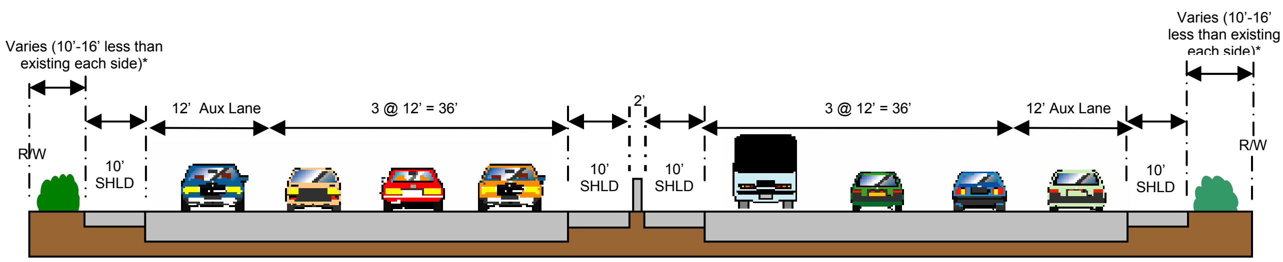
Intelligent Transportation Systems (ITS) will include highway and transit components. The highway components will comprise: changeable message signs, vehicle detectors, closed circuit video cameras, advanced traveler systems (ATS) including
providing real time traffic information to motorists via Highway Advisory Radio (HAR), cell phones and the Internet. A Traffic Management Center, the center of a comprehensive ITS system, would tie all the ITS field elements together.

The purpose of these ITS elements are to improve communications with motorists as to the conditions on the freeway to allow them to make routing choices before they enter the congested zones. Freeway service patrol is also included to reduce the time needed to remove vehicles from the roadway following a breakdown or accident. The ITS Transit component will comprise GPS based vehicle locating to provide passengers real time information on arrival times for the next bus or train.

Highway 101 between Milpas and Fairview
Highway 101 has already been widened to 3-lanes in each direction between Milpas Street and Fairview Avenue. The typical existing cross section consists of three 12-foot lanes in each direction, with 8-foot inside shoulders and outside shoulders that vary between 8 and 10 feet in width. The median is narrower here, varying from two-feet to 10- feet in width. The distance from the outside paved shoulder to the existing right-of-way varies between 10-feet and 45-feet on both sides of the freeway.

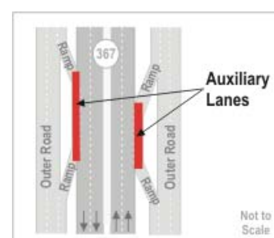


Typical Existing 6-Lane Section



*May require additional R/W

Add Auxiliary Lanes at Existing Congestion Hot Spots



This component will improve the flow and safety on the US-101 travel lanes by making operational improvements at existing and near-term congestion "hot spots". Operational improvements will include adding auxiliary lanes or full lanes between on-ramps and off-ramps, modifications to ramps and ramp locations, and/or additional over crossings or under crossings for local traffic. Existing and projected near-term congestion hot spots include locations between Las Positas Road and Castillo Street.

Auxiliary lanes help to smooth the flow of traffic by buffering the mainline flow from the friction experienced at interchange on-ramps and off-ramps, especially where exits and entries are closely spaced. Auxiliary lanes would be done instead of adding a continuous lane. Its effectiveness in reducing congestion would be about one-third of a full lane, but could be converted to a full lane in the future by rebuilding and widening through the interchange.

Any further capacity improvements of 101 north of Milpas will be evaluated following implementation of commuter rail and the TDM and ITS measures, and the improvements at the "hot spot" locations. This will also allow a re-evaluation based on pending updates to the General Plans in the western portion of the corridor.

Monitoring Program
Due to the time required to implement many of the projects in the 101 In Motion Improvement Program, SBCAG will conduct an annual evaluation to insure that all of the projects are being implemented in a timely and cost-effective manner.

Figures 6-2 through 6-5 show an artist's views of what the widening of Highway 101 south of Milpas Street might look like at three locations. Two possible treatment alternatives for the segment near San Ysidro Road are shown.

Figure 6-2 Visual simulation of possible widening looking North beyond Olive Mill Road

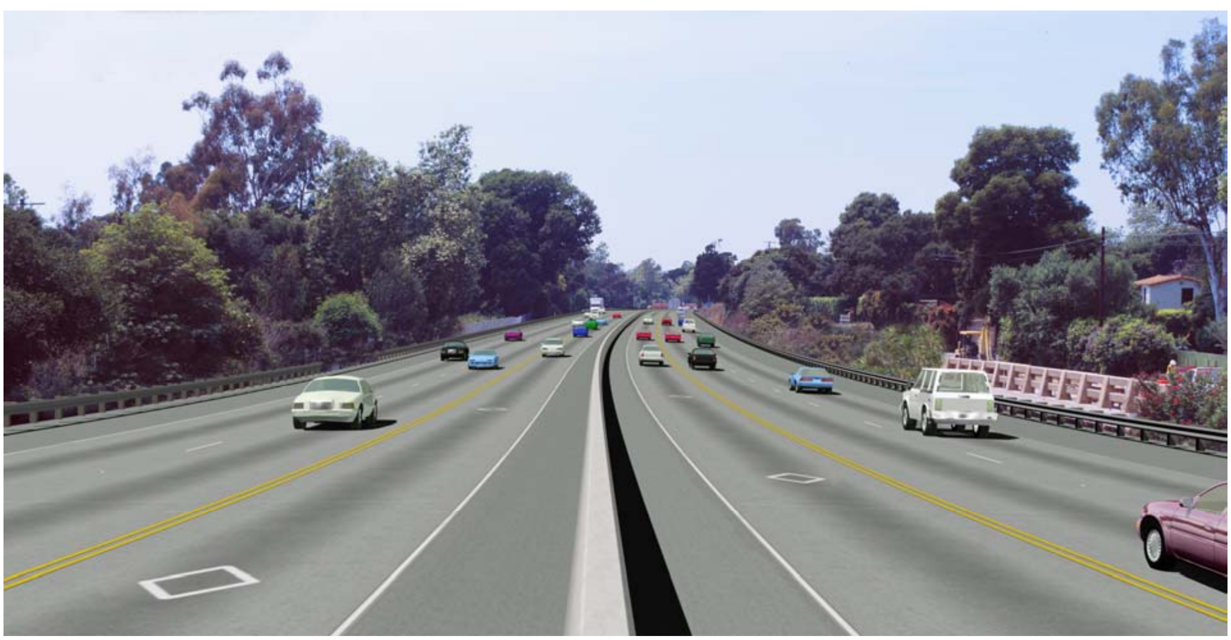


Figure 6-3 Visual simulation of possible widening looking North approaching San Ysidro Road – Option 1

Figure 6-4 Visual simulation of possible widening looking North approaching San Ysidro Road – Option 2

Figure 6-5 Visual simulation of possible widening looking south approaching Carpinteria

Figures 6-6 and 6-7 show the projected 2030 traffic volumes and Levels of Service on Highway 101 with the Adopted Improvement Plan.

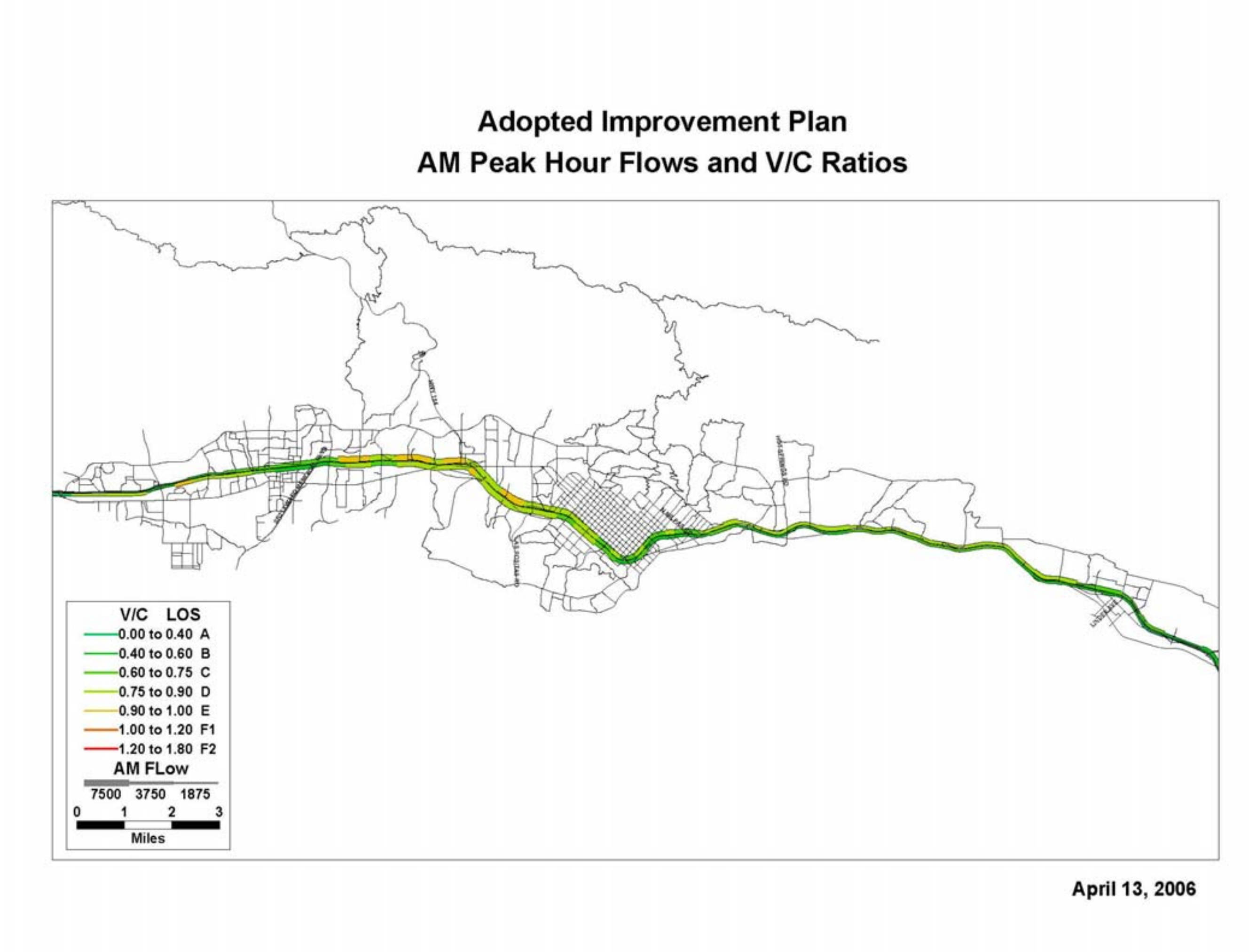


Figure 6-6 Projected 2030 A.M. Peak Hour Volumes and V/C Ratios for Adopted Improvement Plan

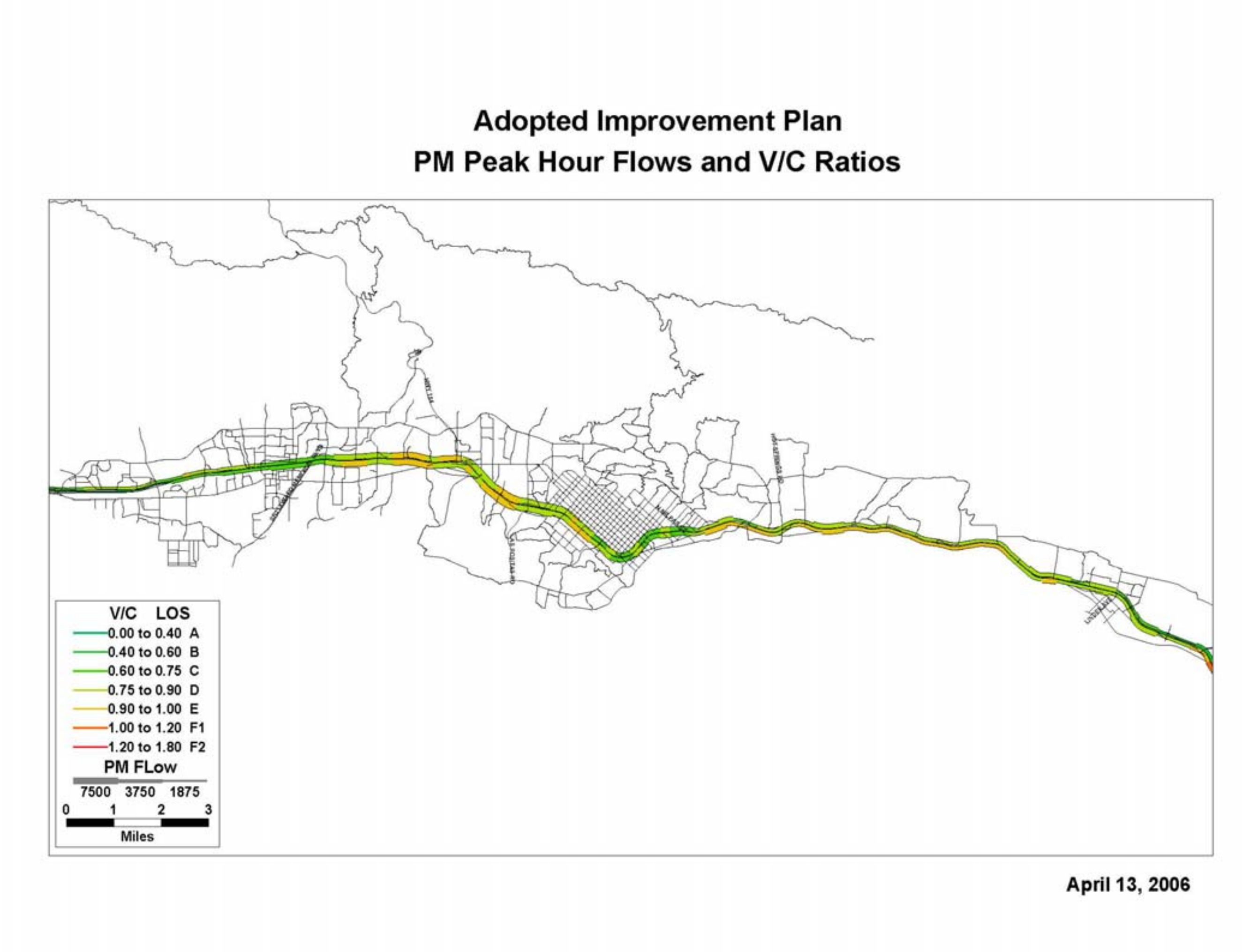


Figure 6-7 Projected 2030 P.M. Peak Hour Volumes and V/C Ratios for Adopted Improvement Plan

6.2 Primary Benefits, Costs and Impacts of the Adopted Improvement Plan

The main benefits of the adopted set of improvement projects are a major reduction in delays to travelers, increased safety, enhanced modal choices, and improved regional economy. More specifically, by 2030 the Adopted Improvement Plan is projected to:

- Keep the duration of congestion on Highway 101 to only 1-2 hours per day, rather than from early morning to eight at night, which would be the case if nothing is done.
- Shave 15-20 minutes off of the commute time from Carpinteria to Downtown Santa Barbara via either the freeway or commuter rail.
- Eliminate a total of 16,500 person hours of delay each day.
- Significantly reduce the accident potential along Highway 101 by providing much smoother flow.
- Increase modal choices that will give commuters increased options to driving alone and result in 3,800 fewer single occupant vehicle trips on Highway 101 each day.
- Allow for continued economic prosperity in the South Coast, that otherwise would be stymied by the extreme levels of congestion in the corridor.

- The relative contribution of the individual elements in reducing congestion South of Milpas are: Commuter Rail/Transit 15 %, Demand Management 4%, HOV lane designation 13%, and Highway 101 widening 68%.

The costs and impacts associated with the Adopted Improvement Plan consist primarily of:

- Funding the approximately $600 million in capital costs and on-going operations and maintenance costs will require extending the existing ½ cent sales tax allocated to transportation in the County and increasing it to ¾ cents.
- Visual impacts are expected due to reduced landscaping within the Highway 101 right-of-way and the addition of noise walls in certain locations. The extent of visual impacts can be softened through the careful application of context sensitive design and a replacement landscaping program.
- Increased traffic will occur on streets that intersect with the Highway 101 on and off-ramps. Improvements to these cross-streets, and/or new freeway crossings at selected locations will be needed, and programmed for outside of the 101 in Motion improvements.
- Increased noise and traffic delays can be expected during construction of the new lanes on Highway 101.
- Approvals from the UPRR, Coastal Commission and other agencies are needed for the Adopted Improvement Plan to be implemented.

6.2 Public Outreach

Between July and September, 2005 the Stakeholder Advisory Committee and Technical Advisory Group met and sought to develop a consensus recommendation based on the technical data and public input received to date. The emerging consensus was a hybrid of elements from the Final Four Solution Packages.

The public was introduced to the emerging consensus recommendation, starting at a public workshop on September 15, 2005. The data was presented to the SBCAG Board the next day. The emerging consensus was presented to the public until the recommendation was finalized at a joint meeting of the SAC and the TAG on September 27, 2005, and adopted by the 101 in Motion Steering Committee on October 5, 2005.

Tools used to communicate with the public included:

- PowerPoint Presentations
- Workshop invitation flyer
- Workshop Materials including View Simulations for Freeway widening options, and Feedback Form
- Website
- Hotline
- Media
- Email invitation to Workshop
- Fact Sheet and Feedback Form

Public Workshop

On September 14, 2005, Santa Barbara County Association of Governments and the 101 in Motion consultant team held a public workshop to present the results of the screening of the Final Four Alternative Solution Packages and the emerging consensus which was being developed by the Stakeholders Advisory Group and the Technical Advisory Group. The workshop was widely publicized in the News Press, flyers were available in public places, and were distributed via email to concerned individuals and transportation advocacy groups. The pubic workshop was televised live on government access television and repeated during the following week. All materials from the workshop presentations were available on the website. Approximately 60 members of the public attended the Workshop, fourteen people spoke and twenty three concerned residents filled out feedback forms.

In addition to the public workshop additional public presentations were made at:

Santa Barbara County Association of Governments Board of Directors
City of Santa Barbara Transportation & Circulation Committee
Montecito Planning Commission
City of Santa Barbara Planning Commission
Santa Barbara County Planning Commission
Santa Barbara County Economic Vitality Committee
Carpinteria Planning Commission
Goleta City Council
Santa Barbara City Council
Carpinteria City Council
Santa Barbara County Planning Commission

Eight of these meetings were televised on government access television.

7.0 101 IN MOTION FUNDING PLAN

7.1 Funding Plan Context

As adopted by the SBCAG Board, the 101 In Motion Improvement Program consists of an integrated set of multimodal transportation improvement projects and demand management elements including Highway 101 Widening from the Santa Barbara/Ventura county line to Milpas; Operational Improvements north of Milpas; initiation of Commuter Rail service; and initiation and expansion of Interregional Bus and demand managements services. The total cost of the Program is $833 million (in 2006 dollars). This cost includes both capital costs of $610 million (73 percent of the total) and $223 million in on-going operation of the proposed transit and demand management services (27 percent).

The proposed funding plan for the 101 In Motion Program is part of a larger 30-year proposed expenditure plan under consideration by SBCAG and the communities of Santa Barbara County. The expenditure plan maximizes all major existing local, state, and federal sources, and supplements existing sources with regional funding from the renewal of Measure D. Of the proposed funding for the 101 In Motion Program, regional funding from the renewal of Measure D comprises 43 percent of the total.

7.2 Summary of Key Findings

- The proposed funding plan for the $833 Million (2006 Dollars) 101 In Motion Program calls for 43 percent of funding to be derived from the Regional Program component of the renewal of Measure D, 35 percent from the Regional Improvement Program component of the State Transportation Improvement Program (STIP-RIP), 13 percent from the Interregional Improvement Program component of the State Transportation Improvement Program (STIP-IIP), with the remaining 9 percent from Federal Earmarked funding and Other sources.

- Of the $833 million cost of the 101 In Motion Program, 73 percent is for capital costs related to highway widening, operational improvements, and commuter rail, and 27 percent for on-going operations and maintenance of commuter rail, connecting bus, interregional bus, and carpool/vanpool services.

- Approximately 52 percent of the cost of the 101 In Motion Program is for Highway 101 Widening and ITS improvements south of Milpas; 27 percent for initiation and on-going operation of Commuter Rail and connecting bus service to rail stations and transit hubs; 11 percent for Highway 101 Operational Improvements north of Milpas; with the remaining 10 percent for operation of Interregional Bus and Carpool/Vanpool services and construction of Priority Treatments.

- Assuming voter approval of the Measure D renewal, all of the capital components of the 101 In Motion Program would be implemented by 2027, with operation of proposed commuter rail, bus, and carpool/vanpool services continuing through the 2040 sunset year of the Measure. Many of the component will be offering congestion relief well before 2027.

- The renewal of Measure D will be pivotal in the ability to implement the 101 In Motion Improvement Program.

- In addition to contributing 43 percent of total proposed funding for the 101 In Motion Improvement Program, Measure D regional funding is the only potential source that is both fungible (interchangeable) and flexible with regard to use. Measure D regional funds are the only source that can be pledged for repayment of debt service on bonds issued to accelerate implementation of the 101 In Motion Program. In addition, with commuter rail, bus, and vanpool operating costs comprising 27 percent of the cost of the Program, the ability to flexibly use these funds for both capital and for on-going operations is critical.

- SBCAG would be unable to implement the 101 In Motion's comprehensive multimodal improvement program without funding from the renewal of Measure D. With its annual funding from the State Transportation

Improvement Program-Regional Improvement Program (STIP-RIP) limited to an estimated $15 million per year, SBCAG would have to commit 85 percent of the STIP-RIP funds it is projected to receive over the next three decades to the 101 In Motion Program. Even with this level of funding committed, only three of the six project elements in the 101 In Motion Program could be completed by 2040: Highway 101 Widening, ITS Improvements, and Operational Improvements North of Milpas.

- More realistically, in the absence of Measure D funding for other priority projects, there would be competing county-wide projects in need of STIP-RIP funding that could reduce the annual funding available for the 101 improvements. As a result, even the 101 Widening, ITS, and Operational Improvement elements might not be completed within the 2007-2040 timeframe. Beyond these, there would be insufficient funding for implementation of the other elements of the 101 In Motion Program or for other high priority projects county-wide.

- In the absence of regional funding from renewal of Measure D, the 101 Commuter Rail, 101 Interregional Bus Service, and 101 Carpool and Vanpool services would not be implementable. In addition to funding being insufficient for capital costs, there would be no source of funds that could be used for the operating costs of these services. With all other sources of transit operating funds already over-subscribed, SBCAG would have no other source of funds for operations. These three elements of the 101 In Motion Program would not be implementable.

- In the absence of funding from the renewal of Measure D, completion of the Highway 101 Widening would be delayed by a minimum of 11 years. With Measure D funding, the 101 Widening is projected to be completed in three phases: 2019. 2021, and 2023. In the absence of Measure D funding, each phase would take longer to fund and construct, with completion extended to 2030, 2032, and 2034 respectively.

- In the absence of funding from the renewal of Measure D, completion of the ITS Improvements and Operational Improvements North of Milpas would also take longer to complete. Completion of the ITS Improvements would be extended by four years, from 2012 to 2016. Completion of the Operational Improvements would be extended by 13 years, from 2027 to 2040.

- Tolling was evaluated but is not proposed as a source of funding for the Highway 101 Widening. Consideration was given to constructing the new High Occupancy Vehicle lanes on Highway 101 as High Occupancy Toll (HOT) lanes and tolling vehicles with one or two occupants. HOT lane toll revenues were projected to generate only a small portion (12.5 percent) of the funding for the widening, without significantly reducing the time needed to fund project completion. In addition, tolling would reduce the congestion relief and cost-effectiveness of the widening project by diverting users from the highway to local streets as a result of removing an incentive to form 2-person carpools.

- In November 2006, the Statewide ballot will include a proposal to authorize up to $19.9 billion in general obligation bonds for transportation capital improvements. If approved by the voters, the Highway 101 Widening could potentially compete for an estimated $22.5 million in bond funding county-wide through this measure. Even if all of the State bonds were used for the 101 widening it would only represent approximately 5 percent of the project cost. The bond measure would however provide an estimated $48 million for non-regional projects county-wide to assist in funding repair of local streets and roads and transit capital projects.

- While this analysis has focused on costs and revenues in constant 2006 dollars, the findings without Measure D being renewed would be more onerous if considered in terms of Year of Expenditure (YOE) dollars inclusive of inflation. In the absence of revenue streams such as Measure D that grow with inflation, the remaining revenue sources available to SBCAG through the STIP Regional and Interregional Improvement Programs do not keep pace with inflation. Thus, the annual costs of the 101 In Motion Program would increase at a faster rate than the annual revenues available. This differential in the annual rates of growth of costs and revenues would further extend the implementation timeline for the 101 In Motion Program.

7.3 101 In Motion Improvement Program

The 101 In Motion Improvement Program is an $833 million (in 2006 dollars) program consisting of six project elements:

- Highway 101 Widening, from the Santa Barbara/Ventura county line to Milpas;
- Initiation of Commuter Rail Service and connecting bus service to rail stations and transit hubs;
- Intelligent Transportation System (ITS) Improvements in conjunction with widening;
- Expanded Demand Management through Carpooling, Vanpooling, and Telecommuting;
- Expanded and New Interregional Bus Services; and Priority Treatments;
- Highway 101 Operational Improvements North of Milpas, between Santa Barbara and Goleta.

7.3.1 101 In Motion Estimated Costs

Figure 7-1 illustrates the breakdown of costs by program element. As shown in the figure, $428 Million (52 percent) of the program costs are for Highway 101 Widening and related ITS Improvements; $226 Million (27 percent) for Commuter Rail capital and operations; $90 Million (11 percent) for Highway 101 Operational Improvements North of Milpas; and $89 Million (10 percent) for Interregional Bus and TDM-related services.

Figure 7-1
101 In Motion Improvement Program
Cost by Program Element
Total: $833 Million (2006 Dollars)

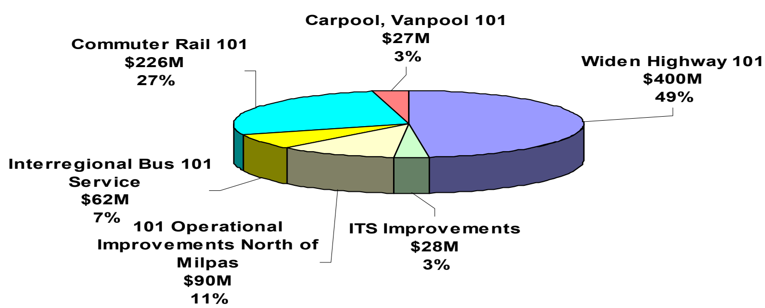
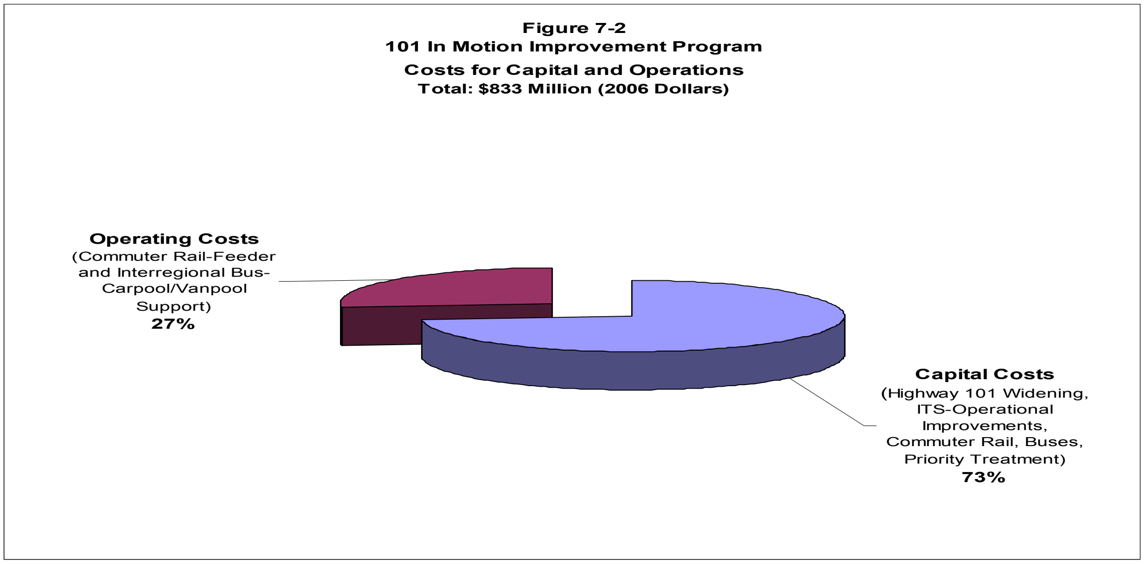


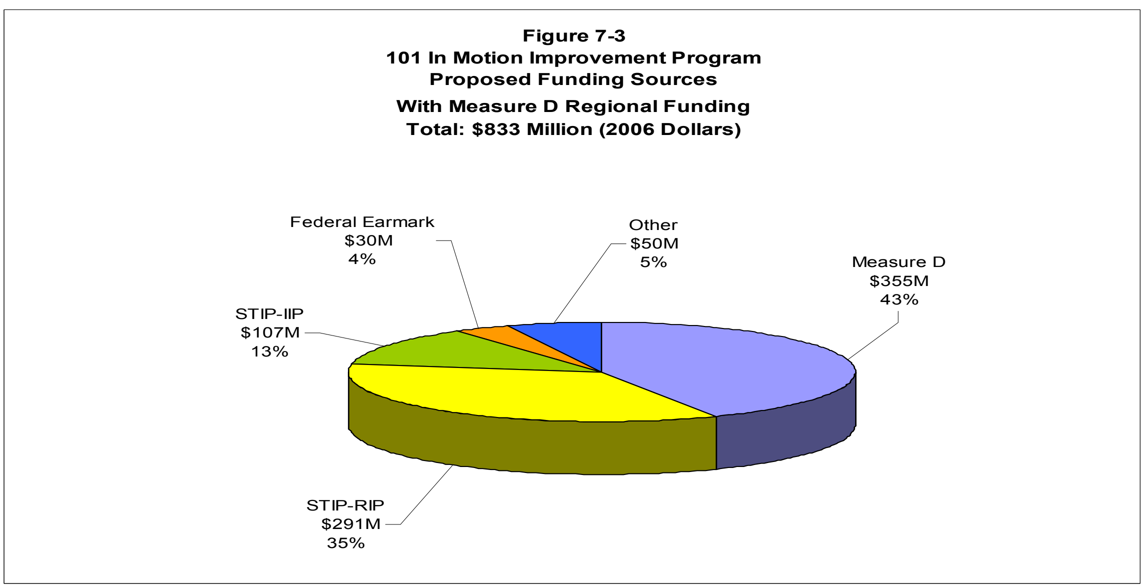
Figure 7-2 shows the proposed breakdown of costs between capital and on-going operations over the 30-year program period of Fiscal Year 2007 through 2036. Of the total $833 million in cost, 73 percent is for capital and 27 percent for on-going operations.



Note: Highway operating costs are paid for outside of the 101 In Motion Project as part of the Caltrans State Highway Operations and Protection Program (SHOPP)

7.3.2 101 In Motion Proposed Funding Sources

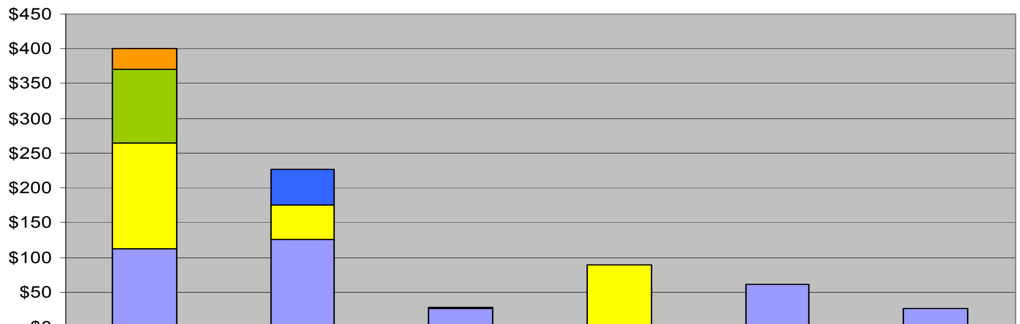
The proposed funding sources for the 101 In Motion Program are displayed in Figures 7-3 and 7-4. As shown in Figure 7-3, $355 Million (43 percent) of the overall program is proposed to be funded with Regional Program funds from the renewal of Measure D. This is followed by $291 Million in STIP-Regional Improvement Program (STIP-RIP) funds (35 percent), $107 Million in STIP-Interregional Improvement Program (STIP-IIP) funds (13 percent), and $100 Million in Federal Earmark and Other funds combined (9 percent). In addition to the magnitude of revenue provided, Measure D funds are of key importance as 1) they are the only source that can be pledged for repayment of bonds issued to accelerate project delivery and 2) the funds can be used for both capital and operations.



With respect to the individual program elements, there are significant differences with regard to the composition of revenues proposed to fund each element. As shown in Figure 7-4, the $355 million in Measure D funds are allocated across five of the six program elements: Highway 101 Widening, 101 Commuter Rail and connecting bus services to transit hubs and stations, ITS Improvements, 101 Interregional Bus and Priority Treatment, and

Carpool/Vanpool services. For the Highway 101 Widening and 101 Commuter Rail elements, Measure D funds constitute 28 percent and 56 percent of proposed funding respectively. For the ITS Improvements, Measure D funds comprise over 95 percent of proposed funding; and for 101 Interregional Bus and Carpool/Vanpool services, which are chiefly related to operations, Measure D funds are the sole source of proposed funding for these programs. With its ability to be used for both capital and operations, Measure D is one of the few sources of funds available to SBCAG that can be used to fund transit and commuter rail operations as well as capital. For this reason, areas elsewhere in California with expanded transit and commuter rail services are dependent on sales taxes such as Measure D.

Figure 7-4
101 In Motion Improvement Program
Proposed Funding Sources by Element
With Measure D Regional Funding
Total: $833 Million (in 2006 Dollars, Millions)



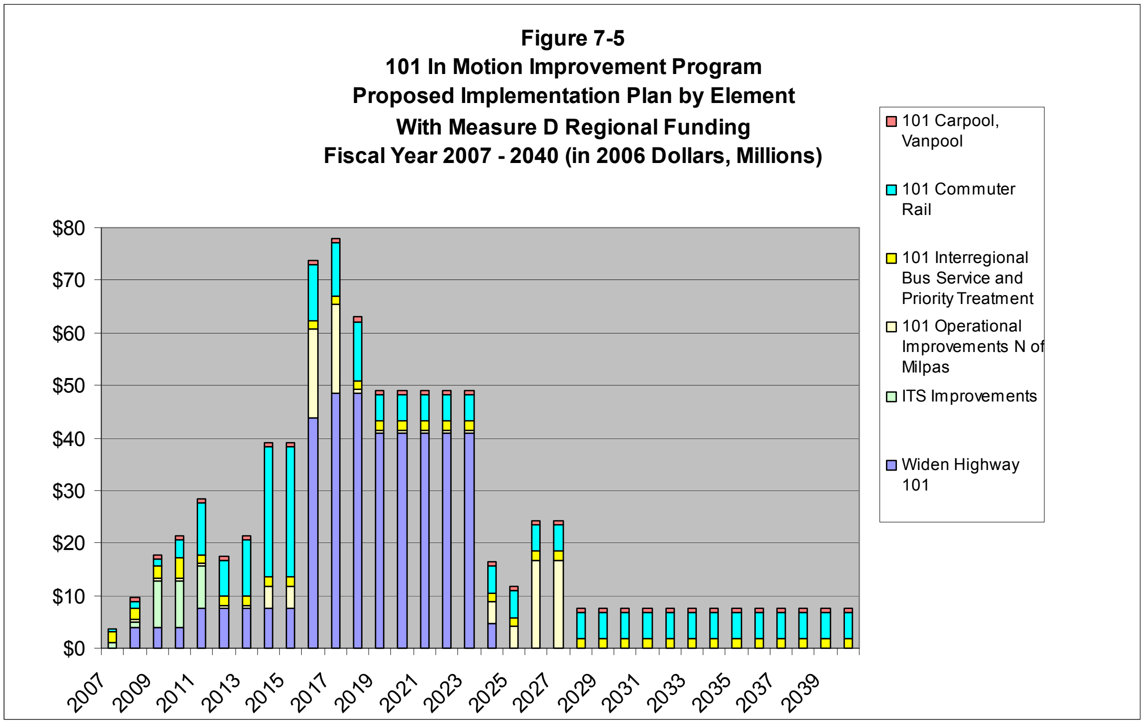
	Widen Highway 101	101 Commuter Rail	ITS Improvements	101 Operational Improvements N of Milpas	101 Interregional Bus Service and Priority Treatment	101 Carpool, Vanpool
Other		$50				
Federal Earmark	$29		$1			
STIP-IIP	$107					
STIP-RIP	$151	$50		$90		
Measure D	$113	$126	$27		$62	$27

With respect to STIP-RIP funding, the $291 million in RIP funds are allocated across three of the six program elements. For the Highway 101 Widening and Commuter Rail elements, RIP funds constitute 38 and 22 percent of proposed funding respectively. The 101 Operational Improvements North of Milpas are 100 percent funded with this source.

Of the three remaining sources, all of the $107 million in STIP-IIP funds and $29 million of the $30 million in potential future federal earmarked funding are proposed for the Highway 101 Widening, with all of the $50 million in Other funds proposed for the 101 Commuter Rail element.

7.3.3 101 In Motion Proposed Funding Implementation Plan

Figure 7-5 illustrates the proposed implementation plan for the 101 In Motion Program, assuming Measure D Regional funding. As shown in Figure 7-5, the major construction phase of the 101 In Motion Program would be fully completed by 2024, with completion of the Highway 101 Widening, ITS Improvements, and Commuter Rail construction and vehicle purchase. Construction of Operational Improvements North of Milpas would be completed by 2027. Operating costs for Commuter Rail, Interregional Bus, and Carpool/Vanpool services would continue through the 2040 sunset year of the Measure D renewal.



The following sections describe the proposed costs, funding sources, and funding and implementation plans for the individual modal elements of the 101 In Motion Program.

7.3.4 Highway 101 Widening South of Milpas

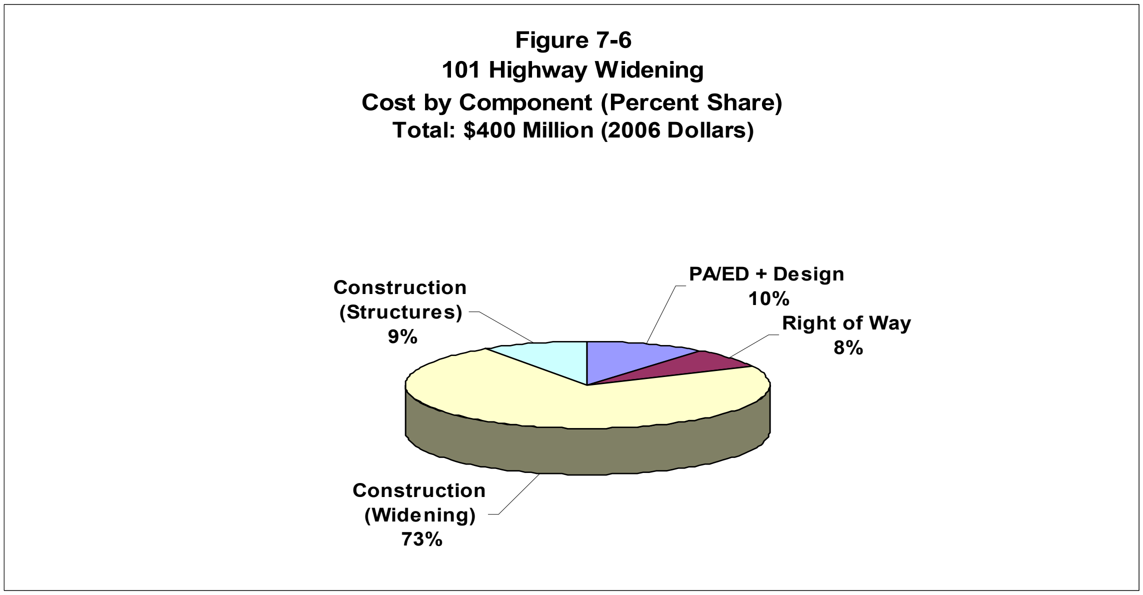
As the largest single component of the 101 In Motion Improvement Program, the Highway 101 Widening element is a $400 million (in 2006 dollars) project that comprises approximately 50 percent of the total 101 In Motion Program.

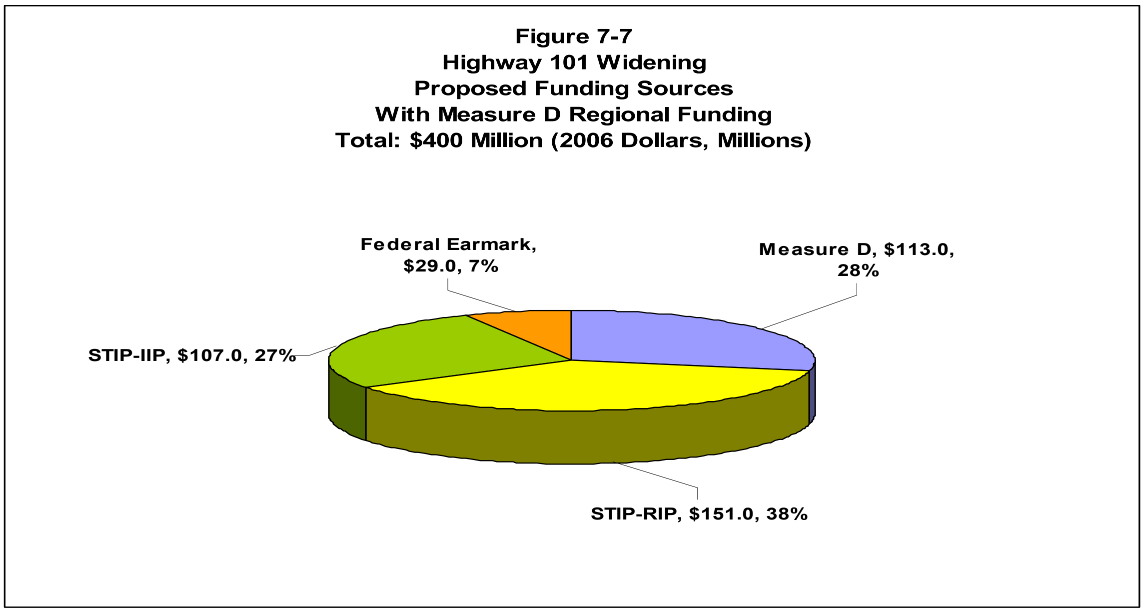
Highway 101 Widening Estimated Costs

Figure 7-6 illustrates the breakdown of costs of the Highway 101 Widening element by component. As shown in the figure, approximately 73 percent of the cost is for construction, with project environmental/design, right of way, and structures comprising the remaining 27 percent of cost.

Highway 101 Widening Proposed Funding Sources

Figure 7-7 illustrates the proposed funding sources for the Highway 101 Widening element. As shown in the figure, $113 million (28 percent) in funding is proposed from the renewal of Measure D, with STIP-RIP, STIP-IIP, and Federal Earmarked funding of $151 million (38 percent), $107 million (27 percent), and $29 million (7 percent) respectively.

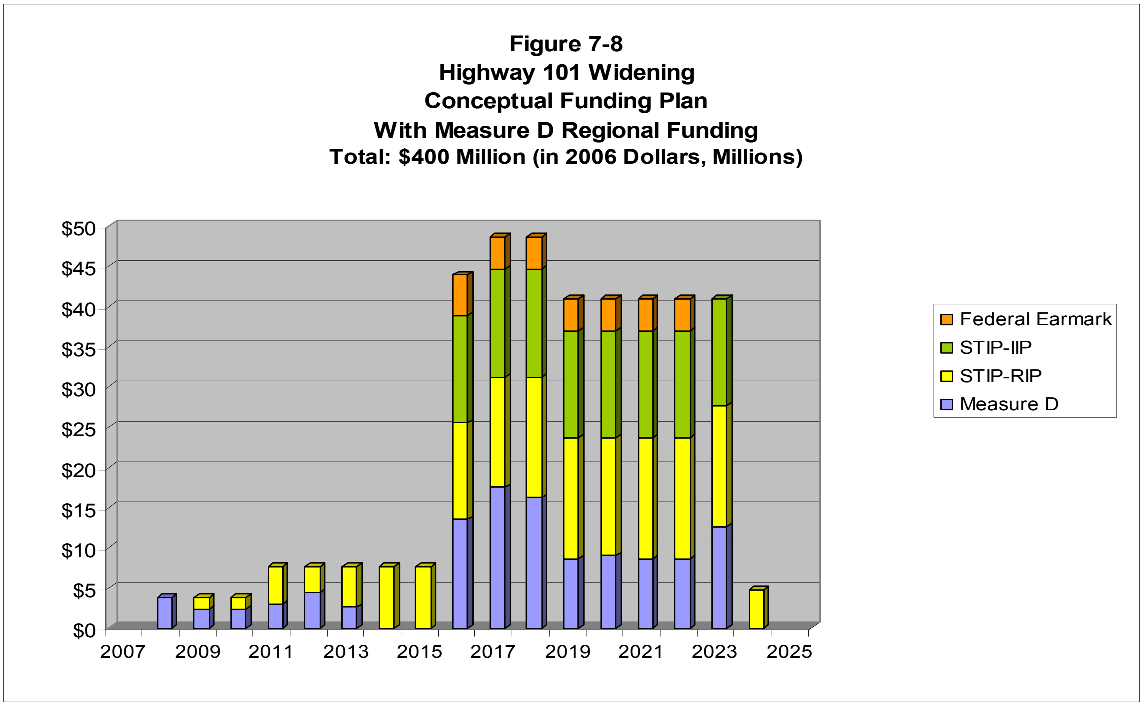




Highway 101 Widening Proposed Funding and Implementation Plan

Figure 7-8 illustrates the proposed funding and implementation plan for the Highway 101 Widening element. As shown in the figure, with funding from Measure D, the major construction phase of the Highway 101 Widening would be from a combination of funds from Measure D, STIP-RIP, STIP-IIP, and Federal Earmarks. The widening of Highway 101 will be constructed in three segments, with segment 1 opening in 2019, segment 2 in 2021, and segment 3 in 2023.

With the ability to use Measure D funds for repayment of bonded indebtedness, the implementation timeline for the Widening element can be accelerated, with a highly peaked construction phase over the 2016-2023 period.



7.3.5 Commuter Rail

As the second largest component of the 101 In Motion Improvement Program, the 101 Commuter Rail element is a $226 million (in 2006 dollars) project that comprises approximately 27 percent of the total 101 In Motion Program.

Commuter Rail Estimated Costs

Figure 7-9 illustrates the breakdown of costs of the 101 Commuter Rail Program by component. As shown in the figure, the program includes capital and operating costs for a pilot and a permanent commuter rail service, with connecting bus service. Approximately 21 percent of the cost is for project environmental/design, right of way, and construction, 17 percent for rolling stock, and 62 percent of the cost for operation of commuter rail and connecting bus services.

Commuter Rail Proposed Funding Sources

Figure 7-10 illustrates the proposed funding for the 101 Commuter Rail Program. As shown in the figure, $126 million (56 percent) in funding is proposed from the renewal of Measure D, with STIP-RIP and Other funding each comprising $50 million (22 percent).

Figure 7-9
101 Commuter Rail Program
Cost by Component (Percent Share)
Total: $226 Million (2006 Dollars)

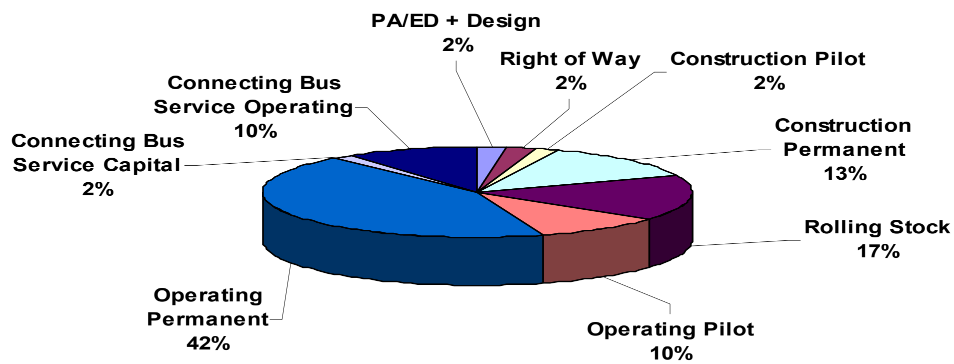
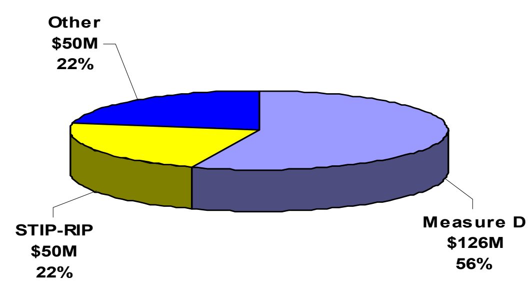


Figure 7-10
Proposed Funding Sources for 101 Commuter Rail
With Measure D Regional Funding
Total: $126 Million (2006 Dollars)

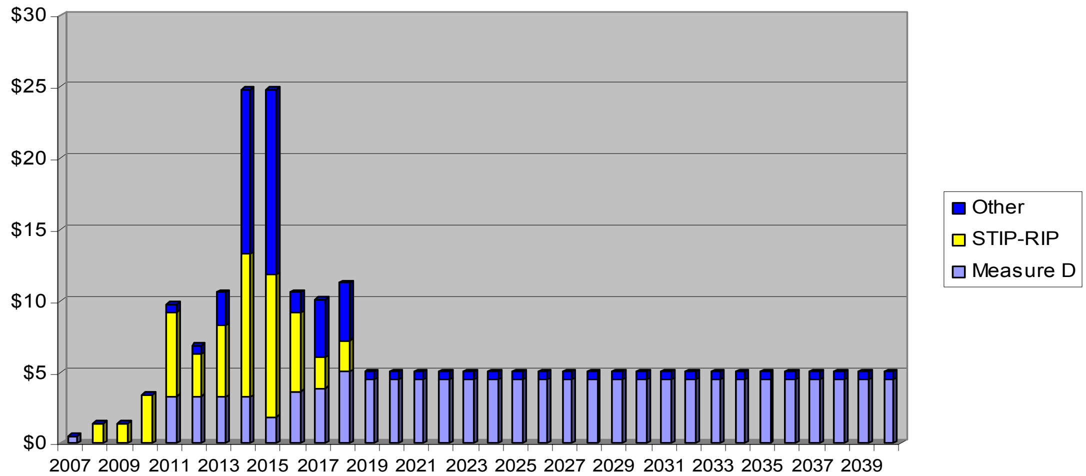


Commuter Rail: Proposed Funding and Implementation Plan

Figure 7-11 illustrates the proposed funding and implementation plan for the 101 Commuter Rail Program. As shown in the figure, with funding from Measure D, the implementation phase of the program would be completed by 2018 using a combination of funds from Measure D, STIP-RIP, and Other funds. Implementation would be in two phases: a pilot service beginning in 2011 and a permanent service beginning in 2018.

Operating costs would continue annually from the pilot project and extend through the 2040 period, with funding from fares, Measure D, and other contributions.

Figure 7-11
101 Commuter Rail Program
Proposed Funding Plan
Total Cost: $226 Million (2006 Dollars, Millions)



7.3.6 ITS Improvements

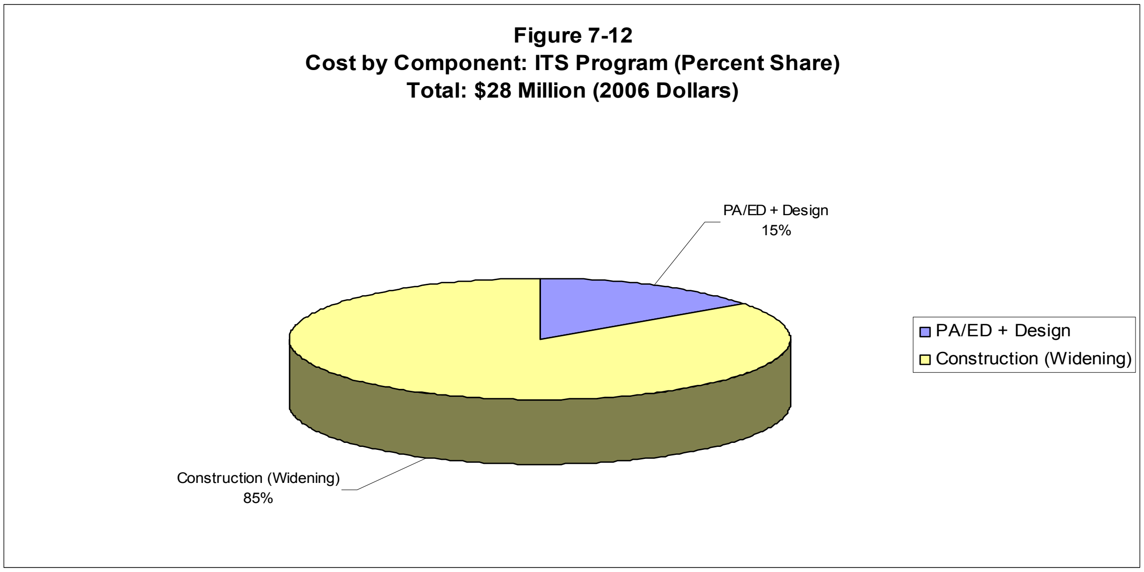
Related to the Highway 101 Widening are proposed Intelligent Transportation System (ITS) Improvements. This is a $28 million (in 2006 dollars) project that comprises approximately 3 percent of the total 101 In Motion Program.

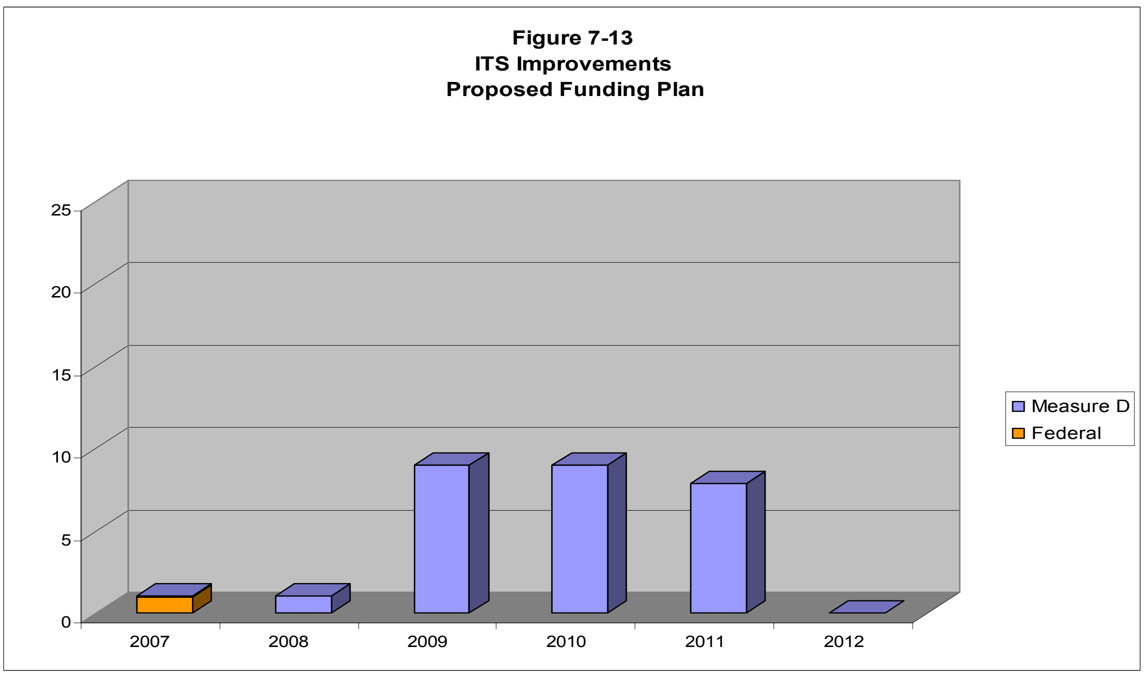
ITS Program Estimated Costs

Figure 7-12 illustrates the breakdown of costs of the ITS Program. As shown in the figure, approximately 15 percent of the cost is for design and 85 percent for construction.

ITS Program Proposed Funding and Implementation Plan

Figure 7-13 illustrates the proposed funding and implementation plan for the ITS improvements. As shown in the figure, the improvements would be funded with Measure D funds (96 percent) and existing Federal earmarked funds (4 percent) over the 2007-2011 period. This program may also be eligible for Caltrans State Highway Operation and Protection Program (SHOPP) funding.





7.3.7 Operational Improvements North of Milpas

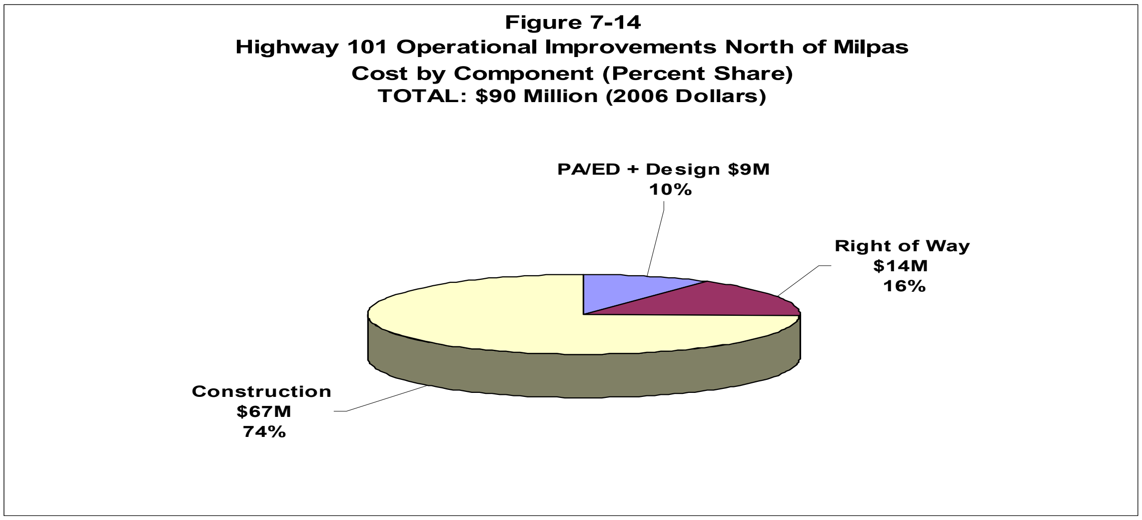
The 101 In Motion Program includes $90 million (in 2006 dollars) in proposed Operational Improvements North of Milpas. These will consist of eliminating congestion "hot spots" through the addition of auxiliary lanes, through lanes, and ramp improvements. This component comprises 11 percent of the overall program.

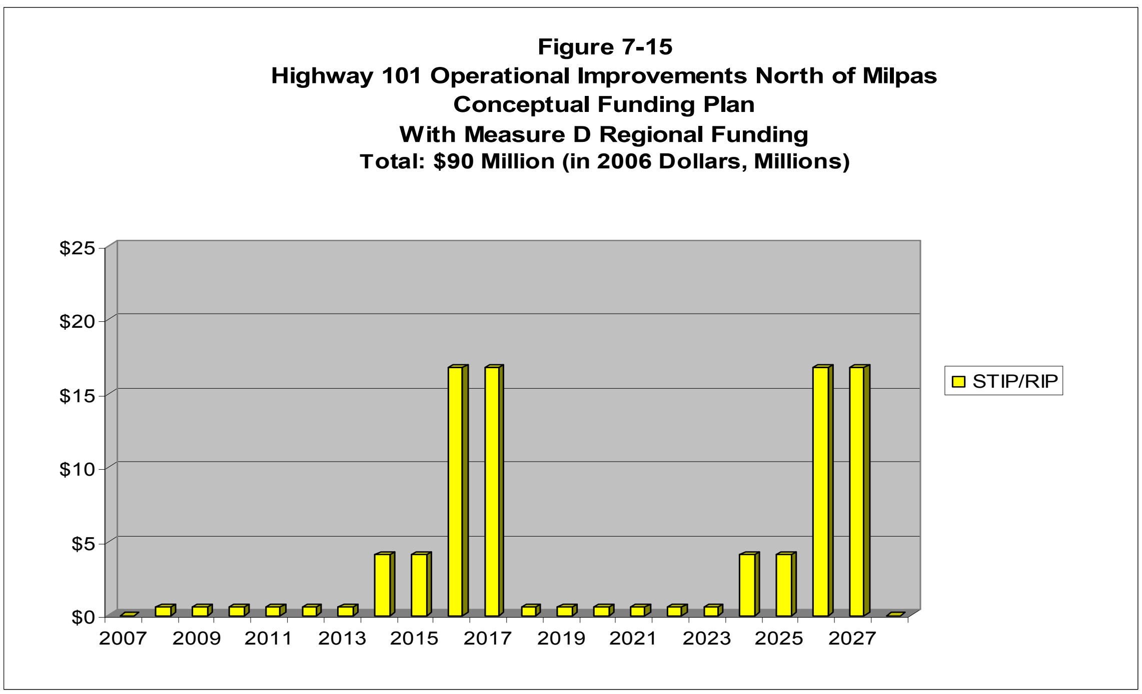
Operational Improvements North of Milpas: Estimated Costs

Figure 7-14 illustrates the breakdown of costs of the Operational Improvements by component. Approximately 71 percent of the cost is for construction, with project environmental/design, right of way, and structures comprising the remaining 29 percent.

Operational Improvements North of Milpas Funding and Implementation Plan

Figure 7-15 illustrates the proposed funding and implementation plan for the Operational Improvements. As shown in the figure, the improvements would be funded with STIP-RIP funds and constructed in two phases: 2016-2017 and 2026-2027.





7.3.8 Interregional Bus and Carpool/Vanpool Services

Supporting the 101 In Motion Improvement Program are the operation of expanded Interregional Bus and Priority Treatments on local arterials and Carpool/Vanpool Services. These programs comprise approximately $89 million (10 percent) of the total 101 In Motion Program.

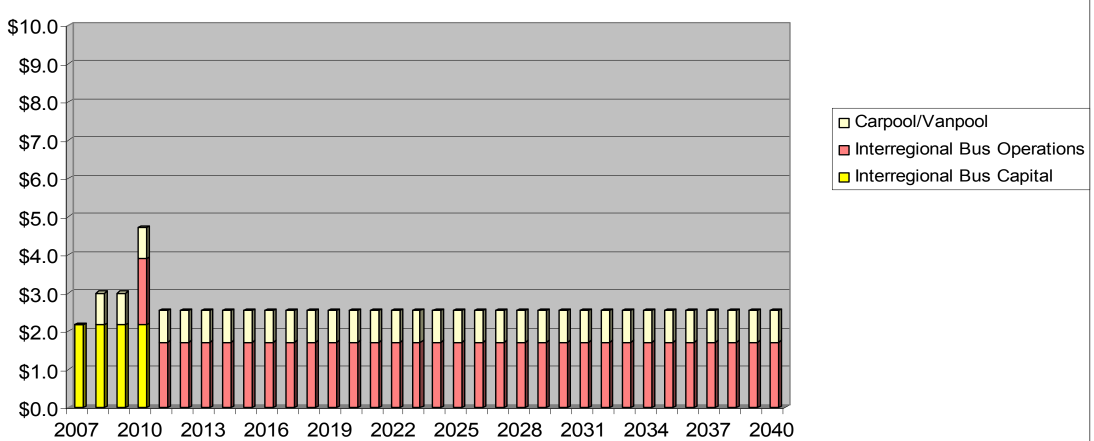
Interregional Bus and Carpool/Vanpool Service Estimated Costs

Of the approximately $89 million in cost for these services, Interregional Bus and Priority Treatment and Carpool/Vanpool Services comprise $62 million (70 percent) and $27 million (30 percent) respectively. These costs are primarily for operation of service, with $8.7 million for buses and Priority Treatment capital improvements.

Interregional Bus and Carpool/Vanpool Proposed Funding and Implementation

Figure 7-16 illustrates the proposed funding and implementation plan for the 101 Interregional Bus and Carpool/Vanpool services. As shown in the figure, the on-going operation of these programs would extend through 2040 with funding from renewal of the Measure D Regional Program.

Figure 7-16
101 Interregional Bus and Carpool/Vanpool Services
Proposed Funding Plan
With Measure D Regional Funding
Total: $62 Million Interregional Bus Services (100% Measure D)
Total: $27 Million - Carpool/Vanpool Services (100% Measure D)

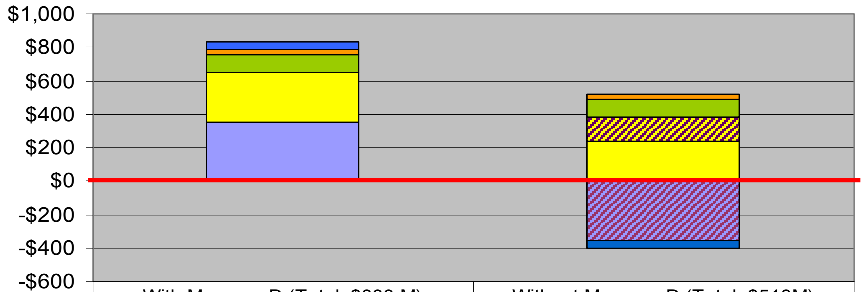


7.4 Funding the 101 In Motion Program Without Measure D

The previous sections of this chapter have focused on the proposed funding plan for the overall 101 In Motion Program and the individual project elements assuming voter approval of the proposed Measure D half-cent renewal and quarter cent increase. As the outcome of the Measure D ballot measure will not be known until November 2006, consideration was also given to how the 101 In Motion Program would be impacted in the absence of proposed Measure D regional funding with regard to proposed funding, ability to implement the project elements, and implementation timeline.

Figure 7-17 illustrates the monetary impact that elimination of $355 million in Measure D funding would have on the 101 In Motion Program. As shown in the figure, the total magnitude of the 101 In Motion Program would be reduced by 38 percent, from an $833 million program to a $518 million program. As the loss of Measure D funding would eliminate the major source of funding for capital and operation of the 101 Commuter Rail project, loss of Measure D funds would be further accompanied by a loss of $50 million in Other revenues proposed for Commuter Rail.

Figure 7-17
101 In Motion Improvement Program
Proposed Funding Sources
With and Without Measure D Regional Funding
(in 2006 Dollars, Millions)



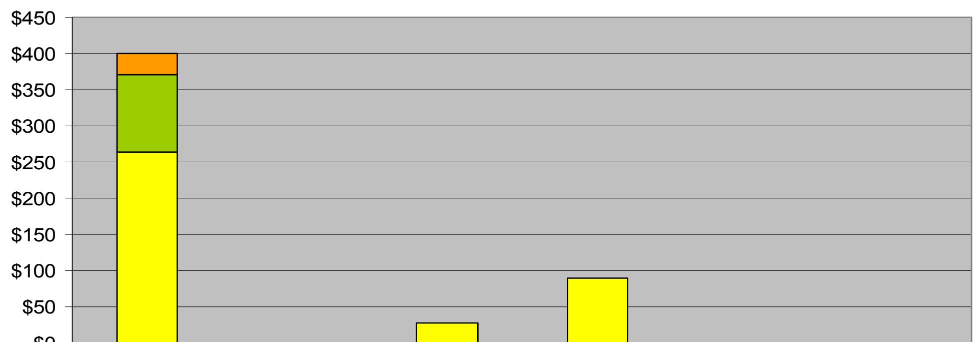
	With Measure D (Total: $833 M)	Without Measure D (Total: $518M)
Loss of Other		-$50.0
Other	$50	
Federal Earmark	$30	$30
STIP-IIP	$107	$107
STIP-RIP (Transferred)		$140
STIP-RIP	$291	$241
Loss of Measure D		-$355

7.4.1 Impact on 101 In Motion Program Elements

Figure 7-18 illustrates the proposed sources that would be available to fund the capital and operating costs of the individual modal elements in the absence of Measure D funding. As shown in the figure, the major source of funding would be SBCAG's STIP-RIP funds, followed by STIP-IIP, and Federal Earmarked funds.

All three of these sources are assumed to be used for the 101 Highway Widening South of Milpas. The balance of funding available would be STIP-RIP funds. As these funds can be used for capital costs only and not for operations, the balance of STIP-RIP funds would likely be used for the ITS Improvements and the 101 Operational Improvements North of Milpas. The STIP-RIP funds could also applied toward the capital costs of a Commuter Rail Pilot Program. However, in determining the priorities for funding, SBCAG would have to consider whether it would initiate such a program in the absence of funding for operations. While the assumption in this analysis is that the STIP-RIP funds would continue to be used for the 101 In Motion Program, they could also be diverted from the 101 Corridor and used for high priority capital projects similarly affected by the absence of Measure D funding.

Figure 7-18
101 In Motion Program
Proposed FundingSources by Element
Without Measure D Regional Funding
Total: $518 Million (in 2006 Dollars, Millions)



	Widen Highway 101	101 Commuter Rail	ITS Improvements	101 Operational Improvements N of Milpas	101 Interregional Bus Service and	101 Carpool, Vanpool
Federal Earmark	$29		$1			
STIP-IIP	$107					
STIP-RIP	$264		$27	$90		
Measure D	$0	$0	$0	$0	$0	$0

7.4.2 Impact on the Proposed Funding Implementation Plan

Figure 7-19 illustrates the proposed funding implementation plan for the project elements of the 101 In Motion Program without Measure D regional funding. As shown in the figure, only three of the six project elements would be implementable within the 2007-2040 period: 101 Highway Widening, ITS Improvements, and the Operational Improvements North of Milpas. Due to the estimated $15 million in the annual limitation on the level of STIP-RIP funding that would be available to SBCAG, all three elements would take longer to fund and complete. Assuming current annual levels of STIP-RIP funding with 85 percent of SBCAG's STIP-RIP funds used for the 101 Highway Widening through over three decades through 2040, completion of the widening would take a minimum of 11 additional years.

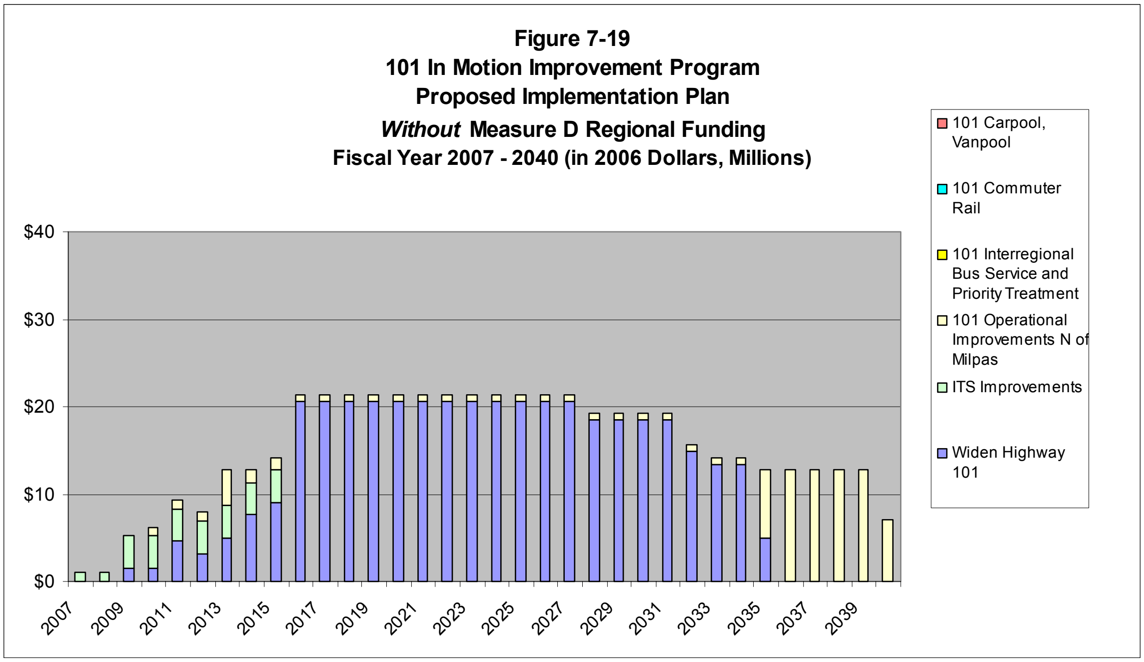
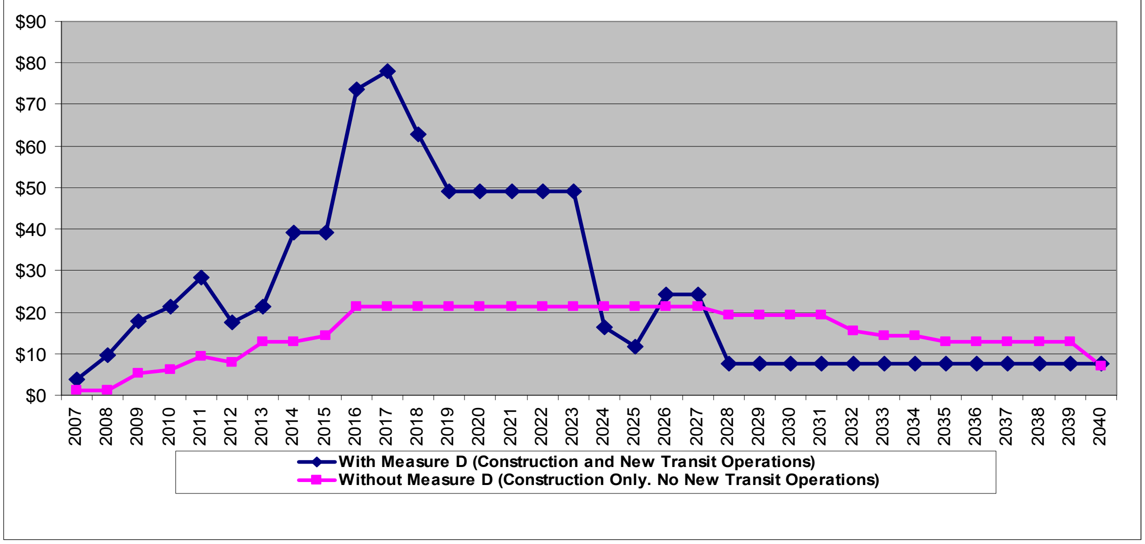


Figure 7-20 illustrates the proposed implementation timeline for the 101 In Motion Program with and without Measure D regional funding. As shown in Figure 7-20 and previously in Figure 7-5, with regional funding from Measure D, the major construction phases of the 101 In Motion Program would be accelerated and completed in three segments by 2024, with construction of Operational Improvements North of Milpas completed by 2027. Operating costs for Commuter Rail, Intercity Bus, and Carpool/Vanpool services would continue through the 2040 sunset year of the Measure D renewal period. Without Measure D funding, construction of Highway 101 Widening could only be completed by 2035 at the earliest even with 85 percent of available funding being diverted from other county-wide projects and focused on the 101 corridor. ITS Improvements would be funded with STIP-RIP funds and would be completed over an additional four years. Construction of the Operational Improvements North of Milpas would continue to 2040. There would be no funding available for capital and operating costs for commuter rail or other transit-related services.

Figure 7-20
101 In Motion Improvement Program
Implementation Timeline
With and Without Measure D Regional Funding
Fiscal Year 2007-2040 (in 2006 Dollars, Millions)



7.4.3 Funding Highway 101 Widening Without Measure D

As the largest single component of the 101 In Motion Improvement Program, the Highway 101 Widening element is a $400 million (in 2006 dollars) project that comprises approximately 50 percent of the total 101 In Motion Program. Given the significance of this element to the overall program, the 101 Widening Program is considered in greater detail in the sections below.

Highway 101 Widening Proposed Funding Sources

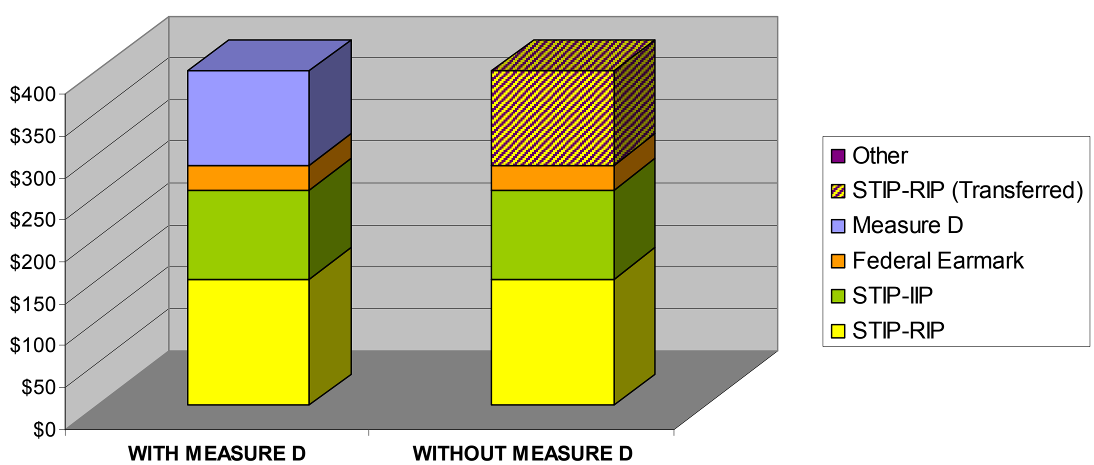
Figure 7-21 illustrates the proposed funding sources for the Highway 101 Widening element with and without Measure D regional funding. As shown in the figure for the With Measure D scenario, $113 million in such funding is proposed for the Highway 101 Widening, with STIP-RIP, STIP-IIP, and Federal Earmarked funding of $151 million, $107 million, and $29 million respectively.

Without Measure D regional funding, the total funding required for the Widening element could potentially be made available by extending the number of years of STIP-RIP accrual and increasing the level of STIP-RIP funds by $113 million or by combining increased levels of STIP-RIP funding with Other funding. Other funding could potentially include toll revenue bond proceeds. Either approach would require that SBCAG focus its annual STIP-Regional Improvement Program funding over three decades for the Highway 101 Widening. At the same time, SBCAG would be faced with increased competition for its limited STIP-RIP money due to the loss of the Measure D funding for other high priority regional projects. If reprogrammed from within the 101 In Motion Program, the STIP-RIP funding needed to replace the $113 million in Measure D funds could be obtained from the Highway 101 Operational Improvements North of Milpas and from 101 Commuter Rail, leaving these program elements either deferred and/or unfunded, or from other high priority regional projects that are not part of the 101 In Motion Program.

An alternative source of funding considered in this analysis but not proposed as a source was the potential for toll revenue bond funding. This would require the High Occupancy Vehicle lanes recommended in the adopted 101 In Motion package to be implemented as High Occupancy Toll (HOT) lanes, with vehicles carrying less than three persons paying a toll. Preliminary estimates conducted for the 101 In Motion Study indicate that such tolling could potentially generate $4.2 million annually. At this level, tolls could potentially support $50 million in bond proceeds that could be used for the Highway 101 Widening under the following assumptions: 1) annual highway maintenance costs would be paid by Caltrans and not from toll revenues; 2) the $4.2 million in annual revenues would provide a coverage ratio of 1.2 times the annual debt service payment (1.2X); 3) toll revenue bonds would be issued at 5.75 percent interest for a 30 year period; and 4) backstop revenues would also be pledged in the event of revenue shortfalls. This level of funding from tolls (12.5 percent) would not significantly reduce the implementation time and would have serious consequences to the congestion relief and cost-effectiveness of the widening project. Drivers who otherwise would form 2-person carpools with HOV lanes would have no incentive to do so with HOT lanes.

It should be noted that additional analysis would be required if HOT lanes were proposed for either operational or revenue generation purposes. While tolling of vehicles carrying less than three persons could potentially generate revenue for the Highway 101 Widening, tolling could serve to divert users to parallel free lanes and/or to other roadways, with no incentive to form two-person carpools. Such diversion could reduce the effectiveness of the widening project in reducing congestion. In light of real and perceived disincentives to carpools with 3 or more persons, tolling of vehicles carrying less than three persons is projected to have minimal effect on diverting single occupant and/or two-person carpool users to 3+carpools. Such route and modal diversion has already been assumed in the preliminary revenue analysis.

Figure 7-21
Highway 101 Widening
Proposed Funding Sources
With and Without Measure D Regional Funding
Total: $400 Million (2006 Dollars)



Highway 101 Widening Proposed Funding and Implementation Plan

Figures 7-22 and 7-23 illustrate the proposed funding and implementation plans for the Highway 101 Widening element by year, without Measure D regional funding. As shown in the figures and described previously, while reprogrammed STIP-RIP funds are assumed to replace the Measure D funding, SBCAG's annual funding from this program is limited to an estimated $15 million per year. Due to annual limitations on the levels of funding that would be available to SBCAG, the Highway 101 Widening project would take at minimum an additional 11 years to complete.

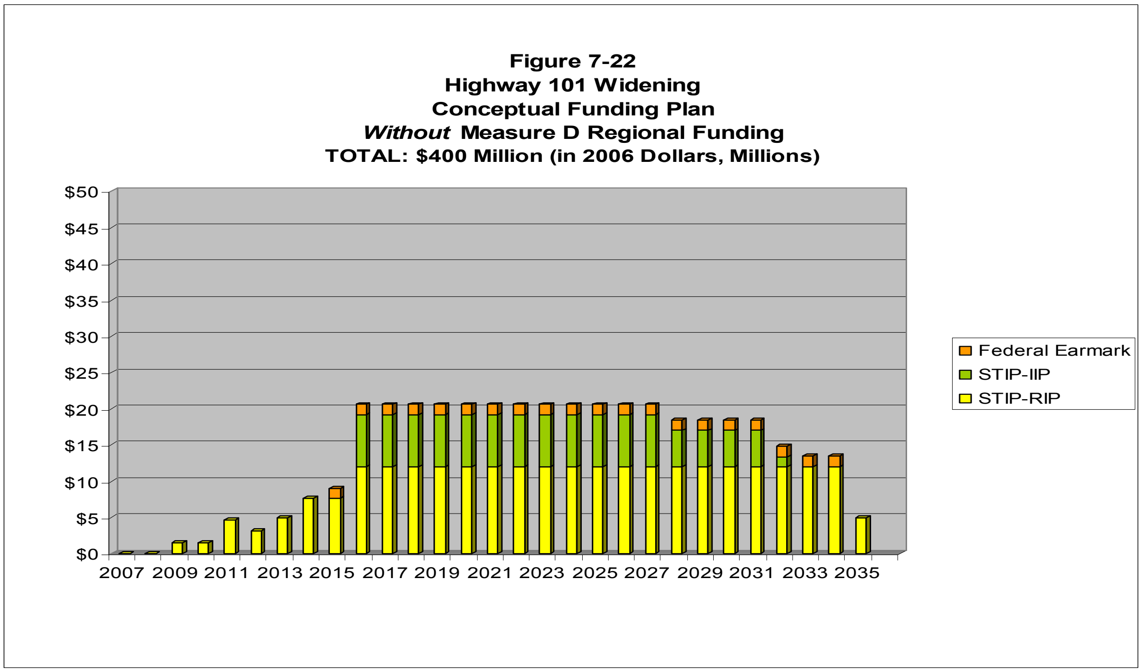
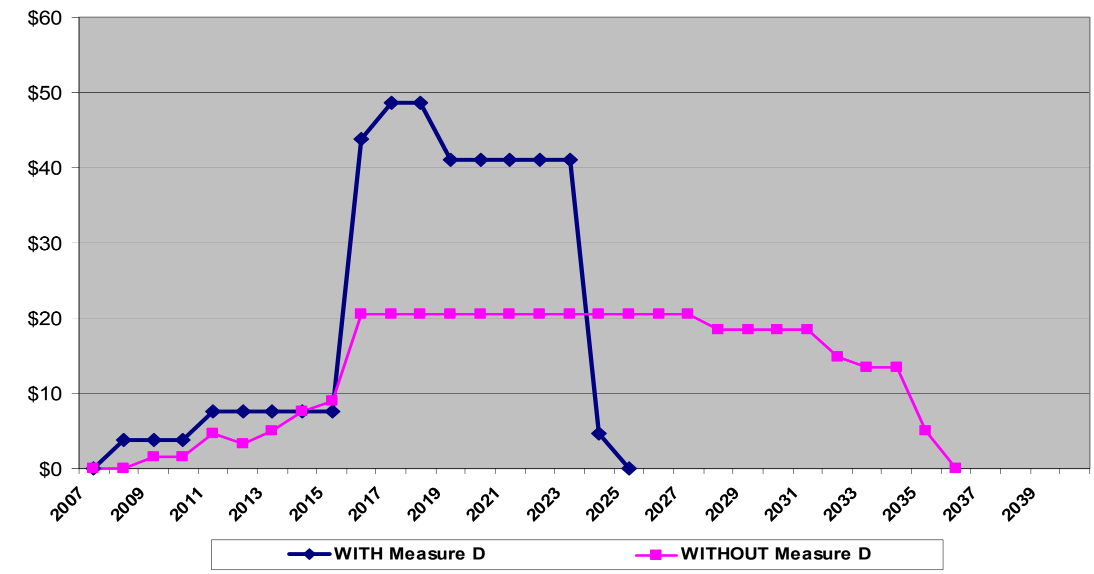


Figure 7-23 illustrates the cumulative significance of Measure D regional funding to the implementation timeline for the Highway 101 Widening element. As shown in the figure, with Measure D funding and the ability to use such funds for repayment of bonded indebtedness, the implementation timeline for the Widening element could be accelerated, with a highly peaked construction period over the 2016-2023 period. Without Measure D regional funding, the implementation timeline illustrates the limited annual levels of STIP-RIP funding over an extended implementation period. Instead of completion by 2024, the widening would be completed at the earliest by 2035.

Figure 7-23
Highway 101 Widening
Implementation Timeline
With and Without Measure D Regional Funding
(in 2006 Dollars, Millions)



7.4.4 Funding ITS and Operational Improvements North of Milpas Without Measure D

In addition to the Highway 101 Widening, the absence of Measure D regional funding would affect the funding sources and/or implementation schedule for the ITS Improvements and the Operational Improvements North of Milpas.

Figures 7-24 and 7-25 illustrate the implementation timeline for the ITS Improvements and the Operational Improvements North of Milpas respectively, with and without Measure D regional funding. As shown in Figure 7-24, without Measure D the timeline for implementation of the ITS Improvements would be extended an additional four years, from completion by 2012 to completion by 2016. In addition to change in implementation timeline, the source of funding in the absence of Measure D would be STIP –RIP funds.

As shown in Figure 7-25, without Measure D, 13 additional years would be required for completion of the Operational Improvements North of Milpas. The two-phased implementation of the Operational Improvements with Measure D would be replaced with a one-phase implementation, with completion by 2040.

Figure 7-24
Implementation Timeline for
ITS Improvements
With and Without Measure D Regional Funding
Fiscal Year 2007 - 2040 (2006 Dollars, Millions)

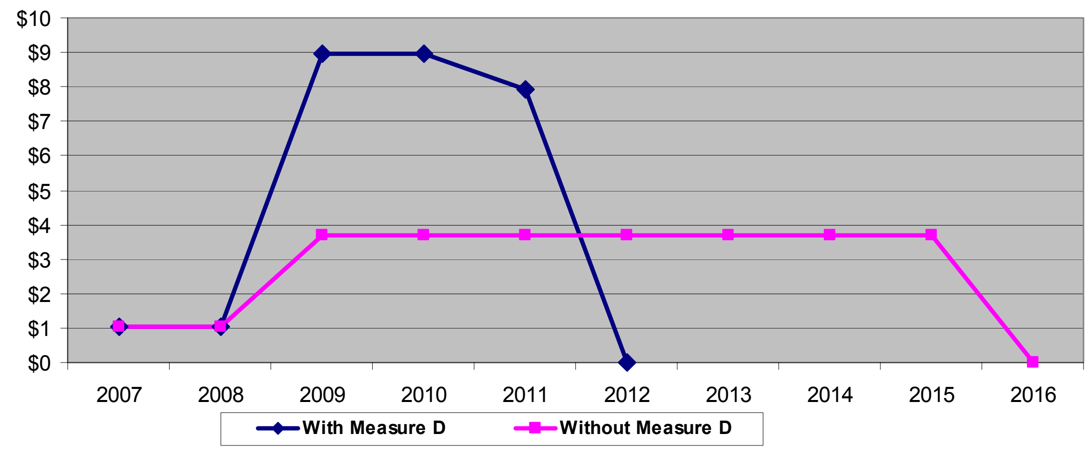
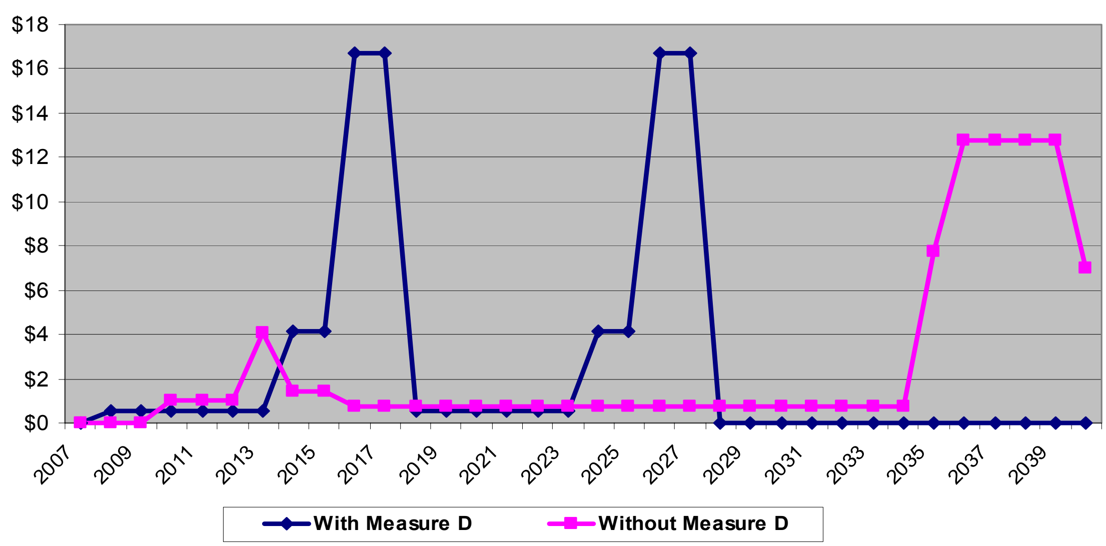


Figure 7-25
Implementation Timeline for
Operational Improvements North of Milpas
With and Without Measure D Regional Funding
Fiscal Year 2007 - 2040 (in Millions, 2006 Dollars)



Conclusion

In summary, the key findings from this analysis of funding the 101 Improvement Program without Measure D renewal confirm that the renewal of Measure D will be pivotal in the ability to implement the 101 In Motion Improvement Program.

8.0 IMPLEMENTATION PLAN

The Implementation Plan for 101 In Motion reflects the steps required to deliver each of the thirteen elements contained in the Adopted Improvement Plan. The thirteen elements are:

- #1 Widening of Highway 101 from Milpas to Ventura County Line
- #2 Commuter Rail between City of Camarillo and City of Goleta
- #3 Operational Improvements on Highway 101 between Milpas and Fairview
- #4 Commuter Express Bus Service
- #5 Connecting Bus Service at Rail Stations and Transit Hubs
- #6 Bus Priority Treatments
- #7 Carpool/Vanpool Pricing Incentives
- #8 Work Schedule Adjustments
- #9 Variable Parking Rates as Feasible by Location
- #10 Individualized Marketing
- #11 Ramp Metering
- #12 Intelligent Transportation System Elements
- #13 Monitoring Program

Section 8.1 presents the implementation steps, responsible agencies, anticipated start and completion dates and key issues and decision points for each of the 13 elements contained in the Adopted Improvement Plan. Section 8.2 identifies the early action steps for each of the elements.

8.1 Implementation Steps and Responsible Agencies

The Implementation Plan reflects a proactive step by step approach to project delivery and assumes voter approval of the Measure D sales tax renewal in November 2006. The plan identifies key decision points and issues that must be addressed in the future as implementation occurs. Several of the elements are to be implemented soon after the renewal of Measure D and will require further planning, refinement, design, environmental review, and permitting etc. As the Financial Plan in Chapter 7 shows, all of the projects/elements require some degree of sales tax funding for timely implementation. A few elements such as Commuter Rail, Connecting Bus Service, and all the demand management elements are entirely dependent on the sales tax for funding of operation and maintenance costs.

#1 Widening of Highway 101 from Milpas to Ventura County Line:
The Implementation Plan for this element (See Table 8-1) assumes early start activities such as surveying and traffic analyses to be funded by existing Measure D Sales Tax Revenue. In an effort to accelerate project delivery, some design and right-of-way would proceed at-risk after consensus is reached on the preferred alternative treatments and the Draft Environmental Document is approved yet prior to a Record of Decision on the Final EIR/EIS. The initiation of right of way at risk is considered particularly beneficial given the potential for extensive right-of-way requirements from UPRR. To allow opening of the widened sections of Highway 101 as soon as possible, design and construction is proposed to be implemented in two overlapping phases. The initial construction includes the widening of the mainline on Highway 101 to permit two general purpose lanes plus an HOV lane in each direction. During the mainline widening phase some shoulders may temporarily be substandard where the narrower bridges and undercrossings occur. Construction of mainline widening will consist of three approximately 4-mile segments that will be sequenced so as to improve bidability, reduce delays to the traveling public, and minimize potential for construction claims. Opening to traffic of the first segment of the mainline widening is projected to occur by 2019 and completion of all mainline construction is projected to occur by 2023. HOV designation for the new third lane will not be applied until completion of the mainline widening of all three segments. Prior to completion, as mainline segments are completed, the new third lane will be used as a general purpose lane. The replacement of substandard overcrossings/undercrossings and reconstruction of interchanges as necessary will occur in parallel and subsequent to the mainline widening. Completion of all of overcrossings/undercrossings/interchange work is projected to occur by 2024. Implementation responsibility for this element lies with Caltrans/SBCAG in close coordination with the local jurisdictions.

#2 Commuter Rail between City of Camarillo and City of Goleta:
The Commuter Rail line is entirely contingent on approval of the new transportation sales tax measure. For purposes of the Implementation Plan it is assumed that Metrolink will be responsible for operations and maintenance for the Commuter Rail element. Other options are discussed in Appendix D. To enable an earlier start-up the Implementation Plan assumes an initial pilot service. The pilot service will comprise 2-round trips per day with minimal capital acquisition, starting in 2011. Rolling stock will be leased and track expansion/modifications will be kept to a minimum. Agreements with UPRR on any required capital improvements and use of UPRR tracks as well as agreements with a service operator (Metrolink) and the County of Ventura must be secured prior to start of the pilot service. Implementation responsibility for this element is as yet to be defined however it will likely at a minimum include SBCAG and VCTC or a joint powers agency represented by both agencies. See Table 8-2

#3 Operational Improvements on Highway 101 between Milpas and Fairview:
As shown in Table 8-3, the Operational Improvements on Highway 101 between Milpas Street and Fairview Avenue will be implemented in phases, with the first phase focused on existing and near-term "hot spot" locations. Since the west end of the 101 corridor will be more affected by future land use decisions than the already built up east end, the nature and extent of further operational improvements will be gauged through the on-going monitoring program (Element #13). The Implementation Plan assumes two sequential phases of operational improvements. Each of these phases could include one or more individual improvement projects consisting of adding auxiliary lanes, full lanes, and/or interchange improvements . Completion of this element would coincide with completion of Element #1 (Widening of Highway 101 south of Milpas) in 2022. Implementation responsibility for this element lies with Caltrans/SBCAG in close coordination with the local jurisdictions.

#4 Commuter Express Bus Service:
This element expands commuter bus service between North County and the Cities of Goleta and Santa Barbara. It will provide additional alternative transportation capacity between North County and the cities of Santa Barbara and Goleta in the same way that the Commuter Rail program will do between Ventura and the cities of Santa Barbara and Goleta. The Implementation Plan shown in Table 8-4 proposes moving forward with a phased bus expansion program as soon as the new Measure D Sales Tax is approved.

#5 Connecting Bus Service at Rail Stations and Transit Hubs:
This element is entirely contingent on approval of the new transportation sales tax measure. It is required to support the proposed commuter rail service and as such its timing coincides with the start of the pilot Commuter Rail service in 2011. Implementation responsibility for this element lies with MTD. See Table 8-5.

#6 Bus Priority Treatments:
While regional funding will be used, the implementation of this element is largely at the discretion of the local jurisdictions along with involvement by MTD. The scope of improvements will include upgrading existing buses to allow buses an extended green light at select intersections. In addition, possible infrastructure improvements at intersections will include providing an extra lane to allow a bus to skip ahead through an intersection, bulb-outs at bus stops, and transfer facilities at rail stations. Implementation timeline will occur as funding is available and local jurisdictions and MTD elect to implement these bus priority improvements. See Table 8-6.

#7 Carpool/Vanpool Pricing Incentives:
Although incentives are currently being used to some degree on the South Coast, the continuation and perhaps expansion of this program is entirely contingent on approval of the new transportation sales tax measure. The implementation of this element which includes carpool subsidies as well is proposed to be immediate following approval of the new transportation sales tax measure. Implementation responsibility for this element lies with SBCAG's Traffic Solutions. See Table 8-7.

#8 Work Schedule Adjustments:
A flexible work schedule program is currently being implemented on a targeted scale with South Coast employers, however the continuation and expansion of this program is entirely contingent on approval of the new transportation sales tax measure. The continuity of this element is proposed to be immediate following approval of the new transportation sales tax measure. Implementation responsibility for this element lies with SBCAG's Traffic Solutions. See Table 8-8

#9 Variable Parking Rates as Feasible by Location:
Implementation of this element is at the discretion of the City of Santa Barbara, County of Santa Barbara, City of Goleta and UCSB. The Implementation Plan shown in Table 8-9 proposes that initial assessment studies would occur in 2007. Implementation responsibility for this element would fall to the respective local jurisdictions.

#10 Individualized Marketing:
This demand management element would be a new program and is entirely contingent on approval of the new transportation sales tax measure. The implementation of this element is proposed to be immediate following approval of the new transportation sales tax measure. Implementation responsibility for this element would be SBCAG's Traffic Solutions. See Table 8-10

#11 Ramp Metering:
Ramp metering applies to the entire 101 corridor from the Ventura County line to Winchester Canyon in Goleta. Ramp metering can only occur where there is sufficient ramp length and width to accommodate the queues that accompany ramp metering. Also, ramp meters need to be installed in such a way that they don't result in overloading the non-metered locations if traffic shifts due to the meters. The Implementation Plan for the ramp metering therefore reflects the need for the identification of problem areas and the subsequent implementation of a phased ramp metering program. The plan assumes implementation in geographic increments and will require extensive coordination with the respective local jurisdictions. Implementation responsibility for this element lies with Caltrans/SBCAG in close coordination with the local jurisdictions. See Table 8-11.

#12 Intelligent Transportation Systems Elements:
The implementation plan for this element takes a phased approach. The make up of specific ITS elements within each phase is at this time undetermined. Each phase will be sequential and will be delivered through contracts administered by SBCAG, Caltrans, or local agencies. SBCAG and Caltrans will refer to the "Central Coast Strategic Plan Deployment Plan", approved in June 2000 when determining an implementation schedule. A master cooperative agreement between Caltrans and SBCAG will be developed and close involvement by Caltrans will be ongoing. The first phase (Phase I) will be funded through existing Federal Earmark funds. Subsequent phases will be funded through the new transportation sales tax measure and potentially SHOPP funding. See Table 8-12.

#13 Monitoring Program:
The objective of the Monitoring Program is to assess on an annual basis the progress and phasing requirements for the various 101 In Motion elements. The outcome of each annual monitoring effort will shape future implementation priorities. The initial step will be to develop performance measures for each element in 101 in Motion. The monitoring effort will be led by SBCAG but will involve members of all the jurisdictions who participated in defining the 101 Improvement Plan. See Table 8-13.

The information reflected in the following tables address activities and timelines projected for each of the 13 elements of the Adopted Improvement Plan. The dates and timelines shown are tentative and the project scopes shown are conceptual. Both are based on a planning level analysis using information available at the time the study was conducted. The implementation schedule will be refined on an on-going basis as the improvement program progresses.

Table 8-1
Element #1: Widening of Highway 101 from Milpas to Ventura County Line

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	09/2006	completion date =	06/2024
Assumptions:					
1	New Measure D is approved in November 2006				
2	Under “Responsible” column below, “All” = all effected jurisdictions between Milpas Street and Ventura/Santa Barbara County line which include SBCAG, Caltrans (CT), County of Santa Barbara, city of Santa Barbara, City of Carpinteria				
3	No differentiation has been made whether certain project development activities are to be performed by Caltrans staff and/or by Consultants. If Caltrans takes on project development responsibility, it is assumed that they will assign the appropriate level of staffing to expeditiously advance the project.				
4	First bond against renewal Measure D becomes available by 06/2007.				
5	Project delivery through Design/Build contracts will be considered.				
6	No Phase II archaeological studies are needed.				
7	All operating costs are assumed to be responsibility of Caltrans.				
8	Other assumptions are listed in appendix at the end of this Section 8.				
Proposed Funding:					
1	Existing Measure D Funds for early-start PA&ED tasks				
2	Renewal Measure D funds				
3	First Bond against new Measure D Revenue				
4	Swap existing STIP funds from Milpas to Hot Springs Operational Improvement Project with “Corridor Mobility Improvement Bond” funds				
5	2008 STIP-RIP + STIP IIP funds				
6	2010 STIP-RIP + STIP-IIP funds				
7	2012 STIP-RIP + STIP-IIP funds				
8	2014 STIP-RIP + STIP-IIP funds				
9	2016 STIP-RIP + STIP-IIP funds				
10	2018 STIP-RIP + STIP-IIP funds				

Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
	PA&ED:				
1	Finalize Project Study Report	CT	09/2006	01/2007	
2	2006 Measure D Strategic Plan approved	SBCAG	08/2006	08/2006	Determine if any remaining Measure D funds available for early-start PA&ED tasks
3	Approve Cooperative Agreement between SBCAG and Caltrans defining project development responsibilities	SBCAG/CT	08/2006	12/2006	
4	New Measure D Approved	SBCAG	11/2006	11/2006	
5	Perform early-start PA&ED tasks	SBCAG/CT	08/2006	12/2007	
6	Prepare/Complete 2007 Measure D Strategic Plan	SBCAG	01/2007	06/2007	
7	Develop project alternatives and reach consensus on which alternatives to include for full analysis in the Env.Doc.	All	01/2007	12/2008	Decision re: trade-offs on widening to inside or outside
8	Prepare Draft Environmental Document and release to Public	SBCAG/CT	12/2008	12/2010	
9	Reach consensus on preferred alternative	All	12/2008	12/2010	
10	Divide project into design/construction packages	SBCAG/CT	12/2008	12/2010	
11	Finalize/approve Environmental Document	SBCAG/CT	12/2010	12/2011	

	Design:				
12	At-Risk Design on Mainline & I/C + O/C's	SBCAG/CT	12/2010	12/2011	Proceed w/ At-Risk Design after DEIR/DEIS
13	Design - Mainline	SBCAG/CT	12/2011	06/2015	
14	Design – I/C + O/C's	SBCAG/CT	12/2011	12/2017	
	Right of Way:				
15	At-Risk Right of Way on Mainline & for I/C + O/C's	SBCAG/CT	12/2011	12/2014	Proceed w/ At-Risk ROW Design after DEIR. This activity is especially applicable to UP R/W acquisition
16	Right of Way - Mainline	SBCAG/CT	12/2011	12/2014	
17	Right of Way - I/C + O/C's	SBCAG/CT	12/2011	12/2017	
	Construction – Mainline:				
18	Construction – Segment #1	CT	06/2015	06/2019	
19	**Opening of first widened section of Rte 101**	**CT**		**06/2019**	
20	Construction – Segment #2	CT	06/2017	06/2021	
21	**Opening of second widened section of Rte 101**	**CT**		**06/2021**	
22	Construction – Segment #3	CT	06/2019	06/2023	
23	**Opening of third widened section of Rte 101**	**CT**		**06/2023**	
	Construction – Interchanges/Overcrossings:				
24	Construction (multiple packages)	CT	06/2016	06/2024	

For Element #1, Widening of Highway 101 from Milpas to Ventura County Line the following additional assumptions apply:

1. The environmental document and project report will only study the area between the Ventura County line and the Milpas Street Undercrossing.
2. Consensus on a preferred alternative is reached in a timely manner and the cost for this alternative is within the available funding amount.
3. Local design review and changes resulting from reviews do not exceed the time required to complete design or increase the cost of the project beyond the funding amount.
4. The Coastal Development Permit is granted within the anticipated project schedule and does not provide additional improvements or constraints that lengthen the project schedule or increase the cost of the project beyond the available funding amount.
5. Changes in County and City of Santa Barbara staff and changes in elected officials do not affect decisions agreed upon during the course of the project development period.
6. Funding streams allocated to the project are available, consistent and stable to carry the project through PA&ED, PS&E, R/W and construction.
7. The biological assessment/opinion does not extend beyond the review period published by the review agencies.
8. Local road improvements are developed as separate projects to allow priority implementation of the key mainline improvements.
9. No significant impacts to 4f/historic sites are identified.
10. There are no significant hazardous waste sites discovered that would need to be addressed as part of the project.
11. Railroad involvement, where required, occurs in a timely manner and does not delay achievement of key project delivery milestones.

Table 8-2
Element #2: Commuter Rail

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	11/2006	completion date =	01/2017
Assumptions:					
1	Renewal Measure D is approved in November 2006				
2	Under "Responsible" column below, "All" = all effected jurisdictions between City of Goleta and City of Camarillo which include SBCAG, Caltrans (CT), County of Santa Barbara, VCTC, County of Ventura, City of Santa Barbara, City of Carpinteria, City of Goleta, City of Oxnard, City of Ventura and SBMTD				
3	Metrolink will be responsible for Operations and Maintenance of Commuter Rail equipment and facilities				
4	All track improvements under Pilot Project are assumed to be within Railroad Right of Way				
5	First bond against renewal Measure D becomes available by 06/2007. Funding prior to issuance of first bond will come from SBCAG discretionary funds.				
Proposed Funding:					
1	SBCAG discretionary funds				
2	Renewal Measure D funds				
3	First Bond against renewal Measure D Revenue				
4	Small Starts Program Funding				
5	2008 STIP-RIP funds				
6	2010 STIP-RIP funds				
7	2012 STIP-RIP funds				
8	2014 STIP-RIP funds				

Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
	Start Up Activities:				
1	Initiate re-scheduling of Surfliner service to simulate a minimal "Commuter Service"	SBCAG/ VCTC	11/2006	06/2007	
2	Complete LOSSAN North Corridor Plan train capacity model scenarios.	LOSSAN Team	01/2006	06/2007	Study will provide capacity analysis and new basis for consultation w/ UPRR
3	Set up Commuter Rail Task Force with representatives from all affected jurisdictions	All	11/2006	01/2007	
4	Secure services of rail consultant	SBCAG/Task Force	01/2007	04/2007	
5	Establish "Sponsoring Agency" and define scope of "Pilot Project Service" and follow on "Permanent Service"	Task Force	04/2007	08/2007	Determine Sponsoring Agency make-up. Could be SBCAG, VCTC, a JPA, or Caltrans
6	Perform analysis of DMU vs. conventional equipment	Rail Consultant	06/2007	12/2007	
7	Prepare Uniform Transit Application	Rail Consultant	06/2007	12/2007	
8	Prepare application for Small-Starts program	Rail Consultant	06/2007	12/2007	
9	Evaluate sufficiency of LOSSAN capacity analysis	Rail Consultant	06/2007	10/2007	
	Pilot Project Service:				
10	Identify new capital improvements that will provide basis for joint passenger and freight operations	Sponsoring Agency	06/2007	12/2007	
11	Develop multi-year funding plan for capital and operations/maintenance + secure funding sources for Pilot Service	Sponsoring Agency	08/2007	12/2007	

Implementation Steps (continued):		responsible	start date	compl date	issues/ decision points
12	Design of Temporary Layover facility in Goleta and in Ventura County	Sponsoring Agency	08/2007	06/2008	
13	Negotiate use of land for Temporary Layover Facilities	Sponsoring Agency/ VCTC	08/2007	12/2007	
14	Negotiate agreement with UP on capital improvements needed to permit commuter rail to access UP tracks	Sponsoring Agency	01/2007	12/2008	
15	Negotiate Track Right agreement with Union Pacific establishing Capital Maintenance, Dispatch & Maintenance of Way, and Track Rental costs.	Sponsoring Agency	12/2007	02/2009	Determine what track capacity (sidings) will be required with the Pilot Project for UP approval
16	Negotiate Operating agreement with Metrolink for operate the Pilot Service and maintain the rolling stock	Sponsoring Agency	06/2008	06/2009	Decision whether to use Metrolink or other operator
17	Design sidings and other capital improvements	Sponsoring Agency	12/2007	06/2009	
18	Construct sidings and other capital improvements	Sponsoring Agency	06/2009	12/2010	
19	Negotiate lease of new or used rolling stock from Metrolink or directly from manufacturer	Sponsoring Agency	02/2009	09/2009	
20	Secure Rolling Stock	Sponsoring Agency	09/2009	12/2009	
21	Secure all permits/approvals to commence Pilot Service	Sponsoring Agency	12/2009	12/2010	
22	Develop performance measures for Pilot Project	Sponsoring Agency	12/2009	12/2010	
23	Commence Pilot Project Service – 2 roundtrips per peak hour per week day	Sponsoring Agency	**01/2011**		This start date is well before start of 101 widening (2015) and is the middle of the Milpas to Hot Spring Operational Imp project. Any acceleration of this date will be beneficial.
24	Continue Pilot Project Service and implement established performance measures	Sponsoring Agency	01/2011	12/2016	Assess performance of Pilot Project Service
25	Pilot Service expanded into Permanent Service	Sponsoring Agency		12/2015	
	Permanent Commuter Rail:				
26	Secure environmental and design consultants	Sponsoring Agency	03/2010	06/2010	
27	Amend multi-year funding plan for capital and operations/maintenance + secure funding sources for Permanent Service	Sponsoring Agency	06/2010	06/2012	
28	Prepare Environmental Document for track improvements associated with Permanent Service	Sponsoring Agency	06/2010	06/2012	
29	Amend Regional Transportation Plan	SBCAG	06/2012	12/2012	
30	Develop design of track improvements	Sponsoring Agency	06/2012	12/2013	

Implementation Steps (continued):		responsible	start date	compl date	issues/ decision points
31	Secure Right of way as necessary for track improvements	Sponsoring Agency	06/2012	12/2013	
32	Construct Track Improvements	Sponsoring Agency	12/2013	06/2015	
33	Amend agreement with UP to reflect Permanent Service	Sponsoring Agency	12/2013	06/2015	
34	Amend agreement with Metrolink to operate the Permanent Service and maintain the rolling stock	Sponsoring Agency	12/2013	06/2015	
35	Purchase Rolling Stock	Sponsoring Agency	06/2012	12/2012	
36	Long lead delivery time for Rolling Stock	Sponsoring Agency	12/2012	12/2016	
37	Secure all permits/approvals to commence Permanent Service	Sponsoring Agency	06/2015	12/2016	
38	Commence Permanent Service	Sponsoring Agency	**01/2017**		

Table 8-3
Element #3: Operational Improvements to 101 between Milpas and Fairview

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	06/2007	completion date =	01/2028
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	Under “Responsible” column below, “All” = all effected jurisdictions between Milpas Street and Fairview Avenue which include SBCAG, Caltrans (CT), County of Santa Barbara, City of Santa Barbara, City of Goleta				
3	No differentiation has been made whether certain project development activities are to be performed by Caltrans staff and/or by Consultants				
4	Improvements north of Milpas are limited to Operational Improvements at existing and near term congestion “hot spots”. Improvements will include auxiliary lanes or full lanes between interchanges, modifications to ramps and ramp locations, and/or additional Freeway overcrossings or undercrossings for local traffic.				
5	This element is not funded through the New Measure D.				
6	All operating costs are assumed to be the responsibility of Caltrans				
Proposed Funding:					
1	Apply for 2008 STIP-RIP funds				
2	Apply for 2010 STIP-RIP funds				
3	Apply for 2012 STIP-RIP funds				
4	Apply for 2014 STIP-RIP funds				
5	Apply for 2016 STIP-RIP funds				
6	Apply for 2018 STIP-RIP funds				

Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Perform traffic analysis, identify “hot spot” projects, and assess/prioritize “hot spot” projects	SBCAG/CT	06/2007	12/2007	
2	Select Phase I “hot spot” project(s)	SBCAG/CT	12/2007	03/2008	Determination of whether to move forward with project implementation at this time.
	PA&ED – Phase I Project(s):				
3	Prepare/approve Project Study Report	CT	03/2008	12/2009	
4	Approve Cooperative Agreement between SBCAG and Caltrans defining project development responsibilities	SBCAG/CT	12/2009	06/2010	
5	Prepare Draft Environmental Document and release to Public	SBCAG/CT	06/2010	06/2012	
6	Finalize/approve Environmental Document	SBCAG/CT	06/2012	06/2013	
7	Amend Regional Transportation Plan	SBCAG	06/2013	12/2013	
	Design + Right of Way:				
8	Design	SBCAG/CT	06/2013	06/2015	
9	Right of Way Acquisition	SBCAG/CT	06/2013	06/2015	
	Construction:				
10	Construction	CT	01/2016	01/2018	
	PA&ED – Phase II Project(s):				
11	Prepare/approve Project Study Report	CT	03/2018	12/2019	
12	Approve Cooperative Agreement between SBCAG and Caltrans defining project development responsibilities	SBCAG/CT	12/2019	06/2020	

	PA&ED – Phase II Project(s) (continued):				
13	Prepare Draft Environmental Document and release to Public	SBCAG/CT	06/2020	06/2022	
14	Finalize/approve Environmental Document	SBCAG/CT	06/2022	06/2023	
15	Amend Regional Transportation Plan	SBCAG	06/2023	12/2023	
	Design + Right of Way:				
16	Design	SBCAG/CT	06/2023	06/2025	
17	Right of Way Acquisition	SBCAG/CT	06/2023	06/2025	
	Construction:				
18	Construction	CT	01/2026	01/2028	

Table 8-4
Element #4: Commuter Express Bus Service

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	06/2007	completion date =	05/2010
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	This element assumes the expansion of commuter bus service between north County and major work sites in the Cities of Santa Barbara and Goleta. The two commuter bus services that will be expanded are the Valley Express between the Santa Ynez Valley and south County and the Clean Air Express between Santa Maria/Lompoc and south County.				
3	No expansion of the Coastal Express between Ventura and south County is anticipated since the Commuter Rail element will address increases in alternative travel within this corridor.				
Proposed Funding:					
1	Renewal Measure D funds				
2	First Bond against new Measure D Revenue				
3	Secure Federal “Earmark” funding as appropriate				
Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
	Valley Express:				
1	Assess existing and projected ridership – determine required service frequency and quantity of new buses required	MTD	06/2007	12/2007	
2	Prepare multi-year funding plan for capital and operations/maintenance + secure funding sources expanded service	MTD	12/2007	06/2008	Includes Federal Earmark Funds?
3	Contract with Bus Manufacturer for new buses	MTD	06/2008	12/2008	
4	Long Lead time for bus manufacture and delivery	MTD	12/2008	05/2010	
5	Implement expanded Valley Express Bus Service	MTD		**05/2010**	
	Clean Air Express:				
6	Complete North County Transit Plan	SBCAG	01/2006	08/2006	
7	Determine operating entity	SBCAG	08/2006	06/2007	
8	Assess existing and projected ridership – determine required service frequency and quantity of new buses required	North County Operator	06/2007	12/2007	
9	Prepare multi-year funding plan for capital and operations/maintenance + secure funding sources expanded service	North County Operator	12/2007	06/2008	Includes Federal Earmark Funds?
10	Contract with Bus Manufacturer for new buses	North County Operator	06/2008	12/2008	
11	Long Lead time for bus manufacture and delivery	North County Operator	12/2008	05/2010	
12	Implement expanded Clean Air Express Bus Service	North County Operator	**05/2010**		

Table 8-5
Element #5: Connecting Bus Services at Rail Stations and Transit Hubs

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	01/2008	completion date =	01/2011
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	This element assumes the expansion of MTD connecting bus service between rail stations/transit hubs and major employment sites. It also includes the coordination of shuttle van service provided by employers between rail stations/transit hubs and major employment sites.				
3	The timing for implementation of this element would coincide with the start up of the Pilot Commuter Rail Service.				
Proposed Funding:					
1	Renewal Measure D funds				
2	First Bond against renewal Measure D Revenue				

	Implementation Steps:	**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Assess existing and projected ridership – identify routes and determine quantity of new buses required	MTD	01/2008	06/2008	
2	Prepare multi-year funding plan for capital and operations/maintenance + secure funding sources expanded service	MTD	06/2008	10/2008	No Federal Earmark Funds assumed – all funding through Measure D
3	Contract with Bus Manufacturer for new buses	MTD	10/2008	12/2008	
4	Long Lead time for bus manufacture and delivery	MTD	12/2008	12/2010	
5	Implement Connecting Service at Rail Stations and Transit Hubs	MTD	**01/2011**		

Table 8-6
Element #6: Bus Priority Treatments

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	01/2009	completion date =	12/2012
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	This element includes two parts. The first provides an upgrade to existing buses to allow buses an extended green light at select intersections. The second relates to infrastructure improvements at select intersections such as an extra lane to allow a bus to skip ahead of a queue, bulb-outs at bus stops, and transfer facilities at rail stations.				
3	Responsibility for bus upgrades would lie with the transit districts, - MTD and SMAT. Responsibility for the signal upgrade and infrastructure improvements at intersections would be the responsibility of the local jurisdictions.				
Funding:					
1	Renewal Measure D funds				
2	Measure D funds assigned to local agencies				
Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Assess conditions at existing intersections on major arterials and identify/prioritize intersections and bus stops that warrant priority treatment	MTD/Local Agencies	01/2009	06/2009	
2	Prepare multi-year funding plan for capital funding + secure funding sources	MTD/Local Agencies	06/2009	09/2009	
3	Based on available funding from Local Agencies, develop implementation schedule for intersection and bus stop improvements and signal upgrades.	MTD/Local Agencies	09/2009	12/2009	
	Bus and Signal Upgrades:				
4	Upgrade buses with hardware for signal prioritization.	MTDT	01/2010	06/2010	
5	Upgrade signals at selected intersections	Local Agencies	01/2010	09/2010	
	Intersection/ Bus Stop Improvements:				
6	Phase I - Design of intersection and bus stop improvements	Local Agencies	01/2010	01/2011	
7	Phase I - Construction of intersection and bus stop improvements	Local Agencies	01/2011	12/2011	
8	Phase II - Design of intersection and bus stop improvements	Local Agencies	01/2011	01/2012	
9	Phase II - Construction of intersection and bus stop improvements	Local Agencies	01/2012	12/2012	

Table 8-7
Element #7: Carpool/Vanpool Pricing Incentives

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	06/2007	completion date =	12/2040
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	This element will provide financial incentives to carpoolers and vanpoolers.				
3	Responsibility for implementation of this program is with SBCAG's Traffic Solutions.				
Proposed Funding:					
1	Renewal Measure D funds				
2	First Bond against new Measure D Revenue				
Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Prepare multi-year funding plan for subsidy of Vanpool and Carpool incentive program through life of Measure D Program	SBCAG	06/2007	12/2007	
2	Develop/maintain distribution of promotional and outreach materials	SBCAG	12/2007	12/2040	Continue program till end of Measure D or budget runs out.
3	Implement Vanpool/Carpool incentive program	SBCAG	12/2007	12/2040	Continue program till end of Measure D or budget runs out.

Table 8-8
Element #8: Work Schedule Adjustments

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	06/2007	completion date =	02/2011
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	This element will provide a focused effort to promote "flex-time" schedules for workers at employment centers in the South County.				
3	Responsibility for implementation of this program is with SBCAG's Traffic Solutions.				
4	This program is already in place.				
Proposed Funding:					
1	Renewal Measure D funds				
2	First Bond against new Measure D Revenue				
Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Amend contract with existing Consultant to continue "flexwork" promotions and consulting	SBCAG	06/2007	09/2007	
2	Implement continued "flexwork" promotions and consulting	SBCAG	09/2007	02/2011	Budget extend for four years only

Table 8-9
Element #9: Variable Parking Rates as Feasible by Location

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	06/2007	completion date =	06/2008
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	This element will provide, at the discretion of local jurisdictions, a reduced parking fee for “off-hour” parking.				
3	This element is not dependent on approval of the New Measure D.				
Proposed Funding:					
1	None				
Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Assess fiscal viability of a reduced parking fee for “off-hour” parking at County and city parking lots	Local Agencies	06/2007	06/2008	
2	Based on viability study, implement new parking fee structure	Local Agencies	**06/2008**		

Table 8-10
Element #10: Individualized Marketing

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	06/2007	completion date =	06/2009
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	This element will provide a focused effort of “individualized” marketing to attempt to try and change travel behavior through direct contacts with household.				
3	Responsibility for implementation of this program is with SBCAG’s Traffic Solutions.				
4	It is the intension of SBCAG that this program focus on the community of the City of Carpinteria.				
Proposed Funding:					
1	Renewal Measure D funds				
2	First Bond against new Measure D Revenue				
Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Secure services of specialized “individualized marketing” consultant	SBCAG	06/2007	12/2007	
2	Develop/finalize scope “individualized marketing” program	SBCAG/City of Carpinteria	12/2007	06/2008	
3	Implement “individualized marketing” program in City of Carpinteria	SBCAG	06/2008	06/2009	Budget for one year only

Table 8-11
Element #11: Ramp Metering

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	06/2007	completion date =	12/2023
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	Under "Responsible" column below, "All" = all effected jurisdictions between Winchester Canyon and Ventura/Santa Barbara County line which include SBCAG, Caltrans (CT), County of Santa Barbara, City of Santa Barbara, City of Carpinteria, and City of Goleta				
3	No differentiation has been made whether certain project development activities are to be performed by Caltrans staff and/or by Consultants				
4	Ramp metering will provide metering signals at select on-ramps. Ramp metering regulate the entry of traffic on Highway 101 and will include some ramp widening, ramp lengthening and interchange reconfigurations.				
5	This element is not dependent on approval of the New Measure D.				
6	All operating costs are assumed to be responsibility of Caltrans.				
Proposed Funding:					
1	Renewal Measure D funds				
2	2008 STIP-RIP funds				
3	2010 STIP-RIP funds				
4	2012 STIP-RIP funds				
5	2014 STIP-RIP funds				
6	2016 STIP-RIP funds				
7	2018 STIP-RIP funds				

Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Perform traffic analysis, identify potential ramp metering locations, and assess/prioritize location	All	06/2007	06/2008	
2	Approve Cooperative Agreement between SBCAG and Caltrans defining project development responsibilities	SBCAG/CT	06/2008	12/2008	
	From Milpas north:				
3	Prepare/approve Project Study Report	CT	12/2008	12/2010	
4	Prepare Environmental Document	SBCAG/CT	12/2010	12/2012	
5	Design	SBCAG/CT	12/2012	06/2014	
6	Construction	CT	06/2014	06/2016	
	Milpas to Ventura County Line:				
7	Prepare/approve Project Study Report	CT	06/2016	06/2018	
8	Prepare Environmental Document	SBCAG/CT	06/2018	06/2020	
9	Design	SBCAG/CT	06/2020	12/2021	
10	Construction	CT	12/2021	12/2023	

Table 8-12
Element #12: Intelligent Transportation System Elements

Scenario:	**A (Measure D Reauthorized)**				
Overall Timeline:		start date =	09/2006	completion date =	05/2011
Assumptions:					
1	Renewal of Measure D is approved in November 2006				
2	The purpose of ITS is to improve communications with travelers as to the conditions of the Freeway and transit vehicles to allow the travelers to make routing and mode choices. The element includes changeable message signs, vehicle detectors, closed circuit video cameras, advanced traveler systems (ATS), TMC and a 511 program, and for buses or trains a GPS based vehicle location information system.				
3	This element is partially dependent on approval of the New Measure D and would be implemented in concert with delivery of all other 101 IM Elements.				
4	All operating costs are assumed to be responsibility of Caltrans				
5	Delivery of ITS projects will in part be guided by the Central Coast Strategic Deployment Plan approved by Caltrans in 2000.				
Proposed Funding:					
1	Existing Federal earmark funds				
2	Renewal Measure D funds				
3	SHOPP funds				

Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Develop cooperative agreement with Caltrans on delivery of ITS elements	SBCAG/CT	09/2006	12/2007	
2	Develop ITS Master Plan	SBCAG/CT	06/2007	06/2008	
	ITS - Phase 1:				
3	Prepare/Release RFP Phase 1 scope	SBCAG	06/2008	09/2008	
4	Select and Award Phase 1 contract(s)	SBCAG	09/2008	01/2009	
5	Deliver ITS - Phase 1	SBCAG	01/2009	03/2010	
	ITS - Phase 2:				
6	Prepare/Release RFP Phase 2 scope	SBCAG	01/2009	04/2009	
7	Select and Award Phase 2 contract(s)	SBCAG	04/2009	08/2009	
8	Deliver ITS - Phase 2	SBCAG	08/2009	10/2010	
	Phase 3:				
9	Prepare/Release RFP Phase 3 scope	SBCAG	08/2009	11/2009	
10	Select and Award Phase 3 contract(s)	SBCAG	11/2009	03/2010	
11	Deliver ITS - Phase 3	SBCAG	03/2010	05/2011	

Table 8-13
Element #13: Monitoring Program

Scenario:	**A (Measure D Reauthorized)**					
Overall Timeline:		start date =	01/2007	completion date =	06/2024	
Assumptions:						
1	Renewal of Measure D is approved in November 2006					
2	The purpose of the Monitoring Program is for SBCAG to perform an annual evaluation of the performance of the 101 In Motion recommended projects and to make recommendations on how to improve or change future implementation of the 101 In Motion Program.					
3	This element is not dependent on approval of the New Measure D.					
Proposed Funding:						
1	None					
2						

Implementation Steps:		**responsible**	**start date**	**compl date**	**issues/ decision points**
1	Define performance measure for each of the 101 In Motion elements	SBCAG	01/2007	12/2007	
2	Perform bi-annual evaluation of the performance of the 101 In Motion projects	SBCAG	Sept 2009 2011 2013 2015 2017 2019 2021 2023	Dec 2009 2011 2013 2015 2017 2019 2021 2023	
	Share results of evaluations with Caltrans and Local Agencies	SBCAG/CT/ Local Agencies	Jan 2010 2012 2014 2016 2018 2020 2022 2024	Feb 2010 2012 2014 2016 2018 2020 2022 2024	
3	Develop actions for modifications to on-going 101 In Motion elements	SBCAG/CT/ Local Agencies	Feb 2010 2012 2014 2016 2018 2020 2022 2024	June 2010 2012 2014 2016 2018 2020 2022 2024	
4	Develop actions for modifications to the future scope/implementation of 101 In Motion elements	SBCAG/CT/ Local Agencies	Feb 2010 2012 2014 2016 2018 2020 2022 2024	June 2010 2012 2014 2016 2018 2020 2022 2024	

8.2 Proposed Early Actions

Presented below are Early Start Projects proposed to be started and/or implemented within the next 1 to 1.5 years assuming passage of the Measure D Renewal. Those highlighted in bold could proceed in advance of the vote on Measure D renewal.

The following **Hwy 101 Widening** early action projects are proposed to be implemented through use of existing and/or new funding:

1. **Build Milpas to Hot Springs/Cabrillo Boulevard operational improvements**
2. **Complete Hwy 101/Ortega Hill auxiliary lane and bike path project.**
3. **Finalize Project Study Report.**
4. **Approve Cooperative Agreement between SBCAG and Caltrans.**
5. **Reach consensus on which alternatives are to be evaluated in the Environmental Document.**
6. **Start mapping and surveying.**
7. Perform technical studies for the environmental document.
8. Prepare 2007 Measure D Strategic Plan.

The following **Commuter Rail** early action projects are proposed to be implemented through use of existing and/or new funding:

1. **Examine re-scheduling Surfliner trains and/or extending Metrolink trains to serve as a minimal commuter rail service.**
2. **Complete LOSSAN North Corridor Plan train capacity analysis.**
3. **Establish Commuter Rail Task Force.**
4. **Meet with representatives of other communities who have started commuter rail service.**
5. **Meet with FTA and congressional delegates to explore federal funding.**
6. Secure services of rail consultant.
7. Continue discussions with Ventura County on roles and responsibilities.
8. Establish “Sponsoring Agency” and scope of pilot service.
9. Perform analysis of DMU vs. conventional equipment.
10. Prepare Uniform Transit Application.
11. Apply for FTA “Small Starts” funding.
12. Identify new capital improvements required for joint passenger and freight operations.
13. Develop multi-year funding plan.
14. Start negotiations with UPRR on capital and operating agreements.

The following **Systemwide Transit** improvements early action projects are proposed to be implemented through use of existing and/or new funding:

1. **Update MTD long range service expansion plan.**
2. **Implement remaining South Coast Transit Plan service expansion projects.**
3. Provide real time bus schedule information at MTD bus stops.
4. Add new Clean Air Express commuter bus routes.
5. Implement new South Coast Transit Plan service expansion project.
6. Perform Transit Village planning.

The following **Alternative Transportation** early action projects are proposed to be implemented through use of existing and/or new funding:

1. **Update Regional Bikeway Master Plan.**
2. **Prepare multi-year funding plan for Vanpool and Carpool incentives using Measure D funds.**
3. Construct additional segments of Regional Bikeway Master Plan.
4. Work with Ventura County to add new commuter park and ride lots in Ventura and north Santa Barbara County.
5. Enhance pedestrian links to transit stops.

6. Develop South County Car Share Program.

The following **<u>Operational Improvements and Intelligent Transportation Systems (ITS)</u>** early action projects are proposed to be implemented through use of existing and/or new funding:

1. **Develop cooperative agreement between Caltrans and SBCAG on implementation of ITS.**
2. **Prepare ITS Master Plan.**
3. **Continue freeway service patrol on Hwy 101 in South Santa Barbara County.**
4. Work with cities and county to expand local arterial street signal synchronization effort.
5. Expand South Coast 101 Transportation Management System.
6. Identify ramp metering locations and prioritize.

The following **<u>Demand Management</u>** early action projects are proposed to be implemented through use of existing or new funding:

1. **Continue on-line carpool matching service.**
2. **Continue vanpool start-up assistance.**
3. **Continue "guaranteed ride home" program.**
4. **Assist local leaders with Employer Transportation Summit.**
5. **As part of Hwy 101 Operational Improvements Project, offer matching employee transportation incentives for vanpoolers and transit users.**
6. **Continue rideshare promotional events.**
7. **Continue to promote Santa Barbara Car Free marketing.**
8. **Continue VISTA Coastal Express transit pass promotions.**
9. Secure services of specialized "individualized marketing" consultant.
10. Offer EPA Best Places commuter program.
11. Offer consulting services for a countywide Flexwork program.
12. Develop telephone accessible real-time carpool matching system.
13. Develop electronic carpool incentive system.

Additionally, performance measures for monitoring the implementation phasing and effectiveness of each of the 101 in Motion elements will be prepared.

Figure 8-1 shows the overall schedule for implementing the Adopted Improvement Plan.

Figure 8-1 101 In Motion - Implementation Plan Schedule

6/19/2006

ID	Task Name	Duration	Start	Finish	Predecessors
1					
2	**FUNDING/OTHER**	**2512 days**	**11/7/2006**	**6/22/2016**	
3	Approval of Measure D Renewal	0 days	11/7/2006	11/7/2006	
4	Prepare/Approve First Strategic Plan for Measure D Renewal	159 days	11/7/2006	6/15/2007	3
5	Approval by CTC of 2008 STIP	0 days	6/25/2008	6/25/2008	
6	Approval by CTC of 2010 STIP	0 days	6/23/2010	6/23/2010	
7	Approval by CTC of 2012 STIP	0 days	6/20/2012	6/20/2012	
8	Approval by CTC of 2014 STIP	0 days	6/18/2014	6/18/2014	
9	Approval by CTC of 2016 STIP	0 days	6/22/2016	6/22/2016	
10					
11	**#1 - Widening of Hwy 101 from Milpas to Ventura**	**4655 days**	**8/16/2006**	**6/17/2024**	
12	**PA&ED**	**1393 days**	**8/16/2006**	**12/16/2011**	
13	Finalize Project Study Report (PSR)/Project Dev Support (PDS)	99 days	9/1/2006	1/17/2007	
14	Perform early Start PAED Activities	347 days	8/16/2006	12/13/2007	
15	Develop project Alternatives and Reach Consensus	500 days	1/18/2007	12/17/2008	3,13
16	Divide project into design/construction packages	521 days	12/18/2008	12/16/2010	15
17	Draft Environmental Document	520 days	12/18/2008	12/15/2010	14,15,4
18	Final Environmental Document	261 days	12/17/2010	12/16/2011	17,16
19	**Design**	**1829 days**	**12/16/2010**	**12/18/2017**	
20	At -Risk Design - Mainline + I/C + O/C's	261 days	12/16/2010	12/15/2011	17
21	Design - Mainline	913 days	12/19/2011	6/16/2015	20,18
22	Design - I/C + O/C's	1568 days	12/16/2011	12/18/2017	20
23	**Right of Way**	**1829 days**	**12/16/2010**	**12/18/2017**	
24	At-Risk R/W - Mainline + I/C + O/C's	261 days	12/16/2010	12/15/2011	17
25	R/W - Mainline	784 days	12/16/2011	12/16/2014	24
26	R/W - I/C + O/C's	1568 days	12/16/2011	12/18/2017	24
27	**Construction - Mainline**	**2086 days**	**6/17/2015**	**6/14/2023**	
28	Construction Segment #1	1043 days	6/17/2015	6/14/2019	21
29	First Highway Widening Segment Open	0 days	6/14/2019	6/14/2019	28
30	Construction Segment #2	1043 days	6/19/2017	6/16/2021	
31	Second Highway Segment Open	0 days	6/16/2021	6/16/2021	30
32	Construction Segment #3	1043 days	6/17/2019	6/14/2023	
33	Third Highway Segment Open	0 days	6/14/2023	6/14/2023	32

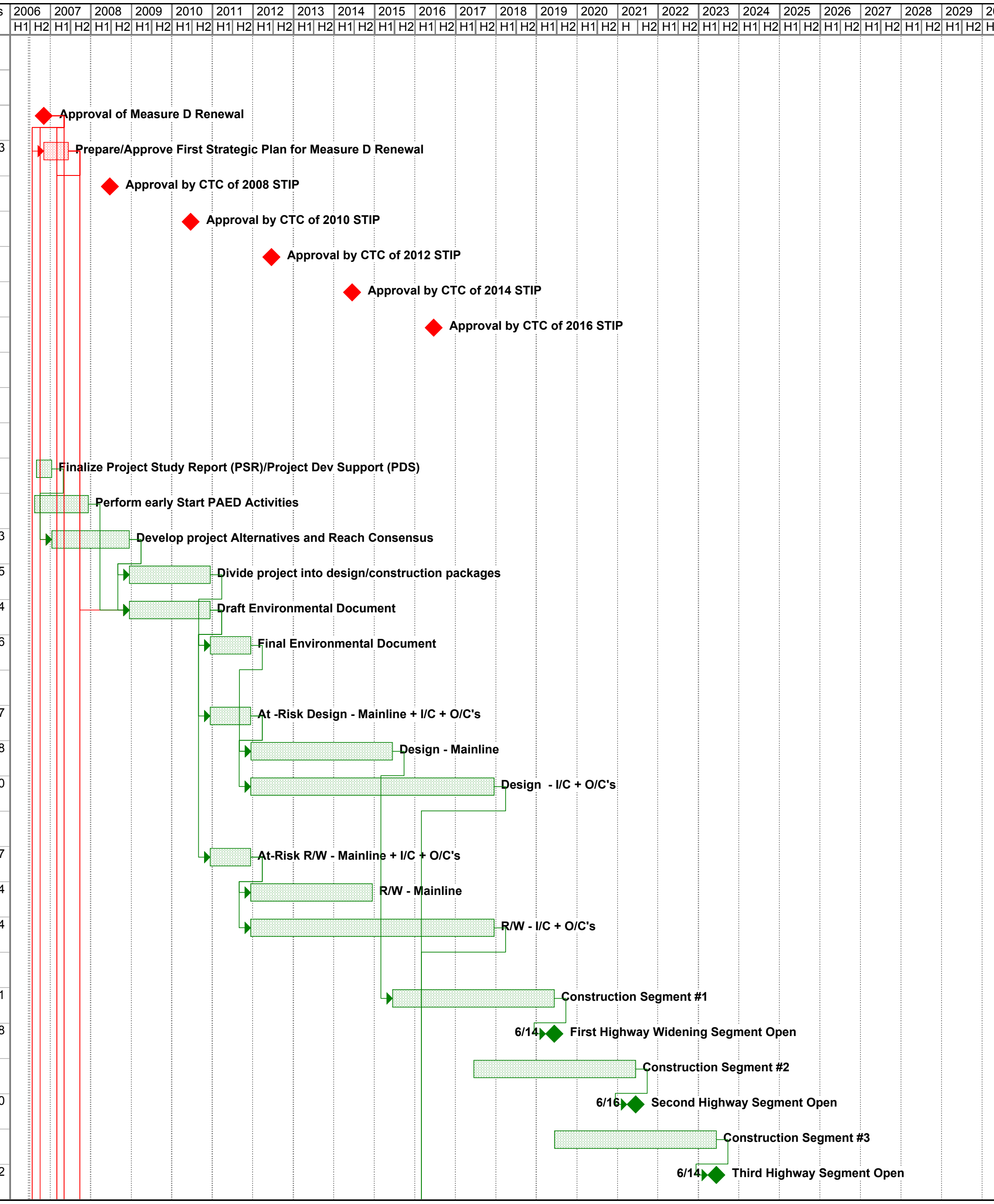


Figure 8-1 101 In Motion - Implementation Plan Schedule

6/19/2006

ID	Task Name	Duration	Start	Finish	Predecessors
34	**Construction - I/C's + O/C's**	**2088 days**	**6/16/2016**	**6/17/2024**	
35	Construction (multiple packages)	2088 days	6/16/2016	6/17/2024	22FS-393 days,26FS-393
36					
37	**#2 - COMMUTER RAIL**	**2871 days**	**1/16/2006**	**1/16/2017**	
38	**Start-up Activities**	**502 days**	**1/16/2006**	**12/18/2007**	
39	Re-Scheduling of Existing Surfliner Service	160 days	11/7/2006	6/18/2007	3
40	Complete LOSSAN north corridor plan train capacity scenarios	370 days	1/16/2006	6/15/2007	
41	Set up Commuter Rail Task force	60 days	11/7/2006	1/29/2007	3
42	Secure Rail Consultant	55 days	1/30/2007	4/16/2007	41
43	Establish Sponsoring Agency	86 days	4/17/2007	8/14/2007	42
44	Consultant performs analysis of DMU vs. conventional equipment	132 days	6/18/2007	12/18/2007	42,4
45	Consultant prepares UniformTransit Application	132 days	6/18/2007	12/18/2007	42,4
46	Consultant prepares Small Starts Application	132 days	6/18/2007	12/18/2007	42
47	Evaluate sufficiency LOSSAN Capacity Ana	132 days	6/18/2007	12/18/2007	42,40
48	**Pilot Project Commuter Rail Service**	**2578 days**	**1/30/2007**	**12/14/2016**	
49	Identify new capital improvements that will provide basis for joint passenger/freight operations	131 days	6/18/2007	12/17/2007	40
50	Develop multi-year funding plan + secure funds for Pilot Service	89 days	8/15/2007	12/17/2007	43
51	Design temporary layover facilities	219 days	8/15/2007	6/16/2008	43
52	Negotiate use of land for Temporary Layov	89 days	8/15/2007	12/17/2007	43
53	Negotiate agmt with UP on capital improvements	490 days	1/30/2007	12/15/2008	41
54	Negotiate Track Right Agmt with UPRR	305 days	12/19/2007	2/17/2009	47
55	Negotiate Operating Agmt with Metrolink	262 days	6/17/2008	6/17/2009	51
56	Design of sidings and other capital improvements	390 days	12/18/2007	6/15/2009	52
57	Construction of sidings and other capital improvements	390 days	6/16/2009	12/13/2010	56
58	Negotiate lease of new or used rolling stock	145 days	2/18/2009	9/8/2009	54
59	Secure Rolling Stock through Leases	70 days	9/9/2009	12/15/2009	55,58
60	Secure all permits/approvals to commence Pilot Service	260 days	12/16/2009	12/14/2010	59,53,54
61	Develop performance measures for Pilot Se	260 days	12/16/2009	12/14/2010	59
62	Commence Pilot Service	0 days	1/12/2011	1/12/2011	61,60,57
63	Continue demonstration service	1547 days	1/12/2011	12/14/2016	62
64	**Permanent Commuter Rail Project**	**1784 days**	**3/17/2010**	**1/16/2017**	
65	Secure environmental + design consultants	66 days	3/17/2010	6/16/2010	

Figure 8-1 101 In Motion - Implementation Plan Schedule

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ID	Task Name	Duration	Start	Finish	Predecessors
67	Prepare Environmental Document	522 days	6/17/2010	6/15/2012	65
68	Amend Regional Transportation Plan	129 days	6/18/2012	12/13/2012	67
69	Design of track improvements	391 days	6/18/2012	12/16/2013	67
70	Secure necessary R/W track improvements	391 days	6/18/2012	12/16/2013	67
71	Construct track improvements	392 days	12/17/2013	6/16/2015	70
72	Amend Agmt with UPRR to reflect Permanent Service	391 days	12/17/2013	6/15/2015	70
73	Amend Agmt with Metrolink to operate Permanent Service	391 days	12/17/2013	6/15/2015	70
74	Purchase Rolling Stock	130 days	6/18/2012	12/14/2012	67
75	Long-lead delivery of Rolling Stock	1000 days	12/17/2012	10/13/2016	74
76	Secure all permits/approvals for Permanent	260 days	6/17/2015	6/14/2016	70,72,71,73
77	Commence Permanent Service	0 days	1/16/2017	1/16/2017	76,75,63
78					
79	**#3 - Operational Improvements between Milpas an**	**5371 days**	**6/18/2007**	**1/14/2028**	
80	**Evaluation**	**198 days**	**6/18/2007**	**3/19/2008**	
81	Perform Traffic Analysis to ID Hot Spots	133 days	6/18/2007	12/19/2007	4
82	Select Hot Spots	65 days	12/20/2007	3/19/2008	81
83	**Phase I Projects - Project Development:**	**2564 days**	**3/20/2008**	**1/15/2018**	
84	Prepare Project Study Report	457 days	3/20/2008	12/18/2009	82
85	Cooperative Agreement between Caltrans and SBCAG	130 days	12/21/2009	6/18/2010	84
86	Prepare Environmental Documents	783 days	6/21/2010	6/19/2013	85,84
87	Amend Regional Transportation Plan	131 days	6/20/2013	12/19/2013	86
88	Design	522 days	6/20/2013	6/18/2015	86
89	Right of Way	522 days	6/20/2013	6/18/2015	86
90	Construction	524 days	1/13/2016	1/15/2018	88,89
91	**Phase II Projects - Project Development:**	**2567 days**	**3/15/2018**	**1/14/2028**	
92	Prepare Project Study Report	457 days	3/15/2018	12/13/2019	90
93	Cooperative Agreement between Caltrans and SBCAG	132 days	12/16/2019	6/16/2020	92
94	Prepare Environmental Documents	783 days	6/17/2020	6/16/2023	92,93
95	Amend Regional Transportation Plan	132 days	6/19/2023	12/19/2023	94
96	Design	522 days	6/19/2023	6/17/2025	94
97	Right of Way	522 days	6/19/2023	6/17/2025	94
98	Construction	523 days	1/14/2026	1/14/2028	96,97
99					

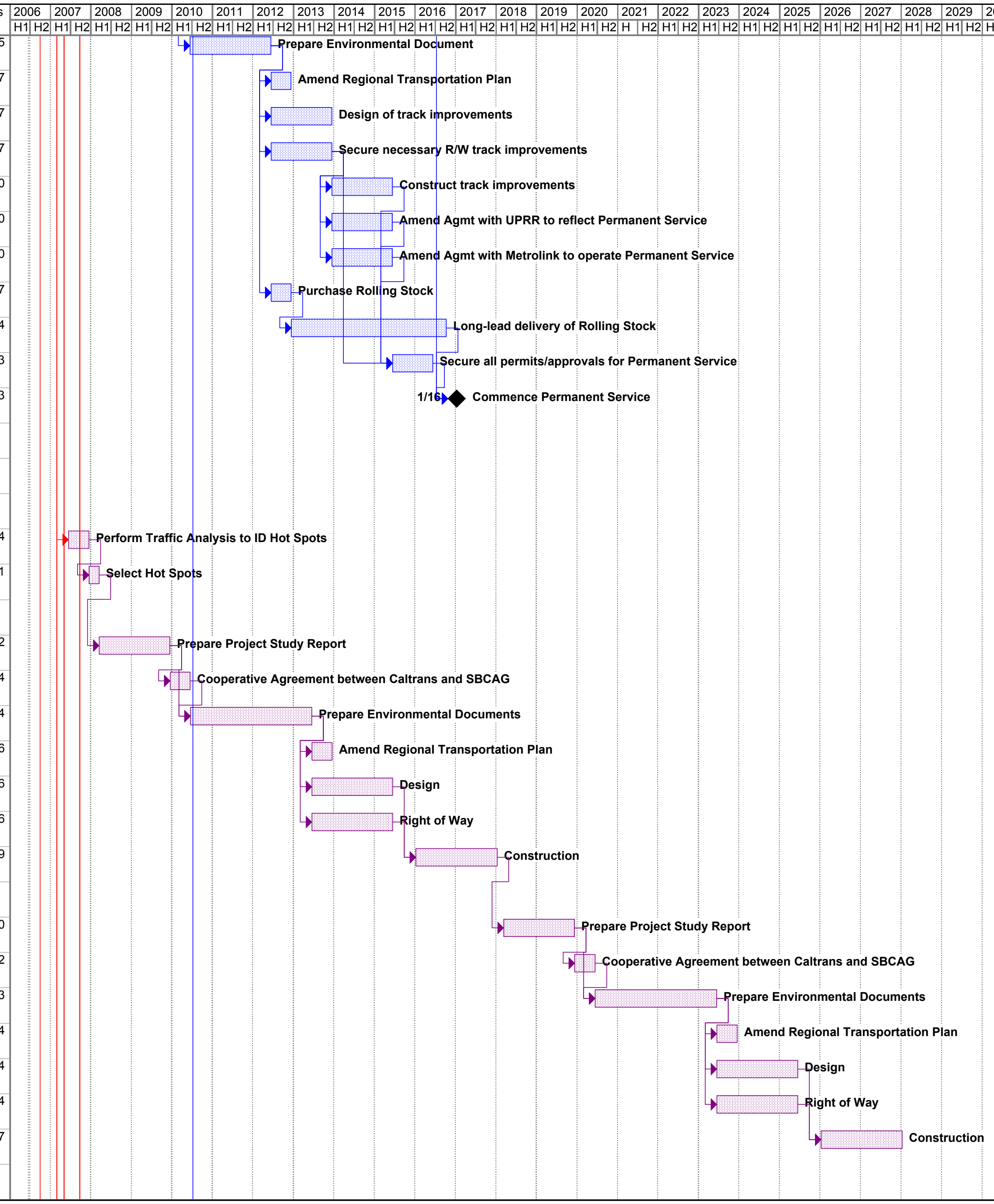

Figure 8-1 101 In Motion - Implementation Plan Schedule

6/19/2006

ID	Task Name	Duration	Start	Finish	Predecessors
100	**#4 - Commuter Express Bus Service**	**1137 days**	**1/18/2006**	**5/27/2010**	
101	**Valley Express:**	**769 days**	**6/18/2007**	**5/27/2010**	
102	Assess existing ridership - determine expanded service	130 days	6/18/2007	12/14/2007	3,4
103	Prepare multi-year funding plan	130 days	12/17/2007	6/13/2008	102
104	Contract w/ Bus Manufacturers	129 days	6/16/2008	12/11/2008	103
105	Long Lead time for bus delivery	380 days	12/12/2008	5/27/2010	104
106	Implement expanded service	0 days	5/27/2010	5/27/2010	105
107	**Clean Air Express:**	**1137 days**	**1/18/2006**	**5/27/2010**	
108	Complete North County Transit Plan	150 days	1/18/2006	8/15/2006	
109	Determine new operator of Clean Air X	218 days	8/16/2006	6/15/2007	108
110	Assess existing ridership - determine expanded service	130 days	6/18/2007	12/14/2007	109,4
111	Prepare multi-year funding plan	130 days	12/17/2007	6/13/2008	110
112	Contract w/ Bus Manufacturers	129 days	6/16/2008	12/11/2008	111
113	Long Lead time for bus delivery	380 days	12/12/2008	5/27/2010	112
114	Implement expanded service	0 days	5/27/2010	5/27/2010	113
115					
116	**#5 - Connecting Service at Rail Stations + Transit Hubs**	**780 days**	**1/16/2008**	**1/12/2011**	
117	Assess existing ridership - determine expanded service	107 days	1/16/2008	6/12/2008	3,4
118	Prepare multi-year funding plan	89 days	6/13/2008	10/15/2008	117
119	Contract w/ Bus Manufacturers	43 days	10/16/2008	12/15/2008	118
120	Long Lead time for bus delivery	522 days	12/16/2008	12/15/2010	119
121	Implement expanded service	0 days	1/12/2011	1/12/2011	120,62
122					
123	**#6 - Bus Priority**	**1021 days**	**1/19/2009**	**12/17/2012**	
124	**Evaluation:**	**239 days**	**1/19/2009**	**12/17/2009**	
125	Assess conditions at existing I/S's	108 days	1/19/2009	6/17/2009	3,4
126	Prepare multi-year funding plan	65 days	6/18/2009	9/16/2009	125
127	Develop implementation schedule	66 days	9/17/2009	12/17/2009	126
128	**Bus + Signal Upgrades:**	**175 days**	**1/13/2010**	**9/14/2010**	
129	Upgrade buses w/ hardware for signal prioritization	110 days	1/13/2010	6/15/2010	127
130	Upgrade signals at I/S's	175 days	1/13/2010	9/14/2010	127
131	**Intersection Bus Stop Improvements:**	**764 days**	**1/13/2010**	**12/17/2012**	
132	Phase I - I/S improvements design	261 days	1/13/2010	1/12/2011	127

Figure 8-1 101 In Motion - Implementation Plan Schedule

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ID	Task Name	Duration	Start	Finish	Predecessors
133	Phase I - Construction	242 days	1/13/2011	12/16/2011	132
134	Phase II - I/S improvements design	261 days	1/13/2011	1/12/2012	132
135	Phase II - Construction	242 days	1/13/2012	12/17/2012	134
136					
137	**#7 - Car/Vanpool Pricing Incentives**	**131 days**	**6/18/2007**	**12/17/2007**	
138	Prepare multi-year funding plan	131 days	6/18/2007	12/17/2007	3,4
139	Develop and continue distribution of promotional materials	0 days	12/17/2007	12/17/2007	138
140	Start implementation of Car/Vanpool incentive p	0 days	12/17/2007	12/17/2007	138
141					
142	**#8 - Work Schedule Adjustments**	**960 days**	**6/18/2007**	**2/18/2011**	
143	Amend contract w/ Consultant for "flexwork" promotions + consulting	68 days	6/18/2007	9/19/2007	3,4
144	Implement continued "flexwork" promotions + consulting	892 days	9/20/2007	2/18/2011	143
145					
146	**#9 - Variable Parking Rates**	**260 days**	**6/18/2007**	**6/13/2008**	
147	Assess fiscal viability of reduced parking fees	260 days	6/18/2007	6/13/2008	3,4
148	Implement new parking fee	0 days	6/13/2008	6/13/2008	147
149					
150	**#10 - Individualized Marketing**	**264 days**	**6/18/2007**	**6/19/2008**	
151	Secure services of specialized "individualized marketing" consultant	133 days	6/18/2007	12/19/2007	3,4
152	Develop/finalize scope of services of program	131 days	12/20/2007	6/19/2008	151
153	Implement "individualized marketing" program in City of Carpinteria	0 days	6/19/2008	6/19/2008	152
154					
155	**#11 - Ramp Metering**	**4308 days**	**6/18/2007**	**12/19/2023**	
156	**Evaluation**	**393 days**	**6/18/2007**	**12/17/2008**	
157	Perform Traffic Analysis to potential locations for ramp metering	262 days	6/18/2007	6/17/2008	4
158	Approve Coop Agmt between SBCAF & Caltrans	131 days	6/18/2008	12/17/2008	157
159	**From Milpas north:**	**1957 days**	**12/18/2008**	**6/16/2016**	
160	Prepare/approve Project Study Report	520 days	12/18/2008	12/15/2010	158
161	Prepare Environmental Documents	522 days	12/16/2010	12/14/2012	160
162	Design	392 days	12/17/2012	6/16/2014	161
163	Construction	523 days	6/17/2014	6/16/2016	162
164	**Milpas to Ventura County Line:**	**1958 days**	**6/17/2016**	**12/19/2023**	
165	Prepare/approve Project Study Report	522 days	6/17/2016	6/18/2018	158,163

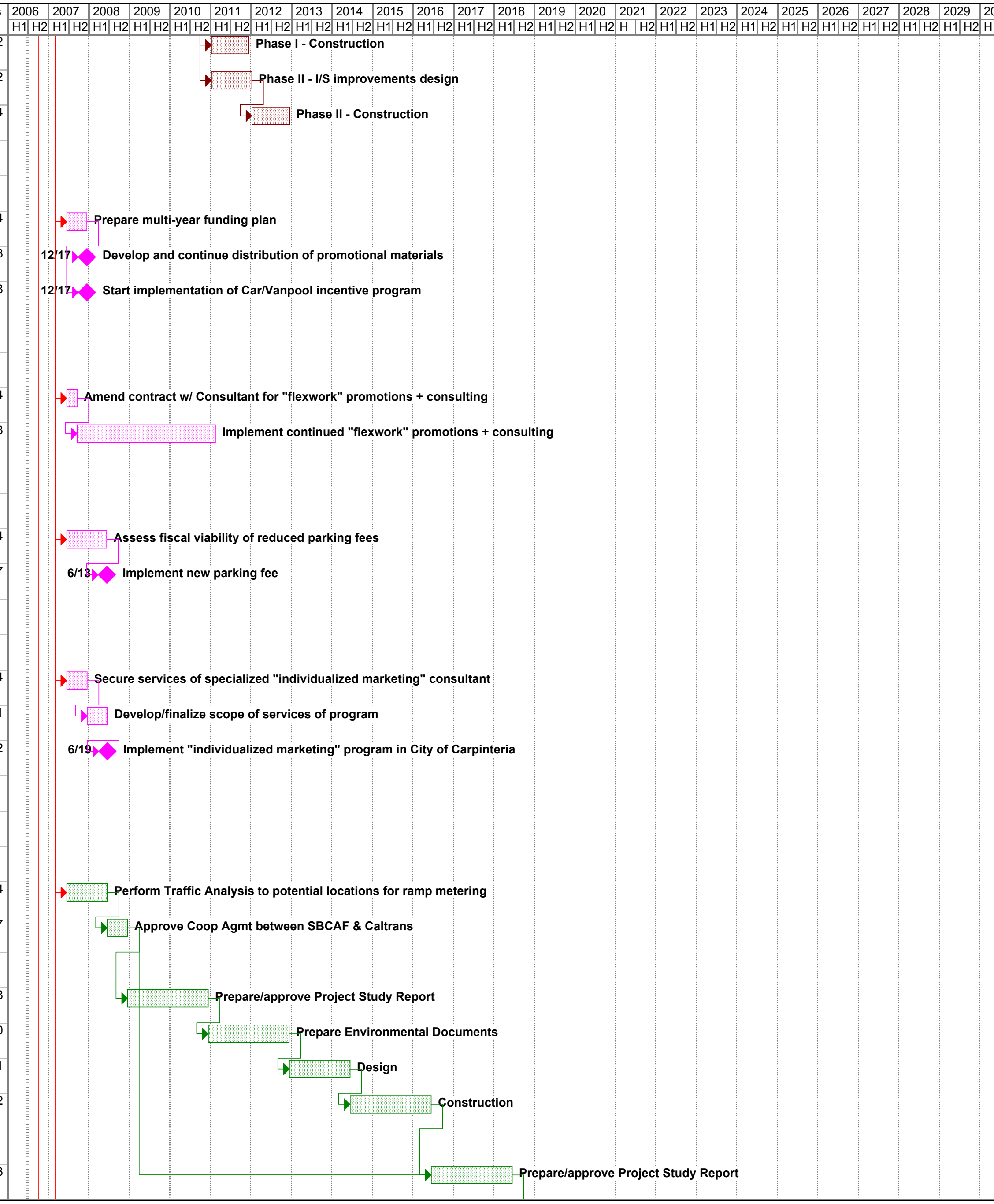
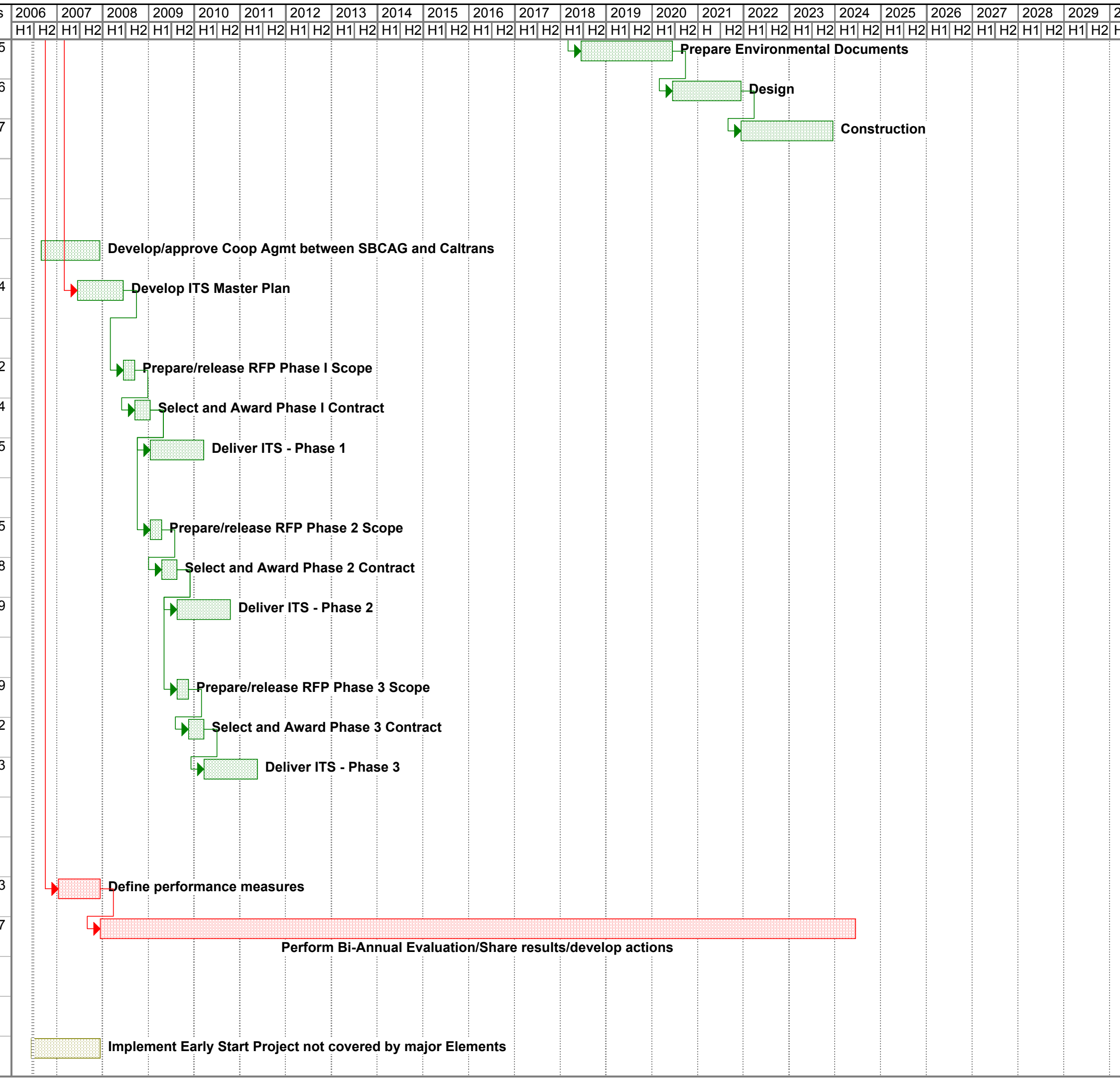


Figure 8-1 101 In Motion - Implementation Plan Schedule

6/19/2006

ID	Task Name	Duration	Start	Finish	Predecessors
166	Prepare Environmental Documents	522 days	6/19/2018	6/17/2020	165
167	Design	391 days	6/18/2020	12/16/2021	166
168	Construction	523 days	12/17/2021	12/19/2023	167
169					
170	**#12 -Intelligent Transportation Systems Elements**	**1233 days**	**9/1/2006**	**5/24/2011**	
171	Develop/approve Coop Agmt between SBCAG and Caltrans	336 days	9/1/2006	12/14/2007	
172	Develop ITS Master Plan	263 days	6/18/2007	6/18/2008	4
173	**ITS - Phase 1:**	**458 days**	**6/19/2008**	**3/22/2010**	
174	Prepare/release RFP Phase I Scope	65 days	6/19/2008	9/17/2008	172
175	Select and Award Phase I Contract	88 days	9/18/2008	1/19/2009	174
176	Deliver ITS - Phase 1	305 days	1/20/2009	3/22/2010	175
177	**ITS - Phase 2:**	**458 days**	**1/20/2009**	**10/21/2010**	
178	Prepare/release RFP Phase 2 Scope	65 days	1/20/2009	4/20/2009	175
179	Select and Award Phase 2 Contract	88 days	4/21/2009	8/20/2009	178
180	Deliver ITS - Phase 2	305 days	8/21/2009	10/21/2010	179
181	**ITS - Phase 3:**	**458 days**	**8/21/2009**	**5/24/2011**	
182	Prepare/release RFP Phase 3 Scope	65 days	8/21/2009	11/19/2009	179
183	Select and Award Phase 3 Contract	88 days	11/20/2009	3/23/2010	182
184	Deliver ITS - Phase 3	305 days	3/24/2010	5/24/2011	183
185					
186	**#13 - Monitoring Program**	**4700 days**	**6/14/2006**	**6/17/2024**	
187	Define performance measures	239 days	1/17/2007	12/17/2007	3
188	Perform Bi-Annual Evaluation/Share results/develop actions	4306 days	12/18/2007	6/17/2024	187
189					
190	**Early Start Projects**	**394 days**	**6/14/2006**	**12/17/2007**	
191	Implement Early Start Project not covered by major Elements	394 days	6/14/2006	12/17/2007	



Appendix A

Initial Concepts and Screening Results

APPENDIX A TABLE 4.1 - LIST OF POTENTIAL PRIMARY IMPROVEMENT CONCEPTS

Improvement Category	General	Subcategory	Potential Early Action Project?	Description
Capacity Enhancement	Additional Freeway Lanes	Add one standard lane each direction	No	Milpas to County Line : Widen pavement by 12' each side
		Add one standard lane each direction	No	Milpas to Fairview: Widen pavement by 12' each side
		Add one inside shoulder lane each direction	No	Milpas to County Line : Eliminate inside shoulders/ pave and use as travel lanes
		Add one inside shoulder lane each direction	No	Milpas to Fairview: Eliminate inside shoulders/ pave and use as travel lanes
		Add one reversible lane in median	No	Milpas to County Line : Eliminate median landscaping and add a reversible lane with only one intermediate access/egress point between county line and Milpas
		Add two lanes each direction	No	Milpas to County Line : Widen pavement by 24' each side
		Restripe existing pavement	Yes	Milpas to County Line : Eliminate inside and outside shoulders and restripe for one additional lane each direction
	Interchange and Ramp Improvements	Add or drop ramps; improve to design standards	Yes	Add SB on ramp at Cassitas Pass Road; reconstruct Sheffield Drive interchange as standard diamond; lengthen and/or reconfigure other geometrically deficient interchanges
	Arterial Gap Closures	Provide increased arterial connectivity	No	Construct missing segments of Calle Real between Glen Annie and Las Carneros Roads, and between Patterson Avenue and Turnpike Road
	New Bypass Freeway	Construct new bypass freeway	No	Upgrade SR 166 and SR 33 as bypass route around South Coast
Alternative Modes	**Local and Express Bus Service**	Enhance local and express bus service	Yes	Double express bus service from Ventura County and North SB County/increase connecting service to major work sites
	Bus Use of Shoulder	Bus use of 101 shoulders in peak	No	Milpas to County Line : Eliminate inside shoulders/ pave and use as bus only lane during peak hours
	Bus Rapid Transit (BRT)	Construct bus priority improvements to provide BRT service	No	HOV lanes on 101 w/BRT lanes on selected arterials.
	Commuter Rail	Construct improvements to provide commuter service during peak periods along UP right of way	No	Install passing sidings, purchase train-sets, and build stations to provide service from Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara
	Light Rail Transit (LRT)	Construct improvements to operate LRT within UP right-of-way	No	Construct new separate light rail track with passing sidings, electrify, purchase vehicles, and build stations to provide service between Oxnard and Isla Vista with intermediate stops in Montalvo, Ventura, Seacliff, Carpinteria, Summerland, Montecito, San
	Guided Busway	Use buses that can operate on busway along UP ROW as well as on streets	No	Construct new separate single lane guided busway with passing sidings, install guidance equipment, and build stations to provide service between Oxnard and Isla Vista with intermediate stops in Montalvo, Ventura, Seacliff, Carpinteria, Summerland, Montecito, Santa Barbara, and Goleta
	Monorail	Construct elevated monorail in median and/or shoulders of 101 Fwy and/or UP ROW	No	From Oxnard to UCSB with intermediate stops in Ventura, Carpinteria, Santa Barbara and Goleta
	Elevated Guideway	Construct elevated guideway transit in median or shoulders of 101 Fwy	No	From Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara
	High-speed Ferries/Catamarans	Add ferry or catamaran service between Santa Barbara and Ventura County	No	From Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara
Demand Management	**Parking Management Strategies**	Eliminate on-street parking in congested corridors	Yes	Eliminate on-street parking during peak periods on Hollister Avenue and State Street
		Initiate controlled parking programs	Yes	Limit the number of all-day parking spaces allowed in the Santa Barbara CBD and at major employment sites
		Implement a parking surtax	Yes	Add $2 per day tax for parking all-day in CBD
	Marketing Strategies	Individualized Marketing	Yes	Focus on personalized demand reduction and ridesharing options with longer distance commuters
	Transit/Rideshare Pricing Strategies	Subsidize ridesharing and/or alternative modes of transit	Yes	Increase subsidy by 20%
	Work Schedule Adjustments	4/40 or 9/80 work week schedules;Flextime	Yes	Focus on major employers to achieve a 20% reduction in peak hour use of 101 freeway by their employees
	Congestion Pricing	Use pricing incentives to re-distribute peak period demand over a longer period of the day, thereby reducing peak congestion	Yes	Charge vehicles for entering Santa Barbara CBD during morning peak hour
Operational Management (ITS)	**Lane Assignment - HOV**	Make new lanes High Occupancy Vehicle (HOV) lanes	No	Match with any of the aditional freeway lane options above
	Lane Assignment - HOT	Make new lanes High Occupancy Toll (HOT) lanes	No	Match with any of the aditional freeway lane options above
	Auxiliary Lanes	Add auxiliary lanes to increase speed and safety of on-ramp and off-ramp movements	No	Add auxiliary lanes between Hot Springs Road and Olive Mill Road, Olive Mill Road and San Ysidro Road, San Ysidro Road and Sheffield Drive, Sheffield Drive and Evans Avenue, Carillo Street and Mission Street, Mission Street and Las Positas Road, and Las P
	Ramp Metering	Signalization of ramps to regulate entry of traffic onto 101	Yes	Assume all ramps in 27-mile corridor. Check for queuing ramifications/need for redesigns.
	ITS Field Element Enhancements to Traffic Mgt Ctr	Network surveillance;traveller communication	Yes	Install loop detectors, survellience cameras, smart call boxes, variable message signs , radio communication, and tow trucks in ready in th ecorridor, connected to the Caltrans traffic management center
	Dynamic Speed Limits	Vary speeds according to congestion	Yes	Install loop detectors and survellience cameras to measure traffic density and speed, and use variable message signs and enforcement cameras to regulate speed approaching and thru bottleneck areas
	Goods Movement	Regulate hours of truck delivery	Yes	Restrict truck deliveries in South Coast to non-peak traffic hours
Land Use and Transport Policy	**Develop employment and residential centers in close proximity**	Rezoning and transfer of development rights to encourage clustering of jobs and housing	No	Use Joint Ventura-Santa Barbara Counties Jobs/Housing Balance Recommendations
	Transit Oriented Development (TOD)	Encourage concentrated development	Yes	Near rail stations and/or multi-modal transfer centers
No-Build Alternative	**Do Nothing**	Do Nothing	N.A.	Only implement the short term projects that are already committed to

APPENDIX A TABLE 4.2 - POTENTIAL COMPLEMENTARY IMPROVEMENT CONCEPTS APPLICABLE TO ALL ALTERNATIVES			
Improvement Category	**General**	**Subcategory**	**Potential Early Action Project?**
Alternative Modes	**Intercity Rail (Amtrak)**	Construct improvements and increase service to attract more riders	No
	Systemwide Transit Improvements	Provide more frequent service and extended hours	Yes
		Improve system route info and maps	Yes
		Provide new demand-responsive services	Yes
		Develop enhanced intermodal connections	Yes
	Park and Ride Lots	Develop additional P&R locations in SB and Ventura Counties	No
	Create integrated multi-modal transit centers	Encourage systemwide transit integration	Yes
	Bicycle Lanes and Facilities	Extend and expand existing network of bike lanes and paths that would contribute to the reduction of congestion on Highway 101	No
		Expand bicycle locker programs at transit centers/stops	Yes
		Continue equipping bike racks on all buses	Yes
	Pedestrian	Enhance pedestrian links to transit services connecting to Highway 101	No
Demand Management	**System Management**	Enhance TDM data collection, TDM program coverage, promotional activities, monitoring, and education	Yes
		Automatic vehicle location system	Yes
		Security surveillance	Yes
	Parking Management	Initiate controlled parking programs	Yes
		Employers pay annual transportation fund fee in lieu of parking requirement	Yes
		Establish fringe parking with shuttle service	Yes
		Preferential parking for car/vanpools	Yes
	Marketing Strategies	Carpool/vanpool information programs	Yes
		Direct marketing campaign for public transit	Yes
	Transit PricingStrategy	Discount pass programs	Yes
	Telecommuting	Enhance programs allowing employees to work at home as appropriate	Yes
	Employer Incentives	Transit pass programs for employees and students	Yes
		Part-time transportation coordinator	Yes
		Guaranteed ride home programs	Yes
	Car Share Program	Implement a regional car-share program to reduce number of autos on road	Yes
	Visitor/Tourist Auto Trip Reduction Program	Expand existing program that provides information on alternative modes and enhances transit service to encourage visitor use	Yes
Operational Management/ ITS	**Signal Synchronization**	Coordination of timed signals to smooth flow of traffic on streets	Yes
	Local Intersection Modifications	Mitigate congestion at selected local intersections	No
	Automated Vehicle Location (AVL)	Track and update transit vehicles' real-time schedules	Yes
	Diversion Actions	Rerouting traffic during congestion	Yes
	Automated Incident Response	Incident management system	Yes
	Smart Vehicles	Rely on smart vehicles to increase capacity	No

APPENDIX A TABLE 4.3 - INITIAL SCREENING OF POTENTIAL PRIMARY IMPROVEMENT CONCEPTS

Improvement Category	General	Subcategory	Potential Early Action Project?	Description	Improve Mobility	Reduce Congestion	Reduce Delays	Improve Safety	Increase Choices	Improve Reliability	Provide Longevity	Improve Goods movement
					Transportation Performance Criteria							
Capacity Enhancement	**Additional Freeway Lanes**	Add one standard lane each direction	No	Milpas to County Line : Widen pavement by 12' each side	●	●	●	●	○	●	●	●
		Add one standard lane each direction	No	Milpas to Fairview: Widen pavement by 12' each side	●	●	●	●	○	●	●	●
		Add one inside shoulder lane each direction	No	Milpas to County Line : Eliminate inside shoulders/ pave and use as travel lanes	●	●	●	○	○	●	●	●
		Add one inside shoulder lane each direction	No	Milpas to Fairview: Eliminate inside shoulders/ pave and use as travel lanes	●	●	●	○	○	●	●	●
		Add one reversible lane in median	No	Milpas to County Line : Eliminate median landscaping and add a reversible lane with only one intermediate access/egress point between county line and Milpas	●	◐	◐	○	○	●	◐	●
		Add two lanes each direction	No	Milpas to County Line : Widen pavement by 24' each side	●	●	●	●	○	●	●	●
		Restripe existing pavement	Yes	Milpas to County Line : Eliminate inside and outside shoulders and restripe for one additional lane each direction	●	●	●	○	○	◐	◐	◐
	Interchange and Ramp Improvements	Add or drop ramps; improve to design standards	Yes	Reconstruct Sheffield Drive interchange as standard diamond; lengthen and/or reconfigure other geometrically deficient interchanges	◐	○	◐	●	○	○	●	◐
	Arterial Gap Closures	Provide increased arterial connectivity	No	Construct missing segments of Calle Real between Glen Annie and Las Carneros Roads, and between Patterson Avenue and Turnpike Road	◐	◐	◐	◐	○	○	◐	◐
	New Bypass Freeway	Construct new bypass freeway	No	Upgrade SR 166 and SR 33 as bypass route around South Coast	●	◐	◐	◐	○	◐	●	◐
Alternative Modes	**Local and Express Bus Service**	Enhance local and express bus service	Yes	Double express bus service from Ventura County and North SB County/increase connecting service to major work sites	◐	○	◐	◐	◐	◐	◐	○
	Bus Use of Shoulder	Bus use of 101 shoulders in peak	No	Milpas to County Line : Eliminate inside shoulders/ pave and use as bus only lane during peak hours	◐	◐	◐	○	◐	●	○	○
	Bus Rapid Transit (BRT)	Construct bus priority improvements to provide BRT service	No	HOV lanes on 101 w/BRT lanes on selected arterials.	●	◐	◐	●	●	●	●	○
	Commuter Rail	Construct improvements to provide commuter service during peak periods along UP right of way	No	Install passing sidings, purchase train-sets, and build stations to provide service from Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	◐	◐	◐	●	●	●	●	○
	Light Rail Transit (LRT)	Construct improvements to operate LRT within UP right-of-way	No	Construct new separate light rail track with passing sidings, electrify, purchase vehicles, and build stations to provide service between Oxnard and Isla Vista with intermediate stops in Montalvo, Ventura, Seacliff, Carpinteria, Summerland, Montecito, Santa Barbara, and Goleta	◐	◐	◐	●	●	●	●	○
	Guided Busway	Use buses that can operate on busway along UP ROW as well as on streets	No	Construct new separate single lane guided busway with passing sidings, install guidance equipment, and build stations to provide service between Oxnard and Isla Vista with intermediate stops in Montalvo, Ventura, Seacliff, Carpinteria, Summerland, Montecito, Santa Barbara, and Goleta	◐	◐	◐	◐	●	●	●	○
	Monorail	Construct elevated monorail in median and/or shoulders of 101 Fwy and/or UP ROW	No	From Oxnard to UCSB with intermediate stops in Ventura, Carpinteria, Santa Barbara and Goleta	◐	◐	◐	●	●	●	●	○
	Elevated Guideway	Construct elevated guideway transit in median or shoulders of 101 Fwy	No	From Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	●	◐	◐	●	●	●	●	○
	High-speed Ferries/Catamarans	Add ferry or catamaran service between Santa Barbara and Ventura County	No	From Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	◐	◐	◐	◐	●	◐	◐	○
Demand Management	**Parking Management Strategies**	Eliminate on-street parking in congested corridors	Yes	Eliminate on-street parking during peak periods on Hollister Avenue and State Street	◐	◐	◐	◐	◐	○	○	◐
		Initiate controlled parking programs	Yes	Limit the number of all-day parking spaces allowed in the Santa Barbara CBD and at major employment sites	●	◐	○	◐	◐	○	◐	○
		Implement a parking surtax	Yes	Add $2 per day tax for parking all-day in CBD	●	◐	○	◐	◐	○	◐	○
	Marketing Strategies	Individualized Marketing	Yes	Focus on personalized demand reduction and ridesharing options with longer distance commuters	◐	◐	○	◐	●	○	◐	○
	Transit/Rideshare Pricing Strategies	Subsidize ridesharing and/or alternative modes of transit	Yes	Increase subsidy by 20%	◐	◐	○	◐	●	○	◐	○
	Work Schedule Adjustments	4/40 or 9/80 work week schedules; Flextime	Yes	Focus on major employers to achieve a 20% reduction in peak hour use of 101 freeway by their employees	◐	◐	◐	◐	○	◐	◐	○
	Congestion Pricing	Use pricing incentives to re-distribute peak period demand over a longer period of the day, thereby reducing peak congestion	Yes	Charge vehicles for entering Santa Barbara CBD during morning peak hour	◐	◐	◐	◐	●	○	◐	○
Operational Management (ITS)	**Lane Assignment - HOV**	Make new lanes High Occupancy Vehicle (HOV) lanes	No	Match with any of the additional freeway lane options above	●	●	◐	●	◐	◐	●	◐
	Lane Assignment - HOT	Make new lanes High Occupancy Toll (HOT) lanes	No	Match with any of the additional freeway lane options above	◐	◐	◐	●	◐	◐	◐	◐
	Auxiliary Lanes	Add auxiliary lanes to increase speed and safety of on-ramp and off-ramp movements	No	Add auxiliary lanes between Hot Springs Road and Olive Mill Road, Olive Mill Road and San Ysidro Road, San Ysidro Road and Sheffield Drive, Sheffield Drive and Evans Avenue, Carrillo Street and Mission Street, Mission Street and Las Positas Road, and Las Positas Road and La Cumbre Road.	◐	◐	◐	●	○	○	◐	○
	Ramp Metering	Signalization of ramps to regulate entry of traffic onto 101	Yes	Assume all ramps in 27-mile corridor. Check for queuing ramifications/need for redesigns.	○	◐	◐	◐	○	◐	○	○
	ITS Field Element Enhancements to Traffic Mgt Ctr	Network surveillance; traveler communication	Yes	Install loop detectors, surveillance cameras, smart call boxes, variable message signs , radio communication, and tow trucks in ready in the corridor, connected to the Caltrans traffic management center	◐	◐	◐	●	○	◐	◐	◐
	Dynamic Speed Limits	Vary speeds according to congestion	Yes	Install loop detectors and surveillance cameras to measure traffic density and speed, and use variable message signs and enforcement cameras to regulate speed approaching and thru bottleneck areas	○	○	○	◐	○	◐	○	○
	Goods Movement	Regulate hours of truck delivery	Yes	Restrict truck deliveries in South Coast to non-peak traffic hours	◐	◐	◐	●	○	◐	◐	○
Land Use and Transport Policy	**Develop employment and residential centers in close proximity**	General Plan amendment, rezoning and transfer of development rights to encourage clustering of jobs and housing	No	Use Joint Ventura-Santa Barbara Counties Jobs/Housing Balance Recommendations	○	◐	◐	◐	◐	◐	●	○
	Transit Oriented Development (TOD)	Encourage concentrated development	Yes	Near rail stations and/or multi-modal transfer centers	○	○	◐	○	●	◐	◐	○
No-Build	**No-Build Alternative**	Do Nothing	N.A.	Only implement the short term projects that are already committed to	○	○	○	○	○	○	○	○

● = High benefit or low adverse impact; ◐ =Medium benefit or medium adverse impact; ○ = Low benefit or high adverse impact

APPENDIX A TABLE 4.3 - INITIAL SCREENING OF POTENTIAL PRIMARY IMPROVEMENT CONCEPTS

Improvement Category	General	Subcategory	Potential Early Action Project?	\	Community/ Environmental Criteria: Natural Environment Impacts	Neighborhood Impacts	Air Quality Impacts	Noise Impacts During Construction	Noise Impacts Long Term	Visual Impacts	Economic Impacts During Construction	Economic Impacts Long Term	Impact Equity Among Stakeholders	Benefits Equity Among Stakeholders	Sustainability During Construction	Sustainability Long Term
Capacity Enhancement	Additional Freeway Lanes	Add one standard lane each direction	No	Milpas to County Line : Widen pavement by 12' each side	◐	○	○	○	○	○	◐	●	○	●	○	○
		Add one standard lane each direction	No	Milpas to Fairview: Widen pavement by 12' each side	◐	○	○	○	○	○	◐	●	○	●	○	○
		Add one inside shoulder lane each direction	No	Milpas to County Line : Eliminate inside shoulders/ pave and use as travel lanes	◐	◐	○	○	○	◐	●	●	◐	●	○	○
		Add one inside shoulder lane each direction	No	Milpas to Fairview: Eliminate inside shoulders/ pave and use as travel lanes	◐	◐	○	○	○	◐	●	●	◐	●	○	○
		Add one reversible lane in median	No	Milpas to County Line : Eliminate median landscaping and add a reversible lane with only one intermediate access/egress point between county line and Milpas	○	○	○	○	○	○	●	●	◐	●	○	○
		Add two lanes each direction	No	Milpas to County Line : Widen pavement by 24' each side	○	○	○	○	○	○	◐	●	○	●	○	○
		Restripe existing pavement	Yes	Milpas to County Line : Eliminate inside and outside shoulders and restripe for one additional lane each direction	●	●	○	●	○	●	◐	●	◐	●	◐	○
	Interchange and Ramp Improvements	Add or drop ramps; improve to design standards	Yes	Reconstruct Sheffield Drive interchange as standard diamond; lengthen and/or reconfigure other geometrically deficient interchanges	◐	○	◐	◐	◐	◐	◐	●	◐	◐	○	○
	Arterial Gap Closures	Provide increased arterial connectivity	No	Construct missing segments of Calle Real between Glen Annie and Las Carneros Roads, and between Patterson Avenue and Turnpike Road	○	○	◐	○	○	◐	◐	●	○	◐	○	○
	New Bypass Freeway	Construct new bypass freeway	No	Upgrade SR 166 and SR 33 as bypass route around South Coast	○	○	○	○	○	◐	●	●	○	○	○	○
Alternative Modes	Local and Express Bus Service	Enhance local and express bus service	Yes	Double express bus service from Ventura County and North SB County/increase connecting service to major work sites	●	●	◐	●	●	●	◐	●	●	●	●	●
	Bus Use of Shoulder	Bus use of 101 shoulders in peak	No	Milpas to County Line : Eliminate inside shoulders/ pave and use as bus only lane during peak hours	◐	◐	○	◐	◐	◐	◐	●	◐	◐	◐	●
	Bus Rapid Transit (BRT)	Construct bus priority improvements to provide BRT service	No	HOV lanes on 101 w/BRT lanes on selected arterials.	●	●	◐	○	◐	◐	◐	●	◐	●	◐	●
	Commuter Rail	Construct improvements to provide commuter service during peak periods along UP right of way	No	Install passing sidings, purchase train-sets, and build stations to provide service from Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	◐	◐	◐	◐	○	◐	●	●	◐	○	◐	●
	Light Rail Transit (LRT)	Construct improvements to operate LRT within UP right-of-way	No	Construct new separate light rail track with passing sidings, electrify, purchase vehicles, and build stations to provide service between Oxnard and Isla Vista with intermediate stops in Montalvo, Ventura, Seacliff, Carpinteria, Summerland, Montecito, Santa Barbara, and Goleta	○	○	◐	○	○	○	●	●	○	◐	○	●
	Guided Busway	Use buses that can operate on busway along UP ROW as well as on streets	No	Construct new separate single lane guided busway with passing sidings, install guidance equipment, and build stations to provide service between Oxnard and Isla Vista with intermediate stops in Montalvo, Ventura, Seacliff, Carpinteria, Summerland, Montecito, Santa Barbara, and Goleta	◐	◐	◐	◐	○	◐	●	●	◐	◐	◐	●
	Monorail	Construct elevated monorail in median and/or shoulders of 101 Fwy and/or UP ROW	No	From Oxnard to UCSB with intermediate stops in Ventura, Carpinteria, Santa Barbara and Goleta	◐	◐	●	○	◐	◐	●	●	○	◐	◐	●
	Elevated Guideway	Construct elevated guideway transit in median or shoulders of 101 Fwy	No	From Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	○	○	◐	○	○	○	◐	●	○	○	○	●
	High-speed Ferries/Catamarans	Add ferry or catamaran service between Santa Barbara and Ventura County	No	From Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	●	●	◐	●	◐	●	●	●	●	○	◐	●
Demand Management	Parking Management Strategies	Eliminate on-street parking in congested corridors	Yes	Eliminate on-street parking during peak periods on Hollister Avenue and State Street	●	◐	◐	●	◐	●	○	○	◐	◐	●	◐
		Initiate controlled parking programs	Yes	Limit the number of all-day parking spaces allowed in the Santa Barbara CBD and at major employment sites	●	●	◐	●	●	●	◐	○	◐	◐	●	●
		Implement a parking surtax	Yes	Add $2 per day tax for parking all-day in CBD	●	●	◐	●	●	●	◐	○	◐	◐	●	●
	Marketing Strategies	Individualized Marketing	Yes	Focus on personalized demand reduction and ridesharing options with longer distance commuters	●	●	◐	●	●	●	◐	●	●	●	●	●
	Transit/Rideshare Pricing Strategies	Subsidize ridesharing and/or alternative modes of transit	Yes	Increase subsidy by 20%	●	●	◐	●	●	●	◐	●	●	◐	●	●
	Work Schedule Adjustments	4/40 or 9/80 work week schedules; Flextime	Yes	Focus on major employers to achieve a 20% reduction in peak hour use of 101 freeway by their employees	●	●	●	●	●	●	◐	◐	◐	●	●	●
	Congestion Pricing	Use pricing incentives to re-distribute peak period demand over a longer period of the day, thereby reducing peak congestion	Yes	Charge vehicles for entering Santa Barbara CBD during morning peak hour	●	●	◐	●	●	●	◐	○	○	○	●	●
Operational Management (ITS)	Lane Assignment - HOV	Make new lanes High Occupancy Vehicle (HOV) lanes	No	Match with any of the additional freeway lane options above	●	●	●	◐	●	●	◐	●	◐	●	●	◐
	Lane Assignment - HOT	Make new lanes High Occupancy Toll (HOT) lanes	No	Match with any of the additional freeway lane options above	●	●	●	◐	●	◐	◐	●	◐	◐	◐	◐
	Auxiliary Lanes	Add auxiliary lanes to increase speed and safety of on-ramp and off-ramp movements	No	Add auxiliary lanes between Hot Springs Road and Olive Mill Road, Olive Mill Road and San Ysidro Road, San Ysidro Road and Sheffield Drive, Sheffield Drive and Evans Avenue, Carrillo Street and Mission Street, Mission Street and Las Positas Road, and Las Positas Road and La Cumbre Road.	○	○	◐	○	○	◐	◐	●	○	●	○	○
	Ramp Metering	Signalization of ramps to regulate entry of traffic onto 101	Yes	Assume all ramps in 27-mile corridor. Check for queuing ramifications/need for redesigns.	●	◐	◐	◐	◐	●	◐	◐	◐	◐	◐	○
	ITS Field Element Enhancements to Traffic Mgt Ctr	Network surveillance; traveller communication	Yes	Install loop detectors, surveillance cameras, smart call boxes, variable message signs , radio communication, and tow trucks in ready in the corridor, connected to the Caltrans traffic management center	●	●	◐	◐	◐	◐	◐	◐	●	●	◐	○
	Dynamic Speed Limits	Vary speeds according to congestion	Yes	Install loop detectors and surveillance cameras to measure traffic density and speed, and use variable message signs and enforcement cameras to regulate speed approaching and thru bottleneck areas	●	●	◐	◐	●	◐	◐	◐	●	●	◐	◐
	Goods Movement	Regulate hours of truck delivery	Yes	Restrict truck deliveries in South Coast to non-peak traffic hours	●	●	◐	●	◐	●	◐	○	○	◐	●	◐
Land Use and Transport Policy	Develop employment and residential centers in close proximity	General Plan amendment, rezoning and transfer of development rights to encourage clustering of jobs and housing	No	Use Joint Ventura-Santa Barbara Counties Jobs/Housing Balance Recommendations	●	◐	●	◐	◐	●	◐	●	◐	●	●	●
	Transit Oriented Development (TOD)	Encourage concentrated development	Yes	Near rail stations and/or multi-modal transfer centers	●	◐	◐	◐	◐	●	◐	●	◐	●	●	●
No-Build	No-Build Alternative	Do Nothing	N.A.	Only implement the short term projects that are already committed to	●	○	○	●	○	●	○	○	○	○	●	○

● = High benefit or low adverse impact; ◐ =Medium benefit or medium adverse impact; ○ = Low benefit or high adverse impact

APPENDIX A TABLE 4.3 - INITIAL SCREENING OF POTENTIAL PRIMARY IMPROVEMENT CONCEPTS					Implementation Related Criteria						
Improvement Category	**General**	**Subcategory**	**Potential Early Action Project?**	**Description**	Cost Effectiveness	Return on Local Funding	Physical & Operational Feasibility	Technological Feasibility	Minimize Institutional Constraints	Impacts During Construction	Phaseability
Capacity Enhancement	**Additional Freeway Lanes**	Add one standard lane each direction	No	Milpas to County Line : Widen pavement by 12' each side	●	●	◐	●	◐	○	●
		Add one standard lane each direction	No	Milpas to Fairview: Widen pavement by 12' each side	●	●	◐	●	◐	○	●
		Add one inside shoulder lane each direction	No	Milpas to County Line : Eliminate inside shoulders/ pave and use as travel lanes	●	○	○	●	○	◐	●
		Add one inside shoulder lane each direction	No	Milpas to Fairview: Eliminate inside shoulders/ pave and use as travel lanes	●	○	○	●	○	◐	●
		Add one reversible lane in median	No	Milpas to County Line : Eliminate median landscaping and add a reversible lane with only one intermediate access/egress point between county line and Milpas	●	●	○	●	○	◐	○
		Add two lanes each direction	No	Milpas to County Line : Widen pavement by 24' each side	●	●	○	●	○	○	●
		Restripe existing pavement	Yes	Milpas to County Line : Eliminate inside and outside shoulders and restripe for one additional lane each direction	●	○	○	○	○	◐	●
	Interchange and Ramp Improvements	Add or drop ramps; improve to design standards	Yes	Reconstruct Sheffield Drive interchange as standard diamond; lengthen and/or reconfigure other geometrically deficient interchanges	◐	●	●	●	●	○	●
	Arterial Gap Closures	Provide increased arterial connectivity	No	Construct missing segments of Calle Real between Glen Annie and Las Carneros Roads, and between Patterson Avenue and Turnpike Road	●	◐	◐	●	●	◐	●
	New Bypass Freeway	Construct new bypass freeway	No	Upgrade SR 166 and SR 33 as bypass route around South Coast	○	◐	○	●	●	◐	○
Alternative Modes	**Local and Express Bus Service**	Enhance local and express bus service	Yes	Double express bus service from Ventura County and North SB County/increase connecting service to major work sites	●	○	●	●	●	●	●
	Bus Use of Shoulder	Bus use of 101 shoulders in peak	No	Milpas to County Line : Eliminate inside shoulders/ pave and use as bus only lane during peak hours	◐	○	◐	●	○	◐	◐
	Bus Rapid Transit (BRT)	Construct bus priority improvements to provide BRT service	No	HOV lanes on 101 w/BRT lanes on selected arterials.	◐	●	◐	●	●	◐	●
	Commuter Rail	Construct improvements to provide commuter service during peak periods along UP right of way	No	Install passing sidings, purchase train-sets, and build stations to provide service from Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	◐	◐	◐	●	◐	◐	◐
	Light Rail Transit (LRT)	Construct improvements to operate LRT within UP right-of-way	No	Construct new separate light rail track with passing sidings, electrify, purchase vehicles, and build stations to provide service between Oxnard and Isla Vista with intermediate stops in Montalvo, Ventura, Seacliff, Carpinteria, Summerland, Montecito, Santa Barbara, and Golet	○	◐	○	●	○	○	◐
	Guided Busway	Use buses that can operate on busway along UP ROW as well as on streets	No	Construct new separate single lane guided busway with passing sidings, install guidance equipment, and build stations to provide service between Oxnard and Isla Vista with intermediate stops in Montalvo, Ventura, Seacliff, Carpinteria, Summerland, Montecito, Santa Barbara, and Golet	◐	◐	◐	●	○	◐	●
	Monorail	Construct elevated monorail in median and/or shoulders of 101 Fwy and/or UP ROW	No	From Oxnard to UCSB with intermediate stops in Ventura, Carpinteria, Santa Barbara and Goleta	○	◐	○	◐	○	◐	○
	Elevated Guideway	Construct elevated guideway transit in median or shoulders of 101 Fwy	No	From Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	○	○	○	○	○	○	○
	High-speed Ferries/Catamarans	Add ferry or catamaran service between Santa Barbara and Ventura County	No	From Oxnard to Goleta with intermediate stops in Ventura, Carpinteria, and Santa Barbara	◐	◐	◐	◐	◐	●	●
Demand Management	**Parking Management Strategies**	Eliminate on-street parking in congested corridors	Yes	Eliminate on-street parking during peak periods on Hollister Avenue and State Street	●	○	◐	●	●	●	●
		Initiate controlled parking programs	Yes	Limit the number of all-day parking spaces allowed in the Santa Barbara CBD and at major employment sites	●	○	◐	●	○	●	●
		Implement a parking surtax	Yes	Add $2 per day tax for parking all-day in CBD	●	●	○	●	○	●	●
	Marketing Strategies	Individualized Marketing	Yes	Focus on personalized demand reduction and ridesharing options with longer distance commuters	●	○	●	◐	●	●	●
	Transit/Rideshare Pricing Strategies	Subsidize ridesharing and/or alternative modes of transit	Yes	Increase subsidy by 20%	◐	○	◐	●	●	●	●
	Work Schedule Adjustments	4/40 or 9/80 work week schedules; Flextime	Yes	Focus on major employers to achieve a 20% reduction in peak hour use of 101 freeway by their employees	●	○	◐	●	●	●	●
	Congestion Pricing	Use pricing incentives to re-distribute peak period demand over a longer period of the day, thereby reducing peak congestion	Yes	Charge vehicles for entering Santa Barbara CBD during morning peak hour	◐	●	○	○	○	●	○
Operational Management (ITS)	**Lane Assignment - HOV**	Make new lanes High Occupancy Vehicle (HOV) lanes	No	Match with any of the additional freeway lane options above	●	●	●	●	●	◐	●
	Lane Assignment - HOT	Make new lanes High Occupancy Toll (HOT) lanes	No	Match with any of the additional freeway lane options above	◐	●	○	◐	○	◐	◐
	Auxiliary Lanes	Add auxiliary lanes to increase speed and safety of on-ramp and off-ramp movements	No	Add auxiliary lanes between Hot Springs Road and Olive Mill Road, Olive Mill Road and San Ysidro Road, San Ysidro Road and Sheffield Drive, Sheffield Drive and Evans Avenue, Carrillo Street and Mission Street, Mission Street and Las Positas Road, and Las Positas Road and La Cumbre Road.	◐	●	◐	●	●	○	●
	Ramp Metering	Signalization of ramps to regulate entry of traffic onto 101	Yes	Assume all ramps in 27-mile corridor. Check for queuing ramifications/need for redesigns.	◐	●	◐	●	●	◐	●
	ITS Field Element Enhancements to Traffic Mgt Ctr	Network surveillance; traveler communication	Yes	Install loop detectors, surveillance cameras, smart call boxes, variable message signs , radio communication, and tow trucks in ready in the corridor, connected to the Caltrans traffic management center	●	●	●	●	●	◐	●
	Dynamic Speed Limits	Vary speeds according to congestion	Yes	Install loop detectors and surveillance cameras to measure traffic density and speed, and use variable message signs and enforcement cameras to regulate speed approaching and thru bottleneck areas	◐	○	◐	◐	○	◐	◐
	Goods Movement	Regulate hours of truck delivery	Yes	Restrict truck deliveries in South Coast to non-peak traffic hours	○	○	○	◐	○	●	◐
Land Use and Transport Policy	**Develop employment and residential centers in close proximity**	General Plan amendment, rezoning and transfer of development rights to encourage clustering of jobs and housing	No	Use Joint Ventura-Santa Barbara Counties Jobs/Housing Balance Recommendations	◐	○	●	●	◐	●	●
	Transit Oriented Development (TOD)	Encourage concentrated development	Yes	Near rail stations and/or multi-modal transfer centers	●	◐	◐	●	◐	●	●
No-Build	**No-Build Alternative**	Do Nothing	N.A.	Only implement the short term projects that are already committed to	○	○	○	◐	◐	◐	◐

● = High benefit or low adverse impact; ◐ =Medium benefit or medium adverse impact; ○ = Low benefit or high adverse impact

APPENDIX A TABLE 4.4
EVALUATION OF
YEAR 2030 ALTERNATIVE SOLUTION PACKAGES

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	ALTERNATIVES 1 General Purpose Lanes	2 Operational Improvements	3 HOT Lanes	5 Commuter Rail	7 Dedicated Busway	8 Commuter Rail + HOV Lanes
TRANSPORTATION A. Improve Mobility/ Increase Capacity	• Increase Peak Hour Person Trip Capacity	Added Person Trip Capacity, Person Trips per Hour at Milpas Screenline (Refer to Table A-1)	0	2,470	1,160	4,420	2,180	810	5,440
	• Reduce Peak Hour Corridor Person Trip Demand	Reduced Peak Hour Demand, Person Trips per Hour at Milpas Screenline (Refer to Table A-2)	0	-190	-185	-495	-475	-565	-635
	• Increase Network Connectivity	Reduced Number of Gaps and Lane Drops	0 gaps reduced 0 lane drops reduced	0 gaps reduced 1 lane drop reduced	2 gaps reduced 0 lane drops reduced	0 gaps reduced 1 lane drop reduced	2 gaps reduced 0 lane drops reduced	0 gaps reduced 0 lane drops reduced	0 gaps reduced 0 lane drops reduced
B. Reduce Congestion	• Improve LOS to "D" or Better	Number of "D" or Better Locations, Freeway and Arterials (identify areas that improve and those that worsen) (Refer to Tables B-1, B-2)	0 intersections improved 0 intersections worsened 0 segments improved 0 segments worsened	2 intersections improved 4 intersections worsened 10 segments improved 0 segments worsened	1 intersection improved 0 intersections worsened 0 segments improved 1 segment worsened	3 intersections improved 0 intersections worsened 5 segment improved 2 segments worsened	4 intersections improved 0 intersections worsened 2 segments improved 1 segment worsened	0 intersections improved 0 intersections worsened 1 segment improved 0 segments worsened	6 intersections improved 1 intersection worsened 11 segments improved 0 segments worsened
	• Reduce Person Hours of Congestion	Reduced Person Hours of Congestion Per Day (Refer to Table B-3)	0	15,400	5,700	7,200	3,400	1,700	19,500
C. Reduce Travel Delays	• Reduce Person Hours of Travel Delays	Reduced Peak Period Travel Times by Auto Between Selected Origins and Destinations (minutes)	Stearn's Wharf to Ventura: 59 Goleta to Carpinteria:54 Downtown Santa Barbara to Buellton: 67	43 39 65	54 47 67	44 39 65	55 49 65	57 52 67	39 35 64
		Reduced Peak Period Travel Times by Transit Between Selected Origins and Destinations (minutes)	Stearn's Wharf to Ventura: 102 Goleta toCarpinteria:98 Dntn SB toBuellton:113	90 73 110	96 83 110	82 66 110	88 64 110	87 71 105	88 64 106

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	ALTERNATIVES 1 General Purpose Lanes	2 Operational Improvements	3 HOT Lanes	5 Commuter Rail	7 Dedicated Busway	8 Commuter Rail + HOV Lanes
		Reduced Daily Person Hours of Delay (Refer to Table B-3)	0	15,400	5,700	7,200	3,400	1,700	19,500
D. Improve Safety	• Reduce Corridor Accident Potential	Rating From 1-5 Based on Relative Accident Potentials (Refer to Table D-1) Reduce Accident Potentials = 1 Baseline Rating/No Change = 3 Increase Accident Potentials = 5	3	1	2	2	2	4	1
E. Provide Options/ Increase Choices	• Increase Utilization of Alternatives to SOVs	% Change in Projected Daily Usage of Non-SOVs (Commuter Bus/ Rail and HOV) (Refer to Table E-1)	0	22.8% Change in Transit Usage 0.0% Change in HOV Usage	21.3% Change in Transit Usage 0.0% Change in HOV Usage	20.1% Change in Transit Usage 4.0% Change in HOV Usage	59.7% Change in Transit Usage 0.0% Change in HOV Usage	116.4% Change in Transit Usage 0.0% Change in HOV Usage	42.2% Change in Transit Usage 7.5% Change in HOV Usage
F. Improve Trip Reliability	• Increase On-time Trip Consistency	Roadways: Reduced Potential for Unforeseen Delays Based on Improved LOS for Segments LOS D or Worse in Base Case (Refer to Table F-1)	0 segments improved 0 segments worsened	7 segments improved 0 segments worsened	0 segments improved 1 segment worsened	4 segments improved 2 segments worsened	1 segment improved 1 segment worsened	1 segment improved 0 segments worsened	8 segments improved 0 segments worsened
		Non-Roadway Elements: Degree of Separation From Conflicts (Refer to Table F-2) Reduce Conflicts = 1 Baseline Rating/No Change = 3 Increase Conflicts = 5	3	3	3	3	4	4	4
G. Improvement Longevity	• Lasting Congestion Relief and Other Transportation Benefits	Rating From 1-5 Based on Expected Useful Life of Major Components (Refer to Table G-1)	5	2	5	3	3	3	1
H. Improve Goods Movement	• Increased Goods Movement Capacity and Reduced Conflicts	Added Highway and/or Rail Capacity Usable for Freight (See Table H-1) Increase Capacity = 1 Baseline Rating/No Change = 3 Decrease Capacity = 5	3	1	3	2	2	3	1
		Reduced Conflicts/ Regulatory Constraints (See Table H-2) Reduce Regulatory Constraints =	3	4	3	4	3	3	3

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	ALTERNATIVES 1 General Purpose Lanes	2 Operational Improvements	3 HOT Lanes	5 Commuter Rail	7 Dedicated Busway	8 Commuter Rail + HOV Lanes
		1 Baseline Rating/No Change = 3 Increase Regulatory Constraints = 5							
COMMUNITY/ ENVIRONMENTAL CONSIDERATIONS									
I. Natural & Built Environment	• Minimize Impacts	Qualitative Rating Based on Level/ Quality of Environmental Resources Impacted (Refer to Table I/J-3)	1	3	4	3	4	5	3
J. Neighborhoods	• Minimize Neighborhood Traffic Impacts	Number of "D" or Better Arterial Locations, as an Indicator of Reduced Pressure for Use of Local Neighborhood Streets (Refer to Tables J-2 and J-3)	0 intersections improved 0 intersections worsened 0 segments improved 0 segments worsened	1 intersection improved 1 intersection worsened 3 segments improved 0 segments worsened	0 intersections improved 0 intersections worsened 0 segments improved 0 segments worsened	1 intersection improved 0 intersections worsened 1 segment improved 0 segments worsened	1 intersection improved 0 intersections worsened 1 segment improved 0 segments worsened	0 intersections improved 0 intersections worsened 0 segments improved 0 segments worsened	3 intersections improved 0 intersections worsened 3 segments improved 0 segments worsened
K. Air Quality	• AM and PM Vehicle Miles of Travel (Refer to Table K-1)	VMT: AM (in 000) PM in (000)	392.0 534.8	402.7 555.8	383.8 525.8	397.7 540.9	379.7 522.3	385.6 528.5	393.4 487.9
	• AM and PM Vehicle Hours of Travel (Refer to Table K-1)	VHT: AM (in 000) PM (in 000)	8.5 15.2	8.1 12.9	8.1 14.2	8.0 12.9	8.0 14.3	8.2 15.3	7.9 10.8
	• AM and PM Average Speed (Refer to Table K-1)	Ave. Speed: AM (mph) PM (mph)	46.0 35.1	49.9 43.2	47.4 37.1	49.4 41.9	47.5 36.5	46.8 34.5	50.1 45.3
L. Noise Impacts	• Minimize Impacts	Rating From 1-5 Based on Expected Major Changes in Noise Levels at Sensitive Receivers (Refer to Table L-1) Existing Condition = 1 Noise Levels Increase = 5	W/ No Mitigation W/ Mitigation	4 1	3 2	4 2	3 2	4 3	4 1

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	ALTERNATIVES					
				1 General Purpose Lanes	2 Operational Improvements	3 HOT Lanes	5 Commuter Rail	7 Dedicated Busway	8 Commuter Rail + HOV Lanes
M. Visual Impacts	• Minimize Impacts	Extent of Major New or Modified Visual Elements Affecting Existing Overall Community Visual Character and Viewsheds (Refer to Table M-1) Existing Condition = 1 Visual Elements Affected = Up to 5	1	4	2	3	2	4	4
N. Economic Vitality	• Minimize Impacts	Congestion Relief: Reduced Person Hours of Delay per Day (Refer to Table B-3)	0	15,400	5,700	7,200	3,400	1,700	19,500
		Potential Pricing and Job Creation Impacts (Direct Construction Person-Years of Jobs Created)	0	4,160 - 4990	1,870	2,830 – 3,370	2,860	3,400	4,640 – 5,460
O. Stakeholder Equity	• Minimize Impacts	Rating From 1-5 of Degree of Disproportionate Impacts on Low Income or Minority Populations (Refer to Table O-1)	3	4	3	3	2	4	3
P. Sustainability	• Minimize Impacts	Rating From 1-5 of Consumption of Non-Renewable Resources (Refer to Table P-1)	3	4	2	3	3	4	4
IMPLEMENTATION RELATED CRITERIA									
Q. Cost Effectiveness	• Maximize Congestion Relief Benefits in Relation to Costs	Annualized capital cost and Annualized O&M cost divided by Annual Person Hours of Delay reduced (Refer to Tables Q-1 and Q-2)	Not applicable	$10.36 – 12.24	$11.83	$14.69 - $17.29	$32.69	$94.24	$9.34 – 10.83
R. Physical Feasibility	• Appropriate to Context	Rating From 1 to 5 of Degree of Fit (Refer to Table R-1) Ideal Condition = 1 Least Appropriate to Context = 5	1	5	3	4	3	4	5
S. Technological Feasibility	• Use Proven Technology	Rating From 1 to 5 of Extent of Proven Technology (Refer to	3	3	3	4	3	5	3

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	ALTERNATIVES 1 General Purpose Lanes	2 Operational Improvements	3 HOT Lanes	5 Commuter Rail	7 Dedicated Busway	8 Commuter Rail + HOV Lanes
	Applications	Table S-1) Proven Technology = 3 Technology Not Proven = 5							
T. Institutional Constraints	• Minimize Obstacles	Rating From 1 to 5 of Degree to Which Institutional Issues Are Minimized (Refer to Table T-1) Ideal Condition = 1 Obstacles Not Minimized = 5	1	4	2	4	3	5	5
U. Construction Impacts	• Minimize Impacts	Rating From 1 to 5 of Degree to Which Disruption Is Minimized During Construction (Refer to Table U-1) Minimum Disruption = 1 Significant Disruption = 5	1	5	2	4	2	2	4
V. Phaseability	• Independent Utility	Rating From 1 to 5 of Degree to Which Progressive Incremental Improvements Can be Implemented as needed (Refer to Table V-1) Ideal Condition = 1 Interrelated Improvements = Up to 5	5	4	1	4	2	3	4

APPENDIX A TABLE 4.5

EVALUATION OF YEAR 2030 ALTERNATIVE SOLUTION PACKAGES USING KEY DIFFERENTIATORS

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	ALTERNATIVES 1 General Purpose Lanes	 2 Operational Improvements	 3 HOT Lanes	 5 Commuter Rail	 7 Dedicated Busway	 8 Commuter Rail + HOV Lanes
TRANSPORTATION B. Reduce Congestion	• Improve LOS to "D" or Better	Number of "D" or Better Locations, Freeway and Arterials (identify areas that improve and those that worsen) (Refer to Tables B-1, B-2)	0 intersections improved 0 intersections worsened 0 segments improved 0 segments worsened	2 intersections improved 4 intersections worsened 10 segments improved 0 segments worsened	1 intersection improved 0 intersections worsened 0 segments improved 1 segment worsened	3 intersections improved 0 intersections worsened 5 segment improved 2 segments worsened	4 intersections improved 0 intersections worsened 2 segments improved 1 segment worsened	0 intersections improved 0 intersections worsened 1 segment improved 0 segments worsened	6 intersections improved 1 intersection worsened 11 segments improved 0 segments worsened
	• Reduce Person Hours of Congestion	Reduced Person Hours of Congestion Per Day (Refer to Table B-3)	0	15,400	5,700	7,200	3,400	1,700	19,500
C. Reduce Travel Delays	• Reduce Person Hours of Travel Delays	Reduced Peak Period Travel Times by Auto Between Selected Origins and Destinations (minutes)	Stearn's Wharf to Ventura: 59 Goleta to Carpinteria:54 Downtown Santa Barbara to Buellton: 67	43 39 65	54 47 67	44 39 65	55 49 65	57 52 67	39 35 64
		Reduced Peak Period Travel Times by Transit Between Selected Origins and Destinations (minutes)	Stearn's Wharf to Ventura: 102 Goleta to Carpinteria: 98 Downtown SB to Buellton: 113	90 73 110	96 83 110	82 66 110	88 64 110	87 71 105	88 64 106
D. Improve Safety	• Reduce Corridor Accident Potential	Rating From 1-5 Based on Relative Accident Potentials (Refer to Table D-1) Reduce Accident Potentials = 1 Baseline Rating/No Change = 3 Increase Accident Potentials = 5	3	1	2	2	2	4	1

PERFORMANCE CRITERIA	OBJECTIVES	MEASURES	YEAR 2030 BASELINE CONDITION	ALTERNATIVES 1 General Purpose Lanes	2 Operational Improvements	3 HOT Lanes	5 Commuter Rail	7 Dedicated Busway	8 Commuter Rail + HOV Lanes
E. Provide Options/ Increase Choices	• Increase Utilization of Alternatives to SOVs	% Change in Projected Daily Usage of Non-SOVs (Commuter Bus/ Rail and HOV) (Refer to Table E-1)	0	22.8% Change in Transit Usage 0.0% Change in HOV Usage	21.3% Change in Transit Usage 0.0% Change in HOV Usage	20.1% Change in Transit Usage 4.0% Change in HOV Usage	59.7% Change in Transit Usage 0.0% Change in HOV Usage	116.4% Change in Transit Usage 0.0% Change in HOV Usage	42.2% Change in Transit Usage 7.5% Change in HOV Usage
COMMUNITY/ ENVIRONMENTAL CONSIDERATIONS									
I. Natural & Built Environment	• Minimize Impacts	Qualitative Rating Based on Level / Quality of Environmental Resources Impacted (See Table I/J-3)	1	3	4	3	4	5	3
L. Noise Impacts	• Minimize Impacts	Rating From 1-5 Based on Expected Major Changes in Noise Levels at Sensitive Receivers (Refer to Table L-1) Existing Condition = 1 Noise Levels Increase = 5	W/ No Mitigation W/ Mitigation	4 1	3 2	4 2	3 2	4 3	4 1
M. Visual Impacts	• Minimize Impacts	Extent of Major New or Modified Visual Elements Affecting Existing Overall Community Visual Character and Viewsheds (Refer to Table M-1) Existing Condition = 1 Visual Elements Affected = Up to 5	1	4	2	3	2	4	4
IMPLEMENTATION RELATED CRITERIA									
Q. Cost Effectiveness	• Maximize Congestion Relief Benefits in Relation to Costs	Annualized capital cost and Annualized O&M cost divided by Annual Person Hours of Delay reduced (Refer to Tables Q-1 and Q-2)	Not applicable	$10.36 – 12.24	$11.83	$14.69 - $17.29	$32.69	$94.24	$9.34 – 10.83
V. Phaseability	• Independent Utility	Rating From 1 to 5 of Degree to Which Progressive Incremental Improvements Can be Implemented as needed (Refer to Table V-1) Ideal Condition = 1 Interrelated Improvements = Up to 5	5	4	1	4	2	3	4

Appendix B

Back-Up Tables for Table 5-2
&
2030 Peak Hour Flow Maps

Appendix B Table 5.1
101 In Motion – Summary of Final 4 Alternatives
Capacity Enhancement Assumptions to U.S. 101 – Summary Description of Physical Attributes by Segment

I. Add General Purpose Lane, HOT Lane, or HOV Lane (Applies to Alternatives B and D for Milpas North and Milpas South)

Segment	Alignment Assumption	Notes
Winchester Canyon Rd. – Glen Annie Rd.	No widening.	
Glen Annie Rd. – Los Carneros Rd.	No widening.	
Los Carneros Rd. – Fairview Ave.	Add auxiliary lane, northbound side only.	Existing vegetation between U.S. 101 and Calle Real opposite Los Carneros Park would be only slightly affected. Existing vegetation between U.S. 101 and Calle Real opposite residential neighborhood would be impacted by about 50% ultimately resulting in a thinner visual buffer. A concrete barrier may be required to separate Calle Real from U.S. 101 for small stretch (800').
Fairview Ave. – Patterson Ave.	No widening.	
Patterson Ave. – Turnpike Rd.	Widen symmetrically except for middle 2500' portion, which would involve a centerline shift to the south towards the UP RR right of way.	At least 220' state ROW available for both Calle Real and U.S. 101. In areas of centerline shift, encroachment into the UP right-of-way occurs for a half-mile stretch. For the short section of symmetrical widening, existing vegetation on either side of the freeway would be only slightly impacted. In the sections where the centerline shift occurs: vegetation on the northbound side of U.S. 101 remains the same; median is replaced with 6' landscaping; and existing vegetation between U.S. 101 and UP RR would be eliminated.
Turnpike Rd. – San Marcos Pass Rd.	Centerline shift towards the UP RR for most of this segment beginning 1600' south of Turnpike Rd.	At least 240' state ROW available for both Calle Real and U.S. 101. In areas of centerline shift, Calle Real and existing vegetation on the northbound side of U.S. 101 remains the same; median is replaced with 6' landscaping; and on the southbound side of U.S. 101, the existing vegetation between US 101 and UP RR would largely be eliminated. [Note: existing vegetation on the southbound side of U.S. 101 is relatively sparse in this section.]
San Marcos Pass Rd. – La Cumbre Rd.	Widen symmetrically.	Sufficient state ROW. No to minimal impact to existing outside vegetation.
La Cumbre Rd. – Hope Ave.	Widen symmetrically.	At least 240' state ROW available for both Calle Real and U.S. 101. Only modest impact to existing outside vegetation.
Hope Ave. – Las Positas Rd.	Centerline shift towards the UP RR for this entire segment.	About 200' state ROW available for both Calle Real and U.S. 101. In areas of centerline shift, there is potential for encroachment into the UP right-of-way for some short sections. In areas of centerline shift, Calle Real and the existing vegetation on the northbound side side of U.S. 101 remains the same, median is replaced with 6' landscaping; and the existing tree buffer between US 101 and UP RR would largely be eliminated. [Note: the existing tree buffer between UP RR and Modoc Rd. remains.]
Las Positas Rd. – Mission St.	Centerline shift towards the UP RR for this entire segment.	About 190' state ROW available for both Calle Real and U.S. 101. In areas of centerline shift, Calle Real and vegetation on the NB side remains the same, median is replaced with 6' landscaping; and the existing tree buffer between US 101 and UP RR would be eliminated. The proposed widening would encroach into the UP right-of-way for about a quarter-mile stretch. In addition, the existing railroad track may need to be relocated within the UP right-of-way.
Mission St. – Carillo St.*	Centerline shift towards the UP RR for this entire segment. Consider reduced cross-section as one possible option.	About 120' state ROW available for U.S. 101. With the centerline shift, the existing vegetation on the northbound side of U.S. 101 would remain the same, the median is replaced with 6' landscaping; and the existing trees and vegetation on the southbound side of U.S. 101 between U.S. 101 and the rail line would be eliminated. In addition, for approximately two-thirds of a mile, there would be some encroachment into the UP right-of-way. [Note: if a reduced cross-section is utilized, encroachment into the UP right-of-way could potentially be avoided.]
Carillo St. – Castillo St.	Add auxiliary lane, southbound side only.	Approximately 40% impact to existing vegetation between freeway and UP RR ROW where the auxiliary lane is proposed. The remaining mature trees on the southbound side of U.S. 101 would require guard rail or concrete barrier.
Castillo St. – Garden St.*	Add auxiliary lane, southbound side only. Consider reduced cross-section as one possible option.	Potential impact (up to 12' in width) to Montecito Street, which would affect on-street parking. The auxiliary lane would impact existing landscaping between U.S. 101 and Montecito Street. [Note: if a reduced cross-section is utilized, then some of the impact to Montecito Street would be minimized.]
Garden St. – Milpas St.	No widening.	
Milpas St. – Salinas St.	Centerline shift towards commercial properties/UP RR for this entire segment.	About 130' state ROW available for U.S. 101. Vegetation on the northbound side of U.S. 101 remains the same, existing landscaping in median is reduced and replaced with 6' landscaping; and the vegetation on the southbound side would largely be eliminated between U.S. 101 and the UP railroad line. In addition, for approximately three-tenths of a mile, there would be some encroachment into the UP right-of-way. Within this subsection, the existing UP railroad track may need to be relocated (approximately three-tenths of a mile) within the UP right-of-way.
Salinas St. – Cabrillo Blvd.	Centerline shift towards the UP RR for the northern portion of this segment (2100'). Widen symmetrically for the southern portion (1400').	About 150' state ROW available for U.S. 101. In areas of centerline shift, vegetation on northbound side of U.S. 101 remains the same, median is replaced with 6' landscaping; vegetation between U.S. 101 and UP ROW would largely be eliminated. In addition, for approximately four-tenths of a mile, there would be some encroachment into the UP right-of-way. Within this subsection, the existing UP railroad track would likely need to be relocated (four-tenths of a mile).
Cabrillo Blvd./Hot Springs Rd. Interchange	Eliminate the left hand SB on-ramp, left hand SB off-ramp and NB off-ramp and replace with a "tight diamond" interchange.	Up to 20% of the existing trees in the vicinity of this interchange would be affected (new outside ramps), but some replacement landscaping could be provided where existing inside ramps are removed. In addition, portions of landscaped property that lines the golf course owned by the Montecito Country Club (northbound side of U.S. 101) as well as the undeveloped, vegetated property owned by the Santa Barbara Cemetary Association (southbound side of U.S. 101) that serves as the approach to the cemetery would be directly impacted.
Cabrillo Blvd. – Olive Mill Rd.	Widen symmetrically, plus add SB auxiliary lane.	About 190' state ROW available for U.S. 101 and Coast Village Circle. Widening moderately affects existing vegetation on the northbound side of U.S. 101; reduces landscaping in median to 6,' and largely eliminates vegetation on the southbound side of U.S. 101 between U.S. 101 and the UP right-of-way. Presumes that the remaining mature trees would be protected by guard rail or concrete barrier.

Appendix B Table 5.1
101 In Motion – Summary of Final 4 Alternatives
Capacity Enhancement Assumptions to U.S. 101 – Summary Description of Physical Attributes by Segment

Olive Mill Rd. – San Ysidro Rd.*	Widen symmetrically. Consider reduced cross-section.	About 220' state ROW available for U.S. 101, North Jameson Lane, and South Jameson Lane. The proposed widening would: result in minor impacts to existing vegetation on the northbound side of U.S. 101; reduces the current landscaped median to 6'; and would largely eliminate the existing vegetation on the southbound side of U.S. 101. On the other hand, a reduced cross-section would eliminate the existing landscaped median in lieu of a concrete median barrier, but would allow sufficient room for a narrow buffer of landscaping to the outside (i.e., between U.S. 101 and the parallel arterials.)
San Ysidro Rd. – Sheffield Dr.*	Widen symmetrically. Consider reduced cross-section.	About 140' state ROW available for U.S. 101 and North Jameson Lane in some subsections. About 160' of state ROW available for U.S. 101, North Jameson Lane, and South Jameson Lane in other locations. Proposed footprint of U.S. 101 would directly impact four residential parcels (partial acquisition) on the southbound side of U.S. 101 in the vicinity of Posilipo Lane. In addition, widening would eliminate existing vegetation between the freeway and the adjacent frontage roads. A reduced cross-section may avoid direct right-of-way impacts to residential properties, but impacts to existing vegetation on the outside edges of the freeway would likely still occur.
Sheffield Dr. Interchange	Eliminate left-hand SB off-ramp and left-hand SB on-ramp, and replace with a "tight diamond" interchange.	Change in ramp locations is not predicted to affect existing trees within this interchange area. In some cases, guard rail or concrete barrier may need to be provided adjacent to mature trees.
Sheffield Dr. – Evans Ave.	Widen symmetrically.	About 200' state ROW available for U.S. 101. Proposed widening is not predicted to result in an impact to existing vegetation on the northbound side of U.S. 101. Would replace existing landscaped median with a narrower, 6' landscaped median, Existing vegetation on the southbound side of the freeway is sparse (coastal bluff area) and few impacts are predicted for the southbound side of U.S. 101.
Evans Ave. – North Padaro Lane	Widen symmetrically, except provide for a centerline shift for small section (1000') near Evans Ave. to avoid properties on NB side.	At least 220' state ROW available for U.S. 101 and Via Real. In area of centerline shift, existing vegetation on the southbound side of U.S. 101 would be affected between U.S. 101 and the adjacent parallel arterial. Properties and existing vegetation on the northbound side of U.S. 101 would remain the same. In areas of symmetrical widening, there would be modest to no impact to existing vegetation.
North Padaro Lane – South Padaro Lane	Widen symmetrically. In area of Memorial Oaks (2000' section) retain existing median.	At least 120' state ROW available for U.S. 101 and at least 220' of state ROW available in sections with both U.S. 101 and Via Real. In several sections, a 6' landscaped median would be provided and most of the existing outside landscaping would be retained. However, in the Memorial Oaks area of U.S. 101 between Toro Canyon Road and Nidever Road, the existing trees in the median would be retained, yet the memorial trees on the southbound side of U.S. 101 would be affected by the widening. In addition, most (approximately 80%) of the existing vegetation that lines the outside of U.S. 101 would be impacted, including a visual buffer of mature trees between U.S. 101 and residential properties that abut U.S. 101 on the northbound side.
South Padaro Lane – Santa Monica Rd.	Widen symmetrically.	At least 200' state ROW available for U.S. 101 and Via Real. Would result in a modest impact (10% - 20%) to existing outside vegetation. However, provides 6' landscaped median and allows sufficient space for a narrow visual buffer on the outside of U.S. 101 on both sides.
Santa Monica Rd – Linden Ave.	Widen symmetrically.	At least 160' state ROW available for U.S. 101. Would result in a modest impact (10% - 20%) to existing outside vegetation. Provides a narrower (6') landscaped median and allows sufficient space for a narrow visual buffer on the outside of U.S. 101 on both sides. Guard rail or a concrete barrier would be needed for the few existing mature trees currently located close to U.S. 101 if these trees are to be retained.
Linden Ave. – Casitas Pass Rd.	Widen symmetrically.	At least 190' state ROW available for U.S. 101. Would result in a modest impact (10% - 20%) to existing outside vegetation. Provides a narrower (6') landscaped median and allows sufficient space for a narrow visual buffer on the outside of U.S. 101 on both sides. Guard rail or a concrete barrier would be needed for a small section of mature trees (630' stretch) on the southbound side of U.S. 101 that would fall within the new clear zone area.
Casitas Pass Rd. – Baillard Ave.	Widen symmetrically.	At least 190' state ROW available for U.S. 101. Proposed widening would result in no change to existing vegetation on outside of U.S. 101 on northbound side and a slight impact (10%) to the existing outside vegetation on the southbound side of U.S. 101. A narrower (6') landscaped median would be provided and sufficient space would remain for a narrow visual buffer on the outside of U.S. 101 on both sides.
Baillard Ave. – SR-150	Widen symmetrically. Widening on NB side stops at SR-150 on-ramp.	At least 240' state ROW available for U.S. 101, Carpinteria Ave. and Via Real. Reduces the existing landscaped median to a 6' landscaped median. No predicted change to existing vegetation on outside on both sides as the proposed footprint remains the same as the existing condition on the outside edges of the freeway.
SR-150 – Bates Rd.	Widening on SB side only as far as 1000' south of SR-150.	Ample state ROW. No noticeable change to vegetation.

Notes:
*Reduced cross-section recommended to be considered for these segments to minimize direct impacts to adjacent frontage roads and properties. Each location where a reduced cross-section is being considered requires justification for a design exception by Caltrans and FHWA. Design exceptions are not easily granted.
All centerline shifts presume that the edge of the northbound travel lanes would remain the same.
ROW measurements were taken at the narrowest points (state ROW line to state ROW line) of the freeway.
Typical cross-section for Milpas North is 142' (full standard) and 128' (reduced cross-section) and for Milpas South is 118' (full standard) and 104' (reduced cross-section). An additional 6' feet (at a minimum, assuming a retaining wall + footing) would need to be provided on either side, in areas of slope. Typical section (minimum requirement) for a two-lane frontage road would be about 32' assuming barrier separation between frontage road and freeway edge of shoulder.

Appendix B Table 5.1
101 In Motion – Summary of Final 4 Alternatives
Capacity Enhancement Assumptions to U.S. 101 – Summary Description of Physical Attributes by Segment

II. Add HOV Lanes Milpas South and Auxiliary Lanes Milpas North in Alternative C

Segment	Alignment Assumption	Notes
Winchester Canyon Rd. – Glen Annie Rd.		
Glen Annie Rd. – Los Carneros Rd.	Add auxiliary lane, northbound side only.	No noticeable impact.
Los Carneros Rd. – Fairview Ave.	Add auxiliary lane, northbound side only.	Existing vegetation between 101 and Calle Real opposite Los Carneros Park would be only slightly affected. Existing vegetation between 101 and Calle Real opposite residential neighborhood would be impacted by about 50% ultimately resulting in a thinner visual buffer. A concrete barrier may be required to separate Calle Real from U.S. 101 for small stretch (800').
Fairview Ave. – Patterson Ave.		
Patterson Ave. – Turnpike Rd.	Add auxiliary lane, northbound side only.	Only minor estimated impact to existing vegetation.
Route 217 SB On-ramp	Lengthen on-ramp SB side	Up to 10% impact to existing vegetation in the interchange area along the southbound side of U.S. 101.
Turnpike Rd. – San Marcos Pass Rd.		
San Marcos Pass Rd. – La Cumbre Rd.		
La Cumbre Rd. – Hope Ave.		
Hope Ave. – Las Positas Rd.	Add auxiliary lane, northbound side only.	The existing vegetation (hedge) between U.S. 101 and Calle Real would be eliminated.
Las Positas Rd. – Mission St.	Add auxiliary lane both sides	It is estimated that there would be an up to 8' impact to Calle Real between Pueblo and Junipero next to commercial property. Existing trees between U.S. 101 and Calle Real would also be eliminated in this short stretch. The auxiliary lane would require a retaining wall adjacent to Mission Creek. Existing vegetation that screens residential properities on the northbound side of U.S. 101 would be slightly impacted while the existing vegetation between U.S. 101 and the UP railroad on the southbound side of U.S. 101 would be reduced by about 60%. Any remaining mature trees on the southbound side would require guard rail or a concrete barrier.
	Add new overcrossing between Las Positas and Mission for SB traffic to Cottage Hospital	Only minor impact to existing vegetation.
Mission St. – Carillo St.	Add auxiliary lane, northbound side only.	Potential direct impact to three residential parcels at end of Islay St. cul de sac as well as potential wetlands area. Between 40% and 70% removal of existing vegetation between freeway and adjacent residential properties/Mission Creek.
Carillo St. – Castillo St.	Add auxiliary lane, southbound side only.	Approximately 40% impact to existing vegetation between freeway and UP RR ROW where the auxiliary lane is proposed. The remaining mature trees on the southbound side of U.S. 101 would require guard rail or concrete barrier.
Castillo St. – Garden St.*	Add auxiliary lane, southbound side only. Consider reduced cross-section as one possible option.	Potential impact (up to 12' in width) to Montecito Street, which would affect on-street parking. The auxiliary lane would impact existing landscaping between U.S. 101 and Montecito Street. [Note: if a reduced cross-section is utilized, then some of the impact to Montecito Street would be minimized.]
Garden St. – Milpas St.	No widening.	
Milpas St. – Salinas St.	Centerline shift towards commercial properties/UP RR for this entire segment.	About 130' state ROW available for U.S. 101. Vegetation on the northbound side of U.S. 101 remains the same, existing landscaping in median is reduced and replaced with 6' landscaping; and the vegetation on the southbound side would largely be eliminated between U.S. 101 and the UP railroad line. In addition, for approximately three-tenths of a mile, there would be some encroachment into the UP right-of-way. Within this subsection, the existing UP railroad track may need to be relocated (approximately three-tenths of a mile) within the UP right-of-way.
Salinas St. – Cabrillo Blvd.	Centerline shift towards the UP RR for the northern portion of this segment (2100'). Widen symmetrically for the southern portion (1400').	About 150' state ROW available for U.S. 101. In areas of centerline shift, vegetation on northbound side of U.S. 101 remains the same, median is replaced with 6' landscaping; vegetation between U.S. 101 and UP ROW would largely be eliminated. In addition, for approximately four-tenths of a mile, there would be some encroachment into the UP right-of-way. Within this subsection, the existing UP railroad track would likely need to be relocated (four-tenths of a mile).
Cabrillo Blvd./Hot Springs Rd. Interchange	Eliminate the left hand SB on-ramp, left hand SB off-ramp and NB off-ramp and replace with a "tight diamond" interchange.	Up to 20% of the existing trees in the vicinity of this interchange would be affected (new outside ramps), but some replacement landscaping could be provided where existing inside ramps are removed. In addition, portions of landscaped property that lines the golf course owned by the Montecito Country Club (northbound side of U.S. 101) as well as the undeveloped, vegetated property owned by the Santa Barbara Cemetary Association (southbound side of U.S. 101) that serves as the approach to the cemetery would be directly impacted.
Cabrillo Blvd. – Olive Mill Rd.	Widen symmetrically, plus add SB auxiliary lane.	About 190' state ROW available for U.S. 101 and Coast Village Circle. Widening moderately affects existing vegetation on the northbound side of U.S. 101; reduces landscaping in median to 6,' and largely eliminates vegetation on the southbound side of U.S. 101 between U.S. 101 and the UP right-of-way. Presumes that the remaining mature trees would be protected by guard rail or concrete barrier.
Olive Mill Rd. – San Ysidro Rd.*	Widen symmetrically. Consider reduced cross-section.	About 220' state ROW available for U.S. 101, North Jameson Lane, and South Jameson Lane. The proposed widening would: result in minor impacts to existing vegetation on the northbound side of U.S. 101; reduces the current landscaped median to 6'; and would largely eliminate the existing vegetation on the southbound side of U.S. 101. On the other hand, a reduced cross-section would eliminate the existing landscaped median in lieu of a concrete median barrier, but would allow sufficient room for a narrow buffer of landscaping to the outside (i.e., between U.S. 101 and the parallel arterials.)
San Ysidro Rd. – Sheffield Dr.*	Widen symmetrically. Consider reduced cross-section.	About 140' state ROW available for U.S. 101 and North Jameson Lane in some subsections. About 160' of state ROW available for U.S. 101, North Jameson Lane, and South Jameson Lane in other locations. Proposed footprint of U.S. 101

		would directly impact four residential parcels (partial acquisition) on the southbound side of U.S. 101 in the vicinity of Posilipo Lane. In addition, widening would eliminate existing vegetation between the freeway and the adjacent frontage roads. A reduced cross-section may avoid direct right-of-way impacts to residential properties, but impacts to existing vegetation on the outside edges of the freeway would likely still occur.
Sheffield Dr. Interchange	Eliminate left-hand SB off-ramp and left-hand SB on-ramp, and replace with a "tight diamond" interchange.	Change in ramp locations is not predicted to affect existing trees within this interchange area. In some cases, guard rail or concrete barrier may need to be provided adjacent to mature trees.
Sheffield Dr. – Evans Ave.	Widen symmetrically.	About 200' state ROW available for U.S. 101. Proposed widening is not predicted to result in an impact to existing vegetation on the northbound side of U.S. 101. Would replace existing landscaped median with a narrower, 6' landscaped median, Existing vegetation on the southbound side of the freeway is sparse (coastal bluff area) and few impacts are predicted for the southbound side of U.S. 101.
Evans Ave. – North Padaro Lane	Widen symmetrically, except provide for a centerline shift for small section (1000') near Evans Ave. to avoid properties on NB side.	At least 220' state ROW available for U.S. 101 and Via Real. In area of centerline shift, existing vegetation on the southbound side of U.S. 101 would be affected between U.S. 101 and the adjacent parallel arterial. Properties and existing vegetation on the northbound side of U.S. 101 would remain the same. In areas of symmetrical widening, there would be modest to no impact to existing vegetation.
North Padaro Lane – South Padaro Lane	Widen symmetrically. In area of Memorial Oaks (2000' section) retain existing median.	At least 120' state ROW available for U.S. 101 and at least 220' of state ROW available in sections with both U.S. 101 and Via Real. In several sections, a 6' landscaped median would be provided and most of the existing outside landscaping would be retained. However, in the Memorial Oaks area of U.S. 101 between Toro Canyon Road and Nidever Road, the existing trees in the median would be retained, yet the memorial trees on the southbound side of U.S. 101 would be affected by the widening. In addition, most (approximately 80%) of the existing vegetation that lines the outside of U.S. 101 would be impacted, including a visual buffer of mature trees between U.S. 101 and residential properties that abut U.S. 101 on the northbound side.
South Padaro Lane – Santa Monica Rd.	Widen symmetrically.	At least 200' state ROW available for U.S. 101 and Via Real. Would result in a modest impact (10% - 20%) to existing outside vegetation. However, provides 6' landscaped median and allows sufficient space for a narrow visual buffer on the outside of U.S. 101 on both sides.
Santa Monica Rd – Linden Ave.	Widen symmetrically.	At least 160' state ROW available for U.S. 101. Would result in a modest impact (10% - 20%) to existing outside vegetation. Provides a narrower (6') landscaped median and allows sufficient space for a narrow visual buffer on the outside of U.S. 101 on both sides. Guard rail or a concrete barrier would be needed for the few existing mature trees currently located close to U.S. 101 if these trees are to be retained.
Linden Ave. – Casitas Pass Rd.	Widen symmetrically.	At least 190' state ROW available for U.S. 101. Would result in a modest impact (10% - 20%) to existing outside vegetation. Provides a narrower (6') landscaped median and allows sufficient space for a narrow visual buffer on the outside of U.S. 101 on both sides. Guard rail or a concrete barrier would be needed for a small section of mature trees (630' stretch) on the southbound side of U.S. 101 that would fall within the new clear zone area.
Casitas Pass Rd. – Baillard Ave.	Widen symmetrically.	At least 190' state ROW available for U.S. 101. Proposed widening would result in no change to existing vegetation on outside of U.S. 101 on northbound side and a slight impact (10%) to the existing outside vegetation on the southbound side of U.S. 101. A narrower (6') landscaped median would be provided and sufficient space would remain for a narrow visual buffer on the outside of U.S. 101 on both sides.
Baillard Ave. – SR-150	Widen symmetrically. Widening on NB side stops at SR-150 on-ramp.	At least 240' state ROW available for U.S. 101, Carpinteria Ave. and Via Real. Reduces the existing landscaped median to a 6' landscaped median. No predicted change to existing vegetation on outside on both sides as the proposed footprint remains the same as the existing condition on the outside edges of the freeway.
SR-150 – Bates Rd.	Widening on SB side only as far as 1000' south of SR-150.	Ample state ROW. No noticeable change to vegetation.

Notes:
*Reduced cross-section recommended to be considered for these segments to minimize direct impacts to adjacent frontage roads and properties. Each location where a reduced cross-section is being considered requires justification for a design exception by Caltrans and FHWA. Design exceptions are not easily granted.
All centerline shifts presume that the edge of the northbound travel lanes would remain the same.
ROW measurements were taken at the narrowest points (state ROW line to state ROW line) of the freeway.
Typical cross-section for Milpas North is 142' (full standard) and 128' (reduced cross-section) and for Milpas South is 118' (full standard) and 104' (reduced cross-section). An additional 6' feet (at a minimum, assuming a retaining wall + footing) would need to be provided on either side, in areas of slope. Typical section (minimum requirement) for a two-lane frontage road would be about 32' assuming barrier separation between frontage road and freeway edge of shoulder.

TABLE A-1
ADDED PEAK DIRECTION PERSON TRIP CAPACITY AT SCREENLINES

Improve Mobility / Increase Capacity: Increase Peak Hour Person Trip Capacity: Added Person Trip Capacity

	capacity	units		convert	person-capacity added	
Add General Purpose Lane	2,150	veh/hour		1.1 pers/veh	2,365	pers/hour
Add HOV/HOT Lane	1,650	veh/hour		2.1 pers/veh	3,465	pers/hour
Add Aux Lane	900	veh/hour		1.1 pers/veh	990	pers/hour
Increase Bus Service	specific to alternative, from spreadsheet @45 pers/bus					
Commuter Rail	2	trains/hr	600	pers/6-car train	1,200	pers/hour

SOUTH OF MILPAS SCREENLINE	Add Lane		Add Aux Lane		Add'l Buses		Comm. Rail	Total Added Person Capacity
	# lanes	pers/hr	# lanes	pers/hr	# veh/hr	pers/hr		
Alternative Package A	0	0	0	0	0	0	1,200	1,200
Alternative Package B	1	3,465	0	0	0	0	1,200	4,685
Alternative Package C	1	3,465	0	0	0	0	1,200	4,685
Alternative Package D	1	2,365	0	0	3	135	n/a	2,500

Note: Reflects Peak Direction which is Northbound in AM and Southbound in PM

NORTH OF CARRILLO SCREENLINE	Add Lane		Add Aux Lane		Add'l Buses		Comm. Rail	Total Added Person Capacity
	# lanes	pers/hr	# lanes	pers/hr	# veh/hr	pers/hr		
Alternative Package A	0	0	0	0	2	90	n/a	90
Alternative Package B	1	3,485	0	0	3	135	n/a	3,600
Alternative Package C	0	-	1	990	2	90	n/a	1,080
Alternative Package D	1	2,365	0	0	1	45	n/a	2,410

Note: Reflects Peak Direction which is Southbound in AM and Northbound in PM

APPENDIX B TABLE A-2
ESTIMATED REDUCED PEAK HOUR PEAK DIRECTION PERSON TRIP DEMAND

Reduce Peak Hour Corridor Person Trip Demand

New Transit Riders = Projected Peak Hour Peak Direction Riders Minus Base Case Riders

TDM = Estimated Peak Hour Peak Direction TDM Reduction

HOV = Estimated New Carpool/Vanpools Formed Due to HOV/HOT Lane

SOUTH OF MILPAS SCREENLINE

	New Transit Riders	TDM	HOV	Total Reduced Demand
Alternative Package A	710	90	na	800
Alternative Package B	350	90	330	770
Alternative Package C	350	90	310	750
Alternative Package D	90	90	na	180

Note: Reflects Peak Direction which is Northbound in AM and Southbound in PM

NORTH OF CARRILLO SCREENLINE

	New Transit Riders	TDM	HOV	Total Reduced Demand
Alternative Package A	40	90	na	130
Alternative Package B	100	90	100	290
Alternative Package C	40	90	na	130
Alternative Package D	30	90	na	120

Note: Reflects Peak Direction which is Southbound in AM and Northbound in PM

Table B-1

Intersection LOS Analysis - AM

Intersection	Existing AM		2030 AM		Alt A AM		Alt B AM		Alt C AM		Alt D AM	
	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Fairview Ave & US 101 NB	C	0.77	F	1.10	F	1.07	F	1.10	F	1.10	F	1.11
Storke Rd & Hollister Ave	A	0.53	C	0.70	B	0.68	B	0.66	B	0.69	B	0.67
Fairview Ave & US 101 SB	C	0.70	D	0.88	D	0.87	D	0.89	**E**	0.91	**E**	0.90
Los Carneros Rd & Hollister Ave	A	0.28	A	0.38	A	0.36	A	0.35	A	0.37	A	0.35
SR 217 SB & Hollister Ave	B	0.64	D	0.82	C	0.79	D	0.81	D	0.80	D	0.81
Patterson Ave & Hollister Ave	A	0.53	B	0.64	B	0.62	B	0.66	B	0.67	B	0.66
Fairview Ave & Calle Real	C	0.73	D	0.88	D	0.85	**E**	0.92	**E**	0.93	**E**	0.93
Patterson Ave & US 101 NB	B	0.63	C	0.75	C	0.73	C	0.79	C	0.78	C	0.80
Patterson Ave & US 101 SB	C	0.80	D	0.86	D	0.84	**E**	0.99	**E**	0.97	**F**	1.00
Milpas St & US 101 SB On	A	0.28	A	0.34	A	0.33	A	0.37	A	0.38	A	0.38
Las Positas Rd & US 101 SB	C	0.79	D	0.90	D	0.87	**E**	0.97	**E**	0.96	**E**	0.99
Las Positas Rd & State St	A	0.57	C	0.73	B	0.68	C	0.70	C	0.73	C	0.72
Las Positas Rd & Calle Real / US 101 NB	C	0.74	D	0.87	D	0.84	**E**	0.91	**E**	0.90	**E**	0.93
SR 154 & Cathedral Oaks	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
SR 154 (San Marcos) & Calle Real	B	0.61	C	0.77	C	0.73	C	0.74	C	0.75	C	0.75
SR 154 NB & Foothill Rd	C	N/A	E	N/A	**D**	N/A	**D**	N/A	E	N/A	E	N/A
Castillo St & US 101 NB On	A	0.53	B	0.67	B	0.64	B	0.67	B	0.67	B	0.68
Mission St & US 101 NB	E	0.97	F	1.18	F	1.13	F	1.18	F	1.18	F	1.20
Mission Rd & US 101 SB	E	1.00	F	1.47	F	1.43	F	1.60	F	1.57	F	1.62
Carrillo St & US 101 SB	C	0.77	E	0.97	E	0.91	E	1.00	**F**	1.00	**F**	1.01
Carrillo St & US 101 NB	B	0.69	D	0.88	D	0.83	**E**	0.92	**E**	0.92	**E**	0.93
Castillo St & SR 225/Montecito St	C	0.75	F	1.20	F	1.12	F	1.17	F	1.21	F	1.19
Castillo St & US 101 SB	C	0.74	E	0.94	**D**	0.89	E	0.96	E	0.97	E	0.98
Garden St & US 101 SB	A	0.40	A	0.51	A	0.48	A	0.50	A	0.51	A	0.52
Garden St & US 101 NB	A	0.42	A	0.53	A	0.50	A	0.55	A	0.55	A	0.56
Milpas St & US 101 SB Off	A	0.41	A	0.52	A	0.49	A	0.55	A	0.55	A	0.56
Milpas St & US 101 NB	E	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
San Ysidro Rd & US 101 NB	C	N/A	D	N/A	D	N/A	**E**	N/A	**E**	N/A	**E**	N/A
Sheffield Dr & Jameson Ln/Ortega hill Rd	B	N/A	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A
San Ysidro Rd & US 101 SB	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
Linden Ave & US 101 SB	C	N/A	F	N/A	**E**	N/A	F	N/A	F	N/A	F	N/A
Linden Ave & US-101 NB Ramps*	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A
Casitas Pass Rd & US 101 NB	D	N/A	F	N/A	**E**	N/A	F	N/A	F	N/A	F	N/A
Casitas Pass Rd & US 101 SB	C	N/A	D	N/A	D	N/A	D	N/A	D	N/A	D	N/A

See Appendix I for Traffic Analysis assumptions and methodology

N/A = Not applicable since it is an unsignalized intersection

* Assumes EB right turn lane will be added when the off-ramp is added

** LOS's in shade indicate improved LOS at locations which had a LOS "E" or worse in the Base Year 2030; whereas a bold box indicates a deteriorated LOS.

Table B-1

Intersection LOS Analysis - PM

Intersection	Existing PM LOS	Existing PM V/C	2030 PM LOS	2030 PM V/C	Alt A PM LOS	Alt A PM V/C	Alt B PM LOS	Alt B PM V/C	Alt C PM LOS	Alt C PM V/C	Alt D PM LOS	Alt D PM V/C
Fairview Ave & US 101 NB	D	0.84	F	1.11	F	1.08	F	1.11	F	1.11	F	1.11
Storke Rd & Hollister Ave	C	0.76	F	1.03	**E**	0.99	**E**	0.99	F	1.01	**E**	0.98
Fairview Ave & US 101 SB	A	0.52	B	0.67	B	0.66	B	0.68	B	0.69	B	0.68
Los Carneros Rd & Hollister Ave	A	0.29	A	0.42	A	0.40	A	0.38	A	0.40	A	0.38
SR 217 SB & Hollister Ave	B	0.67	D	0.86	D	0.83	D	0.85	D	0.84	D	0.85
Patterson Ave & Hollister Ave	C	0.72	E	0.93	**D**	0.89	E	0.93	E	0.95	E	0.93
Fairview Ave & Calle Real	D	0.84	F	1.05	F	1.01	F	1.08	F	1.09	F	1.08
Patterson Ave & US 101 NB	C	0.71	D	0.83	D	0.81	**E**	0.92	D	0.90	**E**	0.92
Patterson Ave & US 101 SB	E	0.92	E	0.94	E	0.93	**F**	1.11	**F**	1.08	**F**	1.11
Milpas St & US 101 SB On	A	0.37	A	0.47	A	0.44	A	0.50	A	0.51	A	0.52
Las Positas Rd & US 101 SB	E	0.92	F	1.08	F	1.04	F	1.16	F	1.14	F	1.18
Las Positas Rd & State St	B	0.69	D	0.88	D	0.83	D	0.83	D	0.87	D	0.86
Las Positas Rd & Calle Real / US 101 NB	D	0.88	F	1.01	**E**	0.98	F	1.12	F	1.09	F	1.14
SR 154 & Cathedral Oaks	C	N/A	E	N/A	**D**	N/A	E	N/A	E	N/A	E	N/A
SR 154 (San Marcos) & Calle Real	B	0.65	D	0.81	C	0.77	C	0.78	C	0.79	C	0.79
SR 154 NB & Foothill Rd	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A
Castillo St & US 101 NB On	D	0.83	F	1.04	**E**	0.99	F	1.03	F	1.04	F	1.05
Mission St & US 101 NB	B	0.68	D	0.83	C	0.80	D	0.83	D	0.83	D	0.85
Mission Rd & US 101 SB	D	0.89	F	1.43	F	1.38	F	1.52	F	1.49	F	1.54
Carrillo St & US 101 SB	B	0.66	D	0.83	C	0.80	D	0.84	D	0.85	D	0.86
Carrillo St & US 101 NB	D	0.80	F	1.01	**E**	0.98	F	1.05	F	1.06	F	1.08
Castillo St & SR 225/Montecito St	E	0.97	F	1.56	F	1.48	F	1.52	F	1.57	F	1.56
Castillo St & US 101 SB	D	0.80	F	1.01	**E**	0.96	F	1.02	F	1.03	F	1.05
Garden St & US 101 SB	A	0.50	B	0.63	B	0.61	B	0.65	B	0.66	B	0.67
Garden St & US 101 NB	B	0.68	D	0.86	D	0.83	D	0.90	D	0.90	**E**	0.92
Milpas St & US 101 SB Off	A	0.50	B	0.63	A	0.60	B	0.66	B	0.67	B	0.68
Milpas St & US 101 NB	E	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
San Ysidro Rd & US 101 NB	C	N/A	E	N/A	**D**	N/A	**F**	N/A	**F**	N/A	**F**	N/A
Sheffield Dr & Jameson Ln/Ortega hill Rd	C	N/A	C	N/A	C	N/A	C	N/A	D	N/A	D	N/A
San Ysidro Rd & US 101 SB	E	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
Linden Ave & US 101 SB	C	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
Linden Ave & US-101 NB Ramps*	B	N/A	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A
Casitas Pass Rd & US 101 NB	C	N/A	E	N/A	E	N/A	E	N/A	E	N/A	E	N/A
Casitas Pass Rd & US 101 SB	C	N/A	E	N/A	**D**	N/A	**D**	N/A	**D**	N/A	**D**	N/A
Number of locations with LOS improved from "E" or worse			(AM & PM)		12		3		1		2	
Number of locations with LOS worsened from "E" or worse			(AM & PM)		0		7		8		10	

N/A = Not applicable since it is an unsignalized intersection

* Assumes EB right turn lane will be added when the off-ramp is added

** LOS's in shade indicate improved LOS at locations which had a LOS "E" or worse in the Base Year 2030; whereas a bold box indicates a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
FREEWAY SEGMENT
NO BUILD

NORTHBOUND

ROADWAY NAME	LOCATION	General Lane	Auxilary Lane	HOV Lane	FY2030 NB PEAKCAPA	AM NB PEAK FLOW	AM V/C	AM LOS	PM NB PEAKFLOW	PM V/C	PM LOS
US HWY 101 NB	Ventura County Line and SR-150/Rincon Rd	3			5700	4089	0.72	C	3497	0.61	C
US HWY 101 NB	SR-150/Rincon Rd and Casitas Pass Rd	2			3800	3859	1.02	F	3752	0.99	E
US HWY 101 NB	Casitas Pass Rd and Santa Monica Rd	2			3800	3993	1.05	F	3865	1.02	F
US HWY 101 NB	Santa Monica Rd and North Padaro Ln	2			3800	4100	1.08	F	3967	1.04	F
US HWY 101 NB	North Padaro Ln and San Ysidro Rd	2			3800	4229	1.11	F	3954	1.04	F
US HWY 101 NB	San Ysidro Rd and Cabrillo Blvd/ Hot Springs Rd	2			3800	4347	1.14	F	4157	1.09	F
US HWY 101 NB	Cabrillo Blvd/ Hot Springs Rd and Garden St	2	1		5200	5715	1.10	F	5293	1.02	F
US HWY 101 NB	Garden St and Carrillo St	3			6450	4883	0.76	D	5084	0.79	D
US HWY 101 NB	Carrillo St and Mission St	3			6450	5547	0.86	D	5846	0.91	E
US HWY 101 NB	Mission St and Las Positas Rd	3			6450	5914	0.92	E	6420	1.00	E
US HWY 101 NB	Las Positas Rd and SR-154 / State St	3	1		7350	6687	0.91	E	6823	0.93	E
US HWY 101 NB	SR-154 / State St and SR-217 / Patterson Ave	3			6450	6327	0.98	E	6139	0.95	E
US HWY 101 NB	SR-217 / Patterson Ave and Fairview Ave	3			6450	4423	0.69	C	4422	0.69	C
US HWY 101 NB	Fairview Ave and Glen Annie Rd / Storke Rd	2			4300	3389	0.79	D	3949	0.92	E
US HWY 101 NB	Glen Annie Rd / Storke Rd and Winchester Canyon Rd	2			4300	1135	0.26	A	3582	0.83	D

SOUTHBOUND

ROADWAY NAME	LOCATION	General Lane	Auxilary Lane	HOV Lane	FY2030 SB PEAKCAPA	AM SB PEAK FLOW	AM V/C	AM LOS	PM SB PEAKFLOW	PM V/C	PM LOS
US HWY 101 SB	SR-150/Rincon Rd and Ventura County Line	2			3800	998	0.26	A	5345	1.41	F
US HWY 101 SB	Casitas Pass Rd and SR-150/Rincon Rd	2			3800	1775	0.47	B	4539	1.19	F
US HWY 101 SB	Santa Monica Rd and Casitas Pass Rd	2			3800	2283	0.60	C	4410	1.16	F
US HWY 101 SB	North Padaro Ln and Santa Monica Rd	2			3800	2579	0.68	C	4905	1.29	F
US HWY 101 SB	San Ysidro Rd and North Padaro Ln	2			3800	2533	0.67	C	5095	1.34	F
US HWY 101 SB	Cabrillo Blvd/ Hot Springs Rd and San Ysidro Rd	2			3800	2436	0.64	C	5182	1.36	F
US HWY 101 SB	Garden St and Cabrillo Blvd/ Hot Springs Rd	3			6450	3593	0.56	C	5444	0.84	D
US HWY 101 SB	Carrillo St and Garden St	3			6450	4079	0.63	C	5181	0.80	D
US HWY 101 SB	Mission St and Carrillo St	3			6450	5294	0.82	D	5964	0.92	E
US HWY 101 SB	Las Positas Rd and Mission St	3	1		7350	6215	0.85	D	6758	0.92	E
US HWY 101 SB	SR-154 / State St and Las Positas Rd	3			6450	6008	0.93	E	6616	1.03	F
US HWY 101 SB	SR-217 / Patterson Ave and SR-154 / State St	3			6450	5524	0.86	D	6352	0.98	E
US HWY 101 SB	Fairview Ave and SR-217 / Patterson Ave	3			6450	4059	0.63	C	4652	0.72	C
US HWY 101 SB	Glen Annie Rd / Storke Rd and Fairview Ave	2			4300	3972	0.92	E	3680	0.86	D
US HWY 101 SB	Winchester Canyon Rd and Glen Annie Rd / Storke Rd	2			4300	3724	0.87	D	1636	0.38	A

See Appendix I for Level of Service Analysis assumptions and methodology

Note the volumes and capacities in Table B-2 match those shown in the Peak Hour Flow & LOS maps at the end of Appendix B.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
FREEWAY SEGMENT
ALT A - Commuter Rail

NORTHBOUND

ROADWAY NAME	LOCATION	General Lane	Auxilary Lane	HOV Lane	FY2030 NB PEAKCAPA	AM NB PEAK FLOW	AM V/C	AM LOS	PM NB PEAKFLOW	PM V/C	PM LOS
US HWY 101 NB	Ventura County Line and SR-150/Rincon Rd	3			5700	3519	0.62	C	3501	0.61	C
US HWY 101 NB	SR-150/Rincon Rd and Casitas Pass Rd	2			3800	3531	0.93	E	3746	0.99	E
US HWY 101 NB	Casitas Pass Rd and Santa Monica Rd	2			3800	3498	0.92	E	3845	1.01	F
US HWY 101 NB	Santa Monica Rd and North Padaro Ln	2			3800	3803	1.00	F	3974	1.05	F
US HWY 101 NB	North Padaro Ln and San Ysidro Rd	2			3800	3894	1.02	F	3958	1.04	F
US HWY 101 NB	San Ysidro Rd and Cabrillo Blvd/ Hot Springs Rd	2			3800	3976	1.05	F	4166	1.10	F
US HWY 101 NB	Cabrillo Blvd/ Hot Springs Rd and Garden St	2	1		5200	5141	0.99	E	5288	1.02	F
US HWY 101 NB	Garden St and Carrillo St	3			6450	4363	0.68	C	5061	0.78	D
US HWY 101 NB	Carrillo St and Mission St	3			6450	5254	0.81	D	5766	0.89	D
US HWY 101 NB	Mission St and Las Positas Rd	3			6450	5699	0.88	D	6318	0.98	E
US HWY 101 NB	Las Positas Rd and SR-154 / State St	3	1		7350	6437	0.88	D	6746	0.92	E
US HWY 101 NB	SR-154 / State St and SR-217 / Patterson Ave	3			6450	6156	0.95	E	6059	0.94	E
US HWY 101 NB	SR-217 / Patterson Ave and Fairview Ave	3			6450	4291	0.67	C	4414	0.68	C
US HWY 101 NB	Fairview Ave and Glen Annie Rd / Storke Rd	2			4300	3291	0.77	D	3925	0.91	E
US HWY 101 NB	Glen Annie Rd / Storke Rd and Winchester Canyon Rd	2			4300	1094	0.25	A	3508	0.82	D

NUMBER OF LOCATION WITH LOS IMPROVED FROM "E" OR WORSE = 6
NUMBER OF LOCATION WITH LOS WORSENED FROM "E" OR WORSE = 0

SOUTHBOUND

ROADWAY NAME	LOCATION	General Lane	Auxilary Lane	HOV Lane	FY2030 SB PEAKCAPA	AM SB PEAK FLOW	AM V/C	AM LOS	PM SB PEAKFLOW	PM V/C	PM LOS
US HWY 101 SB	SR-150/Rincon Rd and Ventura County Line	2			3800	998	0.26	A	4484	1.18	F
US HWY 101 SB	Casitas Pass Rd and SR-150/Rincon Rd	2			3800	1777	0.47	B	4041	1.06	F
US HWY 101 SB	Santa Monica Rd and Casitas Pass Rd	2			3800	2288	0.60	C	4102	1.08	F
US HWY 101 SB	North Padaro Ln and Santa Monica Rd	2			3800	2580	0.68	C	4258	1.12	F
US HWY 101 SB	San Ysidro Rd and North Padaro Ln	2			3800	2533	0.67	C	4373	1.15	F
US HWY 101 SB	Cabrillo Blvd/ Hot Springs Rd and San Ysidro Rd	2			3800	2422	0.64	C	4638	1.22	F
US HWY 101 SB	Garden St and Cabrillo Blvd/ Hot Springs Rd	3			6450	3571	0.55	C	5007	0.78	D
US HWY 101 SB	Carrillo St and Garden St	3			6450	4036	0.63	C	4864	0.75	D
US HWY 101 SB	Mission St and Carrillo St	3			6450	5240	0.81	D	5726	0.89	D
US HWY 101 SB	Las Positas Rd and Mission St	3	1		7350	6167	0.84	D	6455	0.88	D
US HWY 101 SB	SR-154 / State St and Las Positas Rd	3			6450	5951	0.92	E	6371	0.99	E
US HWY 101 SB	SR-217 / Patterson Ave and SR-154 / State St	3			6450	5466	0.85	D	6126	0.95	E
US HWY 101 SB	Fairview Ave and SR-217 / Patterson Ave	3			6450	4014	0.62	C	4511	0.70	C
US HWY 101 SB	Glen Annie Rd / Storke Rd and Fairview Ave	2			4300	3915	0.91	E	3605	0.84	D
US HWY 101 SB	Winchester Canyon Rd and Glen Annie Rd / Storke Rd	2			4300	3672	0.85	D	1637	0.38	A

NUMBER OF LOCATION WITH LOS IMPROVED FROM "E" OR WORSE = 3
NUMBER OF LOCATION WITH LOS WORSENED FROM "E" OR WORSE = 0

* The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
FREEWAY SEGMENT
ALT B - HOV/HOT Lanes + Commuter Rail

NORTHBOUND

ROADWAY NAME	LOCATION	General Lane	Auxilary Lane	HOV Lane	FY2030 NB PEAKCAPA	AM NB PEAK FLOW	AM V/C	AM LOS	PM NB PEAKFLOW	PM V/C	PM LOS
US HWY 101 NB	Ventura County Line and SR-150/Rincon Rd	3			6450	1000	0.16	A	4571	0.71	C
US HWY 101 NB	SR-150/Rincon Rd and Casitas Pass Rd	2		1	6150	4205	0.68	C	4060	0.66	C
US HWY 101 NB	Casitas Pass Rd and Santa Monica Rd	2		1	6150	4593	0.75	C	4801	0.78	D
US HWY 101 NB	Santa Monica Rd and North Padaro Ln	2		1	6150	5183	0.84	D	5317	0.86	D
US HWY 101 NB	North Padaro Ln and San Ysidro Rd	2		1	6150	5296	0.86	D	5378	0.87	D
US HWY 101 NB	San Ysidro Rd and Cabrillo Blvd/ Hot Springs Rd	2		1	6150	5336	0.87	D	5290	0.86	D
US HWY 101 NB	Cabrillo Blvd/ Hot Springs Rd and Garden St	2		1	6150	5771	0.94	E	5659	0.92	E
US HWY 101 NB	Garden St and Carrillo St	3			6450	4944	0.77	D	5316	0.82	D
US HWY 101 NB	Carrillo St and Mission St	3		1	8300	6175	0.74	C	6730	0.81	D
US HWY 101 NB	Mission St and Las Positas Rd	3		1	8300	6953	0.84	D	7509	0.90	E
US HWY 101 NB	Las Positas Rd and SR-154 / State St	3		1	8300	7683	0.93	E	8016	0.97	E
US HWY 101 NB	SR-154 / State St and SR-217 / Patterson Ave	3		1	8300	7381	0.89	D	7249	0.87	D
US HWY 101 NB	SR-217 / Patterson Ave and Fairview Ave	3			6450	4776	0.74	C	4768	0.74	C
US HWY 101 NB	Fairview Ave and Glen Annie Rd / Storke Rd	2	1		5200	3544	0.68	C	4298	0.83	D
US HWY 101 NB	Glen Annie Rd / Storke Rd and Winchester Canyon Rd	2			4300	1139	0.26	A	3537	0.82	D

NUMBER OF LOCATION WITH LOS IMPROVED FROM "E" OR WORSE : 10

NUMBER OF LOCATION WITH LOS WORSENED FROM "E" OR WORSE = 0

SOUTHBOUND

ROADWAY NAME	LOCATION	General Lane	Auxilary Lane	HOV Lane	FY2030 SB PEAKCAPA	AM SB PEAK FLOW	AM V/C	AM LOS	PM SB PEAKFLOW	PM V/C	PM LOS
US HWY 101 SB	SR-150/Rincon Rd and Ventura County Line	2			4300	1000	0	A	4571	1.06	F
US HWY 101 SB	Casitas Pass Rd and SR-150/Rincon Rd	2		1	6150	1861	0.30	A	5146	0.84	D
US HWY 101 SB	Santa Monica Rd and Casitas Pass Rd	2		1	6150	2773	0.45	B	5212	0.85	D
US HWY 101 SB	North Padaro Ln and Santa Monica Rd	2		1	6150	3436	0.56	B	5710	0.93	E
US HWY 101 SB	San Ysidro Rd and North Padaro Ln	2		1	6150	3316	0.54	B	5757	0.94	E
US HWY 101 SB	Cabrillo Blvd/ Hot Springs Rd and San Ysidro Rd	2		1	6150	3075	0.50	B	5719	0.93	E
US HWY 101 SB	Garden St and Cabrillo Blvd/ Hot Springs Rd	3			6450	4064	0.63	C	6050	0.94	E
US HWY 101 SB	Carrillo St and Garden St	3	1		7350	4501	0.61	C	5612	0.76	D
US HWY 101 SB	Mission St and Carrillo St	3		1	8300	5936	0.72	C	6838	0.82	D
US HWY 101 SB	Las Positas Rd and Mission St	3	1	1	9200	6988	0.76	D	7579	0.82	D
US HWY 101 SB	SR-154 / State St and Las Positas Rd	3		1	8300	6963	0.84	D	7698	0.93	E
US HWY 101 SB	SR-217 / Patterson Ave and SR-154 / State St	3		1	8300	6245	0.75	D	7253	0.87	D
US HWY 101 SB	Fairview Ave and SR-217 / Patterson Ave	3			6450	4189	0.65	C	4897	0.76	D
US HWY 101 SB	Glen Annie Rd / Storke Rd and Fairview Ave	2			4300	4025	0.94	E	3752	0.87	D
US HWY 101 SB	Winchester Canyon Rd and Glen Annie Rd / Storke Rd	2			4300	3676	0.85	D	1732	0.40	B

NUMBER OF LOCATION WITH LOS IMPROVED FROM "E" OR WORSE : 9

NUMBER OF LOCATION WITH LOS WORSENED FROM "E" OR WORSE 1

* The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
FREEWAY SEGMENT
ALT C - South/ Aux Lanes North + Commuter Rail

NORTHBOUND

		General	Auxilary	HOV	FY2030	AM			PM		
ROADWAY NAME	LOCATION	Lane	Lane	Lane	NB PEAKCAPA	NB PEAK FLOW	V/C	LOS	NB PEAKFLOW	V/C	LOS
US HWY 101 NB	Ventura County Line and SR-150/Rincon Rd	3			6450	999	0.15	A	4890	0.76	D
US HWY 101 NB	SR-150/Rincon Rd and Casitas Pass Rd	2		1	6150	4194	0.68	C	4063	0.66	C
US HWY 101 NB	Casitas Pass Rd and Santa Monica Rd	2		1	6150	4575	0.74	C	4792	0.78	D
US HWY 101 NB	Santa Monica Rd and North Padaro Ln	2		1	6150	5169	0.84	D	5314	0.86	D
US HWY 101 NB	North Padaro Ln and San Ysidro Rd	2		1	6150	5281	0.86	D	5377	0.87	D
US HWY 101 NB	San Ysidro Rd and Cabrillo Blvd/ Hot Springs Rd	2		1	6150	5316	0.86	D	5270	0.86	D
US HWY 101 NB	Cabrillo Blvd/ Hot Springs Rd and Garden St	2		1	6150	5906	0.96	E	5762	0.94	E
US HWY 101 NB	Garden St and Carrillo St	3			6450	5017	0.78	D	5351	0.83	D
US HWY 101 NB	Carrillo St and Mission St	3	1		7350	5979	0.81	D	6392	0.87	D
US HWY 101 NB	Mission St and Las Positas Rd	3	1		7350	6604	0.90	D	7168	0.98	E
US HWY 101 NB	Las Positas Rd and SR-154 / State St	3	1		7350	7339	1.00	E	7537	1.03	F
US HWY 101 NB	SR-154 / State St and SR-217 / Patterson Ave	3	1		7350	7124	0.97	E	6984	0.95	E
US HWY 101 NB	SR-217 / Patterson Ave and Fairview Ave	3	1		7350	4817	0.66	C	4941	0.67	C
US HWY 101 NB	Fairview Ave and Glen Annie Rd / Storke Rd	2	1		5200	3602	0.69	C	4404	0.85	D
US HWY 101 NB	Glen Annie Rd / Storke Rd and Winchester Canyon Rd	2			4300	1134	0.26	A	3540	0.82	D

NUMBER OF LOCATION WITH LOS IMPROVED FROM "E" OR WORSE = 9

NUMBER OF LOCATION WITH LOS WORSENED FROM "E" OR WORSE = 1

SOUTHBOUND

		General	Auxilary	HOV	FY2030	AM			PM		
ROADWAY NAME	LOCATION	Lane	Lane	Lane	SB PEAKCAPA	SB PEAK FLOW	V/C	LOS	SB PEAKFLOW	V/C	LOS
US HWY 101 SB	SR-150/Rincon Rd and Ventura County Line	2			4300	999	0.23	A	4890	1.14	F
US HWY 101 SB	Casitas Pass Rd and SR-150/Rincon Rd	2		1	6150	1878	0.31	A	5285	0.86	D
US HWY 101 SB	Santa Monica Rd and Casitas Pass Rd	2		1	6150	2761	0.45	B	5481	0.89	D
US HWY 101 SB	North Padaro Ln and Santa Monica Rd	2		1	6150	3436	0.56	B	5917	0.96	E
US HWY 101 SB	San Ysidro Rd and North Padaro Ln	2		1	6150	3317	0.54	B	6027	0.98	E
US HWY 101 SB	Cabrillo Blvd/ Hot Springs Rd and San Ysidro Rd	2		1	6150	3075	0.50	B	5987	0.97	E
US HWY 101 SB	Garden St and Cabrillo Blvd/ Hot Springs Rd	3			6450	4075	0.63	C	6160	0.96	E
US HWY 101 SB	Carrillo St and Garden St	3	1		7350	4482	0.61	C	5584	0.76	D
US HWY 101 SB	Mission St and Carrillo St	3			6450	5694	0.88	D	6188	0.96	E
US HWY 101 SB	Las Positas Rd and Mission St	3	1		7350	6833	0.93	E	7198	0.98	E
US HWY 101 SB	SR-154 / State St and Las Positas Rd	3	1		7350	6835	0.93	E	7395	1.01	F
US HWY 101 SB	SR-217 / Patterson Ave and SR-154 / State St	3	1		7350	6351	0.86	D	7129	0.97	E
US HWY 101 SB	Fairview Ave and SR-217 / Patterson Ave	3	1		7350	4363	0.59	B	5050	0.69	C
US HWY 101 SB	Glen Annie Rd / Storke Rd and Fairview Ave	2	1		5200	4221	0.81	D	3895	0.75	C
US HWY 101 SB	Winchester Canyon Rd and Glen Annie Rd / Storke Rd	2			4300	3674	0.85	D	1707	0.40	A

NUMBER OF LOCATION WITH LOS IMPROVED FROM "E" OR WORSE = 6

NUMBER OF LOCATION WITH LOS WORSENED FROM "E" OR WORSE = 2

* The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
FREEWAY SEGMENT
ALT D - General Purpose Lanes

NORTHBOUND

		General	Auxilary	HOV	FY2030	AM			PM		
ROADWAY NAME	**LOCATION**	**Lane**	**Lane**	**Lane**	**NB PEAKCAPA**	**NB PEAK FLOW**	**V/C**	**LOS**	**NB PEAKFLOW**	**V/C**	**LOS**
US HWY 101 NB	Ventura County Line and SR-150/Rincon Rd	3			6450	4295	0.67	C	3499	0.54	B
US HWY 101 NB	SR-150/Rincon Rd and Casitas Pass Rd	3			6450	4578	0.71	C	4074	0.63	C
US HWY 101 NB	Casitas Pass Rd and Santa Monica Rd	3			6450	4911	0.76	D	4798	0.74	C
US HWY 101 NB	Santa Monica Rd and North Padaro Ln	3			6450	5613	0.87	D	5356	0.83	D
US HWY 101 NB	North Padaro Ln and San Ysidro Rd	3			6450	5719	0.89	D	5384	0.83	D
US HWY 101 NB	San Ysidro Rd and Cabrillo Blvd/ Hot Springs Rd	3			6450	5659	0.88	D	5238	0.81	D
US HWY 101 NB	Cabrillo Blvd/ Hot Springs Rd and Garden St	3			6450	5917	0.92	E	5619	0.87	D
US HWY 101 NB	Garden St and Carrillo St	3			6450	5061	0.78	D	5312	0.82	D
US HWY 101 NB	Carrillo St and Mission St	4			8600	6269	0.73	C	6694	0.78	D
US HWY 101 NB	Mission St and Las Positas Rd	4			8600	7076	0.82	D	7496	0.87	D
US HWY 101 NB	Las Positas Rd and SR-154 / State St	4			8600	7759	0.90	E	8036	0.93	E
US HWY 101 NB	SR-154 / State St and SR-217 / Patterson Ave	4			8600	7509	0.87	D	7228	0.84	D
US HWY 101 NB	SR-217 / Patterson Ave and Fairview Ave	3			6450	4885	0.76	D	4767	0.74	C
US HWY 101 NB	Fairview Ave and Glen Annie Rd / Storke Rd	2	1		5200	3594	0.69	C	4318	0.83	D
US HWY 101 NB	Glen Annie Rd / Storke Rd and Winchester Canyon Rd	2			4300	1188	0.28	A	3548	0.83	D

NUMBER OF LOCATION WITH LOS IMPROVED FROM "E" OR WORSE : 10
NUMBER OF LOCATION WITH LOS WORSENED FROM "E" OR WORSE 0

SOUTHBOUND

		General	Auxilary	HOV	FY2030	AM			PM		
ROADWAY NAME	**LOCATION**	**Lane**	**Lane**	**Lane**	**SB PEAKCAPA**	**SB PEAK FLOW**	**V/C**	**LOS**	**SB PEAKFLOW**	**V/C**	**LOS**
US HWY 101 SB	SR-150/Rincon Rd and Ventura County Line	3			6450	999	0.15	A	5220	0.81	D
US HWY 101 SB	Casitas Pass Rd and SR-150/Rincon Rd	3			6450	1874	0.29	A	5440	0.84	D
US HWY 101 SB	Santa Monica Rd and Casitas Pass Rd	3			6450	2727	0.42	B	5689	0.88	D
US HWY 101 SB	North Padaro Ln and Santa Monica Rd	3			6450	3348	0.52	B	6155	0.95	E
US HWY 101 SB	San Ysidro Rd and North Padaro Ln	3			6450	3249	0.50	B	6265	0.97	E
US HWY 101 SB	Cabrillo Blvd/ Hot Springs Rd and San Ysidro Rd	3			6450	2970	0.46	B	6223	0.96	E
US HWY 101 SB	Garden St and Cabrillo Blvd/ Hot Springs Rd	3			6450	4009	0.62	C	6379	0.99	E
US HWY 101 SB	Carrillo St and Garden St	3	1		7350	4534	0.62	C	5958	0.81	D
US HWY 101 SB	Mission St and Carrillo St	4			8600	5916	0.69	C	6924	0.81	D
US HWY 101 SB	Las Positas Rd and Mission St	4			8600	7000	0.81	D	7728	0.90	D
US HWY 101 SB	SR-154 / State St and Las Positas Rd	4			8600	7052	0.82	D	7832	0.91	E
US HWY 101 SB	SR-217 / Patterson Ave and SR-154 / State St	4			8600	6337	0.74	C	7362	0.86	D
US HWY 101 SB	Fairview Ave and SR-217 / Patterson Ave	3			6450	4249	0.66	C	4897	0.76	D
US HWY 101 SB	Glen Annie Rd / Storke Rd and Fairview Ave	2			4300	4015	0.93	E	3796	0.88	D
US HWY 101 SB	Winchester Canyon Rd and Glen Annie Rd / Storke Rd	2			4300	3677	0.86	D	1686	0.39	A

NUMBER OF LOCATION WITH LOS IMPROVED FROM "E" OR WORSE : 10
NUMBER OF LOCATION WITH LOS WORSENED FROM "E" OR WORSE 1

* The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
RAMP SEGMENTS
NO BUILD

NORTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				NB PEAKFLOW	V/C	LOS	NB PEAKFLOW	V/C	LOS
101 NB OFF	Ramp at Garden St	1	1250	398	0.32	A	626	0.50	B
101 NB ON	Ramp at Garden St	1	1250	852	0.68	C	1450	1.16	F
101 NB OFF	Ramp at Carrillo St	1	1250	608	0.49	B	959	0.77	D
101 NB ON	Ramp at Carrillo St	1	2500	1315	0.53	B	1480	0.59	B
101 NB OFF	Ramp at Mission St	1	1250	572	0.46	B	415	0.33	A
101 NB ON	Ramp at Mission St	1	1250	1816	1.45	F	1148	0.92	E
101 NB OFF	Ramp at Las Positas Rd	1	1250	1116	0.89	D	1697	1.36	F
101 NB ON	Ramp at Las Positas Rd	1	1250	967	0.77	D	1035	0.83	D
101 NB OFF	Ramp at Patterson Ave	2	2500	764	0.31	A	882	0.35	A
101 NB ON	Ramp at Patterson Ave	1	1250	514	0.41	B	759	0.61	C
101 NB OFF	Ramp at Fairview Ave	2	2500	1383	0.55	B	1040	0.42	B
101 NB ON	Ramp at Fairview Ave	1	1250	261	0.21	A	701	0.56	B

SOUTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				SB PEAKFLOW	V/C	LOS	SB PEAKFLOW	V/C	LOS
101 SB OFF	Ramp at Garden St	1	1250	1063	0.85	D	759	0.61	C
101 SB ON	Ramp at Garden St	1	1250	377	0.30	A	772	0.62	C
101 SB OFF	Ramp at Carrillo St	1	1250	1841	1.47	F	1768	1.41	F
101 SB ON	Ramp at Carrillo St	1	1250	799	0.64	C	566	0.45	B
101 SB OFF	Ramp at Mission St	1	1250	352	0.28	A	1633	1.31	F
101 SB ON	Ramp at Mission St	1	1250	736	0.59	B	667	0.53	B
101 SB OFF	Ramp at Las Positas Rd	1	1250	582	0.47	B	1028	0.82	D
101 SB ON	Ramp at Las Positas Rd	1	1250	1092	0.87	D	850	0.68	C
101 SB OFF	Ramp at Patterson Ave	1	1250	594	0.48	B	749	0.60	B
101 SB ON	Ramp at Patterson Ave	1	1250	936	0.75	C	1149	0.92	E
101 SB OFF	Ramp at Fairview Ave	1	1250	824	0.66	C	477	0.38	A
101 SB ON	Ramp at Fairview Ave	1	1250	1294	1.04	F	1017	0.81	D

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
RAMP SEGMENTS
ALT A - Commuter Rail

NORTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				NB PEAKFLOW	V/C	LOS	NB PEAKFLOW	V/C	LOS
101 NB OFF	Ramp at Garden St	1	1250	373	0.30	A	605	0.48	B
101 NB ON	Ramp at Garden St	1	1250	799	0.64	C	1402	1.12	F
101 NB OFF	Ramp at Carrillo St	1	1250	570	0.46	B	927	0.74	C
101 NB ON	Ramp at Carrillo St	2	2500	1232	0.49	B	1431	0.57	B
101 NB OFF	Ramp at Mission St	1	1250	558	0.45	B	405	0.32	A
101 NB ON	Ramp at Mission St	1	1250	1772	1.42	F	1121	0.90	D
101 NB OFF	Ramp at Las Positas Rd	1	1250	1089	0.87	D	1657	1.33	F
101 NB ON	Ramp at Las Positas Rd	1	1250	943	0.75	D	1010	0.81	D
101 NB OFF	Ramp at Patterson Ave	2	2500	749	0.30	A	860	0.34	A
101 NB ON	Ramp at Patterson Ave	1	1250	504	0.40	B	740	0.59	B
101 NB OFF	Ramp at Fairview Ave	2	2500	1360	0.54	B	1028	0.41	B
101 NB ON	Ramp at Fairview Ave	1	1250	257	0.21	A	692	0.55	B

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 1
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 0

SOUTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				SB PEAKFLOW	V/C	LOS	SB PEAKFLOW	V/C	LOS
101 SB OFF	Ramp at Garden St	1	1250	996	0.80	D	733	0.59	B
101 SB ON	Ramp at Garden St	1	1250	354	0.28	A	747	0.60	B
101 SB OFF	Ramp at Carrillo St	1	1250	1725	1.38	F	1709	1.37	F
101 SB ON	Ramp at Carrillo St	1	1250	749	0.60	B	547	0.44	B
101 SB OFF	Ramp at Mission St	1	1250	343	0.27	A	1594	1.28	F
101 SB ON	Ramp at Mission St	1	1250	718	0.57	B	651	0.52	B
101 SB OFF	Ramp at Las Positas Rd	1	1250	568	0.45	B	1003	0.80	D
101 SB ON	Ramp at Las Positas Rd	1	1250	1065	0.85	D	829	0.66	C
101 SB OFF	Ramp at Patterson Ave	1	1250	582	0.47	B	730	0.58	B
101 SB ON	Ramp at Patterson Ave	1	1250	918	0.73	C	1121	0.90	D
101 SB OFF	Ramp at Fairview Ave	1	1250	810	0.65	C	471	0.38	A
101 SB ON	Ramp at Fairview Ave	1	1250	1272	1.02	F	1004	0.80	D

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 1
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 0

*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
RAMP SEGMENTS
ALT B - HOV/HOT Lanes + Commuter Rail

NORTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				NB PEAKFLOW	V/C	LOS	NB PEAKFLOW	V/C	LOS
101 NB OFF	Ramp at Garden St	1	1250	419	0.34	A	666	0.53	B
101 NB ON	Ramp at Garden St	1	1250	898	0.72	C	1544	1.24	F
101 NB OFF	Ramp at Carrillo St	1	1250	641	0.51	B	1021	0.82	D
101 NB ON	Ramp at Carrillo St	1	2500	1386	0.55	B	1576	0.63	C
101 NB OFF	Ramp at Mission St	1	1250	659	0.53	B	486	0.39	A
101 NB ON	Ramp at Mission St	1	1250	2095	1.68	F	1343	1.07	F
101 NB OFF	Ramp at Las Positas Rd	1	1250	1287	1.03	F	1985	1.59	F
101 NB ON	Ramp at Las Positas Rd	1	1250	1115	0.89	D	1210	0.97	E
101 NB OFF	Ramp at Patterson Ave	2	2500	878	0.35	A	1024	0.41	B
101 NB ON	Ramp at Patterson Ave	1	1250	591	0.47	B	881	0.70	C
101 NB OFF	Ramp at Fairview Ave	2	2500	1402	0.56	B	1058	0.42	B
101 NB ON	Ramp at Fairview Ave	1	1250	265	0.21	A	713	0.57	B
NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 0						0			0
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 3						1			2

SOUTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				SB PEAKFLOW	V/C	LOS	SB PEAKFLOW	V/C	LOS
101 SB OFF	Ramp at Garden St	1	1250	1121	0.90	D	808	0.65	C
101 SB ON	Ramp at Garden St	1	1250	398	0.32	A	822	0.66	C
101 SB OFF	Ramp at Carrillo St	1	1250	1940	1.55	F	1882	1.51	F
101 SB ON	Ramp at Carrillo St	1	1250	842	0.67	C	603	0.48	B
101 SB OFF	Ramp at Mission St	1	1250	406	0.32	A	1909	1.53	F
101 SB ON	Ramp at Mission St	1	1250	849	0.68	C	780	0.62	C
101 SB OFF	Ramp at Las Positas Rd	1	1250	672	0.54	B	1202	0.96	E
101 SB ON	Ramp at Las Positas Rd	1	1250	1260	1.01	F	994	0.80	D
101 SB OFF	Ramp at Patterson Ave	1	1250	683	0.55	B	869	0.70	C
101 SB ON	Ramp at Patterson Ave	1	1250	1077	0.86	D	1334	1.07	F
101 SB OFF	Ramp at Fairview Ave	1	1250	835	0.67	C	485	0.39	A
101 SB ON	Ramp at Fairview Ave	1	1250	1312	1.05	F	1034	0.83	D
NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 0									
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 3									

*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
RAMP SEGMENTS
ALT C - HOV South/ Aux Lanes North + Commuter Rail

NORTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				NB PEAKFLOW	V/C	LOS	NB PEAKFLOW	V/C	LOS
101 NB OFF	Ramp at Garden St	1	1250	421	0.34	A	666	0.53	B
101 NB ON	Ramp at Garden St	1	1250	903	0.72	C	1545	1.24	F
101 NB OFF	Ramp at Carrillo St	1	1250	645	0.52	B	1021	0.82	D
101 NB ON	Ramp at Carrillo St	1	2500	1394	0.56	B	1577	0.63	C
101 NB OFF	Ramp at Mission St	1	1250	638	0.51	B	462	0.37	A
101 NB ON	Ramp at Mission St	1	1250	2027	1.62	F	1276	1.02	F
101 NB OFF	Ramp at Las Positas Rd	1	1250	1246	1.00	E	1886	1.51	F
101 NB ON	Ramp at Las Positas Rd	1	1250	1079	0.86	D	1150	0.92	E
101 NB OFF	Ramp at Patterson Ave	2	2500	869	0.35	A	996	0.40	A
101 NB ON	Ramp at Patterson Ave	1	1250	584	0.47	B	857	0.69	C
101 NB OFF	Ramp at Fairview Ave	2	2500	1425	0.57	B	1070	0.43	B
101 NB ON	Ramp at Fairview Ave	1	1250	269	0.22	A	721	0.58	B

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 0
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 3

SOUTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				SB PEAKFLOW	V/C	LOS	SB PEAKFLOW	V/C	LOS
101 SB OFF	Ramp at Garden St	1	1250	1127	0.90	E	808	0.65	C
101 SB ON	Ramp at Garden St	1	1250	400	0.32	A	823	0.66	C
101 SB OFF	Ramp at Carrillo St	1	1250	1951	1.56	F	1883	1.51	F
101 SB ON	Ramp at Carrillo St	1	1250	847	0.68	C	603	0.48	B
101 SB OFF	Ramp at Mission St	1	1250	393	0.31	A	1814	1.45	F
101 SB ON	Ramp at Mission St	1	1250	822	0.66	C	741	0.59	B
101 SB OFF	Ramp at Las Positas Rd	1	1250	650	0.52	B	1142	0.91	E
101 SB ON	Ramp at Las Positas Rd	1	1250	1219	0.98	E	944	0.76	D
101 SB OFF	Ramp at Patterson Ave	1	1250	675	0.54	B	846	0.68	C
101 SB ON	Ramp at Patterson Ave	1	1250	1065	0.85	D	1298	1.04	F
101 SB OFF	Ramp at Fairview Ave	1	1250	848	0.68	C	491	0.39	A
101 SB ON	Ramp at Fairview Ave	1	1250	1333	1.07	F	1046	0.84	D

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 0
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 4

*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
RAMP SEGMENTS
ALT D - General Purpose Lanes

NORTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				NB PEAKFLOW	V/C	LOS	NB PEAKFLOW	V/C	LOS
101 NB OFF	Ramp at Garden St	1	1250	426	0.34	A	687	0.55	B
101 NB ON	Ramp at Garden St	1	1250	913	0.73	C	1592	1.27	F
101 NB OFF	Ramp at Carrillo St	1	1250	651	0.52	B	1052	0.84	D
101 NB ON	Ramp at Carrillo St	1	2500	1408	0.56	B	1625	0.65	C
101 NB OFF	Ramp at Mission St	1	1250	667	0.53	B	490	0.39	A
101 NB ON	Ramp at Mission St	1	1250	2118	1.69	F	1356	1.08	F
101 NB OFF	Ramp at Las Positas Rd	1	1250	1302	1.04	F	2004	1.60	F
101 NB ON	Ramp at Las Positas Rd	1	1250	1128	0.90	E	1222	0.98	E
101 NB OFF	Ramp at Patterson Ave	2	2500	893	0.36	A	1030	0.41	B
101 NB ON	Ramp at Patterson Ave	1	1250	601	0.48	B	886	0.71	C
101 NB OFF	Ramp at Fairview Ave	2	2500	1419	0.57	B	1061	0.42	B
101 NB ON	Ramp at Fairview Ave	1	1250	268	0.21	A	715	0.57	B

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 0
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 3

SOUTHBOUND

ROADWAY NAME	LOCATON	Number of Lane	Capacity	AM			PM		
				SB PEAKFLOW	V/C	LOS	SB PEAKFLOW	V/C	LOS
101 SB OFF	Ramp at Garden St	1	1250	1138	0.91	E	833	0.67	C
101 SB ON	Ramp at Garden St	1	1250	404	0.32	A	848	0.68	C
101 SB OFF	Ramp at Carrillo St	1	1250	1971	1.58	F	1941	1.55	F
101 SB ON	Ramp at Carrillo St	1	1250	855	0.68	C	621	0.50	B
101 SB OFF	Ramp at Mission St	1	1250	410	0.33	A	1928	1.54	F
101 SB ON	Ramp at Mission St	1	1250	859	0.69	C	788	0.63	C
101 SB OFF	Ramp at Las Positas Rd	1	1250	679	0.54	B	1214	0.97	E
101 SB ON	Ramp at Las Positas Rd	1	1250	1274	1.02	F	1003	0.80	D
101 SB OFF	Ramp at Patterson Ave	1	1250	694	0.56	B	874	0.70	C
101 SB ON	Ramp at Patterson Ave	1	1250	1094	0.88	D	1342	1.07	F
101 SB OFF	Ramp at Fairview Ave	1	1250	844	0.68	C	487	0.39	A
101 SB ON	Ramp at Fairview Ave	1	1250	1327	1.06	F	1037	0.83	D

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 0
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE =4

*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
ARTERIAL SEGMENTS
NO BUILD

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	FY 2030, AM			FY 2030, PM		
				WB AM	WB AM V/C	WB AM LOS	WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	152	0.19	A	356	0.44	B
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	429	0.61	C	195	0.28	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	787	0.49	B	404	0.25	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	82	0.12	A	52	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	625	0.89	D	317	0.45	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	258	0.37	A	250	0.36	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1256	0.70	C	1019	0.57	B
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	99	0.05	A	818	0.45	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	553	0.79	D	361	0.52	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	648	0.81	D	397	0.50	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	590	0.74	C	466	0.58	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	965	1.21	F	757	0.95	E
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	757	0.47	B	1020	0.64	C
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	895	0.50	B	1847	1.03	F

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	FY 2030, AM			FY 2030, PM		
				EB AM	EB AM V/C	EB AM LOS	EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	340	0.42	B	122	0.15	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	123	0.18	A	367	0.52	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	37	0.02	A	1235	0.77	D
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	48	0.07	A	30	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	629	0.90	D	579	0.83	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	265	0.38	A	679	0.97	E
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1378	0.77	D	1544	0.86	D
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	875	0.49	B	327	0.18	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	235	0.15	A	351	0.22	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	551	0.69	C	534	0.67	C
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	412	0.51	B	759	0.95	E
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	559	0.70	C	862	1.08	F
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	549	0.34	A	1219	0.76	D
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1430	0.79	D	1397	0.78	D

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
ARTERIAL SEGMENTS
ALT A - Commuter Rail

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	ALT A, AM WB AM	WB AM V/C	WB AM LOS	ALT A, PM WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	144	0.18	A	337	0.42	B
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	406	0.58	B	185	0.26	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	745	0.47	B	383	0.24	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	77	0.11	A	48	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	590	0.84	D	300	0.43	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	240	0.34	A	233	0.33	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1187	0.66	C	962	0.53	B
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	92	0.05	A	763	0.42	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	515	0.74	C	337	0.48	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	574	0.72	C	352	0.44	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	558	0.70	C	441	0.55	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	913	1.14	F	716	0.90	D
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	716	0.45	B	965	0.60	C
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	847	0.47	B	1748	0.97	E
	NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 2					0			2
	NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 0					0			0

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	ALT A, AM EB AM	EB AM V/C	EB AM LOS	ALT A, PM EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	322	0.40	B	115	0.14	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	117	0.17	A	347	0.50	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	35	0.02	A	1168	0.73	C
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	45	0.06	A	28	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	594	0.85	D	547	0.78	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	247	0.35	A	634	0.91	E
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1302	0.72	C	1459	0.81	D
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	816	0.45	B	305	0.17	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	219	0.14	A	327	0.20	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	514	0.64	C	498	0.62	C
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	389	0.49	B	718	0.90	D
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	529	0.66	C	816	1.02	F
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	520	0.32	A	1153	0.72	C
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1353	0.75	D	1322	0.73	C

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE =1
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 0

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".
*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
ARTERIAL SEGMENTS
ALT B - HOV/HOT Lanes + Commuter Rail

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	ALT B, AM			ALT B, PM		
				WB AM	WB AM V/C	WB AM LOS	WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	136	0.17	A	319	0.40	A
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	384	0.55	B	175	0.25	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	705	0.44	B	362	0.23	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	73	0.10	A	46	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	654	0.93	E	332	0.47	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	230	0.33	A	224	0.32	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1315	0.73	C	1067	0.59	B
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	88	0.05	A	732	0.41	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	494	0.71	C	323	0.46	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	550	0.69	C	337	0.42	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	528	0.66	C	418	0.52	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	865	1.08	F	678	0.85	D
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	678	0.42	B	914	0.57	B
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	802	0.45	B	1655	0.92	E

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 2
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 1

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	ALT B, AM			ALT B, PM		
				EB AM	EB AM V/C	EB AM LOS	EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	305	0.38	A	109	0.14	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	111	0.16	A	329	0.47	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	33	0.02	A	1106	0.69	C
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	43	0.06	A	27	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	658	0.94	E	606	0.87	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	237	0.34	A	607	0.87	D
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1443	0.80	D	1617	0.90	D
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	782	0.43	B	292	0.16	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	210	0.13	A	314	0.20	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	492	0.62	C	478	0.60	B
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	369	0.46	B	680	0.85	D
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	501	0.63	C	772	0.97	E
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	492	0.31	A	1092	0.68	C
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1281	0.71	C	1252	0.70	C

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 3
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 1

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".

*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2
2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS
ARTERIAL SEGMENTS
ALT C - HOV South/ Aux Lanes North + Commuter Rail

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	ALT C, AM			ALT C, PM		
				WB AM	WB AM V/C	WB AM LOS	WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	143	0.18	A	335	0.42	B
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	404	0.58	B	184	0.26	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	742	0.46	B	381	0.24	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	79	0.11	A	50	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	664	0.95	E	338	0.48	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	247	0.35	A	240	0.34	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1335	0.74	C	1083	0.60	C
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	95	0.05	A	786	0.44	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	531	0.76	D	347	0.50	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	591	0.74	C	362	0.45	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	556	0.70	C	439	0.55	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	910	1.14	F	714	0.89	D
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	714	0.45	B	961	0.60	C
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	844	0.47	B	1741	0.97	E

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 2
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 1

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	ALT C, AM			ALT C, PM		
				EB AM	EB AM V/C	EB AM LOS	EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	320	0.40	B	115	0.14	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	116	0.17	A	346	0.49	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	35	0.02	A	1164	0.73	C
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	46	0.07	A	29	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	668	0.95	E	616	0.88	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	255	0.36	A	653	0.93	E
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1465	0.81	D	1642	0.91	E
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	841	0.47	B	314	0.17	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	226	0.14	A	337	0.21	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	529	0.66	C	513	0.64	C
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	388	0.49	B	715	0.89	D
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	527	0.66	C	813	1.02	F
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	518	0.32	A	1149	0.72	C
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1348	0.75	C	1317	0.73	C

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 1
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 2

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".
*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE B-2

2030 PEAK HOUR LEVEL OF SERVICE ANALYSIS

ARTERIAL SEGMENTS

ALT D - General Purpose Lanes

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	ALT D, AM WB AM	WB AM V/C	WB AM LOS	ALT D, PM WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	135	0.17	A	316	0.39	A
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	381	0.54	B	173	0.25	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	699	0.44	B	359	0.22	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	75	0.11	A	48	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	674	0.96	E	340	0.49	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	236	0.34	A	229	0.33	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1355	0.75	D	1099	0.61	C
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	90	0.05	A	751	0.42	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	507	0.72	C	331	0.47	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	565	0.71	C	346	0.43	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	524	0.65	C	414	0.52	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	857	1.07	F	672	0.84	D
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	672	0.42	B	905	0.57	B
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	794	0.44	B	1640	0.91	E

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 2
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 1

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	ALT D, AM EB AM	EB AM V/C	EB AM LOS	ALT D, PM EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	302	0.38	A	108	0.14	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	109	0.16	A	326	0.47	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	33	0.02	A	1096	0.69	C
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	44	0.06	A	28	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	685	0.98	E	625	0.89	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	243	0.35	A	624	0.89	D
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1486	0.83	D	1665	0.93	E
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	803	0.45	B	300	0.17	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	216	0.13	A	322	0.20	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	505	0.63	C	490	0.61	C
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	365	0.46	B	673	0.84	D
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	496	0.62	C	765	0.96	E
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	488	0.30	A	1082	0.68	C
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1269	0.71	C	1240	0.69	C

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 3
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 2

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".
*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

Table B-3
Estimated Duration of Congestion at LOS ‘F’ Based on Peak Spreading Analysis

	Existing	No Build	Alternative A	Alternative B	Alternative C	Alternative D
S. of Hot Springs						
AM Southbound	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion	No Congestion
PM Southbound	1.25 Hours	11.75 Hours	9.5 Hours	1 Hour	3.75 Hours	3.5 Hours
AM Northbound	1.25 Hours	13.5 Hours (Continuous from 6 AM – 7:30 PM)	12.5 Hours (Continuous from 7:15 AM – 7:45 PM)	Minimal Congestion	Minimal Congestion	Minimal Congestion
PM Northbound	Minimal Congestion	13.5 Hours (Continuous from 6 AM – 7:30 PM)	12.5 Hours (Continuous from 7:15 AM – 7:45 PM)	Minimal Congestion	Minimal Congestion	Minimal Congestion
N. of Carrillo						
AM Southbound	1 Hour	2.25 Hours	2.25 Hours	1 Hour	2.25 Hours	45 Minutes
PM Southbound	30 Minutes	3.75 Hours	2.25 Hours	Minimal Congestion	3 Hours	Minimal Congestion
AM Northbound	Minimal Congestion	1.75 Hours	1.5 Hours	45 Minutes	1.5 Hours	3 Hours
PM Northbound	Minimal Congestion	Minimal Congestion	Minimal Congestion	Minimal Congestion	Minimal Congestion	Minimal Congestion

See attached Back-up Figures for derivation of projected peak spreading.

Table C-1			
Estimated 2030 Peak Hour Auto Travel Time (Minutes)			
	Stearn's Wharf to Ventura	*Goleta to Carpinteria*	*Downtown Santa Barbara to Buellton*
Base Case	58.9	53.6	67.3
Alternative A	55.4	49.4	67.3
Alternative B	39.4	35.3	63.6
Alternative C	40.4	36.3	65.4
Alternative D	43.0	38.7	64.4

Note: Reflects in-vehicle time exclusive of walk and parking time.

Table C-2			
Estimated 2030 Peak Hour Transit Travel Time (Minutes)(1)			
	Stearn's Wharf to Ventura	*Goleta to Carpinteria*	*Downtown Santa Barbara to Buellton*
Base Case	102.2	98.4	113.4
Alternative A	87.6	64.4	110.5
Alternative B	87.6	64.4	106.5
Alternative C	87.6	64.4	109.4
Alternative D	94.6	73.4	107.6

(1) Door to door travel time including access time, wait time, in-vehicle travel time, transfer tme, and egress time. Travel time is for fastest transit mode.

Table C-2 Back-Up
Transit Travel Times

Stearn's Wharf to Ventura

	initial wait time	*in-vehicle time*	*access time*	*egress time*	*dwell time*	*Number of Transfers*	*Transfer walk time*	*Transfer wait time*	*Est. Travel Time*
Base Case	2.5	55.1	8.0	19.6	5.0	1.0	2.0	10.0	102.2
Alternative A	10.0	33.0	8.0	19.6	5.0	1.0	2.0	10.0	87.6
Alternative B	10.0	33.0	8.0	19.6	5.0	1.0	2.0	10.0	87.6
Alternative C	10.0	33.0	8.0	19.6	5.0	1.0	2.0	10.0	87.6
Alternative D	2.5	47.0	8.0	19.6	5.0	1.0	2.5	10.0	94.6

Estimated walk express transit travel time =
+ initial wait time
+ in-vehicle time
+ access time
+ egress time
+ dwell time
+ # of transfers * (transfer walk time + transfer wait time)

Table C-2 Back-Up
Transit Travel Times

Goleta to Carpinteria

	initial wait time	*in-vehicle time*	*access time*	*egress time*	*dwell time*	*Number of Transfers*	*Transfer walk time*	*Transfer wait time*	*Est. Travel Time*
Base Case	5.0	52.3	6.7	5.0	10.7	1.8	0.4	10.0	98.4
Alternative A	10.0	26.0	9.1	1.9	11.5	1.0	0.8	5.0	64.4
Alternative B	10.0	26.0	9.1	1.9	11.5	1.0	0.8	5.0	64.4
Alternative C	10.0	26.0	9.1	1.9	11.5	1.0	0.8	5.0	64.4
Alternative D	5.0	40.0	9.1	1.9	11.5	1.0	0.8	5.0	73.4

Estimated walk express transit travel time =
+ initial wait time
+ in-vehicle time
+ access time
+ egress time
+ dwell time
+ # of transfers * (transfer walk time + transfer wait time)

Table C-2 Back-Up
Transit Travel Times

Downtown SB to Buellton

	initial wait time	*in-vehicle time*	*access time*	*egress time*	*dwell time*	*Number of Transfers*	*Transfer walk time*	*Transfer wait time*	*Est. Travel Time*
Base Case	6.0	72.2	1.8	12.0	11.5	1.0	0.0	10.0	113.4
Alternative A	3.0	72.7	1.8	12.0	11.1	1.0	0.0	10.0	110.5
Alternative B	3.0	68.7	1.8	12.0	11.1	1.0	0.0	10.0	106.5
Alternative C	3.0	71.6	1.8	12.0	11.1	1.0	0.0	10.0	109.4
Alternative D	3.0	69.8	1.8	12.0	11.1	1.0	0.0	10.0	107.6

Estimated walk express transit travel time =
+ initial wait time
+ in-vehicle time
+ access time
+ egress time
+ dwell time
+ # of transfers * (transfer walk time + transfer wait time)

TABLE C-3
ESTIMATED REDUCED PERSON HOURS OF CONGESTION PER WEEKDAY

	FY 2030	Alt A	Alt B	Alt C	Alt D
Total Vehicle Hours of Delay (hours)	24,603	20,123	8,880	12,572	11,251
Total Reduced Vehicle Hours of Delay		4,479	15,723	12,031	13,351
Persons per Vehicle 1.15					
Total Reduced Person Hours of Delay in Autos		5,151	18,081	13,836	15,354
Total Reduced Person Hours of Delay in Transit	0	480	600	520	380
TOTAL PERSON HOURS OF DELAY REDUCED	0	5,631	18,681	14,356	15,734

TABLE D-1
IMPROVE SAFETY

Reduce Corridor Accident Potential: Rating from 1 to 5 Based on Relative Accident Potentials

Information from Caltrans regarding accident trends statewide and along this segment of U.S. 101 indicate that recurrent congestion is a major contributor to accidents. In particular, rear end collisions increase with congestion related queue formation and unstable flow. Accident rates for a given volume on urban freeways (in accidents per million vehicle miles of travel) are 40 – 50 % higher on 4-lane freeways compared to 6-lane freeways. Even as both the 4-lane and 6-lane freeways approach their capacity limits the accident rates are higher on average for 4-lane freeways than the 6-lane freeways (1.25 vs. 1.10 accidents per million vehicle miles of travel). Additionally, the severity of accidents in the 101 corridor (measured by the percent fatal and injury accidents of total accidents), has been lower both as a rate and as an absolute number for the existing 6-lane segment compare to the 4-lane segment south of the Milpas interchange. Specific locations that have been high rear-end accident locations in recent years are from Casitas Pass to Padaro Lane, Evans Avenue to Salinas Street, and Garden Street to Hope Avenue northbound; and Las Positas Road to Sheffield Avenue southbound.

Based on these observations of past accidents, the following is hypothesized about the likely effects of the solution options on future accident potentials:

Alternative Package A – Commuter Rail: This alternative would not improve the traffic flow on U.S. 101 much beyond the baseline conditions. The commuter rail would attract a fair number of motorists out of their autos and on to transit which would help ease freeway congestion somewhat, however adding commuter rail service to the freight rail/ Amtrak corridor would increase the accident potential along this right-of-way.
Rate: 3

Alternative Package B – HOV/HOT Lanes + Commuter Rail: This alternative will provide the most stable traffic flow on U.S. 101 and would attract a significant number of motorists out of their autos and on to commuter rail, buses, carpools and vanpools. It is therefore rated as having the best safety performance. The significant reduction in congestion on U.S.101 with this alternative and resultant reduction in stop-and-go traffic conditions, along with the replacement of the existing left-side on-and-off ramps with standard ramps would eliminate significant contributors to accident potentials.
Rate: 1

Alternative Package C – HOV South/ Auxiliary Lanes North + Commuter Rail: This alternative would significantly improve the traffic flow on U.S. 101 compared to the baseline conditions, although not quite to the same degree as Alternative Packages 'B' and 'D'. The replacement of the existing left-side on-and-off ramps with standard ramps would eliminate significant contributors to accident potentials. Also, the auxiliary lanes would help to eliminate some of the weaving conflicts between motorists entering the freeway and those exiting the freeway at the downstream ramp.
Rate: 2

Alternative Package D – General Purpose Lanes: The significant reduction in congestion on U.S.101 with this alternative and resultant reduction in stop-and-go traffic conditions, along with the replacement of the existing left-side on-and-off ramps with standard ramps would eliminate significant contributors to accident potentials.
Rate: 1

Reduce Accident Potentials = 1
Baseline Rating/No Change = 3
Increase Accident potentials = 5

TABLE E-1
ESTIMATED CHANGE IN NON-SOV USAGE ON HIGHWAY 101 (DAILY)

	Future 2030 No-Build	Alt A	Alt B	Alt C	Alt D
Estimated commuter bus/rail use	2,680	5,640	4,420	4,110	3,290
Change in commuter bus/rail use from No-Build		2,960	1,740	1,430	610
% Change in commuter bus/rail use		110%	65%	53%	23%
Estimated HOV vehicles	18,500	19,400	21,200	20,500	19,400
Change in HOV Use from No-Build		900	2,700	2,000	900
% Change in HOV use	0%	5%	15%	11%	5%
Total Change in Non-SOV Use		3,860	4,440	3,430	1,510

Revised 7/7/05

TABLE F-2
CONFLICT SEPARATION ANALYSIS

Improve Trip Reliability: Increase On-Time Trip Consistency for Transit Users: Degree of Separation from Conflicts

The Commuter Rail and Commuter Buses on U.S. 101 are the primary transit components within the 4 packages. Commuter rail occurs in Alternative Packages A, B, and C. Commuter Express Buses occur in all 4 Alternative Packages.

For Alternative Packages A, B, and C, the existing freight rail and Amtrak, as well as the new commuter rail would have priority at grade-crossings along the Union Pacific Corridor. The travel time advantage and improved reliability resulting from the grade-crossing priority, may be off-set however if scheduling conflicts occur with increased freight operations in the corridor.

Alternative Packages B and C would have HOV lanes on the freeway that would reduce the conflicts with autos in the general purpose lanes, and thereby improve bus travel speeds and trip reliability.

TABLE F-2
ASSESSMENT OF CONFLICT SEPARATION FOR TRANSIT USERS

	BASELINE CONDITION	A – Commuter Rail	B – HOV/HOT Lanes + Commuter Rail	C – HOV South/ Aux Lanes North + Commuter Rail	D – General Purpose Lanes
Rating	3	2	1	2	3

Reduce conflicts = 1
Baseline rating / no change is 3.
Increase conflicts = 5

Table G-1: Improvement Longevity

The alternative transportation improvement packages differ in their potential to meet 101 corridor congestion relief requirements and other transportation service needs up to and beyond the planning horizon year of 2030. Although no specific growth projections have been made by SBCAG beyond 2030, these potential longevity differences between alternatives should be recognized in the screening and evaluation process. Longevity is evaluated from the standpoints of capacity, level of service, and safety.

Alternative Package A - Commuter Rail

The potential longevity of corridor congestion relief provided by commuter rail would be modest, in proportion to the modest share of total corridor demand expected to be attracted to commuter rail. In other words, the modest congestion relief provided by commuter rail would require additional corridor capacity improvements relatively soon. However, a commuter rail system, once in place, would have excellent potential for incremental service expansion to meet growing corridor travel demand beyond the 2030-planning horizon**.**

Rating: 4

Alternative Package B – HOV/HOT Lanes and Commuter Rail

The functional longevity of HOV or HOT lanes would be excellent with the flexibility to adjust HOV or HOT lane occupancy requirements to maintain free-flow conditions as demand increases in future years. Adding commuter rail to this package would provide additional rail capacity for long-term growth in corridor demand**.** If HOT lanes rather than HOV lanes are implemented, over time, unless the HOV requirement is increased to 3+ occupants during peak hours, the opportunity for single occupant vehicles to pay a toll to use the HOT lanes would be reduced as more and more HOVs use the lanes.

Rating: 1

Alternative Package C – HOV Lanes/ Auxiliary Lanes and Commuter Rail

The functional longevity of HOV lanes would be excellent with the flexibility to adjust HOV lane occupancy requirements to maintain free-flow conditions as demand increases in future years. Adding commuter rail to this package would provide additional rail capacity for long-term growth in corridor demand**.** The long range benefits would be less than achieved in Alternative B, however, since the HOV lanes would only occur from Milpas South. The longevity of congestion relief resulting from the auxiliary lanes between Milpas and Patterson would be substantially less compared to the HOV lanes in Alternative B.

Rating: 3

Alternative Package D – General Purpose Lanes

A peak hour traffic increase of 2 percent per year compounded would theoretically fill up new freeway lanes in approximately 30+ years. In practice, the new freeway lane capacity would likely be fully utilized considerably sooner, due to the latent (unmet) demand inherent in current congested freeway operations. If express bus service is increased and demand management techniques are implemented, the functional life of new freeway lanes could be extended before reaching capacity. Even after the new lane capacity becomes fully utilized and congested, however, the freeway lane will continue to function and accommodate many users, although at a lower level of service in congested peak periods. In other words, this improvement (although to a lesser degree than the HOV alternatives) would provide functional longevity even after reaching its capacity. **Rating: 2**

#1 = highest, #5 = lowest rating

TABLE H-1
CAPACITY INCREASES BENEFIT FREIGHT MOVEMENT

Improve Goods Movement: Increased Goods Movement Capacity and Reduced Conflicts: Added Highway and/or Rail Capacity Usable for Freight

Alternative Packages that increase capacity on either roadways or rail (and by how much) are:

Alternative Package A – Commuter Rail: Passing sidings in Summerland and Oxnard increase freight rail capacity. Also, some freeway capacity freed up by motorists switching to Commuter Rail.
Rate: 2

Alternative Package B – HOV/HOT Lanes + Commuter Rail: S. of Milpas, now 2 lanes, becomes 3 lanes; Carrillo to Patterson, now 3 lanes, becomes 4 lanes. Adds significant general purpose lane capacity for use by trucks by diversion of HOVs to new HOV or HOT lanes. Passing sidings in Summerland and Oxnard increase freight rail capacity. Also, additional freeway capacity freed up by motorists switching to Commuter Rail.
Rate: 1

Alternative Package C – HOV South/ Auxiliary Lanes North + Commuter Rail: S. of Milpas, now 2 lanes, becomes 3 lanes but HOV. Adds general purpose lane capacity for use by trucks by diversion of HOVs to HOV lanes. Auxiliary lanes also add some capacity usable by trucks. Passing sidings in Summerland and Oxnard increase freight rail capacity. Also, some freeway capacity freed up by motorists switching to Commuter Rail.
Rate: 1

Alternative Package D – General Purpose Lanes: S. of Milpas, now 2 lanes, becomes 3 lanes; Carrillo to Patterson, now 3 lanes, becomes 4 lanes. Adds significant capacity.
Rate: 1

Increase capacity = 1
Baseline rating / no change is 3.
Decrease capacity = 5

TABLE H-2
REDUCED CONFLICTS / REGULATORY CONSTRAINTS

Improve Goods Movement: Increased Goods Movement Capacity and Reduced Conflicts: Reduced Conflicts / Regulatory Constraints

Alternative Package A: Since part of any agreement with UPRR to operate commuter rail using their tracks will likely include granting freight trains scheduling priority over commuter rail trains, there should be no regulatory constraints to freight operations.
Rate: 3

Alternative Package B: According to Section 21654of the California Vehicle Code, HOV lanes are restricted to use by 2-axle vehicles, except buses with multiple occupants. This means that trucks unless they have no more than 2 axles as well as multiple occupants will not be able to benefit directly from the HOV or HOT lanes. All trucks will benefit indirectly from the congestion relief afforded the remaining non-HOV lanes. Freight trains should not be affected by the commuter rail.
Rate: 4

Alternative Package C: Similar to Alternative B, trucks unless they have no more than 2 axles as well as multiple occupants will not be able to benefit directly from the HOV or HOT lanes. All trucks will benefit indirectly from the congestion relief afforded the remaining non-HOV lanes. Freight trains should not be affected by the commuter rail.
Rate: 4

Alternative Package D: Trucks with more than 2-axles are restricted to the right two lanes. Trucks with 2-axles, as long as they are not towing a trailer will be able to use all lanes. All trucks will benefit indirectly from the congestion relief afforded by the added general purpose lanes, but trucks with 2-axles will benefit more than in the other alternatives since they can use both the existing and new lanes.
Rate: 2

Reduce regulatory constraints = 1
Baseline rating / no change is 3.
Increase regulatory constraints = 5

Table I-1: Impacts on the Natural Environment

A qualitative assessment was performed for the alternative packages of the proposed transportation improvements and their impact on the natural environment for U.S. 101 and/or the UP railroad. Further technical studies and analyses during future phases of project development will be necessary to specifically identify the environmental impacts of the alternatives. Compared to other regions in Southern California, there are many natural elements located within the corridor area, and development within Santa Barbara County has combined the transportation needs of the public and incorporated natural environmental resources. Aerial photography (Air Photo USA, 2000), GIS parcel mapping (County of Santa Barbara, 2002), the California Natural Diversity Database (CA Dept. of Fish & Game, 2004), the National Register of Historic Places (NPS, 1999), the National Wetlands Inventory (US Fish & Wildlife, 2001), the California Coastal Act (and associated Local Coastal Plans), and The Thomas Guide (2003) were utilized in this analysis, as well as environmental constraints mapping that was previously performed by Caltrans in the Draft Environmental Impact Statement/Report, Route 101 Six-Lane Project, March 1993.

The purpose of the assessment was to provide comparative information about the proposed alternatives. In developing concept plans for the alternatives, care was taken to avoid impacts to the natural environment by shifting the horizontal alignment or by compressing the proposed cross-section or by realigning the existing railroad line.

Qualitative Assessment of Impacts to the Natural Environment – Summary Table and Discussion

TABLE I-1
QUALITATIVE ASSESSMENT OF IMPACTS ON NATURAL ENVIRONMENT FOR PROPOSED ALTERNATIVE PACKAGES

	BASELINE CONDITION	A. COMMUTER RAIL	B. HOV/HOT LANES + COMMUTER RAIL	C. HOV SOUTH/AUX LANES NORTH + COMMUTER RAIL	D. GENERAL PURPOSE LANES
Natural Environment	1	2	4	4	4

Scale for Qualitative Assessment:
5 = Worst Case
1 = Best Case

Year 2030 Baseline Condition: [1]
No anticipated impacts to the natural environment.

Alternative A, Commuter Rail: [2]
Minimal impacts to the natural environment are anticipated as a result of the implementation of added commuter rail service in the UP railroad right-of-way. A second track (passing siding) will be required in one stretch on the south side of the main track between the North Padaro Lane / U.S. 101 over-crossing and the Padaro Lane / Santa Claus Lane at-grade crossing of the UP right-of-way. The commuter rail element of this package proposes three additional trains per day in each direction in addition to the freight and Amtrak service already using the rail corridor. It is expected that this second track can be accommodated within the existing UP right-of-way with minimal impact to the

natural environment. The portion of the second track is located within the Coastal Zone and subject to compliance with the California Coastal Act (CCA) of 1976, and specifically in this section also the County of Santa Barbara Local Coastal Program (LCP) thereby obtaining permits which ensures consistency with the CCA. In regard to impacts on the natural environment for the construction of the siding, the Commuter Rail Assessment Report discusses the need for clearing and grubbing vegetation, minimal grading, constructing three small bridges, extending four culverts and adding the infrastructure (tracks and signals). Removal of vegetation near the northern portion of the new siding (from the North Padaro Lane / U.S. 101 over-crossing to approximately 3,000 feet south is an area with a high potential for Monarch butterflies (*Danaus plexippus*), therefore, there is a potential to impact these butterflies which prefer to roost in Eucalyptus trees near the coast and by removing the trees could impact the butterflies by removing their habitat. If the bridges are needed over any of the blue line streams, there will be varying levels of impacts depending on if supporting structures will be needed to be placed within the creek. If the crossing of Arroyo Paredon Creek is needed, then there is the potential to impact Tidewater goby (a federally endangered fish), and the required need to comply with Section 7 of the Endangered Species Act to ensure no adverse impacts to the listed species. In addition, there will likely be shading impacts onto the plants and animals that live within each creek under the new / widened crossing structure. If bats or swallows use these bridges over the creeks, then there is a slight potential for impact due to the presence of food (insects for bats) and nesting material (for swallows), although the existing structures wouldn't be removed which would have a larger impact. Another potential is the addition of the second track near the Memorial Oaks location; however, due to the nominal crown spread of the trees in this area, it is unlikely that raptors will use the trees as perching locations and hence may be indirectly impacted from an additional track in this area. Also, there will be additional trains using the tracks, but not additional track being built adjacent to the Carpinteria Salt Marsh. Overall, the impacts to the natural environment as a result of the proposed commuter rail in this package are minimal.

Alternative B, HOV/HOT Lanes + Commuter Rail: [4]
Impacts to natural environment for the commuter rail portion of this package are the same as discussed for Alternative A. The HOV or HOT lane elements of this alternative involve the addition of a new lane to U.S. 101 in each direction (a) between Patterson Avenue and Carrillo Street and (b) between Milpas Street and SR-150. These improvements will likely be within the state right-of-way; however, in some of the segments where a centerline shift is proposed for US 101 to help mitigate visual and noise impacts to adjacent neighborhoods, there may be some impacts to the natural environment as the roadway moves closer to the UP line. Within these elements, different agencies (County of Santa Barbara, the City of Santa Barbara, and the City of Carpinteria) have a certified LCP and therefore jurisdiction over activities within the Coastal Zone. It may be possible to need the discretionary approval of more than one agency in regard to consistency with the CCA (including the California Coastal Commission) depending on what aspects of the projects lie within the different jurisdictions. In the section from Sheffield Drive to South Padaro Lane, the U.S. 101 comes close to the coast, and there may be some impacts to the coastal bluff areas, which can lead to geologic instability as well as visual issues to this sensitive habitat area. This coastal resource is valued by the California Coastal Commission for a number of reasons, especially due to its intrinsic beauty. In the vicinity of Memorial Oaks, it is likely that there will be some impacts to some of the 15 trees that are located on the south side of the freeway (as identified in the Project Report). The freeway also crosses several channels and natural waterways. Some of these contain small areas of wetland and/or associated riparian habitat. In most cases, existing bridges are expected to be widened and existing culverts lengthened where U.S. 101 is widened for the general purpose lanes which would lead to shading impacts to any plants or animals that live under the bridge. In a few cases, existing bridges may need to be replaced or widened. Again, there may be impacts to bats/swallows if these bridges are located near open water bodies (e.g., creek, wetland, or other open water body). Through these construction activities, a small amount of impact to wetland and riparian species would likely

occur that would need to be mitigated and permits obtained from the Army Corps of Engineers (ACOE), Regional Water Quality Control Board (CRWQCB) and the California Department of Fish and Game (CDFG). The lane widening would increase the amount of impermeable surface associated with the existing freeway that would increase the amount of run-off that would need to be treated to minimize impacts to surrounding natural areas such as the Carpinteria Salt Marsh and the Andre Clark Bird Refuge.

Alternative C, HOV South / Auxiliary Lanes North + Commuter Rail: [4]
Impacts to natural environment for the commuter rail portion of this package are the same as discussed for Alternative A. The HOV Lane element of this alternative would entail the addition of a HOV lane to U.S. 101 in each direction between Milpas Street and SR-150, which would have similar impacts in this area as discussed for Alternative B. With the addition of the HOV lane, several creek crossings (blue line streams) will be impacted. Depending on the potential need for either widening or replacement of any bridge structures, impacts to the following are possible: bats / swallows which may be using the bridge structures as a roost; shading impacts on the plants and animals within the riparian/creek habitats; and permits / mitigation associated with agency (ACOE, CRWQCB, and CDFG) jurisdictional areas. In addition, depending on where Eucalyptus trees need to be removed, there may be impacts to the Monarch butterfly (*Danaus plexippus*). Alternative C also includes the addition of auxiliary lanes in approximately seven segments of U.S. 101 (five segments northbound side only, two segments southbound side only) in the existing six-lane section of U.S. 101. Vegetation will likely need to be removed, and if raptors use these trees for foraging or nesting, then these activities will be impacted. Many of these areas where the auxiliary lanes are located are within the built environment, and there are minimal natural resources that will be impacted, including from Fairview Avenue to Glen Annie Road which is adjacent to the Santa Barbara Municipal Airport. Although the airport will not be directly impacted, some construction-related impacts that should be considered are additional lighting and lighting controls (if any) that would be needed if construction would occur at night. In addition, the vertical distance for planes using one of the parallel runways (15L or 15R) over the U.S. 101 would be approximately 400 feet, which may conflict with tall construction equipment (e.g., cranes) that may be needed in this area, and coordination and approval from the Federal Aviation Administration would be required. Generally in regard to auxiliary lanes, as the roadway moves closer (and in some cases beyond the state right-of-way), the impacts to the natural environment will be higher.

Alternative D, General Purpose Lanes: [4]
The general purpose lane elements of Alternative D would have natural environment impacts similar to those identified in Alternative B (e.g., Section 4(f), Memorial Oaks, creek crossings, wetlands, and storm water) for the HOV/HOT lane elements. The only differences are that in Alternative D there is no commuter rail element, and the cross-section would be narrower since there is not the need for a 2 to 4 foot buffer between the HOV or HOT lane and the adjacent general purpose lane. Since there would only be a minimal impact to the natural environment for the commuter rail element, the rating for this Alternative would be similar to Alternative B.

TABLE I-2. RIGHT-OF-WAY IMPACT ASSESSMENT – BUILT ENVIRONMENT

A right-of-way impact assessment was performed on the alternative packages by establishing a footprint for the physical elements of the proposed transportation improvements and noting where the footprint extended beyond the existing right-of-way lines for U.S. 101 or the Union Pacific (UP) railroad. Aerial photography (Air Photo USA, 2000), GIS parcel mapping (County of Santa Barbara, 2002), the National Register of Historic Places (NPS, 1999), conceptual drawings (RBF, May 2005), and The Thomas Guide (2003) was utilized in this analysis, as well as environmental constraints mapping that was previously performed by Caltrans in the Draft Environmental Impact Statement/Report, Route 101 Six-Lane Project, March 1993.

The purpose of the assessment was to provide comparative information about the proposed alternatives. Further technical studies and analyses during future phases of project development will be necessary to specifically identify the environmental impacts of the alternatives.
In defining the alternatives, care was taken to avoid impacts to the natural environment and to neighborhoods by shifting the horizontal alignment or by compressing the proposed cross-section or by realigning the existing railroad line. See separate table entitled, "Capacity Enhancements to U.S. 101 – Summary Description of Physical Attributes by Segment (May 2005)." For the most part, this was achieved. Exceptions are noted in the discussion below. At this screening level, only potential impacts are discussed since further engineering work and environmental studies will be required in subsequent project phases to determine the extent of the impact or if additional measures can be taken to avoid the impact altogether. A qualitative assessment of the level of impact on the built environment is reported (Table I-2).

Qualitative Assessment of Built Environment – Summary Table and Discussion

TABLE I-2
QUALITATIVE ASSESSMENT OF RIGHT-OF-WAY IMPACTS ON BUILT ENVIRONMENT FOR PROPOSED ALTERNATIVE PACKAGES

	BASELINE CONDITION	A. COMMUTER RAIL	B. HOV/HOT LANES + COMMUTER RAIL	C. HOV SOUTH/AUX LANES NORTH + COMMUTER RAIL	D. GENERAL PURPOSE LANES
ROW	1	1	4	3	4

Scale for Qualitative Assessment:
5 = Worst Case
1 =→ Best Case

Year 2030 Baseline Condition: [1 ROW]

No anticipated impacts beyond those attributable to transportation improvements that are already funded and committed for 2030.

Alternative A, Commuter Rail: [1 ROW]

Commuter Rail: The commuter rail element of this package proposes three additional trains per day in each direction in addition to the freight and Amtrak service already using the rail corridor. Operating scenarios developed for the proposed commuter rail service assume that standard commuter trains with diesel locomotives would be utilized. No right-of-way impacts are anticipated as a result of the implementation of added commuter rail service in the UP railroad corridor. A second track (passing siding) will be required in one stretch on the south side of the main track between the North Padaro Lane / U.S. 101 overcrossing and the Padaro Lane / Santa Claus Lane at-grade crossing of the UP right-of-way. It is expected that this second track can be accommodated within the existing UP right-of-way.

> *Indirect impacts:*There are a number of publicly owned park, recreational areas, and wildlife and waterfowl refuge areas that qualify as Section 4(f) resources in the 101 Study Area and that are currently situated close to the UPRR right-of-way. Examples of these resources include: Carpinteria Salt Marsh Reserve and Nature Park, Carpinteria Bluffs Public Open Space, Rincon Beach Park, Tar Pits Park, Lookout Park, Dwight Murphy Field, the Santa Barbara Zoological Gardens, the Andre Clark Bird Refuge, Chase Palm Park, Pilgrim Terrace Park, and several golf courses. While no direct impacts are expected, public enjoyment or use of these 4(f) resources can be affected by the proposed addition of commuter rail service in the UPRR right-of-way included in Alternative A. Indirect impacts involve environmental concerns such as traffic, noise, visual, and accessibility. A detailed 4(f) evaluation would need to be conducted in consultation with FHWA and resource agencies with jurisdiction such as the State Historic Preservation Office (SHPO), as part of the follow on environmental studies for the preferred strategy to assess the severity and magnitude of these potential indirect impacts to determine if they would impair the use of the 4(f) property.
>
> [Note regarding 4(f) Resources: Section 4(f) of the Department of Transportation Act (amended 1983) states in part that approval of a transportation program or project requiring the use of a 4(f) resource can be granted “only if: (1) there is no feasible or prudent alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use.” In a 4(f) evaluation, three types of impacts are analyzed: (a) direct impacts (which are to be avoided, if possible); (b) temporary use (e.g., during construction); and (c) constructive use (a type of indirect impact where use of a Section 4(f) resource may be impaired due to the proposed transportation project).]

Highway: No highway elements are part of this alternative package.

Alternative B, HOV/HOT Lanes + Commuter Rail: [4 ROW]

Commuter Rail: The commuter rail element of this package is not predicted to result in any direct right-of-way impacts to the built environment as the proposed passing siding (second track) can be accommodated within the existing UP right-of-way. Therefore, the potential impact attributable to the proposed commuter service is the same as Alternative A.

Highway: The highway elements of Alternative B involve the addition of an HOV lane or a HOT lane to U.S. 101 in each direction: (a) between Patterson Avenue and Carrillo Street; and (b) between Milpas Street and SR-150. In addition to the HOV/HOT lanes, Alternative B includes: a proposed auxiliary lane for the northbound direction of U.S. 101 in one segment (from Fairview Avenue to Los Carneros Road) and a proposed auxiliary lane to the southbound direction of U.S. 101 in three segments: (i) between Carrillo Street and Castillo Street; (ii) between Castillo Street and Garden Street; and (iii) between Cabrillo Boulevard and Olive Mill Road. In some locations along U.S. 101, interchanges would need to be reconfigured to meet state and federal design standards or to accommodate the additional width of the new lanes.

Direct Impacts: In general, most of the proposed improvements for U.S. 101 fit within the existing state right-of-way. However, where the proposed footprint of U.S. 101 is predicted to exceed available state right-of-way, this would result in a direct impact to adjacent properties. Also, in a few locations, resources of environmental concern are located within the state right-of-way for U.S. 101. Under Alternative B, these direct impacts are identified as follows:

- Residential Properties (City of Montecito) – In the vicinity of Posilipo Lane, between San Ysidiro Road and Sheffield Drive, four residential parcels would be impacted (partial acquisition) due to the added lanes. Of these four parcels, one is a local cultural resource (Danielson-Katenkamp House) that is eligible for inclusion in the National Register of Historic Places. (Also see 4f discussion below). The extent to which impacts to these residential properties can be avoided depends, in part, on if the proposed typical cross-section of U.S. 101 can be minimized reduced and if North Jameson Lane and South Jameson Lane can be reconfigured as part of the proposed U.S. 101 improvements.

- Memorial Oaks (between Summerland and Carpinteria) - The Memorial Oaks trees were planted in honor of World War I veterans and are considered a highly valued community resource. These trees are located in the median of U.S. 101 and on the southbound side of U.S. 101 between the existing freeway and the state right-of-way line. Based on the current conceptual design of the proposed lanes for U.S. 101, the trees in the median would be preserved (approximately 21 trees), but there is a strong likelihood that up to 15 Memorial Oaks trees on the southbound side would be directly impacted (i.e. relocated or removed) due to the added lanes. [Source for location of Memorial Oaks trees: Caltrans, Project Report, SB 101 Carpinteria to Santa Barbara Six-Lane Project, 1993.]

- Downtown Santa Barbara – Available right-of-way for U.S. 101 is very tight through downtown Santa Barbara. The proposed auxiliary lane on the southbound side of U.S. 101 between Carrillo Street and Garden Street would directly impact Montecito Street for a short section by as much as 12’ in width depending upon how U.S. 101 would be reconfigured to accommodate the proposed auxiliary lane. To minimize these direct impacts to Montecito Street as well as any related effects to the commercial properties that line Montecito Street, on-street parking could be relocated to off-street lots. In addition, the proposed auxiliary lane in conjunction with Montecito Street would be located very close to the Moreton Bay Fig (historic tree, planted in 1877), located at the corner of Chapala Street and Montecito Street. There is a risk that this local landmark would be directly impacted, unless a reduced cross-section rather than a standard cross-section is incorporated into this modification to U.S. 101.

- Encroachment into the UP Right-of-Way – In order to mitigate visual, noise, and direct right of way impacts to properties directly adjacent to the freeway, centerline shifts are proposed for some stretches of U.S. 101. In these instances, the existing centerline of U.S. 101 would be shifted away from neighborhoods that line the northbound side of U.S. 101 towards the existing railroad line to accommodate the freeway widening. Encroachment into the UP right-of-way is predicted to occur in approximately seven segments (some sections within these segments) where freeway widening is proposed due to the added HOV or HOT lanes. In terms of width, the level of encroachment ranges from approximately 4 feet to as much as 26 feet, depending upon the location and freeway cross-section assumed. In three of these seven segments, the level of encroachment into the UP right-of-way would likely require that the existing tracks be relocated (shifted south) within the existing UP right-of-way. The three segments where track relocation would need to be considered are: (i) between Las Positas Road and Mission Street (existing double track), for approximately one-quarter mile; (ii) between Milpas Street and Salinas Street, for approximately three-tenths of a mile; and (iii) between Salinas Street and Cabrillo Boulevard, for approximately four-tenths of a mile. Any impacts to the UP right-of-way adds a level of complexity and cost to the project, as approval of the right-of-way acquisition and any track relocation would require the full cooperation of the Union Pacific Railroad.

- Cabrillo Interchange Area – Reconfiguration of the Cabrillo Interchange to replace the non-standard, left-side off-ramps and realignment of the existing arterials in the vicinity of the interchange would directly impact landscaped property that lines the golf course owned by the Montecito Country Club (northbound side of U.S. 101) as well as undeveloped, vegetated property owned by the Santa Barbara Cemetery Association (southbound side of U.S. 101) that serves as the approach to the cemetery.

- Selected Overcrossings: Where widening of U.S. 101 results in the replacement of existing roadways that cross over the freeway, the approaches of these cross-streets may need to be reconstructed to maintain vertical clearance over the freeway. Although these locations have yet to be identified on a site by site basis, replacement of these structures could result in the need for additional right-of-way.

Indirect impacts: Besides the potential direct impacts to historic sites of national, state or local significance mentioned above, there are a number of publicly owned park, recreational areas, and wildlife and waterfowl refuge areas that also qualify as Section 4(f) resources in the 101 Study Area and that are currently situated close to U.S. 101. Examples of these resources include: Dwight Murphy Field, the Santa Barbara Zoological Gardens, the Andre Clark Bird Refuge, and historic neighborhoods such as the Summerland Historic District. While no direct impacts are expected,public enjoyment or use of these 4(f) resources can be affected by the proposed changes included in each of the Alternative Packages including Alternative B. Indirect impacts involve environmental concerns such as traffic, noise, visual, and accessibility. A detailed 4(f) evaluation would need to be conducted in consultation with FHWA and resource agencies with jurisdiction such as the State Historic Preservation Office (SHPO), as part of the follow on environmental studies for the preferred strategy to assess the severity and magnitude of these potential indirect impacts to determine if they would impair the use of the 4(f) property.

[Note regarding 4(f) Resources: Section 4(f) of the Department of Transportation Act (amended 1983) states in part that approval of a transportation program or project requiring the use of a 4(f) resource can be granted "only if: (1) there is no feasible or prudent alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use." In a 4(f) evaluation, three types of impacts are analyzed: (a) direct impacts (which are to be avoided, if possible); (b) temporary use (e.g., during construction); and (c) constructive use (a type of indirect impact where use of a Section 4(f) resource may be impaired due to the proposed transportation project).]

Alternative C, HOV South / Auxiliary Lanes North + Commuter Rail: [3 ROW]

<u>Commuter Rail</u>: The commuter rail element of this package is not predicted to result in any direct right-of-way impacts to the built environment. The commuter rail element of this package proposes three additional trains per day in each direction in addition to the freight and Amtrak service already using the rail corridor. Operating scenarios developed for the proposed commuter rail service assume that standard commuter trains with diesel locomotives would be utilized. A second track (passing siding) will be required in one stretch on the south side of the main track between the North Padaro Lane / U.S. 101 overcrossing and the Padaro Lane / Santa Claus Lane at-grade crossing of the UP right-of-way. It is expected that this second track can be accommodated within the existing UP right-of-way. Therefore, the potential impact attributable to the proposed commuter service is the same as Alternative A.

<u>Highway:</u> The highway element of Alternative C entails the addition of an HOV lane to U.S. 101 in each direction between Milpas Street and SR-150. Alternative C also proposes the construction of auxiliary lanes to the outside of the freeway in approximately eight segments of U.S. 101 (five segments northbound side only, two segments southbound side only, and one segment in both directions) in the existing six-lane section of U.S. 101. As with Alternative B, some interchanges would need to be reconfigured to meet state and federal design standards or to accommodate the additional width of the new lanes.

Direct Impacts: For the portion of U.S. 101 that falls between Carrillo Street (Santa Barbara) and Bates Road (near the Ventura County line), the proposed freeway configuration for Alternative C resembles that of Alternative B. The highway element of Alternative C differs from Alternative B for those segments of U.S. 101 in the existing six-lane section of U.S. 101 (i.e., north of Carrillo Street), where auxiliary lanes are proposed rather than HOV or HOT lanes. In general terms, Alternative C has fewer instances of encroachment into the UP right-of-way compared to Alternative B. However, Alternative C is more apt to affect properties near the existing state right-of-way line because the auxiliary lanes that are added are added to the outside of U.S. 101. In summary, the direct impacts to the built environmental for Alternative C are identified as follows:

- Residential Properties (City of Santa Barbara) – Approximately three residential parcels would be directly impacted by a proposed auxiliary lane in the vicinity of Islay Street, on the northbound side of U.S. 101, in the segment between Mission Street and Carrillo Street.

- Residential Properties (City of Montecito) – In the vicinity of Posilipo Lane, between San Ysidiro Road and Sheffield Drive, four residential parcels would be impacted (partial acquisition) due to the added lanes. Of these four parcels, one is a local cultural resource (Danielson-Katenkamp House) that is eligible for inclusion in the National Register of Historic Places. (Also see 4f discussion below). The extent to which impacts to these residential properties can be avoided depends, in part, on if the proposed typical cross-section of U.S. 101 can be reduced and if North Jameson Lane and South Jameson Lane can be reconfigured as part of the proposed U.S. 101 improvements.

- Memorial Oaks (between Summerland and Carpinteria) - The Memorial Oaks trees were planted in honor of World War I veterans and are considered a highly valued community resource. These trees are located in the median of U.S. 101 and on the southbound side of U.S. 101 between the existing freeway and the state right-of-way line. Based on the current conceptual design of the proposed lanes for U.S. 101, the trees in the median would be preserved (approximately 21 trees), but there is a strong likelihood that up to 15 Memorial Oaks trees on the southbound side would be directly impacted (i.e. relocated or removed) due to the added lanes. [Source for location of Memorial Oaks trees: Caltrans, Project Report, SB 101 Carpinteria to Santa Barbara Six-Lane Project, 1993.]

- Downtown Santa Barbara – Available right-of-way for U.S. 101 is very tight through downtown Santa Barbara. The proposed auxiliary lane on the southbound side of U.S. 101 between Carrillo Street and Garden Street would directly impact Montecito Street for a short section by as much as 12' in width depending upon how U.S. 101 would ultimately be reconfigured to accommodate the proposed auxiliary lane. To minimize these direct impacts to Montecito Street as well as any related effects to the commercial properties that line Montecito Street, on-street parking could be relocated to off-street lots. In addition, the proposed auxiliary lane in conjunction with Montecito Street would be located very close to the Moreton Bay Fig (historic tree, planted in 1877), located at the corner of Chapala Street and Montecito Street. There is a risk that this local landmark would be directly impacted, unless a reduced cross-section rather than a standard cross-section is incorporated into this modification to U.S. 101.

- Encroachment into Calle Real (Santa Barbara) – In the segment of U.S. 101 between Los Positas Road and Mission Street, the proposed auxiliary lane would encroach into the existing width of the arterial (Calle Real) that runs parallel to northbound side of U.S. 101, by as much as 8 feet. This would entail a reduction in the width of the frontage road for a short stretch, but would not impact the commercial properties located adjacent to the frontage road. In this case, existing on-street parking could be eliminated.

- Encroachment into the UP Right-of-Way – In order to mitigate visual, noise, and direct right of way impacts to properties directly adjacent to the freeway, centerline shifts are proposed for a few areas of U.S. 101 under Alternative C. In these instances, the existing centerline of U.S. 101 would be shifted away from neighborhoods that line the northbound side of U.S. 101 towards the existing railroad line to accommodate the freeway widening. Encroachment into the UP right-of-way is predicted to occur in two segments (some sections within these segments) where freeway widening is proposed due to the added HOV lane. In terms of width, the level of encroachment ranges from approximately 4 feet to as much as 26 feet, depending upon the location and freeway cross-section assumed. In both of these segments, the level of encroachment into the UP right-of-way would likely require that the existing tracks be relocated (shifted south) within the existing UP right-of-way. These two segments are: (i) between Milpas Street and Salinas Street, for approximately three-tenths of a mile; and (ii) between Salinas Street and Cabrillo Boulevard, for approximately four-tenths of a mile. Any impacts to the UP right-of-way adds a level of complexity and cost to the project, as approval of the right-of-way acquisition and any track relocation would require the full cooperation of the Union Pacific Railroad.

- Cabrillo Interchange Area – Reconfiguration of the Cabrillo Interchange to replace the non-standard, left-side off-ramps and realignment of the existing arterials in the vicinity of the interchange would directly impact landscaped property that lines the golf course owned by the Montecito Country Club (northbound side of U.S. 101) as well as undeveloped, vegetated property owned by the Santa Barbara Cemetery Association (southbound side of U.S. 101) that serves as the approach to the cemetery.

- Selected Over-crossings: Where widening of U.S. 101 results in the replacement of existing roadways that cross over the freeway, the approaches of these cross-streets may need to be reconstructed to maintain vertical clearance over the freeway. Although these locations have yet to be identified on a site by site basis, replacement of these structures could result in the need for additional right-of-way. In addition, a new over-crossing for southbound traffic to Cottage Hospital is proposed between Las Positas Road and Mission Street, which will likely require additional right-of-way to accommodate the footprint of the proposed structure.

Indirect impacts: Besides the potential direct impacts to historic sites of national, state or local significance mentioned above, there are a number of publicly owned park, recreational areas, and wildlife and waterfowl refuge areas that also qualify as Section 4(f) resources in the 101 Study Area and that are currently situated close to U.S. 101. Examples of these resources include: Dwight Murphy Field, the Santa Barbara Zoological Gardens, the Andre Clark Bird Refuge, and historic neighborhoods such as the Summerland Historic District. Public enjoyment or use of these 4(f) resources can be affected by the proposed changes included in Alternative C. Indirect impacts involve environmental concerns such as traffic, noise, visual, and accessibility. A detailed 4(f) evaluation would need to be conducted in consultation with FHWA and resource agencies with jurisdiction such as the State Historic Preservation Office (SHPO), as part of the follow on environmental studies for the preferred strategy to assess the severity and magnitude of these potential indirect impacts to determine if they would impair the use of the 4(f) property.

[Note regarding 4(f) Resources: Section 4(f) of the Department of Transportation Act (1983) states in part that approval of a transportation program or project requiring the use of a 4(f) resource can be granted only if: (1) there is no feasible or prudent alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use." In a 4(f) evaluation, three types of impacts are analyzed: (a) direct impacts (which are to be avoided, if possible); (b) temporary use (e.g., during construction); and (c) constructive use (a type of indirect impact where use of a Section 4(f) resource may be impaired due to the proposed transportation project).]

Alternative D, General Purpose Lanes: [4 ROW]

<u>Commuter Rail:</u> No commuter rail elements are part of this alternative package.

<u>Highway:</u> The proposed physical configuration of the U.S. 101 freeway that is contained in the highway element for Alternative D is is similar to Alternative B. The key difference is that, under Alternative D, mixed flow traffic would use the proposed new lanes rather than HOV or HOT lane

traffic. As a result the cross-section width would be 3 to 7 feet narrower since a buffer between the HOV or HOT lanes and the adjacent general purpose lanes would not be required. Therefore, the rating for Alternative D would be the approximately the same as that for Alternative B, with somewhat less impacts in the most constricted locations.

Table J-1

Intersection LOS Analysis - AM

Intersection	Existing AM		2030 AM		Alt A AM		Alt B AM		Alt C AM		Alt D AM	
	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Fairview Ave & US 101 NB	C	0.77	F	1.10	F	1.07	F	1.10	F	1.10	F	1.11
Storke Rd & Hollister Ave	A	0.53	C	0.70	B	0.68	B	0.66	B	0.69	B	0.67
Fairview Ave & US 101 SB	C	0.70	D	0.88	D	0.87	D	0.89	**E**	0.91	**E**	0.90
Los Carneros Rd & Hollister Ave	A	0.28	A	0.38	A	0.36	A	0.35	A	0.37	A	0.35
SR 217 SB & Hollister Ave	B	0.64	D	0.82	C	0.79	D	0.81	D	0.80	D	0.81
Patterson Ave & Hollister Ave	A	0.53	B	0.64	B	0.62	B	0.66	B	0.67	B	0.66
Fairview Ave & Calle Real	C	0.73	D	0.88	D	0.85	**E**	0.92	**E**	0.93	**E**	0.93
Patterson Ave & US 101 NB	B	0.63	C	0.75	C	0.73	C	0.79	C	0.78	C	0.80
Patterson Ave & US 101 SB	C	0.80	D	0.86	D	0.84	**E**	0.99	**E**	0.97	**F**	1.00
Milpas St & US 101 SB On	A	0.28	A	0.34	A	0.33	A	0.37	A	0.38	A	0.38
Las Positas Rd & US 101 SB	C	0.79	D	0.90	D	0.87	**E**	0.97	**E**	0.96	**E**	0.99
Las Positas Rd & State St	A	0.57	C	0.73	B	0.68	C	0.70	C	0.73	C	0.72
Las Positas Rd & Calle Real / US 101 NB	C	0.74	D	0.87	D	0.84	**E**	0.91	**E**	0.90	**E**	0.93
SR 154 & Cathedral Oaks	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
SR 154 (San Marcos) & Calle Real	B	0.61	C	0.77	C	0.73	C	0.74	C	0.75	C	0.75
SR 154 NB & Foothill Rd	C	N/A	E	N/A	**D**	N/A	**D**	N/A	E	N/A	E	N/A
Castillo St & US 101 NB On	A	0.53	B	0.67	B	0.64	B	0.67	B	0.67	B	0.68
Mission St & US 101 NB	E	0.97	F	1.18	F	1.13	F	1.18	F	1.18	F	1.20
Mission Rd & US 101 SB	E	1.00	F	1.47	F	1.43	F	1.60	F	1.57	F	1.62
Carrillo St & US 101 SB	C	0.77	E	0.97	E	0.91	E	1.00	**F**	1.00	**F**	1.01
Carrillo St & US 101 NB	B	0.69	D	0.88	D	0.83	**E**	0.92	**E**	0.92	**E**	0.93
Castillo St & SR 225/Montecito St	C	0.75	F	1.20	F	1.12	F	1.17	F	1.21	F	1.19
Castillo St & US 101 SB	C	0.74	E	0.94	**D**	0.89	E	0.96	E	0.97	E	0.98
Garden St & US 101 SB	A	0.40	A	0.51	A	0.48	A	0.50	A	0.51	A	0.52
Garden St & US 101 NB	A	0.42	A	0.53	A	0.50	A	0.55	A	0.55	A	0.56
Milpas St & US 101 SB Off	A	0.41	A	0.52	A	0.49	A	0.55	A	0.55	A	0.56
Milpas St & US 101 NB	E	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
San Ysidro Rd & US 101 NB	C	N/A	D	N/A	D	N/A	**E**	N/A	**E**	N/A	**E**	N/A
Sheffield Dr & Jameson Ln/Ortega hill Rd	B	N/A	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A
San Ysidro Rd & US 101 SB	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
Linden Ave & US 101 SB	C	N/A	F	N/A	**E**	N/A	F	N/A	F	N/A	F	N/A
Linden Ave & US-101 NB Ramps*	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A
Casitas Pass Rd & US 101 NB	D	N/A	F	N/A	**E**	N/A	F	N/A	F	N/A	F	N/A
Casitas Pass Rd & US 101 SB	C	N/A	D	N/A	D	N/A	D	N/A	D	N/A	D	N/A

N/A = Not applicable since it is an unsignalized intersection

* Assumes EB right turn lane will be added when the off-ramp is added

** LOS's in shade indicate improved LOS at locations which had a LOS "E" or worse in the Base Year 2030; whereas a bold box indicates a deteriorated LOS.

Table J-1

Intersection LOS Analysis - PM

Intersection	Existing PM		2030 PM		Alt A PM		Alt B PM		Alt C PM		Alt D PM	
	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C	LOS	V/C
Fairview Ave & US 101 NB	D	0.84	F	1.11	F	1.08	F	1.11	F	1.11	F	1.11
Storke Rd & Hollister Ave	C	0.76	F	1.03	**E**	0.99	**E**	0.99	F	1.01	**E**	0.98
Fairview Ave & US 101 SB	A	0.52	B	0.67	B	0.66	B	0.68	B	0.69	B	0.68
Los Carneros Rd & Hollister Ave	A	0.29	A	0.42	A	0.40	A	0.38	A	0.40	A	0.38
SR 217 SB & Hollister Ave	B	0.67	D	0.86	D	0.83	D	0.85	D	0.84	D	0.85
Patterson Ave & Hollister Ave	C	0.72	E	0.93	**D**	0.89	E	0.93	E	0.95	E	0.93
Fairview Ave & Calle Real	D	0.84	F	1.05	F	1.01	F	1.08	F	1.09	F	1.08
Patterson Ave & US 101 NB	C	0.71	D	0.83	D	0.81	**E**	0.92	D	0.90	**E**	0.92
Patterson Ave & US 101 SB	E	0.92	E	0.94	E	0.93	**F**	1.11	**F**	1.08	**F**	1.11
Milpas St & US 101 SB On	A	0.37	A	0.47	A	0.44	A	0.50	A	0.51	A	0.52
Las Positas Rd & US 101 SB	E	0.92	F	1.08	F	1.04	F	1.16	F	1.14	F	1.18
Las Positas Rd & State St	B	0.69	D	0.88	D	0.83	D	0.83	D	0.87	D	0.86
Las Positas Rd & Calle Real / US 101 NB	D	0.88	F	1.01	**E**	0.98	F	1.12	F	1.09	F	1.14
SR 154 & Cathedral Oaks	C	N/A	E	N/A	**D**	N/A	E	N/A	E	N/A	E	N/A
SR 154 (San Marcos) & Calle Real	B	0.65	D	0.81	C	0.77	C	0.78	C	0.79	C	0.79
SR 154 NB & Foothill Rd	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A
Castillo St & US 101 NB On	D	0.83	F	1.04	**E**	0.99	F	1.03	F	1.04	F	1.05
Mission St & US 101 NB	B	0.68	D	0.83	C	0.80	D	0.83	D	0.83	D	0.85
Mission Rd & US 101 SB	D	0.89	F	1.43	F	1.38	F	1.52	F	1.49	F	1.54
Carrillo St & US 101 SB	B	0.66	D	0.83	C	0.80	D	0.84	D	0.85	D	0.86
Carrillo St & US 101 NB	D	0.80	F	1.01	**E**	0.98	F	1.05	F	1.06	F	1.08
Castillo St & SR 225/Montecito St	E	0.97	F	1.56	F	1.48	F	1.52	F	1.57	F	1.56
Castillo St & US 101 SB	D	0.80	F	1.01	**E**	0.96	F	1.02	F	1.03	F	1.05
Garden St & US 101 SB	A	0.50	B	0.63	B	0.61	B	0.65	B	0.66	B	0.67
Garden St & US 101 NB	B	0.68	D	0.86	D	0.83	D	0.90	D	0.90	**E**	0.92
Milpas St & US 101 SB Off	A	0.50	B	0.63	A	0.60	B	0.66	B	0.67	B	0.68
Milpas St & US 101 NB	E	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
San Ysidro Rd & US 101 NB	C	N/A	E	N/A	**D**	N/A	**F**	N/A	**F**	N/A	**F**	N/A
Sheffield Dr & Jameson Ln/Ortega hill Rd	C	N/A	C	N/A	C	N/A	C	N/A	D	N/A	D	N/A
San Ysidro Rd & US 101 SB	E	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
Linden Ave & US 101 SB	C	N/A	F	N/A	F	N/A	F	N/A	F	N/A	F	N/A
Linden Ave & US-101 NB Ramps*	B	N/A	C	N/A	C	N/A	C	N/A	C	N/A	C	N/A
Casitas Pass Rd & US 101 NB	C	N/A	E	N/A	E	N/A	E	N/A	E	N/A	E	N/A
Casitas Pass Rd & US 101 SB	C	N/A	E	N/A	**D**	N/A	**D**	N/A	**D**	N/A	**D**	N/A
Number of locations with LOS improved from "E" or worse			(AM & PM)		12		3		1		2	
Number of locations with LOS worsened from "E" or worse			(AM & PM)		0		7		8		10	

N/A = Not applicable since it is an unsignalized intersection

* Assumes EB right turn lane will be added when the off-ramp is added

** LOS's in shade indicate improved LOS at locations which had a LOS "E" or worse in the Base Year 2030; whereas a bold box indicates a deteriorated LOS.

TABLE J-2
2030 PEAK HOUR ARTERIAL LEVEL OF SERVICE ANALYSIS
ARTERIAL SEGMENTS
NO BUILD

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	FY 2030, AM			FY 2030, PM		
				WB AM	WB AM V/C	WB AM LOS	WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	152	0.19	A	356	0.44	B
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	429	0.61	C	195	0.28	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	787	0.49	B	404	0.25	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	82	0.12	A	52	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	625	0.89	D	317	0.45	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	258	0.37	A	250	0.36	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1256	0.70	C	1019	0.57	B
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	99	0.05	A	818	0.45	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	553	0.79	D	361	0.52	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	648	0.81	D	397	0.50	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	590	0.74	C	466	0.58	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	965	1.21	F	757	0.95	E
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	757	0.47	B	1020	0.64	C
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	895	0.50	B	1847	1.03	F

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	FY 2030, AM			FY 2030, PM		
				EB AM	EB AM V/C	EB AM LOS	EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	340	0.42	B	122	0.15	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	123	0.18	A	367	0.52	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	37	0.02	A	1235	0.77	D
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	48	0.07	A	30	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	629	0.90	D	579	0.83	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	265	0.38	A	679	0.97	E
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1378	0.77	D	1544	0.86	D
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	875	0.49	B	327	0.18	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	235	0.15	A	351	0.22	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	551	0.69	C	534	0.67	C
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	412	0.51	B	759	0.95	E
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	559	0.70	C	862	1.08	F
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	549	0.34	A	1219	0.76	D
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1430	0.79	D	1397	0.78	D

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".

TABLE J-2
2030 PEAK HOUR ARTERIAL LEVEL OF SERVICE ANALYSIS

ARTERIAL SEGMENTS

ALT A - Commuter Rail

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	ALT A, AM WB AM	WB AM V/C	WB AM LOS	ALT A, PM WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	144	0.18	A	337	0.42	B
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	406	0.58	B	185	0.26	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	745	0.47	B	383	0.24	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	77	0.11	A	48	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	590	0.84	D	300	0.43	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	240	0.34	A	233	0.33	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1187	0.66	C	962	0.53	B
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	92	0.05	A	763	0.42	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	515	0.74	C	337	0.48	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	574	0.72	C	352	0.44	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	558	0.70	C	441	0.55	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	913	1.14	F	716	0.90	D
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	716	0.45	B	965	0.60	C
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	847	0.47	B	1748	0.97	E
	NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 2					0			2
	NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 0					0			0

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	ALT A, AM EB AM	EB AM V/C	EB AM LOS	ALT A, PM EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	322	0.40	B	115	0.14	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	117	0.17	A	347	0.50	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	35	0.02	A	1168	0.73	C
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	45	0.06	A	28	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	594	0.85	D	547	0.78	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	247	0.35	A	634	0.91	E
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1302	0.72	C	1459	0.81	D
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	816	0.45	B	305	0.17	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	219	0.14	A	327	0.20	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	514	0.64	C	498	0.62	C
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	389	0.49	B	718	0.90	D
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	529	0.66	C	816	1.02	F
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	520	0.32	A	1153	0.72	C
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1353	0.75	D	1322	0.73	C

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE =1

NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 0

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".

*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE J-2

2030 PEAK HOUR ARTERIAL LEVEL OF SERVICE ANALYSIS

ARTERIAL SEGMENTS

ALT B - HOV/HOT Lanes + Commuter Rail

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	ALT B, AM			ALT B, PM		
				WB AM	WB AM V/C	WB AM LOS	WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	136	0.17	A	319	0.40	A
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	384	0.55	B	175	0.25	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	705	0.44	B	362	0.23	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	73	0.10	A	46	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	654	0.93	E	332	0.47	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	230	0.33	A	224	0.32	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1315	0.73	C	1067	0.59	B
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	88	0.05	A	732	0.41	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	494	0.71	C	323	0.46	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	550	0.69	C	337	0.42	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	528	0.66	C	418	0.52	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	865	1.08	F	678	0.85	D
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	678	0.42	B	914	0.57	B
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	802	0.45	B	1655	0.92	E

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 2

NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 1

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	ALT B, AM			ALT B, PM		
				EB AM	EB AM V/C	EB AM LOS	EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	305	0.38	A	109	0.14	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	111	0.16	A	329	0.47	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	33	0.02	A	1106	0.69	C
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	43	0.06	A	27	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	658	0.94	E	606	0.87	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	237	0.34	A	607	0.87	D
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1443	0.80	D	1617	0.90	D
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	782	0.43	B	292	0.16	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	210	0.13	A	314	0.20	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	492	0.62	C	478	0.60	B
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	369	0.46	B	680	0.85	D
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	501	0.63	C	772	0.97	E
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	492	0.31	A	1092	0.68	C
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1281	0.71	C	1252	0.70	C

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 3

NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 1

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".

*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE J-2
2030 PEAK HOUR ARTERIAL LEVEL OF SERVICE ANALYSIS
ARTERIAL SEGMENTS
ALT C - HOV South/ Aux Lanes North + Commuter Rail

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	ALT C, AM WB AM	ALT C, AM WB AM V/C	ALT C, AM WB AM LOS	ALT C, PM WB PM	ALT C, PM WB PM V/C	ALT C, PM WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	143	0.18	A	335	0.42	B
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	404	0.58	B	184	0.26	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	742	0.46	B	381	0.24	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	79	0.11	A	50	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	664	0.95	E	338	0.48	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	247	0.35	A	240	0.34	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1335	0.74	C	1083	0.60	C
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	95	0.05	A	786	0.44	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	531	0.76	D	347	0.50	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	591	0.74	C	362	0.45	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	556	0.70	C	439	0.55	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	910	1.14	F	714	0.89	D
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	714	0.45	B	961	0.60	C
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	844	0.47	B	1741	0.97	E

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 2
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 1

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	ALT C, AM EB AM	ALT C, AM EB AM V/C	ALT C, AM EB AM LOS	ALT C, PM EB PM	ALT C, PM EB PM V/C	ALT C, PM EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	320	0.40	B	115	0.14	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	116	0.17	A	346	0.49	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	35	0.02	A	1164	0.73	C
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	46	0.07	A	29	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	668	0.95	E	616	0.88	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	255	0.36	A	653	0.93	E
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1465	0.81	D	1642	0.91	E
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	841	0.47	B	314	0.17	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	226	0.14	A	337	0.21	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	529	0.66	C	513	0.64	C
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	388	0.49	B	715	0.89	D
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	527	0.66	C	813	1.02	F
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	518	0.32	A	1149	0.72	C
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1348	0.75	C	1317	0.73	C

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 1
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 2

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".

*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

TABLE J-2
2030 PEAK HOUR ARTERIAL LEVEL OF SERVICE ANALYSIS
ARTERIAL SEGMENTS
ALT D - General Purpose Lanes

WESTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	WB PEAKCAPA	ALT D, AM			ALT D, PM		
				WB AM	WB AM V/C	WB AM LOS	WB PM	WB PM V/C	WB PM LOS
VIA REAL	Between SR-150 and Bailard Ave	1	800	135	0.17	A	316	0.39	A
VIA REAL	Between Santa Monica Rd and Toro Canyon Rd	1	700	381	0.54	B	173	0.25	A
FOOTHILL RD	Between Santa Monica Rd and Casitas Pass Rd	1	1600	699	0.44	B	359	0.22	A
N JAMESON LN	Between Sheffield Dr and San Ysidro Rd	1	700	75	0.11	A	48	0.07	A
SAN YSIDRO RD **	Between Jameson Ln and Wyant Rd	1	700	674	0.96	E	340	0.49	B
OLD COAST HWY	Between Hot Spring Rd and Salinas St	1	700	236	0.34	A	229	0.33	A
N MILPAS ST	Between US 101 Freeway and Montecito St	2	1800	1355	0.75	D	1099	0.61	C
E CABRILLO BLVD	Between Milpas St and Garden St	2	1800	90	0.05	A	751	0.42	B
DE LA VINA ST	Between Mission St and Haley St	0	0	0	NA	NA	0	NA	NA
BATH ST	Between Mission St and Haley St	1	700	507	0.72	C	331	0.47	B
CALLE REAL	Between Las Positas Rd and La Cumbre Rd	1	800	565	0.71	C	346	0.43	B
MODOC RD	Between Las Positas Rd and Las Palmas Dr	1	800	524	0.65	C	414	0.52	B
CALLE REAL	Between N San Antonio Rd and Turnpike Rd	1	800	857	1.07	F	672	0.84	D
CALLE REAL	Between Patterson Ave and N. Kellogg Ave	2	1600	672	0.42	B	905	0.57	B
HOLLISTER AVE	Between Storke Rd and Camino Real Marketplace	2	1800	794	0.44	B	1640	0.91	E

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 2
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 1

EASTBOUND

ROADWAY NAME	LOCATION	Number of Lanes	EB PEAKCAPA	ALT D, AM			ALT D, PM		
				EB AM	EB AM V/C	EB AM LOS	EB PM	EB PM V/C	EB PM LOS
VIA REAL	Between Bailard Ave and SR-150	1	800	302	0.38	A	108	0.14	A
VIA REAL	Between Toro Canyon Rd and Santa Monica Rd	1	700	109	0.16	A	326	0.47	B
FOOTHILL RD	Between Casitas Pass Rd and Santa Monica Rd	1	1600	33	0.02	A	1096	0.69	C
N JAMESON LN	Between San Ysidro Rd and Sheffield Dr	1	700	44	0.06	A	28	0.04	A
SAN YSIDRO RD **	Between Wyant Rd and Jameson Ln	1	700	685	0.98	E	625	0.89	D
OLD COAST HWY	Between Salinas St and Hot Spring Rd	1	700	243	0.35	A	624	0.89	D
N MILPAS ST	Between Montecito St and US 101 Freeway	2	1800	1486	0.83	D	1665	0.93	E
E CABRILLO BLVD	Between Garden St and Milpas St	2	1800	803	0.45	B	300	0.17	A
DE LA VINA ST	Between Haley St and Mission St	2	1600	216	0.13	A	322	0.20	A
BATH ST	Between Haley St and Mission St	0	0	0	NA	NA	0	NA	NA
CALLE REAL	Between La Cumbre Rd and Las Positas Rd	1	800	505	0.63	C	490	0.61	C
MODOC RD	Between Las Palmas Dr and Las Positas Rd	1	800	365	0.46	B	673	0.84	D
CALLE REAL	Between Turnpike Rd and N San Antonio Rd	1	800	496	0.62	C	765	0.96	E
CALLE REAL	Between N. Kellogg Ave and Patterson Ave	2	1600	488	0.30	A	1082	0.68	C
HOLLISTER AVE	Between Camino Real Marketplace and Storke Rd	2	1800	1269	0.71	C	1240	0.69	C

NUMBER OF LOCATIONS WITH LOS IMPROVED FROM "E" OR WORSE = 3
NUMBER OF LOCATIONS WITH LOS WORSENED TO "E" OR WORSE = 2

** San Ysidro Road runs North-South, for this case the designation of "WB" is actually "NB" and the "EB" is "SB".
*: The LOS's in shade indicate an improved LOS at the locations which had a LOS "E" or worse in the Base Year 2030; whereas LOS's in bold box indicate a deteriorated LOS.

K-1 AIR QUALITY ANALYSIS

INTRODUCTION

The four 101 in Motion project alternatives may directly and indirectly affect air quality because cars and trucks cause more than half the smog-forming pollution in our county. The purpose of this analysis is to provide a relative comparison of the emissions estimates of Nitrogen Oxides (NOx), Reactive Organic Compounds (ROC) and Particulate Matter (PM10) for the four alternatives in order to determine which alternative is preferred from an air quality perspective.

"Air pollution" is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, or reducing human or animal health. Ambient air quality standards define clean air. They tell us how much of an individual pollutant can be in the air without causing harm, based on proven scientific and medical research.

The U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) develop and implement air quality standards. In most cases, California's standards are more protective of public health. **Table K-1** shows federal and state ambient air quality standards.

National Ambient Air Quality Standards (NAAQS) have been established for seven pollutants: Carbon monoxide (CO), lead, nitrogen dioxide (NO2), ozone (O3), respirable particulate matter less than 10 microns in diameter (PM10); fine particulate matter less than 2.5 microns in diameter (PM2.5), and sulfur dioxide (SO2).
California Ambient Air Quality Standards (CAAQS) exist for all of these, plus four more: sulfates, hydrogen sulfide, vinyl chloride (chloroethene), and visibility reducing particles.

The "primary" standards have been established to protect the public health with an adequate safety margin. The "secondary" standards are intended to protect the nation's welfare and account for air pollutant effects on soil, water, visibility, vegetation, and other general welfare aspects.

EXISTING AIR QUALITY IN STUDY AREA

The study area is located in Santa Barbara County. Santa Barbara County is located within the South Central Coast Air Basin, which is governed by the Santa Barbara County Air Pollution Control District (APCD). Section 107 of the 1977 Clean Air Act Amendment requires that the EPA publish a list of all geographic areas in compliance with the NAAQS, plus those not attaining the NAAQS. Areas not in NAAQS compliance are deemed non-attainment areas. Areas that have insufficient data to make a determination are deemed unclassified, and are treated as being attainment areas until proven otherwise.

Using the ambient air monitoring data collected at the 17 monitoring stations around the County, the USEPA and CARB determine whether Santa Barbara County's air is in attainment of the federal and state air quality standards. **Table K-2** shows Santa Barbara County's attainment classification for the federal and state air quality standards.

Santa Barbara County is classified as a federal attainment area for all pollutants and a state attainment area for all pollutants except PM10 and O3. Santa Barbara County does not meet the state one-hour ozone standard or the standard for particulate matter less than ten microns in diameter (PM10). There is not yet enough data to determine the attainment status for either the federal standard for particulate matter less than 2.5 microns in diameter (PM2.5) or the state PM2.5 standard. The state recently adopted a new eight-hour ozone standard that will go into effect later this year, or early next year. Although the state has not yet issued attainment designations, our data indicate we will be considered in non-attainment of this standard. The last three years of monitored data from the Santa Barbara and Goleta monitoring stations are summarized in **Table K-3** to illustrate the study area's general air quality.

In summary, air quality in Santa Barbara County continues to improve and the number of unhealthful air quality days in Santa Barbara County has been reduced by more than 95 percent from 1988 to 2004 despite substantial increases in population and vehicle miles traveled. However, it will be several years before the study area can meet the state standards for ozone and particulate matter.

CLEAN AIR PLAN

The federal Clean Air Act Amendments of 1990 and the California Clean Air Act of 1988 mandate the preparation of Clean Air Plans that provide an overview of air quality and sources of air pollution, and identifies the pollution-control measures needed to meet air federal and state air quality standards. A Clean Air Plan represents the blueprint for air quality improvement in Santa Barbara County; the goals are to explain the complex interactions between emissions and air quality, and to design the best possible emission control strategy in a cost-effective manner.

The most recent Clean Air Plan for the study area is the 2004 Clean Air Plan. The 2004 Plan provides the required three year update to the APCD's 2001 Clean Air Plan. The 2001 Clean Air Plan has been adopted by the USEPA and is the current State Implementation Plan under the federal Clean Air Act. Clean Air Plans represents a partnership among the APCD, the Santa Barbara County Association of Governments (SBCAG), the CARB, the USEPA, local businesses, and the community at large to reduce pollution from all sources: cars, trucks, industry, consumer products, and many more.

Table K-1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		Federal Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m^3)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m^3)*		0.08 ppm (157 µg/m^3)[8]		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m^3	Gravimetric or Beta Attenuation	150 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m^3		50 µg/m^3		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		65 µg/m^3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m^3	Gravimetric or Beta Attenuation	15 µg/m^3		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m^3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m^3)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m^3)		35 ppm (40 mg/m^3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m^3)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m^3)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µg/m^3)		—		
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m^3)	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m^3)		0.14 ppm (365 µg/m^3)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m^3)	
	1 Hour	0.25 ppm (655 µg/m^3)		—	—	—
Lead[9]	30 Day Average	1.5 µg/m^3	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m^3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m^3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m^3)	Ultraviolet Fluorescence			
Vinyl Chloride [9]	24 Hour	0.01 ppm (26 µg/m^3)	Gas Chromatography			

*This concentration was approved by the Air Resources Board on April 28, 2005 and is expected to become effective in early 2006.

See footnotes on next page …

Footnotes to Table K-1 (previous page)	
1	California standards for ozone, CO (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter – PM10, PM2.5, and visibly reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of regulations.
2	National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eighth hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard. Contact U.S. EPA for further clarification and current federal policies.
3	Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25 degrees Celsius and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25 degrees Celsius and a reference pressure of 760 torr; parts per million (ppm) in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4	Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5	National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect public health.
6	National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7	Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8	New federal 8-hour ozone and fine particulate matter standards were promulgated by U.S. EPA on July 18, 1997. Contact U.S. EPA for further clarification and current federal policies.
9	The Air Resources Board (ARB) has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

Table K-2
FEDERAL AND STATE ATTAINMENT/NON-ATTAINMENT DESIGNATIONS

Pollutant	Federal Designation	State Designation
Ozone (O_3) 1-Hour	Attainment	Non-attainment
Ozone (O_3) 8-Hour	Attainment	**
Carbon Monoxide (CO)	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Particulate Matter (PM_{10}) – Annual	Attainment	Non-attainment
Particulate Matter (PM_{10}) – 24 Hour	Attainment	Non-attainment
Particulate Matter ($PM_{2.5}$)	Attainment	Unclassified / Attainment
Visibility Reducing Particles	NA	Attainment
Hydrogen Sulfide	Attainment	Attainment
Sulfates	NA	Attainment
Lead	Attainment	Attainment

Source: Santa Barbara County Air Pollution Control District, 2005
California Air Resources Board, 2005
*** This is a new standard, recently adopted by the ARB. Official designations have no yet been announced; data indicates the area will be considered in nonattainment of this standard.*
NA: Not Applicable

Table K-3
AIR QUALITY SUMMARY FOR STUDY AREA MONITORING STATIONS

Air Pollutant	Standard/ Exceedance**	Santa Barbara 700 East Canon Perdido			Goleta*** Fairview		
		2002	2003	2004	2002	2003	2004
Carbon Monoxide (CO)	Year Coverage*	NA	53%	94%	85%	85%	85%
	Max. 1-hour Concentration (ppm)	NA	5.9	4.7	2.8	1.9	2.0
	Max. 8-hour Concentration (ppm)	NA	2.3	1.9	1.1	1.1	1.0
	# Days>Federal 1-hour Std. of >35 ppm	NA	0	0	0	0	0
	# Days>Federal 8-hour Std. of >9 ppm	NA	0	0	0	0	0
	# Days>California 1-hour Std. of >20 ppm	NA	0	0	0	0	0
	# Days>California 8-hour Std. of >9.0 ppm	NA	0	0	0	0	0
Ozone (O_3)	Year Coverage*	74%	74%	98%	100%	97%	99%
	Max. 1-hour Concentration (ppm)	0.076	0.079	0.095	0.070	0.097	0.092
	Max. 8-hour Concentration (ppm)	0.061	0.070	0.085	0.060	0.071	0.087
	# Days>Federal 1-hour Std. of >0.12 ppm	0	0	0	0	0	0
	# Days>Federal 8-hour Std. Of >0.08 ppm	0	0	1	0	0	1
	# Days>California 1-hour Std. Of >0.09 ppm	0	0	1	0	1	0
Nitrogen Dioxide (NO_2)	Year Coverage*	NA	51%	95%	100%	97%	100%
	Max. 1-hour Concentration (ppm)	NA	0.059	0.063	0.063	0.051	0.043.
	Annual Arithmetic Mean (ppm)	NA	NA	0.013	.011	.011	.009
	% AAM Exceeded (Federal)	NA	0	0	0	0	0
	# Days>California 1-hour Std. of >0.25 ppm	NA	0	0	0	0	0
Sulfur Di-oxide (SO_2)	Year Coverage*	NM	NM	NM	84%	83%	0%
	Max. 24-hour Concentration (ppm)	NM	NM	NM	0.001	0.003	0.001
	Annual Arithmetic Mean (ppm)	NM	NM	NM	NA	NA	NA
	# Days>Federal 24-hour Std. of >0.14 ppm	NM	NM	NM	0	0	0
	# Days>California 24-hour Std. of >0.04 ppm	NM	NM	NM	0	0	0
Suspended Particu-lates (PM_{10})	Year Coverage*	NM	NM	NM	100%	100%	100%
	Max. 24-hour Concentration (µg/m^3)	NM	NM	NM	33	38	31
	#Days>Fed. 24-hour Std. of>150 µg/m^3	NM	NM	NM	0	0	0
	#Days>California 24-hour Std. of>50 µg/m^3	NM	NM	NM	0	0	0
	State Annual Average (µg/m^3)	NM	NM	NM	14.8	15.2	14.9
Suspended Particu-lates ($PM_{2.5}$)	Year Coverage*	NA	NA	NA	NM	NM	NM
	Max. 24-hour Concentration (µg/m^3)	NA	24.0	27.5	NM	NM	NM
	State Annual Average (µg/m^3)	NA	NA	NA	NM	NM	NM
	#Days>Fed. 24-hour Std. of>65 µg/m^3	NA	0	0	NM	NM	NM
	National Annual Average (µg/m^3)	NA	NA	NA	NM	NM	NM
Lead	Maximum Monthly Concentration (µg/m^3)	NM	NM	NM	NM	NM	NM
	# Months Exceeding Federal Std.	NM	NM	NM	NM	NM	NM
	# Months Exceeding State Std.	NM	NM	NM	NM	NM	NM
Sulfates	Max. 24-hour Concentration (µg/m^3)	NM	NM	NM	NM	NM	NM
	#Samples>California 24-hour Std.>=25 µg/m^3	NM	NM	NM	NM	NM	NM

Source: California Air Resources Board, 2002, 2003, 2004
* Year Coverage indicates how extensive monitoring was during the time of year when high pollutant concentrations were expected.
**The number of days above the standard is not necessarily the number of violations of the standard for the year.
***The Las Flores Canyon #1 station was used for PM10 concentrations.
ppm: parts per million
µg/m^3: micrograms per cubic meter
NM: Pollutant not monitored
NA: Not available

AIR QUALITY IMPACT ASSESSMENT

The project may create short-term as well as long-term health risk, and have direct and indirect air quality impacts on the surrounding community. The pollutants of most concern in the study area are ozone and particulate matter (especially PM2.5 from diesel vehicle exhaust). The pollutants of concern are described below:

Ozone: Ground-level ozone is formed through a series of photochemical reactions involving oxides of nitrogen [NOx] and reactive organic compounds [ROC], referred to as ozone precursors, and sunlight occurring over a period of several hours. Ozone can damage the respiratory system, causing inflammation, irritation, and symptoms such as coughing and wheezing, and worsening of asthma symptoms. High levels of ozone are especially harmful for children, people who exercise outdoors, older people, and people with asthma or other respiratory problems. Ozone can harm the development of children's lungs, and recent studies suggest ozone plays a role in causing early childhood asthma. Ozone air pollution also hurts the economy by increasing hospital visits and medical expenses, and loss of work time due to illness, and by damaging crops, buildings, paint, and rubber. The proposed project alternatives will have associated emissions of NOx and ROC from motor vehicles and trains which must be quantified in order to compare the alternatives.

Particulate Matter: Fine mineral, metal, soot, smoke, and dust particles suspended in the air can harm our lungs. For health reasons, inhalable particulate matter less than 10 micrometers in diameter (PM10), and less than 2.5 micrometers in diameter (PM2.5) are of most concern. Particles of these sizes can permanently lodge in the deepest and most sensitive areas of the lung, and can aggravate many respiratory illnesses including asthma, bronchitis, and emphysema. High levels of particle pollution have also been associated with a higher incidence of heart problems, including heart attacks. Project-related direct and indirect sources of PM10 include grading, demolition, road dust, vehicle tire wear and tear and vehicle exhaust. Fine particulate matter (PM2.5) is generally the result of combustion activities and chemical reactions in the atmosphere and particulates from diesel engines (diesel PM) have been identified as carcinogenic and a significant public health risk. There are three carcinogenic toxic air contaminants that constitute a majority of the known health risk from motor vehicle traffic—diesel particulate matter (diesel PM) from trucks, and benzene and 1,3-butadiene from passenger vehicles. Acrolein from diesel construction equipment is also of concern. On a typical urban freeway, diesel PM represents about 70 percent of the potential cancer risk from the vehicle traffic. There is also concern about the acute non-cancer effects of diesel PM. Diesel PM is known to cause adverse respiratory health effects in children and premature mortality in those with existing cardiovascular disease. For the purposes of this analysis PM10 emissions will be used as a surrogate indicator of relative public health risk from diesel PM in comparing the 4 alternatives since PM2.5 data are not available.

Asbestos is also a pollutant of concern in regard to demolition of existing structures and soil disturbance during construction. Asbestos is a known human carcinogen. It causes cancers of the lung and the lining of internal organs, as well as asbestosis and pleural disease that inhibit lung function. The California Geological Survey identifies, Santa Barbara County as containing ultramafic rocks and therefore as a Naturally Occurring Asbestos (NOA) area. The project area should therefore, be tested for NOA in accordance with EPA rules and regulations. If it is determined that NOA is present in the project area, appropriate abatement measures must be undertaken.

In addition to NOA, airborne asbestos impacts could occur with the demolition of existing structures that contain asbestos. This project will involve the demolition of existing on- and off-ramp segments as well as existing over-crossing structures. These structures therefore must be inspected for asbestos prior to their demolition. The Santa Barbara County APCD regulates asbestos and will require Caltrans to file an Asbestos Notification form prior to demolition of each structure. With the appropriate measures taken – including prior inspection of the soil, air and structures in the project area for asbestos – these potential impacts can be minimized or eliminated. For this reason, this air pollutant will not be included in the comparative analysis for the 4 alternatives.

Carbon monoxide (CO): The project has the potential to cause a significant air quality impact if it causes a carbon monoxide "hot spot" where the California one-hour CO standard of 20 parts per million or the 8-hour CO standard of 9 ppm is exceeded. The air quality concern associated with Hwy 101 is the potential occurrence of CO hotspots where a large number of motor vehicles idle. This typically occurs at severely congested intersections. The study area is in attainment for CO and due to the relatively low background ambient CO levels in Santa Barbara County, localized CO impacts associated with project traffic alone are not expected to exceed the CO health-related air quality standards. Also as vehicles get cleaner in future years the potential for CO "hotspots" even at severely congested intersections is less likely to be a concern. A microscale screening analysis was therefore not performed.

AIR QUALITY ANALYSIS

For the purposes of comparison of the four Alternatives, this analysis includes regional scale analyses of two types of descriptors: 1) the ozone generating pollutants, NOx and ROC; and 2) a comparison of the PM10 emissions used as a surrogate for relative public health risk from diesel PM.

The regional or mesoscale analysis of a project determines a project's overall impact on regional air quality levels. A transportation project is analyzed as part of a regional transportation network developed by the County or State. Projects included in this network are found in the Regional Transportation Plan (RTP) and the Transportation Improvement Plan (TIP). The TIP includes a regional analysis which utilizes Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) within the region to determine daily "pollutant burden" levels.

For project specific regional impacts, a mesoscale analysis is conducted to demonstrate the regional impacts between the alternatives. The regional analysis for this project is shown in Table K-4. Roadway contribution emissions factors were derived from the California Air Resources Board (CARB) emission factor program EMFAC2002. Diesel train emissions factors from current Southern California Regional Rail Authority (SCRRA) Metrolink engines were utilized for this analysis. The regional analysis should be updated once project specific information on proposed equipment is available.

Roadway VMT information and associated average daily speeds are shown in **Table K-4**. The three diesel trains were assumed to each make a 45-mile roundtrip per weekday within Santa Barbara County for a total of 135 miles per day. Diesel train emissions were provided by SCRRA and were based on Metrolink locomotive pairs (engine type F59PHI and 3412). It is expected that diesel train emission factors will be further reduced due to the new legislation recently approved by the CARB to reduce diesel emission from rail yards (Memorandum of Understanding – effective date June 30, 2005).

As shown in **Table K-4**, the regional analysis indicates that while the VMT is expected to increase slightly for all the build Alternatives, CO levels are expected to decrease slightly due to higher speeds on the roadway. NOx levels are expected to increase with all of the alternatives due to both the increased VMT, speed and the contribution from the diesel locomotives. The roadway contribution to ROC levels is predicted to decrease slightly with Alternatives A, B and C, but the diesel train contribution negates any reduction, for a slight overall increase in ROC levels for all the alternatives. PM_{10} levels are expected to remain unchanged with Alternatives B, and increase slightly with Alternatives A, C and D.

Table K-4
Regional Air Quality Analysis

Alternative	Daily VMT	Average Daily Speed	Emission Factors (Grams/Mile)				Emission Burden (Kilograms/Day)				Change from Future Year				
			CO	NOx	ROC	PM10	CO	NOx	ROC	PM10	VMT	CO	NOx	ROC	PM10
Roadway Contribution															
Future Year 2030	4,948,555	40.3	0.865	0.171	0.031	0.036	4280.5	846.2	153.4	178.1		-	-	-	-
Alternative A	5,057,828	43.1	0.838	0.173	0.03	0.035	4238.5	875.0	151.7	177.0	2%	-1%	3%	-1%	-1%
Alternative B	5,013,903	46.9	0.811	0.178	0.03	0.035	4066.3	892.5	150.4	175.5	1%	-5%	5%	-2%	-1%
Alternative C	5,078,929	45.3	0.823	0.175	0.03	0.035	4180.0	888.8	152.4	177.8	3%	-2%	5%	-1%	0%
Alternative D	5,202,860	46.5	0.814	0.177	0.03	0.035	4235.1	920.9	156.1	182.1	5%	-1%	9%	2%	2%
Diesel Train Contribution															
Future Year 2030	-	na	0	0	0	0	0.0	0.0	0.0	0.0					
Alternative A	135	na	91.0	538.5	27.8	22.6	12.3	72.7	3.7	3.1					
Alternative B	135	na	91.0	538.5	27.8	22.6	12.3	72.7	3.7	3.1					
Alternative C	135	na	91.0	538.5	27.8	22.6	12.3	72.7	3.7	3.1					
Alternative D	-	na	0	0	0	0	0.0	0.0	0.0	0.0					
Total Contribution															
Future Year 2030	4,948,555	na	na	na	na	na	4280.5	846.2	153.4	178.1		-	-	-	-
Alternative A	5,057,963	na	na	na	na	na	4250.7	947.7	155.5	180.1	2%	-1%	12%	1%	1%
Alternative B	5,014,038	na	na	na	na	na	4078.6	965.2	154.2	178.5	1%	-5%	14%	0%	0%
Alternative C	5,079,064	na	na	na	na	na	4192.2	961.5	156.1	180.8	3%	-2%	14%	2%	1%
Alternative D	5,202,860	na	na	na	na	na	4235.1	920.9	156.1	182.1	5%	-1%	9%	2%	2%

AIRBORNE ASBESTOS IMPACTS

There is a potential for asbestos impacts associated with this project. With the appropriate measures taken – including prior inspection of the soil, air and structures in the project area for asbestos – these potential impacts can be minimized or eliminated.

CONCLUSION

An air quality regional screening analysis was conducted on the 101 In Motion project to determine potential air quality impacts. The results of these analyses are summarized in **Table K-7**.

Table K-7
Summary of Relevant Air Quality Impacts

AQ Impacts	Year 2030	Alternative A	Alternative B	Alternative C	Alternative D
Total Emissions of NOx	846.2	947.7	965.2	961.5	920.9
Total Emissions of ROC	153.4	155.5	154.2	156.1	156.1
Total Emissions of PM10	178.1	180.1	178.5	180.8	182.1
% Change in NOx from 2030	-	12%	14%	14%	9%
% Change in ROC from 2030	-	1%	0%	2%	2%
% Change in PM10 from 2030	-	1%	0%	1%	2%

The regional analysis indicates that while the VMT is expected to increase for all the build Alternatives, CO levels are expected to decrease slightly due to higher speeds on the roadway. NOx levels are expected to increase with all of the alternatives due to both the increased VMT and the contribution from the diesel locomotives in Alternatives A, B, and C. The roadway contribution to ROC levels is predicted to decrease with Alternatives A, B and C, but the diesel train contribution would negate any reduction, for a slight overall increase in ROC levels for all of the alternatives.

PM_{10} levels (and therefore, health risk from diesel PM) are expected to remain unchanged with Alternative B, and increase slightly with Alternatives A, C and D.

There is a potential for asbestos impacts associated with this project. With the appropriate measures taken – including prior inspection of the soil, air and structures in the project area for asbestos – these potential impacts can be minimized or eliminated.

Based on this preliminary regional analysis of the air quality impacts, the reality is that there would not be that much difference between the alternatives. They all increase NOx, ROC, and PM10 about the same over the No-Build conditions. Using a 1 to 5 rating scale, where 1 would be a significant improvement in air quality, 3 would be no change from the No-Build, and 5 would be a significant worsening, all of the Alternatives are rated a 4, based mostly on the increase in NOx.

Once the project is further defined, regional emissions for the diesel locomotives should be reexamined. The screening analysis should be revisited and a detailed microscale air quality analysis should be conducted to insure that the project is not predicted to cause or exacerbate public health risks from toxics air contaminants or cause a CO hot spot or increase NOx and ROC emissions above the levels accounted for in the latest Clean Air Plan for Santa Barbara County.

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Table L-1: NOISE IMPACT ASSESSMENT

No noise modeling was conducted for the alternatives at this screening level of environmental analysis for 101 in Motion. Instead, a qualitative evaluation was conducted to determine the relative potential for increased noise impacts for each of the alternative packages based on the following factors: geographic proximity of sensitive receivers; relative increases in traffic; changes in freeway/roadway widths; past measurements of existing noise levels (Draft Environmental Impact Statement/Report, Route 101 Six-Lane Project, March 1993); and proposed operational scenarios of transit and commuter rail. All alternatives were compared to the Year 2030 Baseline Condition. Further technical studies and analyses during future phases of project development will be necessary to specifically identify the environmental impacts of the alternatives.
For this environmental criterion, two assessments were performed for each of the proposed alternative packages: (a) estimated noise impacts and (b) estimated noise impacts with mitigation (sound walls). The reasonability and feasibility of noise barriers, including their height and approximate locations, will ultimately be determined through extensive noise modeling that would be conducted in subsequent studies during the environmental document phase of project development. However, where existing noise levels are already high (approach or exceed 67 dBA), it is reasonable to assume that noise walls would be required in areas where sensitive receivers are present near and where new lanes or new facilities are proposed. [Note: if the community in certain locations prefers to live with the un-attenuated noise as opposed to the visual impact of the sound wall, then the addition of sound walls can be dropped.]

TABLE L-1
ASSESSMENT OF NOISE IMPACTS FOR PROPOSED ALTERNATIVE PACKAGES

	BASELINE CONDITION	A. COMMUTER RAIL	B. HOV/HOT LANES + COMMUTER RAIL	C. HOV SOUTH/AUX LANES NORTH + COMMUTER RAIL	D. GENERAL PURPOSE LANES
NOISE (no mitigation)	3	3	4	4	4
NOISE (with mitigation)	NA	NA	2	2	2

Scale:
5 = Negative Impact
3 = No Change Compared to Year 2030 Baseline Condition
1 = Improvement

Year 2030 Baseline Condition
For the sensitive receivers (homes, schools, parks) that are located near the freeway and that are not currently protected by a sound wall, the existing noise levels are quite high. Noise measurements of existing noise levels, taken by Caltrans in 1990 (Draft Environmental Impact Statement/Report, Route 101 Six-Lane Project, March 1993), show that noise levels generally range from 65 to 77 dBA, which is well above federal and state abatement standards for noise. Traffic has increased on U.S. 101 since these noise measurements were taken and it is presumed that noise levels will increase accordingly by Year 2030. However, for purposes of the qualitative noise evaluation, the Year 2030 Baseline Condition is the basis of comparison for the other alternatives.
Rating: 3 Noise (no mitigation)

Alternative A, Commuter Rail
The commuter rail element of this package proposes three additional trains per day in each direction in addition to the freight and Amtrak service already using the rail corridor. Operating scenarios developed for the proposed commuter rail service assume that standard commuter trains with diesel locomotives would be utilized. Whereas noise levels associated with a passing train can be high (train noise, locomotive warning horns, grade crossing bells), they are short in duration and would occur during peak hours. Consequently, the commuter rail element is predicted to result in only a marginal change in overall noise compared to the baseline condition. It is not expected that this marginal change in train frequency is sufficient to warrant mitigation such as sound walls throughout the rail corridor. Therefore, Alternative A is not predicted to result in marked change in noise levels compared to the Year 2030 Baseline Condition.
Rating: 3 Noise (no mitigation); NA (with mitigation)

Alternative B, HOV/HOT Lanes + Commuter Rail
The HOV/HOT Lane elements of Alternative B involve the addition of either an High Occupancy Vehicle (HOV) lane or a High Occupancy Toll (HOT) lane to U.S. 101 in each direction: (a) between Patterson Avenue and Carrillo Street and (b) between Milpas St. and SR-150. A centerline shift towards the UP ROW is assumed for seven of the 20 segments. In these cases, the northbound edge of shoulder would remain the same and the freeway would be shifted away from sensitive receivers and towards the UP RR line. In 13 of the 20 segments, it is presumed that the freeway would be widened symmetrically to accommodate the proposed HOV/HOT lanes. In these segments, the edge of the travel lanes would be pushed a little bit closer to sensitive receivers on both sides of the freeway. In addition to the added HOV/HOT lanes, auxiliary lanes are proposed for three additional segments of U.S. 101: (1) between Los Carneros Rd. and Fairview Avenue (northbound side only); (2) between Carillo Street and Castillo Street (southbound side only); and (3) between Castillo Street and Garden Street (southbound side only). The anticipated impact would likely be a moderate increase in noise levels for Alternative B along U.S. 101 compared to the 2030 Baseline Condition due to added traffic volumes using the new lanes and to changes in roadway geometry that would bring the edge of the travel lanes closer to existing sensitive receivers. Based on previous noise analysis conducted by Caltrans in the U.S. 101 Corridor (Draft Environmental Impact Statement/Report, Route 101 Six-Lane Project, March 1993), it is assumed that implementation of Alternative B would warrant the provision of sound walls on both sides of the freeway for much of its length next to sensitive receivers where none

currently exist. The construction of these sound walls would not only mitigate the increased noise levels attributable to the new HOV/HOT lanes and auxiliary lanes, but would also provide a marked benefit to those neighborhoods already experiencing high levels of freeway noise. With mitigation, the net result would be an improvement upon the 2030 Baseline Condition. As described in the noise discussion for Alternative A, the commuter rail element of Alternative B is not anticipated to appreciably affect existing train noise levels along the UP railroad line within the Study Area.
Rating: 4 Noise (no mitigation); 2 Noise (with mitigation)

Alternative C, HOV South / Auxiliary Lanes North + Commuter Rail
The freeway elements of Alternative C would entail the addition of an HOV lane to U.S. 101 in each direction between Milpas Street and SR-150. About 13 segments of U.S. 101 would be affected by the proposed HOV lanes. In two of these 13 segments, a centerline shift towards the UP railroad line is proposed to accommodate the additional lanes. In these two segments, the northbound side of the freeway would remain the same and the freeway would be shifted away from sensitive receivers towards commercial properties and the UP railroad line. The freeway would be widened symmetrically in the other 11 segments of the HOV lane. In these 11 segments, the edge of the travel lanes would be pushed a little bit closer to sensitive receivers on both sides of the freeway. The auxiliary lane element of this alternative would involve the addition of an auxiliary lane to the outside of the freeway in approximately eight segments of U.S. 101 north of Milpas Street (five segments northbound side only, two segments southbound side only, and one segment would have auxiliary lanes on both sides of the freeway). Since the auxiliary lanes are added to the outside of the freeway rather than in the median, the edge of the travel lanes would be 12 feet closer to sensitive land uses on those sides of the freeway. Similar to Alternative B, the anticipated noise impact would likely be a moderate increase in noise levels for the HOV lanes compared to the 2030 Baseline Condition. Therefore, Alternative C is predicted to result in a moderate increase in noise levels. As with the other alternatives, sound walls would likely be implemented in several areas along U.S. 101 as proposed mitigation depending upon community preferences. The new noise barriers would provide a benefit to those neighborhoods already experiencing high levels of freeway noise. The commuter rail element of Alternative C is not anticipated to appreciably affect existing train noise levels along the UP railroad line within the Study Area as this element proposes only two commuter trains per day in each direction in addition to the existing Amtrak and freight service.
Rating: 4 Noise (no mitigation); 2 Noise (with mitigation)

Alternative D, General Purpose Lanes
From a physical standpoint, the proposed freeway configuration in Alternative D closely resembles the freeway elements included in Alternative B. The key difference is that general purpose traffic would utilize the new travel lanes as opposed to HOV or HOT traffic. The general purpose lane elements of this alternative involve the addition of a general purpose lane to U.S. 101 in each direction (a) between Patterson Avenue and Carrillo Street and (b) between Milpas Street. and SR-150. A centerline shift towards the UP ROW is assumed for seven of the 20 segments. In these cases, the northbound edge of shoulder would remain the same and the freeway would be shifted away from sensitive receivers and towards the UP RR line. In 13 of the 20 segments, it is presumed that the freeway would be widened symmetrically. In these segments, the edge of the travel lanes would be pushed a little bit closer to sensitive receivers on both sides of the freeway. In addition to the added general purpose lanes, auxiliary lanes are proposed for

three additional segments of U.S. 101: (1) between Los Carneros Rd. and Fairview Avenue (northbound side only); (2) between Carillo Street and Castillo Street (southbound side only); and (3) between Castillo Street and Garden Street (southbound side only). Overall, the anticipated impact would likely be a moderate increase in noise levels for this alternative compared to the 2030 Baseline Condition. It is assumed that implementation of Alternative D would result in the provision of sound walls on both sides of the freeway for much of its length next to sensitive receivers where none currently exist depending upon the preferences of the communities involved. The construction of these sound walls would not only mitigate the increased noise levels attributable to the new general purpose lanes, but would also provide a benefit to those neighborhoods already experiencing high levels of freeway noise. Alternative D does not include a commuter rail element.
Rating: 4 Noise (no mitigation); 2 Noise (with mitigation)

TABLE M-1. VISUAL IMPACT ASSESSMENT

The assessment of visual impacts of the proposed alternative packages is subjective, by its nature. It is based upon the evaluator's assessment of community perceptions related to the visual context of the proposed transportation improvements, and involves estimations of the extent to which the proposed actions/facilities would: be consistent with the existing visual context, visually intrude into the existing context, or visually enhance the existing context. This generally relates to the physical elements of the proposed alternatives such as added lanes, sound walls, and impacts to existing vegetation. The assessment includes the perspective of the viewer of the proposed actions/facilities as well as the perspective of the user (i.e., motorist, rail or transit passenger) of the proposed actions/facilities. The visual impact evaluation also takes into account assumed mitigation features that would be included in the project design such as replacement landscaping and sound walls. [Note: if the community in certain locations prefers to live with the un-attenuated noise as opposed to the visual impact of the sound wall, then the addition of sound walls can be dropped.] Further technical studies and analyses during future phases of project development will be necessary to specifically identify the environmental impacts of the alternatives.

TABLE M-1
ASSESSMENT OF VISUAL IMPACTS FOR PROPOSED ALTERNATIVE PACKAGES

	BASELINE CONDITION	A. COMMUTER RAIL	B. HOV/HOT LANES + COMMUTER RAIL	C. HOV/ AUX LANES + COMMUTER RAIL	D: GENERAL PURPOSE LANES
VISUAL	1	1	4	3	4

Scale:
5 = Worst Case
1 = Best Case

Year 2030 Baseline Condition: [1 Visual]
No anticipated impacts.

Alternative A, Commuter Rail: [1 Visual]
The commuter rail element of this package would have no or only marginal impacts to the existing visual context of the UP railroad line. A second track (i.e., passing siding) would be implemented for one stretch between the Padaro Lane/ U.S. 101 over-crossing

and the Padaro Lane/Santa Claus Lane at grade crossing of the UP ROW, which is not anticipated to result in a significant visual impact. Since there are no freeway improvements with this Alternative, the visual context would not be affected.

Alternative B, HOV/HOT Lanes + Commuter Rail [4 Visual]
The commuter rail element of this package would have little or only marginal impacts to the existing visual context of the UP railroad line. A second track (i.e., passing siding) would be implemented for one stretch between the Padaro Lane/ U.S. 101 over-crossing and the Padaro Lane/Santa Claus lane at grade crossing of the UP R/W, which is not anticipated to result in a significant visual impact. From a visual perspective, the physical aspects of the HOV or HOT lanes would affect approximately 20 segments. Auxiliary lanes would affect an additional three segments. In laying out the concept design, adjustments were made to preserve the existing vegetation to the greatest extent feasible either through freeway centerline shifts or through the provision of replacement landscaping. It is assumed that a 6-foot landscaped median would be provided where HOV / HOT lanes are proposed. If a reduced cross is considered to further avoid ROW impacts, the median would be a concrete median barrier (selected segments only). A centerline shift towards the UP ROW is assumed for seven of the 20 segments. In these cases, one side of the freeway would remain untouched, a new 6-foot landscaped median would be provided, and the existing visual buffer on the southbound side between the freeway and the UP RR would be reduced or eliminated. In 13 of the 20 segments, it is presumed that the freeway would be widened symmetrically. In some cases, there would be no noticeable impact or only a minor impact to outside vegetation. In most cases, the existing vegetation on both sides of the freeway would be reduced and/or replaced leaving a thin visual buffer on either side. In a few segments, where it is particularly tight (e.g., Olive Mill Rd. to Sheffield Drive), landscaping in the median and most of the vegetation on the outsides of the freeway would need to be eliminated to avoid impacts to adjacent properties. This alternative would also entail the provision of sound walls on both sides of the freeway next to sensitive receivers where none currently exist. These added noise barriers would be visually intrusive to both residents and motorists. HOV and HOT lanes require a buffer between them and the general purpose lanes which result in a somewhat wider cross-section than when adding a general purpose lane. Additionally a HOT Lane requires a canopy over the lane at locations where the electronic toll readers are located. Design exceptions to permit a reduced cross-section and/or context sensitive design elements will need to be considered to help reduce the visual impacts in the particularly tight areas.

Alternative C, HOV Lane South/ Auxiliary Lanes North + Commuter Rail: [3 Visual]
The HOV Lane element of this alternative would entail the addition of a High Occupancy Vehicle (HOV) lane to U.S. 101 in each direction between Milpas Street and SR-150. About 13 segments of U.S. 101 would be affected by the HOV lane. In two segments, a centerline shift towards the UP railroad line is proposed to accommodate the additional lanes. In these areas, the northbound side of the freeway would remain untouched, a new 6-foot landscaped median would be provided, and the existing vegetation on the southbound side between the freeway and the UP RR would be reduced and/or replaced leaving a thinner visual buffer between the southbound travel lanes and adjacent commercial properties/UP RR line. The freeway would be widened symmetrically in the other 11 segments of the HOV lane. In most cases, the existing vegetation on both sides of the freeway would be reduced and/or replaced

leaving a thin visual buffer on either side. In a few segments, where it is particularly tight (e.g., Olive Mill Rd. to Sheffield Drive), landscaping in the median and most of the vegetation on the outsides of the freeway would need to be eliminated to avoid impacts to adjacent properties. The auxiliary lane element of this alternative would involve the addition of an auxiliary lane to the outside of the freeway in approximately seven segments of U.S. 101 (five segments northbound side only, two segments southbound side only). No auxiliary lane improvements are proposed in those segments that contain HOV lanes. In most cases, the vegetation between the existing outside shoulder and the right-of-way line would be reduced, resulting in a thinner visual buffer between the freeway and the adjacent properties. In a few isolated areas (e.g., Hope Ave. to Las Positas Rd.), existing vegetation between U.S. 101 and the adjacent frontage road would be eliminated. The commuter rail element of this package would have no or only marginal impacts to the existing visual context of the UP railroad line. A second track (i.e., passing siding) would be implemented for one stretch between the Padaro Lane/ U.S. 101 over-crossing and the Padaro Lane/Santa Claus Lane at grade crossing of the UP ROW, which is not anticipated to result in a significant visual impact.

Alternative D, General Purpose Lanes: [4 Visual]
The general purpose lane elements of this alternative involve the addition of a general purpose lane to U.S. 101 in each direction (a) between Patterson Avenue and Carrillo Street and (b) between Milpas St. and SR-150. Approximately 20 segments would be affected. Auxiliary lanes would affect an additional three segments. In laying out the concept design, adjustments were made to preserve the existing vegetation to the greatest extent feasible either through freeway centerline shifts or through the provision of replacement landscaping. It is assumed that a 6-foot landscaped median would be provided where HOV / HOT lanes are proposed. If a reduced cross is considered to further avoid ROW impacts, the median would be a concrete median barrier (selected segments only). A centerline shift towards the UP ROW is assumed for seven of the 20 segments. In these cases, one side of the freeway would remain untouched, a new 6-foot landscaped median would be provided, and the existing visual buffer on the southbound side between the freeway and the UP RR would be reduced or eliminated. In 13 of the 20 segments, it is presumed that the freeway would be widened symmetrically. In some cases, there would be no noticeable impact or only a minor impact to outside vegetation. In most cases, the existing vegetation on both sides of the freeway would be reduced and/or replaced leaving a thin visual buffer on either side. In a few segments, where it is particularly tight (e.g., Olive Mill Rd. to Sheffield Drive), landscaping in the median and most of the vegetation on the outsides of the freeway would need to be eliminated to avoid impacts to adjacent properties. This alternative would also entail the provision of sound walls on both sides of the freeway next to sensitive receivers where none currently exist. These added noise barriers would be visually intrusive to both residents and motorists. Design exceptions to permit a reduced cross-section and/or context sensitive design elements will need to be considered to help reduce the visual impacts in the particularly tight areas.

Table O-1: Stakeholder Equity

In February 1994, President Clinton issued Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations” which includes the requirement that, to the greatest extent practicable and permitted by law, “each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.” In keeping with this principle, a qualitative evaluation was performed for the alternative packages based on their anticipated impacts on low income or minority populations either positively or negatively. Compared to other regions in Southern California, communities in Santa Barbara County exhibit higher median income levels and contain fewer minority populations. Therefore, given the context of the overall study area, stakeholder equity is a relative term. Both adverse impacts and beneficial impacts were examined, and a combined score was given to each alternative package for stakeholder equity.

<u>Adverse Impacts</u>: The qualitative screening analysis identified neighborhoods or pockets of housing along the U.S. 101 right-of-way and the UP right-of-way that are more likely to include residences that fall below the median income level for Santa Barbara County or that are more likely to incorporate minority populations compared to the county as a whole. Within the study area, these include neighborhoods such as: Old Town Goleta; the lower Eastside and lower Westside of the City of Santa Barbara, and the older, downtown area of Carpinteria. The analysis also took into account mobile home parks, which tend to house a greater proportion of senior citizens living on fixed incomes compared to other residential areas. Using aerial photography (Air Photo USA, 2000), the physical components of each of alternatives were then examined to assess their direct impact (e.g., right-of-way impact) as well as their indirect impacts (visual, noise, air quality, community cohesion) on these neighborhoods. See also, Tables I/J-1, I/J-2, I/J-3, L-1, and M-1 for further information on specific environmental effects associated with the proposed improvements conducted during this screening phase of 101 In Motion. The commuter rail element runs adjacent to more of these lower-income neighborhoods due to its length and location in the Union Pacific right-of-way compared to the freeway elements of the different alternatives. However, the nature of the potential impacts associated with adding additional travel lanes and auxiliary lanes to U.S. 101 are higher than the proposed commuter rail service due to the amount of construction involved as well as added noise and air quality concerns attributable to changes in traffic volumes.

<u>Beneficial Impacts</u>: The alternative packages contain a different mix of rail service, transit service, and mobility attributes that would benefit low-income or minority populations that travel within the study area in different ways. For example, the added express bus service combined with HOV lanes would provide more benefits to low-income populations compared to the toll component of the HOT lane or compared to a general purpose lane. Journey to work data from the U.S. Census indicates that lower socio-economic groups tend to carpool more than higher income groups. In addition, the fares for the express bus and transit service would be slightly more attractive to disadvantaged groups compared to the proposed commuter rail service. Also, it is important to note that whereas the toll component of the HOT Lanes included in Alternative B would favor higher-income users, the HOT Lane treatment also assumes that 2+ or 3+ users would travel for free or at a discounted price.

Combined Score - Equity Rating: In most cases, the beneficial impacts offset some of the adverse impacts of these alternatives. However, in the equity analysis, slightly greater emphasis was given to the potential for adverse impacts as opposed to mobility benefits due to the strength of public perception related to the beneficial versus adverse effects of large transportation projects. All of the alternative packages are multi-modal with the exception of Alternative A, which does not include any freeway elements. [Note that two different ratings are given for Alternative B, one to represent a purely HOV treatment and another to represent a HOT lane operational scenario.]

	BASELINE CONDITION	A. COMMUTER RAIL	B. HOV*/HOT** LANES + COMMUTER RAIL	C. HOV SOUTH/AUX LANES NORTH + COMMUTER RAIL	D. GENERAL PURPOSE LANES
EQUITY	3	2	3* / 4**	3	4

Scale:

5 = Negative Impact
3 = Neutral Effect
1 = Improvement

Table P-1
SUSTAINABILITY

	BASELINE CONDITION	A. COMMUTER RAIL	B. HOV/HOT LANES + COMMUTER RAIL	C. HOV SOUTH/AUX LANES NORTH + COMMUTER RAIL	D. GENERAL PURPOSE LANES
SUSTAINABILITY	NA	2	4	4	4

Scale:
5 = Worst Case
1 = Best Case

A qualitative evaluation was performed for the alternative packages based on their anticipated effect on non-renewable resources. The consumption of energy would be considered a non-renewable resource. In addition, the use of materials devoted to construction of the proposed transportation improvements would result in a one time use of these resources. In performing the evaluation, three factors were examined: (1) the cost associated with constructing the proposed transportation elements; (2) fuel efficiencies achieved through improvements in vehicle speeds and congestion relief offset by estimated changes in vehicle miles traveled; and (3) reductions in vehicle trips through TDM measures and increased transit use. The basis for this preliminary screening analysis on Sustainability was: (1) the capital cost estimates (Table Q-1); (2) estimates of vehicle miles traveled and improvements of vehicle speeds (Table K-1); and (3) estimated improvements in alternative modes (Table E-1). In addition, the information on energy impacts provided in the Draft Environmental Impact Statement/Report, Route 101 Six-Lane Project, March 1993, served as an invaluable reference source in order to perform a reasonability check on the results of the qualitative evaluation for Sustainability.

In general, those alternatives with a higher construction cost would result in a negative impact to non-renewable resources. Those alternatives which resulted in greater fuel efficiencies and reductions in vehicle trips would result in a positive impact. In most cases, these factors offset each other, with the amount of resources needed to construct the proposed transportation facilities having a somewhat greater effect in the overall findings.

Table Q-1							
Estimated Cost Per Peak Hour of Delay Reduced							
	Capital Cost		*Annual Net O&M Cost (3)*		Total Annual Cost (in Millions)	*Annual Reduction in PHD in Millions (4)*	*Annual Cost/PHD Reduced*
	Total in Millions (1)	Annualized @ 7% Discount Rate (2)	Highway	Transit/TDM			
Alternative A	$130	11.16	0.00	5.00	$16.16	1.69	$9.56
Alternative B	$708 - 939(1)	$60.79 - 80.62	3.20	5.60	$69.59 - 89.42	5.60	$12.43 - 15.97
Alternative C	$568 - 752(1)	$48.77 - 64.56	2.80	5.60	$57.17 - 72.96	4.31	$13.26 - 16.92
Alternative D	$519 - 712(1)	$44.56 -61.13	3.20	1.10	$48.86 - 65.43	4.72	$10.35 - 13.86

(1) See Table Q-2 for derivation. Range reflects low and high levels of contingencies and potential differences between standard cross-section widths and reduced widths.

(2) Discounted at 7% over 30 years (in Millions of 2005 $)

(3) Net of Base Case for highways and transit, and net of fare revenue for transit (in Millions of 2005 $)

(4) Daily person hours of delay reduced X 300 days

Table Q-2				
Estimated Capital Cost in 2005 $ (Millions)				
	Highway (1)	*Transit*	*Operational Improvements*	*Total*
Alternative A: Commuter Rail	0	102	28	130
Alternative B: HOV/HOT Lanes + Commuter Rail	589 - 820	91	28	708 - 939
Alternative C: HOV/Auxiliary Lanes + Commuter Rail	449 - 633	91	28	568 - 752
Alternative D: General Purpose Lanes	478 - 671	13	28	519 - 712

(1) Range reflects low and high levels of contingencies and potential differences between standard cross-section widths and reduced widths.

TABLE R-1
PHYSICAL FEASIBILITY

Appropriateness to Context: Rating from 1 to 5 of Ease of Fit into the Existing Physical Context

Alternative Package A – Commuter Rail: The types of physical improvements in this alternative to add commuter rail, would pose less physical challenges to implement than the alternatives that add lanes to the 101 freeway.
Rate: 2

Alternative Package B – HOV/HOT Lanes + Commuter Rail: Because of right-of-way restrictions and the need to maintain the visual quality of the corridor, adding lanes to US 101 would pose significant physical design challenges.
Rate: 5

Alternative Package C – HOV South/ Auxiliary Lanes North + Commuter Rail: Because of right-of-way restrictions and the need to maintain the visual quality of the corridor, adding lanes to US 101 would pose significant physical design challenges. The challenges would be less than with Alternative 'B' and 'D' since the widening would be from Milpas to the County Line rather than through the existing six-lane section as well.
Rate: 4

Alternative Package D – General Purpose Lanes: Because of right-of-way restrictions and the need to maintain the visual quality of the corridor, adding lanes to US 101 would pose significant physical design challenges.
Rate: 5

Easily Fits Into Physical Context = 1
Difficult Fit Into Physical Context = 5

TABLE S-1
TECHNOLOGICAL FEASIBILITY

Use Proven Technology Applications: Rating from 1 to 5 of Extent of Proven Technology

Alternative Package A – Commuter Rail: All of the proposed technologies have been proven elsewhere.
Rate: 3

Alternative Package B – HOV/HOT Lanes + Commuter Rail: High Occupancy Toll Lanes are a relatively new concept, but have not shown any technological problems where they have been implemented to date. All of the other proposed technologies have been proven elsewhere
Rate: 3

Alternative Package C – HOV South/ Auxiliary Lanes North + Commuter Rail: All of the proposed technologies have been proven elsewhere.
Rate: 3

Alternative Package D – General Purpose Lanes: All of the proposed technologies have been proven elsewhere.
Rate: 3

Proven Technology = 3
Technology Not Proven = 5

TABLE T-1
INSTITUTIONAL CONSTRAINTS

Minimize Obstacles: Rating from 1 to 5 of Degree to Which Institutional Issues are Minimized.

Alternative Package A – Commuter Rail: Requires UPRR approval to operate commuter rail using their tracks. This could be a major constraint to overcome. A joint agreement with Ventura County will also be needed to implement the proposed improvements and operate the service. Other agencies that will have to approve the project are Amtrak (Caltrans), Coastal Commission, and if it is the operator, Metrolink. Coastal Commission approvals for any projects in the coastal zone have often been difficult to obtain.

Rating: 4

Alternative Package B – HOV/HOT Lanes + Commuter Rail: Encroachment into UP right-of-way to widen 101 poses a potential significant institutional obstacle to implementation, particularly when coupled with the need for UPRR approval to operate commuter rail using their tracks. In a few segments may require relocation of UP tracks within the existing right-of-way. Requires FHWA, Caltrans and Coastal Commission approvals as well as change in State legislation if a HOT lane is included. Coastal Commission approvals for any projects in the coastal zone have often been difficult to obtain.
Rating: 5

Alternative Package C – HOV South/ Auxiliary Lanes North + Commuter Rail: Encroachment into UP right-of-way to widen 101 poses a potential significant institutional obstacle to implementation, particularly when coupled with the need for UPRR approval to operate commuter rail using their tracks. In a few segments may require relocation of UP tracks within the existing right-of-way. Requires FHWA, Caltrans and Coastal Commission approvals. Coastal Commission approvals for any projects in the coastal zone have often been difficult to obtain.

Rating: 5

Alternative Package D – General Purpose Lanes: Encroachment into UP right-of-way to widen 101 poses a potential institutional obstacle to implementation. In a few segments may require relocation of UP tracks within the existing right-of-way. Requires FHWA, Caltrans and Coastal Commission approvals. Coastal Commission approvals for any projects in the coastal zone have often been difficult to obtain.

Rating: 4

Ideal Condition = 1
Obstacles Not Minimized = 5

TABLE U-1
CONSTRUCTION IMPACTS

Minimize Impacts During Construction: Rating from 1 to 5 of Degree to Which Disruptions are Minimized During Construction

Alternative Package A – Commuter Rail: Implementing the passing sidings, station area and other improvements for the commuter rail service would have some disruption to freight and Amtrak operations during construction. These should not however be significant.
Rate: 2

Alternative Package B – HOV/HOT Lanes + Commuter Rail: Widening of US 101 will require significant delays to motorists over an extended period of time during construction. If implemented before construction begins, the commuter rail service could help to reduce the extent of the disruption by offering an alternative that avoids the congestion.
Rate: 4

Alternative Package C – HOV South/ Auxiliary Lanes North + Commuter Rail: Widening of US 101 South of Milpas will require significant delays to motorists over an extended period of time during construction. Disruption to US 101 traffic North of Milpas would be less than with a full widening project. If implemented before construction begins, the commuter rail service could help to reduce the extent of the disruption by offering an alternative that avoids the congestion.
Rate: 3

Alternative Package D – General Purpose Lanes: Widening of US 101 will require significant delays to motorists over an extended period of time during construction.
Rate: 5

Minimum Disruption = 1
Significant Disruption = 5

TABLE V-1
PHASEABILITY

Independent Utility of Individual Elements and Ability to Phase Major Elements

Alternative Package A – Commuter Rail: Alternative Package A: Minimum construction would be required for start up commuter rail service. The time constraints would be more related to obtaining approvals from UPRR and others and time needed to purchase and receive rail cars and locomotives. Cars can be added to trains and more trains added to the schedule to phase over time as demand warrants. TDM measures could be implemented in advance of the commuter rail service. The limitation of this alternative is that it can't be phased (expanded) sufficiently to meet the travel needs in the corridor by 2030.
Rate: 3

Alternative Package B – HOV/HOT Lanes + Commuter Rail: Since it includes a combination of transportation demand, transit and highway related components, this package can be phased over time starting with the TDM measures, followed by commuter rail service, and then additional capacity on Highway 101. The highway widening will require continuity over a sufficient length of 101 for the HOV/HOT lanes to be effective. The HOV/HOT lanes from Milpas South would logically be constructed as the first highway project, followed by HOV/HOT lanes in the existing 6-lane section. With regard to commuter rail, minimum construction would be required for start up of commuter rail service. The time constraints would be more related to obtaining approvals from UPRR and others and time needed to purchase and receive rail cars and locomotives. Cars can be added to trains and more trains added to the schedule to phase over time as demand warrants.
Rate: 3

Alternative Package C – HOV South/ Auxiliary Lanes North + Commuter Rail: Similar to Alternative B, Alternative C includes a combination of transportation demand, transit and highway related components. This package therefore can be phased over time starting with the TDM measures, followed by commuter rail service, and then additional capacity on Highway 101. The highway widening will require continuity over a sufficient length of 101 for the HOV lanes to be effective. The HOV lanes from Milpas South would logically be constructed as the first highway project, followed by auxiliary lanes in the existing 6-lane section. A plus of the auxiliary lanes is that they can be implemented independent from one another, and therefore offer utility as each one is opened. With regard to commuter rail, minimum construction would be required for start up of commuter rail service. The time constraints would be more related to obtaining approvals from UPRR and others and time needed to purchase and receive rail cars and locomotives. Cars can be added to trains and more trains added to the schedule to phase over time as demand warrants.
Rate: 3

Alternative Package D – General Purpose Lanes: Alternative D includes a combination of transportation demand, transit and highway related components. Unlike Alternatives B and C however it does not include a transit component independent of the freeway, since it relies on commuter express buses on 101. This package can be phased over time starting with the TDM measures, but then requires additional capacity being added to Highway 101. The highway widening would require adding lanes from Mipas to the County Line for the lanes to be effective. Otherwise it would just be shifting the "pinch point".
Rate: 4

Ideal Condition = 1
High Interdependency of Elements = 5

Appendix B – 2030 Peak Hour Flow & Levels of Service Maps

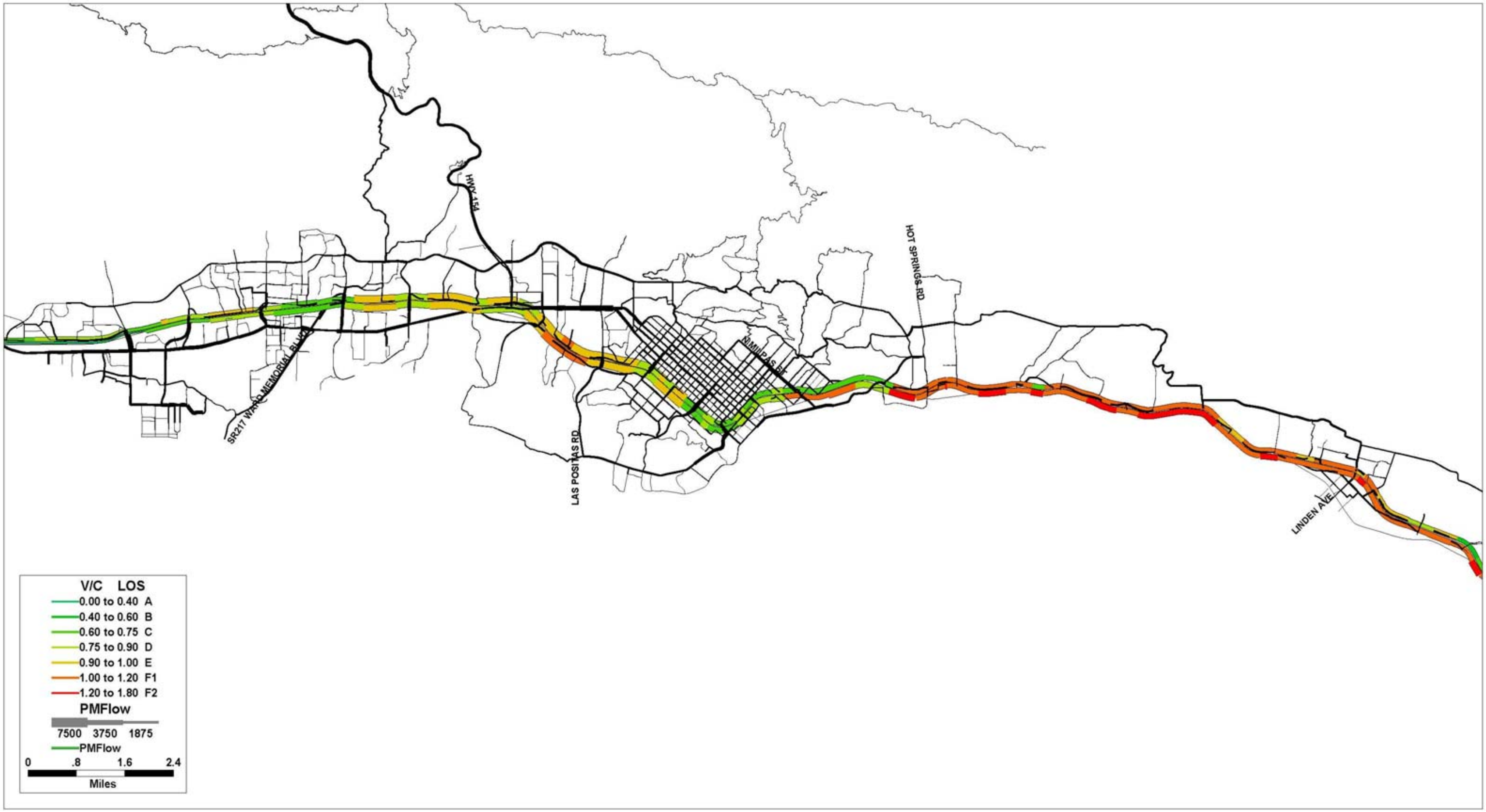
Appendix B Figure 5.1

No Build

2030 AM Peak Hour Flows and V/C Ratios

July 18, 2005

Appendix B Figure 5.2
No Build
2030 PM Peak Hour Flows and V/C Ratios

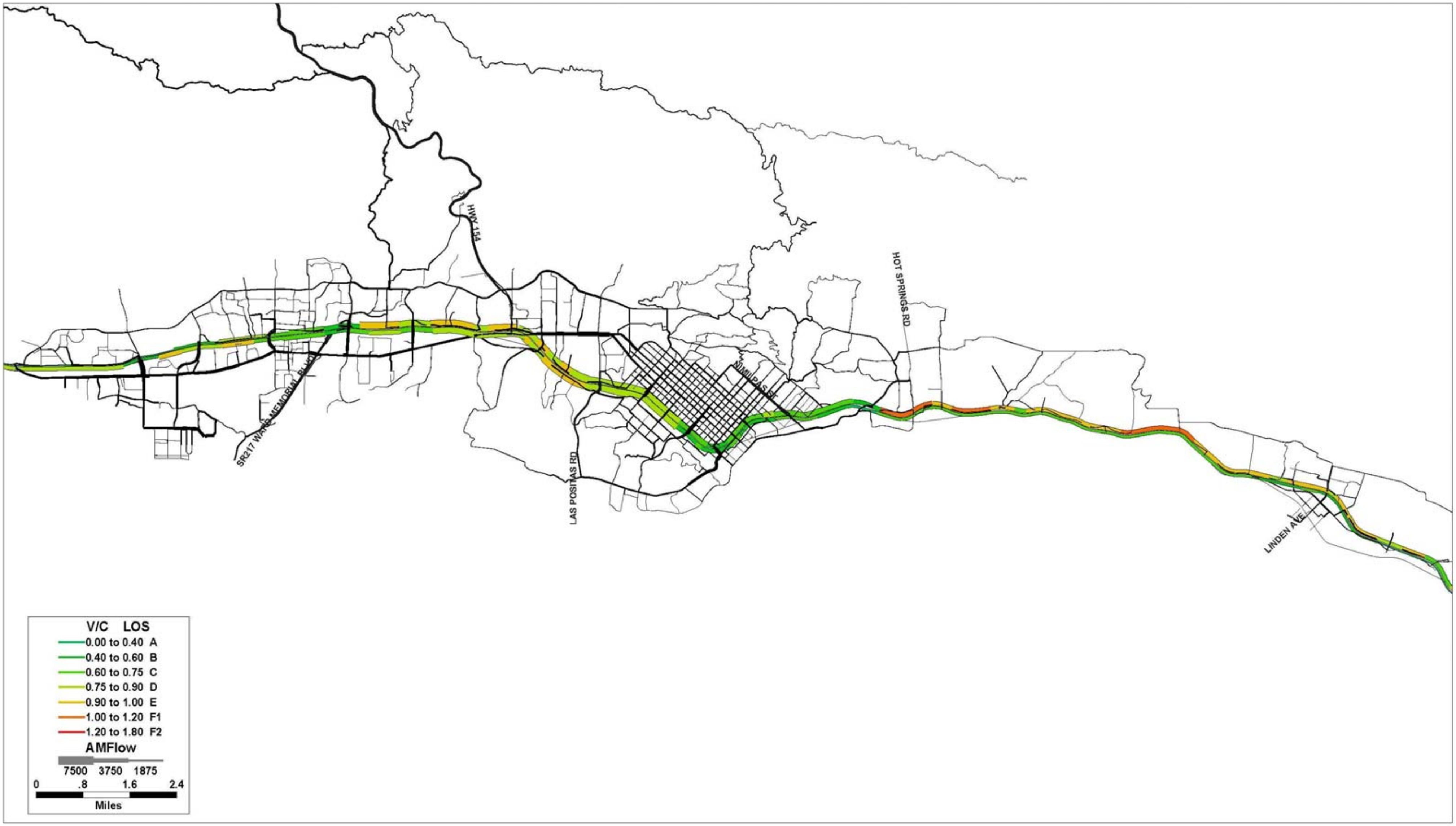


July 18, 2005

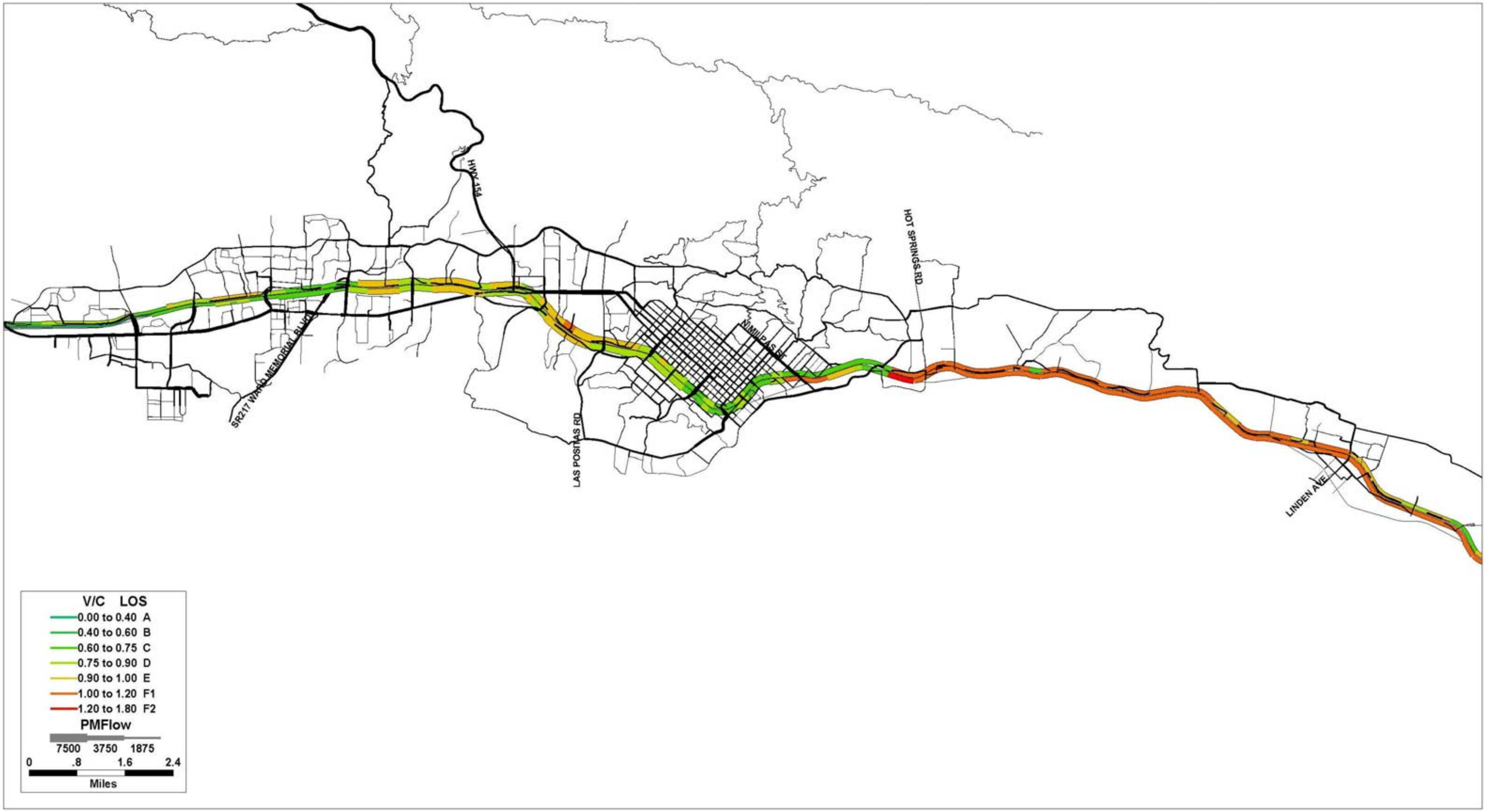
Appendix B Figure 5.3

Alternative A - Commuter Rail

2030 AM Peak Hour Flows and V/C Ratios

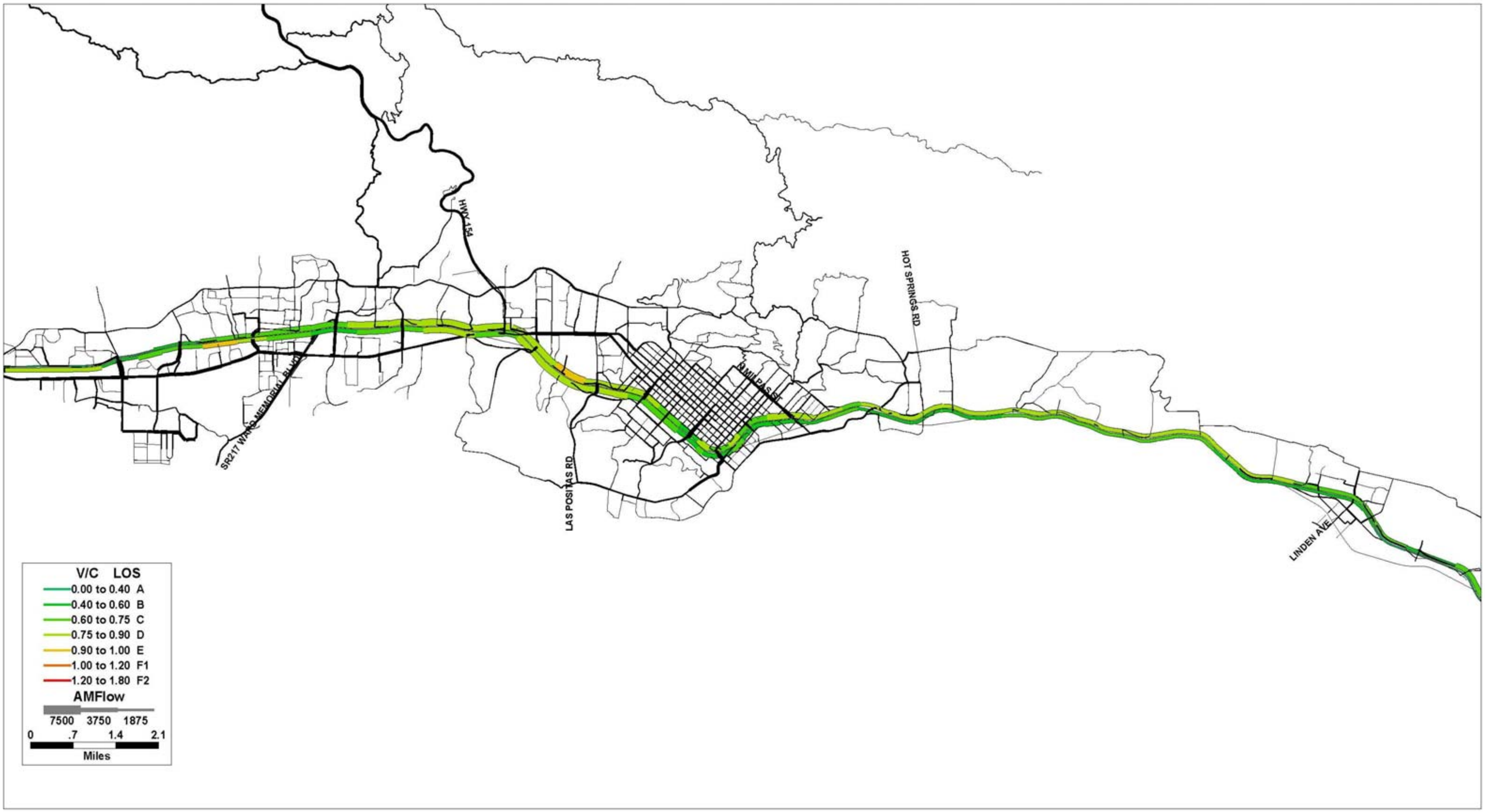


Appendix B Figure 5.4
Alternative A - Commuter Rail
2030 PM Peak Hour Flows and V/C Ratios



July 18, 2005

Appendix B Figure 5.5
Alternative B - HOV/HOT Lanes + Commuter Rail
2030 AM Peak Hour Flows and V/C Ratios



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Appendix B Figure 5.6
Alternative B - HOV/HOT Lanes + Commuter Rail
2030 PM Peak Hour Flows and V/C Ratios

July 18, 2005

Appendix B Figure 5.7
Alternative C - HOV South/Aux Lanes North + Commuter Rail
2030 AM Peak Hour Flows and V/C Ratios

July 18, 2005

Appendix B Figure 5.8

Alternative C - HOV South/Aux Lanes North + Commuter Rail

2030 PM Peak Hour Flows and V/C Ratios

July 18, 2005

Appendix B Figure 5.9
Alternative D - General Purpose Lanes
2030 AM Peak Hour Flows and V/C Ratios

July 18, 2005

Appendix B Figure 5.10
Alternative D - General Purpose Lanes
2030 PM Peak Hour Flows and V/C Ratios

July 18, 2005

Appendix C

Estimated Costs for Highway 101 Widening

Appendix Table C-1
Summary of Estimated Costs for Highway 101 Widening
(in Millions of 2004 Dollars)

Cost Item	Alternative B - HOV/HOT Lanes + Commuter Rail Full Standard	Alternative B - HOV/HOT Lanes + Commuter Rail Full & Reduced Cross-Section	Alternative C - HOV Lanes South/ Aux Lanes North + Commuter Rail Full Standard	Alternative C - HOV Lanes South/ Aux Lanes North + Commuter Rail Full & Reduced Cross-Section	Alternative D - General Purpose Lanes Full Standard	Alternative D - General Purpose Lanes Full & Reduced Cross-Section
Roadway Widening	$58.3	$45.4	$37.3	$28.0	$49.0	$41.9
Retaining Walls and Sound Walls	45.8	31.5	30.9	17.5	29.9	19.8
Interchange Modifications/ Reconstructions	74.9	72.9	75.1	73.1	74.9	72.9
Other Roadway Related Items (1)	84.8	77.5	63.0	55.0	70.0	58.2
Structures (Bridges and Abutment Walls)	58.7	57.4	40.2	38.9	57.2	55.9
Right-of-Way Acquisition	74.6	67.8	58.8	57.1	31.4	24.5
Project Design and Environmental Clearance	77.4	67.7	59.6	51.0	66.7	58.5
Construction Engineering and Administration	77.4	67.7	59.6	51.0	66.7	58.5
Mobilization and Supplemental Work Items	54.7	47.2	42.8	36.0	46.4	40
Contingency	138.5	119.4	108.3	91.2	117.5	101.2
Total Estimated Project Cost	$745.1	$654.5	$575.6	$498.8	$609.7	$531.4

Note: Estimated costs are shown as mid-point averages of cost ranges shown in subsequent tables.
(1) Landscaping, Water Quality, Traffic Control, Drainage, and Specialty Items

Appendix B -1

Alternative B – HOV/HOT Lanes + Commuter Rail

Widening of US 101 from Winchester Canyon Road to Bates Road (Santa Barbara / Ventura County Line)

Rough Order of Magnitude Cost Estimate for Highway Widening

<u>Cost Summary</u>

"Full Standard" (HOV):	$671M to $820M
Combination of "Full Standard" and Reduced Cross-Sections (HOV):	$589M to $720M
"Full Standard" (HOT):	$682M to $831M
Combination of "Full Standard" and Reduced Cross-Sections (HOT):	$600M to $731M

Route 101 Implementation Plan
Rough Order of Magnitude Cost Estimate

Alternative B - HOV/HOT Lanes

General Assumptions

1. Costs are in 2004 dollars using data from Caltrans Cost Data Books and are based on general assumptions regarding typical section, existing features and right of way based on limited available data. No design plans were available nor design analysis performed that would allow refined cost estimating based on the assumed typical sections. The cost estimate is a rough order of magnitude for general comparison purposes between alternatives and is not intended to reflect the precise cost of any specific facility.

2. The "Full Standard" option is proposed to be in general compliance with Caltrans highway design standards. Nonstandard features may be included in this option as necessary to meet project requirements. Other nonstandard features may be identified in further design stages.

3. This estimate assumes the following improvements to various portions of the US 101: Refer to Appendix Table 5.1 Alt B, except for Cabrillo/ Hot Springs interchange where only the SB half of interchange is to be reconstructed.

4. A proposed alignment utilizing a combination of symmetrical widening (maintaining the existing centerline) and asymmetrical widening (shifting the existing centerline) was developed as an approach to minimizing anticipated impacts to widening

5. Right of way estimates are based on an assumed uniform width throughout the alignment given the limitations noted above.

6. No special environmental mitigation (groundwater, hazardous waste) measures, nor any major railroad modification work are included in the rough order of magnitude cost estimate.

7. Ramp metering improvement costs are based on sketch level planning assumptions. Site specific storage assessments performed as part of any project may also identify additional storage needs and/or other site specific design requirements. HOT/HOV only in Alternatives B and C. 4’ buffer refer to High-Occupancy Vehicle Guidelines, 2003 Edition Chapter 3 HOV Geometric Design. Figure 3.2 Typical Cross Sections Buffer-Separated and Contiguous HOV Facilities. A 2' buffer is under investigation but not included in the estimate at this time. Enforcement area refer to High-Occupancy Vehicle Guidelines, 2003 Edition Chapter 6 HOV Enforcement. Figure 6.3 Enforcement Areas For Medians Less than 7.0m, Bi-Directional Enforcement Area.

8. The disposition of each bridge is based on a limited visual assessment for this estimate.

Alternative B - HOV/HOT Lanes + Commuter Rail

Summary of Costs for US 101 Widening

	Los Carneros to Fairview NB Auxiliary Lane		Patterson to Carillo 6-Lane to 8-Lane HOV/HOT		Carillo to Garden SB Auxiliary Lane		Milpas to Cabrillo/Hot Springs 4-Lane to 6-Lane HOV/HOT		Cabrillo/Hot Springs to Olive Mill 4-Lane to 6-Lane HOV/HOT		Olive Mill to SR-150 4-Lane to 6-Lane HOV/HOT		**Total Cost**	
	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections
Roadway-Related Improvements														
Pavement Removal	$ 68,400	$ 68,400	$ 1,784,254	$ 1,686,253	$ 100,580	$ 67,151	$ -	$ -	$ 227,040	$ 70,950	$ 2,028,515	$ 796,747	$ 4,208,789	$ 2,689,502
Earthwork / Grading	$ 139,333	$ 139,333	$ 7,765,983	$ 6,655,224	$ 132,090	$ 1,119,986	$ -	$ -	$ 164,499	$ 118,250	$ 2,311,585	$ 891,631	$ 10,513,490	$ 8,924,425
Pavement Construction	$ 410,400	$ 410,400	$ 10,543,176	$ 9,911,792	$ 333,415	$ 222,600	$ -	$ -	$ 794,640	$ 851,400	$ 10,061,366	$ 8,829,599	$ 22,142,998	$ 20,225,790
Shoulder Construction	$ 199,500	$ 199,500	$ 2,795,976	$ 2,665,442	$ 180,230	$ 120,327	$ -	$ -	$ 662,200	$ 413,875	$ 7,290,242	$ 1,901,261	$ 11,128,148	$ 5,300,405
Retaining Wall	$ 1,972,200	$ 1,972,200	$ 17,368,852	$ 17,482,559	$ 1,602,246	$ 1,604,572	$ -	$ -	$ 3,273,160	$ -	$ 13,601,159	$ 6,941,918	$ 37,817,617	$ 28,001,248
Soundwall	$ 540,000	$ 540,000	$ 2,000,000	$ 1,920,913	$ 500,000	$ -	$ -	$ -	$ 946,000	$ -	$ 4,000,000	$ 1,070,288	$ 7,986,000	$ 3,531,201
Interchange Modification	$ 1,000,000	$ 1,000,000	$ 13,500,000	$ 13,500,000	$ 2,000,000	$ -	$ -	$ -	$ 2,000,000	$ 2,000,000	$ 18,000,000	$ 18,000,000	$ 36,500,000	$ 34,500,000
Overlay of Existing Pavement	$ -	$ -	$ 2,537,761	$ 898,416	$ -	$ -	$ -	$ -	$ 283,800	$ 368,940	$ 2,519,659	$ 2,463,534	$ 5,341,220	$ 3,730,890
Local Road Relocation/Improvement	$ -	$ -	$	$ -	$ 102,000	$ 102,000	$ -	$ -	$ 78,000	$ -	$ 636,000	$ 343,119	$ 816,000	$ 445,119
Utility Relocations	$ 250,000	$ 250,000	$ 2,000,000	$ 2,000,000	$ -	$ -	$ -	$ -	$ 250,000	$ 250,000	$ 1,625,000	$ 1,625,000	$ 4,125,000	$ 4,125,000
	$ 4,579,833	$ 4,579,833	$ 60,296,002	$ 56,720,599	$ 4,950,561	$ 3,236,635	$ -	$ -	$ 8,679,339	$ 4,073,415	$ 62,073,525	$ 42,863,097	$ 140,579,261	$ 111,473,580
Other Items														
Landscaping	$ 457,983	$ 457,983	$ 3,014,800	$ 2,836,030	$ 495,056	$ 323,664	$ -	$ -	$ 433,967	$ 203,671	$ 3,103,676	$ 2,143,155	$ 7,505,483	$ 5,964,502
Water Quality	$ 228,992	$ 228,992	$ 3,014,800	$ 2,836,030	$ 247,528	$ 161,832	$ -	$ -	$ 433,967	$ 203,671	$ 3,103,676	$ 2,143,155	$ 7,028,963	$ 5,573,679
Traffic Items	$ 915,967	$ 915,967	$ 12,059,200	$ 11,344,120	$ 990,112	$ 647,327	$ -	$ -	$ 1,735,868	$ 814,683	$ 12,414,705	$ 8,572,619	$ 28,115,852	$ 22,294,716
Drainage	$ 457,983	$ 457,983	$ 6,029,600	$ 5,672,060	$ 495,056	$ 323,664	$ -	$ -	$ 867,934	$ 407,342	$ 6,207,353	$ 4,286,310	$ 14,057,926	$ 11,147,358
Specialty Items	$ 915,967	$ 915,967	$ 12,059,200	$ 11,344,120	$ 990,112	$ 647,327	$ -	$ -	$ 1,735,868	$ 814,683	$ 12,414,705	$ 8,572,619	$ 28,115,852	$ 22,294,716
	$ -	$	$	$	$	$	$ -	$ -	$	$	$	$ -	$	$ -
Other Items	$ 2,976,892	$ 2,976,892	$ 36,177,601	$ 34,032,359	$ 3,217,865	$ 2,103,813	$ -	$ -	$ 5,207,603	$ 2,444,049	$ 37,244,115	$ 25,717,858	$ 84,824,076	$ 67,274,971
Enforcement Area	$ -	$ -	$ -	$ 3,418,285	$ -	$ -	$ -	$ -	$ -	$ 3,418,285	$ -	$ 3,418,285	$ -	$ 10,254,855
Ramp Metering Improvements	$ 2,662,354	$ 2,662,354	$ 5,452,792	$ 5,452,792	$ 1,117,486	$ 1,117,486	$ 1,528,287	$ 1,528,287	$ 280,310	$ 280,310	$ 4,899,076	$ 4,899,076	$ 15,940,304	$ 15,940,304
Interchange Reconfiguration	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,500,000	$ 7,500,000	$ -	$ -	$ 15,000,000	$ 15,000,000	$ 22,500,000	$ 22,500,000
SUBTOTAL	**$ 10,219,079**	**$ 10,219,079**	**$ 101,926,395**	**$ 99,624,035**	**$ 9,285,913**	**$ 6,457,935**	**$ 9,028,287**	**$ 9,028,287**	**$ 14,167,252**	**$ 10,216,059**	**$ 119,216,717**	**$ 91,898,317**	**$ 263,843,642**	**$ 227,443,710**
Minor Items (5%)	$ 510,954	$ 510,954	$ 5,096,320	$ 4,981,202	$ 464,296	$ 322,897	$ 451,414	$ 451,414	$ 708,363	$ 510,803	$ 5,960,836	$ 4,594,916	$ 13,192,182	$ 11,372,186
Mobilization (10%)	$ 1,073,003	$ 1,073,003	$ 10,702,271	$ 10,460,524	$ 975,021	$ 678,083	$ 947,970	$ 947,970	$ 1,487,561	$ 1,072,686	$ 12,517,755	$ 9,649,323	$ 27,703,582	$ 23,881,590
Roadway Additions														
Supplemental Work Items (5%)	$ 536,502	$ 536,502	$ 5,351,136	$ 5,230,262	$ 487,510	$ 339,042	$ 473,985	$ 473,985	$ 743,781	$ 536,343	$ 6,258,878	$ 4,824,662	$ 13,851,791	$ 11,940,795
General Contingency (50%)	$ 5,365,017	$ 5,365,017	$ 53,511,357	$ 52,302,618	$ 4,875,104	$ 3,390,416	$ 4,739,850	$ 4,739,850	$ 7,437,807	$ 5,363,431	$ 62,588,776	$ 48,246,616	$ 138,517,912	$ 119,407,948
Total Roadway Additions	$ 5,901,518	$ 5,901,518	$ 58,862,493	$ 57,532,880	$ 5,362,615	$ 3,729,457	$ 5,213,836	$ 5,213,836	$ 8,181,588	$ 5,899,774	$ 68,847,654	$ 53,071,278	$ 152,369,703	$ 131,348,743
Total Roadway Cost	**$ 17,704,555**	**$ 17,704,555**	**$ 176,587,480**	**$ 172,598,640**	**$ 16,087,844**	**$ 11,188,372**	**$ 15,641,507**	**$ 15,641,507**	**$ 24,544,764**	**$ 17,699,322**	**$ 206,542,961**	**$ 159,213,833**	**$ 457,109,110**	**$ 394,046,228**
Structures														
Removal & Replacement	$ -	$ -	$ 11,949,350	$ 11,949,350	$ 682,500	$ 682,500	$ -	$ -	$ 3,696,000	$ 3,696,000	$ 21,088,375	$ 19,805,275	$ 37,416,225	$ 36,133,125
US 101 Bridge Widening	$ -	$ -	$ 7,660,000	$ 7,660,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,750,000	$ 12,750,000	$ 20,410,000	$ 20,410,000
Abutment Wall	$ -	$ -	$ 868,877	$ 812,877	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 868,877	$ 812,877
TOTAL STRUCTURAL ITEMS	$ -	$ -	$ 20,478,227	$ 20,422,227	$ 682,500	$ 682,500	$ -	$ -	$ 3,696,000	$ 3,696,000	$ 33,838,375	$ 32,555,275	$ 58,695,102	$ 57,356,002
Subtotal Est. Capital Cost	**$ 17,704,555**	**$ 17,704,555**	**$ 197,065,706**	**$ 193,020,867**	**$ 16,770,344**	**$ 11,870,872**	**$ 15,641,507**	**$ 15,641,507**	**$ 28,240,764**	**$ 21,395,322**	**$ 240,381,336**	**$ 191,769,108**	**$ 515,804,211**	**$ 451,402,230**
Right-of-Way Acquisition	$ 756,000	$ 756,000	$ 42,608,700	$ 37,420,348	$ 900,000	$ 900,000	$ -	$ -	$ 3,856,860	$ 2,450,400	$ 26,483,040	$ 26,249,004	$ 74,604,600	$ 67,775,752
Subtotal	**$ 756,000**	**$ 756,000**	**$ 42,608,700**	**$ 37,420,348**	**$ 900,000**	**$ 900,000**	**$ -**	**$ -**	**$ 3,856,860**	**$ 2,450,400**	**$ 26,483,040**	**$ 26,249,004**	**$ 74,604,600**	**$ 67,775,752**
Project Development														
Preliminary Engineering & Environmental	$ 885,228	$ 885,228	$ 9,853,285	$ 9,651,043	$ 838,517	$ 593,544	$ 782,075	$ 782,075	$ 1,412,038	$ 1,069,766	$ 12,019,067	$ 9,588,455	$ 25,790,211	$ 22,570,112
Final Plans, Specifications, & Estimate	$ 1,770,455	$ 1,770,455	$ 19,706,571	$ 19,302,087	$ 1,677,034	$ 1,187,087	$ 1,564,151	$ 1,564,151	$ 2,824,076	$ 2,139,532	$ 24,038,134	$ 19,176,911	$ 51,580,421	$ 45,140,223
Construction Engineering & Administration	$ 2,655,683	$ 2,655,683	$ 29,559,856	$ 28,953,130	$ 2,515,552	$ 1,780,631	$ 2,346,226	$ 2,346,226	$ 4,236,115	$ 3,209,298	$ 36,057,200	$ 28,765,366	$ 77,370,632	$ 67,710,335
TOTAL EST. PROJECT DEV. COST	**$ 5,311,366**	**$ 5,311,366**	**$ 59,119,712**	**$ 57,906,260**	**$ 5,031,103**	**$ 3,561,262**	**$ 4,692,452**	**$ 4,692,452**	**$ 8,472,229**	**$ 6,418,597**	**$ 72,114,401**	**$ 57,530,733**	**$ 154,741,263**	**$ 135,420,669**
TOTAL ESTIMATED PROJECT COST	**$ 23,771,921**	**$ 23,771,921**	**$ 298,794,118**	**$ 288,347,475**	**$ 22,701,447**	**$ 16,332,134**	**$ 20,333,959**	**$ 20,333,959**	**$ 40,569,853**	**$ 30,264,318**	**$ 338,978,777**	**$ 275,548,845**	**$ 745,150,075**	**$ 654,598,651**

HOV Lane	**TOTAL ESTIMATED RANGE OF PROJECT COST**	**$671M to $820M**	**$589M to $720M**

HOT LANES REQUIRE DETECTION EQUIPEMENT OF A COST OF $11 MILLION DOLLARS

HOT Lane	**TOTAL ESTIMATED RANGE OF PROJECT COST**	**$682M to $831M**	**$600M to $731M**

Alternative B - HOV/HOT Lanes + Commuter Rail

Unit Costs

Roadway-Related Improvements			
	Pavement Removal	$ 1.50	/sq ft
	Earthwork / Grading	$ 15.00	/cu yd
	Pavement Construction	$ 6	/sq ft
	Shoulder Construction	$ 3.50	/sq ft
	Retaining Wall	$ 346	/lineal foot
	Soundwall	$ 200	/lineal foot
	Interchange Modification	$ 500,000	/ramp
	Overlay of Existing Pavement	$ 1	/sq ft
	Local Road Relocation/Improvement	$ 5	/sq ft
	Utility Relocations	$ 250,000	/overpass
Interchange Reconfiguration		$ 15,000,000	/ea
Structures			
	Removal & Replacement	$ 175	/sq ft
	US 101 Bridge Widening	$ 200	/sq ft
	Abutment Wall	$ 80	/sq ft
Right-of-Way Acquisition		$ 60	/sq ft

Alternative B - HOV/HOT Lanes + Commuter Rail

Estimate Support Information

		Length				Each		
		Symmetrical	Realigned	Total	% Realigned	Over-crossings	Bridge Widenings	Ramps
1	Los Carneros to Fairview	N/A	N/A	5700		1	0	2
	SEGMENT SUM	**N/A**	**N/A**	**5700**	**N/A**	**1**	**0**	**2**
2	Patterson to Turnpike	2040	3240	5280		1	1	2
	Turnpike to La Cumbre	4850	7110	11960		3	1	9
	La Cumbre to Las Positas	2480	3980	6460		1	2	5
	Las Positas to Mission	1180	2970	4150		1	1	5
	Mission to Carillo	1550	3630	5180		2	1	6
	SEGMENT SUM	**12100**	**20930**	**33030**	**63%**	**8**	**6**	**27**
3	Carillo to Castillo	N/A	N/A	1940		0	0	2
	Castillo to Garden	N/A	N/A	2500		0	0	2
	SEGMENT SUM	**0**	**0**	**4440**	**N/A**	**0**	**0**	**4**
4	Milpas to Hot Springs	2640	3220	5860		0	1	6
	SEGMENT SUM	**2640**	**3220**	**5860**	**55%**	**0**	**1**	**6**
5	Hot Springs to Olive Mill	1770	2960	4730		1	1	4
	SEGMENT SUM	**1770**	**2960**	**4730**	**63%**	**1**	**1**	**4**
6	Olive Mill to Sheffield	8170	0	8170		2	4	9
	Sheffield to N. Padaro	7920	1960	9880		1	2	4
	N. Padaro to Santa Claus	9760	0	9760		0	3	4
	Santa Claus to Linden	11700	0	11700		1	2	9
	Linden to Bailard	7630	0	7630		2	1	7
	Bailard to SR 150	3855	0	3855		0.5	0	3
	SEGMENT SUM	**49035**	**1960**	**50995**	**4%**	**6.5**	**12**	**36**

Alternative B - HOV/HOT Lanes + Commuter Rail

Average Cost of Enforcement Area

			length	rate	Estim. Quantity	Cost
Pavement Removal	$ 1.50	/sq ft	4134	27.80	114,925	$ 172,388
Earthwork / Grading	$ 15.00	/cu yd	4134	296.59	45,411	$ 681,164
Pavement Construction	$ 6	/sq ft	4134	26.60	109,964	$ 659,786
Shoulder Construction	$ 3.50	/sq ft	4134	26.60	109,964	$ 384,875
Retaining Wall	$ 200	/lineal foot	4134	N/A	6,201	$ 1,240,200
Overlay of Existing Pavement	$ 1	/sq ft	4134	67.70	279,872	$ 279,872
					Total Cost	**$ 3,418,285**

Alternative B - HOV/HOT Lanes + Commuter Rail

Bridges

						NORTHBOUND							SOUTHBOUND							Alternative B (HOV/HOT + Commuter Rail)			
						Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Full		Red/Full	
	Bridges	Structure Type	Span	Abut.	Type	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Bridge Area (ft^2)	Retaining Wall (ft^2)	Bridge Area (ft^2)	Retaining Wall (ft^2)
1	Bates Ranch Road	UC													8' / 10'								
2	Rincon Creek	BRIDGE																					
3	Railroad	OH																					
4	150 / Rincon Road	SEPARATION	2	O	B	17' 1"	Additional lane	20' / 10"					16' 2"	Additional lane	15' / 10'								
5	Bailard Lane	OC	4	O	B	14' 11"	Additional lane	20' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 0"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	10560		10560	
6	Carpinteria Creek	BRIDGE					Additional lane							Additional lane	10' / 8'								
7	Casitas Pass Road	OC	2	C	I	15' 6"	Additional lane	15 / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 8"	Additional lane	10' / 8'	Replace	Vertically Deficient	Replace	Vertically Deficient				
8	Linden Avenue	OC	2	C	I	16' 6"	Additional lane	15' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	14' 11"	Additional lane	12' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient				
9	Franklin Creek	BRIDGE					Additional lane							Additional lane									
10	7th Street / Santa Ynez Avenue	OC	2	C	I	15' "	Additional lane	15' / 8'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	15' 11"	Additional lane	10' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient	10560		10560	
11	Santa Monica Creek	BRIDGE					Additional lane							Additional lane									
12	Santa Monica Road	UC					Additional lane							Additional lane									
13	South San Padaro Lane	UC					Additional lane							Additional lane	6' / 10'								
14	Arroyo Paredon Creek	BRIDGE					Additional lane							Additional lane									
15	Garrapato Creek	BRIDGE					Additional lane							Additional lane									
16	Toro Canyon Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	13604.8		13085.6	
17	North Padaro Lane	OC	2	O	B	16' 0"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 6"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	11880		11880	
18	Evans Avenue/Lookout Park Road	UC					Additional lane	2' / 8'						Additional lane									
19	Sheffield Drive	UC					Additional lane							Additional lane						16995		16995	
20	Romero / Buena Vista Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	10384		9152	
21	San Ysidro Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	10384		9152	
22	Oak Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	10384		8960	
23	San Ysidro Road	OC	2	C	Specia	18' 0"	Additional lane	15' 10 '	Replace	Horizontally Deficient	Replace	Horizontally Deficient	16' 0"	Additional lane	10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	10560		9664	
24	Montecito Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	10384		9152	
25	On Ramp	SEPARATION		C	Specia	15' 5"	Additional lane	15' / 10'	Replace	SB-101 Project Report	Replace	SB-101 Project Report	16' 4"	Additional lane	15' / 5'	Replace	SB-101 Project Report	Replace	SB-101 Project Report	4950		4530	
26	Olive Mill Road	OC			Specia	15' 0"	Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	17' 5"	Auxiliary lane	15' / 10'	Replace	SB-101 Project Report	Replace	SB-101 Project Report	10560		9664	
27	Hot Springs Road/ Cabrillo Blvd	UC					Additional lane							Auxiliary lane	6' / 10'					21120		21120	
28	Sycamore Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report				Replace	SB-101 Project Report	Replace	SB-101 Project Report				
29	Milpas Street	UC				15'	Additional lane		Replace	Vertically Deficient	Replace	Vertically Deficient			1' / 1'								
30	Calle Cesar Chavez	UC						10' / 10'							10' / 10'								
31	Garden Street	UC						8' / 10'						Auxiliary lane	10' / 10'								
32	State Street	UC						10' / 10'						Auxiliary lane	10' / 10'								
33	Mission Creek	BRIDGE												Auxiliary lane									

Alternative B - HOV/HOT Lanes + Commuter Rail

Bridges

						NORTHBOUND							SOUTHBOUND							Alternative B (HOV/HOT + Commuter Rail)			
						Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Full		Red/Full	
	Bridges	Structure Type	Span	Abut.	Type	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Bridge Area (ft^2)	Retaining Wall (ft^2)	Bridge Area (ft^2)	Retaining Wall (ft^2)
34	Castillo Street	UC												Auxiliary lane									
35	Ortega Pedestrian Crossing	PED OC	2	C	Specia	19' 1"		10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	18' 9"	Auxiliary lane	10' / 12'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	3900		3900	
36	Carrillo Street	UC					Additional lane							Additional lane									
37	Anapamu Pedestrian Crossing	PED OC	2	C	Specia	18' 9"	Additional lane	10' / 20'					15' 9"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	3200		3200	
38	Michel Torena Street	OC	3	O	B	17' 2"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall	17' 2"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall		3120		
39	Mission Street	UC					Additional lane	8' / 8'						Additional lane									
40	Junipero Pedestrian Crossing	PED OC	2	C	Specia	21' 0"	Additional lane	4' / 8'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	19' 2"	Additional lane		Replace	Horizontally Deficient	Replace	Horizontally Deficient	3500		3500	
41	Las Positas Road	OC	2	O	B	15' 5"	Additional lane	4' / 8'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 6"	Additional lane	15' / 5'	Replace	Vertically Deficient	Replace	Vertically Deficient	17572		17572	
42	Hope Avenue	UC					Additional lane							Additional lane									
43	Arroyo Burro Creek	BRIDGE					Additional lane							Additional lane									
44	Modoc Road/ La Cumbre Road	OC	2	O	B	17' 1"	Additional lane	8' / 10'	Save	Retaining Wall	Save	Retaining Wall	18' 3"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall		5288		5288
45	State Street	OC	2	C	B	15' 0"	Additional lane	8' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient	15' 3"	Additional lane	8' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient	22538		22538	
46	154/ San Marco Pass Road	SEPARATION	2	C	B	17' 8"	Additional lane	8' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	17' 10"	Additional lane	10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	17572		17572	
47	Cieneguitas Creek	BRIDGE					Additional lane							Additional lane									
48	Atascadero Creek	BRIDGE					Additional lane							Additional lane									
49	Turnpike Road	OC	2	O	B	17' 5"	Additional lane	10' / 25'					16' 2"	Additional lane	10' / 15'								
50	Maria Ygnacio Creek	BRIDGE					Additional lane							Additional lane									
51	Patterson Avenue	OC	2	O	B	19' 5"	Additional lane	8' / 10'	Save	Retaining Wall	Save	Retaining Wall	17' 2"	Additional lane	8' / 8'	Save	Retaining Wall	Save	Retaining Wall		5772		5772
52	217 / Ward Memorial Blvd	SEPARATION				18' 1"							15' 0"		8' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient				
53	San Jose Creek	BRIDGE																					
54	Fairview Avenue	OC	2	O	B	23' 6"	Auxiliary lane	3' / 10'	Save	Retaining Wall	Save	Retaining Wall	20' 11"		8' / 10'	Save	Retaining Wall	Save	Retaining Wall				
55	Las Vegas Creek	BRIDGE					Auxiliary lane																
56	San Pedro Creek	BRIDGE					Auxiliary lane																
57	Caneros Creek	BRIDGE					Auxiliary lane																
58	Los Carneros Road	OC	2	O	T	18' 9"	Auxiliary lane	15' / 10'					16' 6"		10' / 12'								
59	Glen Annie Creek	BRIDGE																					
60	Glen Annie Road/ Storke Road	OC	2	O	B	21' 8"		8' / 15'					17' 7"		20' / 20'								
61	Hollister Avenue	OC	2	O	T	16' 2"		15' / 10'					16' 2"		20' / 10'								
62	Winchester Canyon Creek	BRIDGE																					

Alternative B - HOV/HOT Lanes + Commuter Rail

Ramp Metering

	101 in Motion Freeway On-Ramps Potential Ramp Metering Locations					Peak Volumes per Location Info and Specifications According to Volumes																					
Ramp No.	Interchange	Type	On-Ramp	Lanes	Length (ft)	Comments	Vol. at 1pm	Vol. at 1 am	Greater	Required # of Lanes for Peak Vol.	Additions Needed	Area of Pavement	3 Lane extra 30m area	Total Length	CHP Enforcement	Total Area	Signal Cost	Pavement Removal ($1.5 /sqft)	Earthwork/ Grading ($15 /cuyd)	Pavement Construct ($6 /sqft)	Shoulder Construction ($3.5 /sqft)	Retaining Wall ($200 /linft)	Overlay of Ex. Pavement ($1 sqft)	Sum	Sheet Total	Drainage (10% of roadway cost)	Sheet Total + Drainage
1	Bates	Diamond	WB	2 to 1	410		0	468	468	2	1	4100		410	604	4704	$ 15,000	$ 6,150	$ 16,400	$ 28,223	$ 14,350	$ 61,500	$ 4,704	$ 146,327			
2		Diamond	EB	1	780	*2 volumes for 1 onramp (greater given here)	1323	0	1323	3	2	15600	1181	878	604	17385	$ 35,000	$ 23,400	$ 140,547	$ 104,309	$ 30,745	$ 131,763	$ 17,385	$ 483,149			
3	Rincon Road	Diamond	WB	1	690		62	4	62	2	1	6900		690	604	7504	$ 15,000	$ 10,350	$ 27,600	$ 45,023	$ 24,150	$ 103,500	$ 7,504	$ 233,127			
4		Diamond	EB	1	830		29	0	29	2	1	8300		830	604	8904	$ 15,000	$ 12,450	$ 33,200	$ 53,423	$ 29,050	$ 124,500	$ 8,904	$ 276,527			
5	Bailard Avenue	Diamond	WB	1	660		550	374	550	3	2	13200	1181	758	604	14985	$ 35,000	$ 19,800	$ 121,347	$ 89,909	$ 26,545	$ 113,763	$ 14,985	$ 421,349			
6		Diamond	EB	1	430		203	27	203	2	1	4300		430	604	4904	$ 15,000	$ 6,450	$ 17,200	$ 29,423	$ 15,050	$ 64,500	$ 4,904	$ 152,527			
7	Casitas Pass Road	Diamond	WB	1	350	Ramp begins from Via Real	298	0	298	2	1	3500		350	604	4104	$ 15,000	$ 5,250	$ 14,000	$ 24,623	$ 12,250	$ 52,500	$ 4,104	$ 127,727			
8		Diamond	EB	1	440		47	13	47	2	1	4400		440	604	5004	$ 15,000	$ 6,600	$ 17,600	$ 30,023	$ 15,400	$ 66,000	$ 5,004	$ 155,627			
9	Linden Avenue	Loop	WB	1	560	*EB onramp volume supplied (doesn't exist)	804	598	804	3	2	11200	1181	658	604	12985	$ 35,000	$ 16,800	$ 105,347	$ 77,909	$ 23,045	$ 98,763	$ 12,985	$ 369,849			
10	Reynolds Avenuew	Partial Diamond	EB	1	160		235	185	235	2	1	1600		160	604	2204	$ 15,000	$ 2,400	$ 6,400	$ 13,223	$ 5,600	$ 24,000	$ 2,204	$ 68,827			
11	Santa Monica Road	Diamond	WB	1	210		498	548	548	3	2	4200	1181	308	604	5985	$ 35,000	$ 6,300	$ 49,347	$ 35,909	$ 10,795	$ 46,263	$ 5,985	$ 189,599			
12	South Padaro Lane	Diamond	WB	1	840		214	185	214	2	1	8400		840	604	9004	$ 15,000	$ 12,600	$ 33,600	$ 54,023	$ 29,400	$ 126,000	$ 9,004	$ 279,627			
13		Diamond	EB	1	60	Ramp begins from Santa Claus Lane	198	0	198	2	1	600		60	604	1204	$ 15,000	$ 900	$ 2,400	$ 7,223	$ 2,100	$ 9,000	$ 1,204	$ 37,827			
14	North Padaro Lane	Diamond	WB	1	530		19	3	19	2	1	5300		530	604	5904	$ 15,000	$ 7,950	$ 21,200	$ 35,423	$ 18,550	$ 79,500	$ 5,904	$ 183,527			
15		Diamond	EB	1	520		116	95	116	2	1	5200		520	604	5804	$ 15,000	$ 7,800	$ 20,800	$ 34,823	$ 18,200	$ 78,000	$ 5,804	$ 180,427			
16	Evans Avenue	Diamond	WB	2 to 1	130	Ramp begins from Ortega Hill Road	153	84	153	2	1	1300		130	604	1904	$ 15,000	$ 1,950	$ 5,200	$ 11,423	$ 4,550	$ 19,500	$ 1,904	$ 59,527			
17		Diamond	EB	1	270	Ramp begins from Wallace Avenue	89	25	89	2	1	2700		270	604	3304	$ 15,000	$ 4,050	$ 10,800	$ 19,823	$ 9,450	$ 40,500	$ 3,304	$ 102,927			
18	Sheffield Drive	Diamond	WB	1	340		178	288	288	2	1	3400		340	604	4004	$ 15,000	$ 5,100	$ 13,600	$ 24,023	$ 11,900	$ 51,000	$ 4,004	$ 124,627			
19		Diamond	EB	1	510	Merges on left side of 101	261	110	261	2	1	5100		510	604	5704	$ 15,000	$ 7,650	$ 20,400	$ 34,223	$ 17,850	$ 76,500	$ 5,704	$ 177,327			
20	Ysidro Road	Diamond	WB	1	380		482	433	482	2	1	3800		380	604	4404	$ 15,000	$ 5,700	$ 15,200	$ 26,423	$ 13,300	$ 57,000	$ 4,404	$ 137,027			
21		Diamond	EB	1	1700	Ramp includes S. Jameson Ln	264	157	264	2	1	17000		1700	604	17604	$ 15,000	$ 25,500	$ 68,000	$ 105,623	$ 59,500	$ 255,000	$ 17,604	$ 546,227	$ 4,453,705	$ 445,371	$ 4,899,076
22	Olive Mill Road	Partial Diamond	EB	1	760	Ramp begins north side and crosses over 101	223	253	253	2	1	7600		760	604	8204	$ 15,000	$ 11,400	$ 30,400	$ 49,223	$ 26,600	$ 114,000	$ 8,204	$ 254,827	$ 254,827	$ 25,483	$ 280,310
23	Hot Springs Road / Cabrillo Blvd.	Diamond	WB	1	530		675	555	675	3	2	10600	1181	628	604	12385	$ 35,000	$ 15,900	$ 100,547	$ 74,309	$ 21,995	$ 94,263	$ 12,385	$ 354,399			
24		Diamond	EB	1	550	Merges on left side of 101	No Data	No Data	0	0	0	0		550	604	604	$ -	$ -	$ -	$ 3,623	$ 19,250	$ 82,500	$ 604	$ 105,977			
25	Salinas Street	Partial Diamond	WB	1	100		397	421	421	2	1	1000		100	604	1604	$ 15,000	$ 1,500	$ 4,000	$ 9,623	$ 3,500	$ 15,000	$ 1,604	$ 50,227			
26	Milpas Street	Diamond	WB	1	350	Ramp begins from roundabout	1036	796	1036	3	2	7000	1181	448	604	8785	$ 35,000	$ 10,500	$ 71,747	$ 52,709	$ 15,695	$ 67,263	$ 8,785	$ 261,699			
27		Diamond	EB	1	1040		1308	444	1308	3	2	20800	1181	1138	604	22585	$ 35,000	$ 31,200	$ 182,147	$ 135,509	$ 39,845	$ 170,763	$ 22,585	$ 617,049	$ 1,389,351	$ 138,935	$ 1,528,287
28	Garden Street	Diamond	WB	1	360		895	349	895	3	2	7200	1181	458	604	8985	$ 35,000	$ 10,800	$ 73,347	$ 53,909	$ 16,045	$ 68,763	$ 8,985	$ 266,849			
29		Diamond	EB	1	480		891	515	891	3	2	9600	1181	578	604	11385	$ 35,000	$ 14,400	$ 92,547	$ 68,309	$ 20,245	$ 86,763	$ 11,385	$ 328,649			
30	Castillo Street	Diamond	WB	1	120		1189	781	1189	3	2	2400	1181	218	604	4185	$ 35,000	$ 3,600	$ 34,947	$ 25,109	$ 7,645	$ 32,763	$ 4,185	$ 143,249			
31		Diamond	EB	2 to 1	380		857	473	857	3	2	7600	1181	478	604	9385	$ 35,000	$ 11,400	$ 76,547	$ 56,309	$ 16,745	$ 71,763	$ 9,385	$ 277,149	$ 1,015,897	$ 101,590	$ 1,117,486
32	Carrillo Street	Diamond	WB	1	480		1696	977	1696	3	2	9600	1181	578	604	11385	$ 35,000	$ 14,400	$ 92,547	$ 68,309	$ 20,245	$ 86,763	$ 11,385	$ 328,649			
33		Diamond	EB	1	450		878	722	878	3	2	9000	1181	548	604	10785	$ 35,000	$ 13,500	$ 87,747	$ 64,709	$ 19,195	$ 82,263	$ 10,785	$ 313,199			
34	Arrellaga Street	Partial Diamond	WB	1	210		688	563	688	3	2	4200	1181	308	604	5985	$ 35,000	$ 6,300	$ 49,347	$ 35,909	$ 10,795	$ 46,263	$ 5,985	$ 189,599			
35	Mission Street	Diamond	WB	2 to 1	400		902	814	902	3	2	8000	1181	498	604	9785	$ 35,000	$ 12,000	$ 79,747	$ 58,709	$ 17,445	$ 74,763	$ 9,785	$ 287,449			
36		Diamond	EB	1	410		853	427	853	3	2	8200	1181	508	604	9985	$ 35,000	$ 12,300	$ 81,347	$ 59,909	$ 17,795	$ 76,263	$ 9,985	$ 292,599			
37	Las Positas Road	Diamond	WB	1	60	Ramp begins from Calle Real	987	1027	1027	3	2	1200	1181	158	604	2985	$ 35,000	$ 1,800	$ 25,347	$ 17,909	$ 5,545	$ 23,763	$ 2,985	$ 112,349			
38		Diamond	EB	1	730		782	579	782	3	2	14600	1181	828	604	16385	$ 35,000	$ 21,900	$ 132,547	$ 98,309	$ 28,995	$ 124,263	$ 16,385	$ 457,399			
39	S. Hope Ave	Partial Diamond	WB	1	210		357	201	357	2	1	2100		210	604	2704	$ 15,000	$ 3,150	$ 8,400	$ 16,223	$ 7,350	$ 31,500	$ 2,704	$ 84,327			
40	La Cumbre Road	Partial Diamond	EB	2 to 1	580		1044	780	1044	3	2	11600	1181	678	604	13385	$ 35,000	$ 17,400	$ 108,547	$ 80,309	$ 23,745	$ 101,763	$ 13,385	$ 380,149			
41	State Street	Partial Diamond	WB	2	660		889	821	889	3	1	6600	1181	758	604	8385	$ 35,000	$ 9,900	$ 30,337	$ 50,309	$ 26,545	$ 113,763	$ 8,385	$ 274,239			
42	SR 154 / San Marcos Pass Road	Partial Diamond	EB	2	580		1116	962	1116	3	1	5800	1181	678	604	7585	$ 35,000	$ 8,700	$ 27,137	$ 45,509	$ 23,745	$ 101,763	$ 7,585	$ 249,439			
43	El Sueno Road	Partial Diamond	WB	1	180		414	475	475	2	1	1800		278	604	2404	$ 15,000	$ 2,700	$ 11,137	$ 14,423	$ 9,745	$ 41,763	$ 2,404	$ 97,171			
44	Turnpike Road	Diamond	WB	1	680		609	490	609	3	2	13600	1181	778	604	15385	$ 35,000	$ 20,400	$ 124,547	$ 92,309	$ 27,245	$ 116,763	$ 15,385	$ 431,649			
45		Diamond	EB	1	850		948	1074	1074	3	2	17000	1181	948	604	18785	$ 35,000	$ 25,500	$ 151,747	$ 112,709	$ 33,195	$ 142,263	$ 18,785	$ 519,199			
46	Patterson Avenue / SR 271 Ward Memorial	Diamond	WB	1	1640	Interchanges overlap	468	320	468	2	1	16400		1640	604	17004	$ 35,000	$ 24,600	$ 65,600	$ 102,023	$ 57,400	$ 246,000	$ 17,004	$ 547,627			
47		Diamond	EB	2	1040	Interchanges overlap	1392	935	1392	3	1	10400	1181	1138	604	12185	$ 35,000	$ 15,600	$ 45,537	$ 73,109	$ 39,845	$ 170,763	$ 12,185	$ 392,039	$ 4,957,083	$ 495,708	$ 5,452,792
48	Fairview Avenue	Loop	WB	2	910		1188	249	1188	3	1	9100	1181	1008	604	10885	$ 35,000	$ 13,650	$ 40,337	$ 65,309	$ 35,295	$ 151,263	$ 10,885	$ 351,739			
49		Partial Diamond	EB	2	590		1131	697	1131	3	1	5900	1181	688	604	7685	$ 35,000	$ 8,850	$ 27,537	$ 46,109	$ 24,095	$ 103,263	$ 7,685	$ 252,539			
50	Los Carneros Road	Diamond	WB	2 to 1	880		610	135	610	3	2	17600	1181	978	604	19385	$ 35,000	$ 26,400	$ 156,547	$ 116,309	$ 34,245	$ 146,763	$ 19,385	$ 534,649			
51		Diamond	EB	2	1060		1178	588	1178	3	1	10600	1181	1158	604	12385	$ 35,000	$ 15,900	$ 46,337	$ 74,309	$ 40,545	$ 173,763	$ 12,385	$ 398,239			
52	Glen Annie Road	Loop	WB	2	900		978	282	978	3	1	9000	1181	998	604	10785	$ 35,000	$ 13,500	$ 39,937	$ 64,709	$ 34,945	$ 149,763	$ 10,785	$ 348,639			
53		Diamond	EB	2	620		1603	1781	1781	3	1	6200	1181	718	604	7985	$ 35,000	$ 9,300	$ 28,737	$ 47,909	$ 25,145	$ 107,763	$ 7,985	$ 261,839			
54	Hollister Avenue	Diamond	WB	1	450	No aerial photo for this interchange	No Data	No Data	0	0	0	0	1181	548	604	1785	$ -	$ -	$ -	$ 10,709	$ 19,195	$ 82,263	$ 1,785	$ 113,952			
55		Diamond	EB	1	450	No aerial photo for this interchange	266	362	362	2	1	4500		450	604	5104	$ 15,000	$ 6,750	$ 18,000	$ 30,623	$ 15,750	$ 67,500	$ 5,104	$ 158,727	$ 2,420,322	$ 242,032	$ 2,662,354
																											$ 15,940,304

Alternative B - HOV/HOT Lanes + Commuter Rail

US Route 101 Widening - Northbound Auxiliary Lane from Los Carneros to Fairview (1.1 Miles - Between Ramps)

			Full Standard			Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	45,600	$ 68,400	$ 62,182	45,600	$ 68,400	$ 62,182
Earthwork / Grading	$ 15.00	/cu yd	9,289	$ 139,333	$ 126,667	9,289	$ 139,333	$ 126,667
Pavement Construction	$ 6	/sq ft	68,400	$ 410,400	$ 373,091	68,400	$ 410,400	$ 373,091
Shoulder Construction	$ 3.50	/sq ft	57,000	$ 199,500	$ 181,364	57,000	$ 199,500	$ 181,364
Retaining Wall	$ 346	/lineal foot	5,700	$ 1,972,200	$ 1,792,909	5,700	$ 1,972,200	$ 1,792,909
Soundwall	$ 200	/lineal foot	2,700	$ 540,000	$ 490,909	2,700	$ 540,000	$ 490,909
Interchange Modification	$ 500,000	/ramp	2	$ 1,000,000	$ 909,091	2	$ 1,000,000	$ 909,091
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	1	$ 250,000	$ 227,273	1	$ 250,000	$ 227,273
ROADWAY ITEMS				$ 4,579,833	$ 4,163,485		$ 4,579,833	$ 4,163,485
Other Items								
Landscaping	10% of roadway cost			$ 457,983	$ 416,348		$ 457,983	$ 416,348
Water Quality	5% of roadway cost			$ 228,992	$ 208,174		$ 228,992	$ 208,174
Traffic Items	20% of roadway cost			$ 915,967	$ 832,697		$ 915,967	$ 832,697
Drainage	10% of roadway cost			$ 457,983	$ 416,348		$ 457,983	$ 416,348
Specialty Items	20% of roadway cost			$ 915,967	$ 832,697		$ 915,967	$ 832,697
OTHER ITEMS				$ 2,976,892	$ 2,706,265		$ 2,976,892	$ 2,706,265
Enforcement Area				$ -	$ -		$ -	$ -
Ramp Metering Improvement				$ 2,662,354	$ 2,420,322		$ 2,662,354	$ 2,420,322
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -			$ -	$ -
SUBTOTAL				**$ 10,219,079**	**$ 9,290,072**		**$ 10,219,079**	**$ 9,290,072**
Minor Items (5%)				$ 510,954	$ 464,504		$ 510,954	$ 464,504
Mobilization (10%)				$ 1,073,003	$ 975,458		$ 1,073,003	$ 975,458
Roadway Additions								
Supplemental Work Items (5%)				$ 536,502	$ 487,729		$ 536,502	$ 487,729
General Contingency (50%)				$ 5,365,017	$ 4,877,288		$ 5,365,017	$ 4,877,288
Total Roadway Additions				$ 5,901,518	$ 5,365,017		$ 5,901,518	$ 5,365,017
TOTAL ROADWAY ITEMS				**$ 17,704,555**	**$ 16,095,050**		**$ 17,704,555**	**$ 16,095,050**
Structures								
Removal & Replacement	$ 175	/sq ft	0	$ -	$ -	0	$ -	$ -
US 101 Bridge Widening	$ 200	/sq ft		$ -	$ -		$ -	$ -
Abutment Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
TOTAL STRUCTURAL ITEMS				$ -	$ -		$ -	$ -
SUBTOTAL EST. CAPITOL COST				**$ 17,704,555**	**$ 16,095,050**		**$ 17,704,555**	**$ 16,095,050**
Right-of-Way Acquisition	$ 60	/sq ft	12,600	$ 756,000	$ 687,273	12,600	$ 756,000	$ 687,273
TOTAL EST. RIGHT-OF-WAY COST				**$ 756,000**	**$ 687,273**		**$ 756,000**	**$ 687,273**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 885,228	$ 804,752		$ 885,228	$ 804,752
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,770,455	$ 1,609,505		$ 1,770,455	$ 1,609,505
Construction Engineering & Administration	15% of Capital Cost			$ 2,655,683	$ 2,414,257		$ 2,655,683	$ 2,414,257
TOTAL EST. PROJECT DEV. COST				**$ 5,311,366**	**$ 4,828,515**		**$ 5,311,366**	**$ 4,828,515**
TOTAL ESTIMATED PROJECT COST				**$ 23,771,921**	**$ 21,610,837**		**$ 23,771,921**	**$ 21,610,837**

Alternative B - HOV/HOT Lanes + Commuter Rail

US Route 101 Widening - 6 Lanes to 8 Lanes from Patterson to Carillo (6.3 Miles)

66.0% of roadway to be realigned

66.0% of roadway to be realigned for Full Standard

44.1% of roadway to be realigned for Full Standard

21.9% of roadway to be realigned for Reduced Cross-Section

	Cost per Unit	Unit	Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Combination of Full Standard and Reduced Cross-Sections: Full Quantity	Reduced Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements									
Pavement Removal	$ 1.50	/sq ft	1,189,503	$ 1,784,254	$ 283,215	914,048	210,120	$ 1,686,253	$ 267,659
Earthwork / Grading	$ 15.00	/cu yd	517,732	$ 7,765,983	$ 1,232,696	379,021	64,660	$ 6,655,224	$ 1,056,385
Pavement Construction	$ 6	/sq ft	1,757,196	$ 10,543,176	$ 1,673,520	1,323,182	328,783	$ 9,911,792	$ 1,573,300
Shoulder Construction	$ 3.50	/sq ft	798,850	$ 2,795,976	$ 443,806	653,022	108,533	$ 2,665,442	$ 423,086
Retaining Wall	$ 346	/lineal foot	50,199	$ 17,368,852	$ 2,756,961	39,132	11,396	$ 17,482,559	$ 2,775,009
Soundwall	$ 200	/lineal foot	10,000	$ 2,000,000	$ 317,460	7,545	2,059	$ 1,920,913	$ 304,907
Interchange Modification	$ 500,000	/ramp	27	$ 13,500,000	$ 2,142,857	27	0	$ 13,500,000	$ 2,142,857
Overlay of Existing Pavement	$ 1	/sq ft	2,537,761	$ 2,537,761	$ 402,819	898,416	0	$ 898,416	$ 142,606
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	8	$ 2,000,000	$ 317,460	8	0	$ 2,000,000	$ 317,460
ROADWAY ITEMS				$ 60,296,002	$ 9,570,794			$ 56,720,599	$ 9,003,270
Other Items									
Landscaping	5% of roadway cost			$ 3,014,800	$ 478,540			$ 2,836,030	$ 450,163
Water Quality	5% of roadway cost			$ 3,014,800	$ 478,540			$ 2,836,030	$ 450,163
Traffic Items	20% of roadway cost			$ 12,059,200	$ 1,914,159			$ 11,344,120	$ 1,800,654
Drainage	10% of roadway cost			$ 6,029,600	$ 957,079			$ 5,672,060	$ 900,327
Specialty Items	20% of roadway cost			$ 12,059,200	$ 1,914,159			$ 11,344,120	$ 1,800,654
OTHER ITEMS				$ 36,177,601	$ 5,742,476			$ 34,032,359	$ 5,401,962
Enforcement Area				$ -	$ -			$ 3,418,285	$ 542,585
Ramp Metering Improvements				$ 5,452,792	$ 865,522			$ 5,452,792	$ 865,522
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -			$ -	$ -
SUBTOTAL				**$ 101,926,395**	**$ 16,178,793**			**$ 99,624,035**	**$ 15,813,339**
Minor Items (5%)				$ 5,096,320	$ 808,940			$ 4,981,202	$ 790,667
Mobilization (10%)				$ 10,702,271	$ 1,698,773			$ 10,460,524	$ 1,660,401
Roadway Additions									
Supplemental Work Items (5%)				$ 5,351,136	$ 849,387			$ 5,230,262	$ 830,200
General Contingency (50%)				$ 53,511,357	$ 8,493,866			$ 52,302,618	$ 8,302,003
Total Roadway Additions				$ 58,862,493	$ 9,343,253			$ 57,532,880	$ 9,132,203
TOTAL ROADWAY ITEMS				**$ 176,587,480**	**$ 28,029,759**			**$ 172,598,640**	**$ 27,396,610**
Structures									
Removal & Replacement	$ 175	/sq ft	68,282	$ 11,949,350	$ 1,896,722		68,282	$ 11,949,350	$ 1,896,722
US 101 Bridge Widening	$ 200	/sq ft	38,300	$ 7,660,000	$ 1,215,873		38,300	$ 7,660,000	$ 1,215,873
Abutment Wall	$ 80	/sq ft	10,861	$ 868,877	$ 137,917		10,161	$ 812,877	$ 129,028
TOTAL STRUCTURAL ITEMS				$ 20,478,227	$ 3,250,512			$ 20,422,227	$ 3,241,623
SUBTOTAL EST. CAPITAL COST				**$ 197,065,706**	**$ 179,150,642**			**$ 193,020,867**	**$ 30,638,233**
Right-of-Way Acquisition	$ 60	/sq ft	710,145	$ 42,608,700	$ 6,763,286	541,130	82,542	$ 37,420,348	$ 5,939,738
SUBTOTAL EST. RIGHT-OF-WAY COST				**$ 42,608,700**	**$ 6,763,286**			**$ 37,420,348**	**$ 5,939,738**
Project Development									
Preliminary Engineering & Environmental	5% of Capital Cost			$ 9,853,285	$ 1,564,014			$ 9,651,043	$ 1,531,912
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 19,706,571	$ 3,128,027			$ 19,302,087	$ 3,063,823
Construction Engineering & Administration	15% of Capital Cost			$ 29,559,856	$ 4,692,041			$ 28,953,130	$ 4,595,735
SUBTOTAL EST. PROJECT DEV. COST				**$ 59,119,712**	**$ 9,384,081**			**$ 57,906,260**	**$ 9,191,470**
TOTAL ESTIMATED PROJECT COST				**$ 298,794,118**	**$ 47,427,638**			**$ 288,347,475**	**$ 45,769,440**

Alternative B - HOV/HOT Lanes + Commuter Rail

US Route 101 Widening - Southbound Auxiliary Lanes from Carillo to Garden (1.27 Miles - Between Ramps)

69% of roadway to add auxiliary lane

25% of roadway to add full standard auxiliary lane

44% of roadway to add reduced Cross-Section auxiliary lan

			Full Standard			Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	67,054	$ 100,580	$ 79,197	44,767	$ 67,151	$ 52,875
Earthwork / Grading	$ 15.00	/cu yd	8,806	$ 132,090	$ 104,008	74,666	$ 1,119,986	$ 881,879
Pavement Construction	$ 6	/sq ft	55,569	$ 333,415	$ 262,532	37,100	$ 222,600	$ 175,275
Shoulder Construction	$ 3.50	/sq ft	51,494	$ 180,230	$ 141,913	34,379	$ 120,327	$ 94,746
Retaining Wall	$ 346	/lineal foot	4,631	$ 1,602,246	$ 1,261,611	4,637	$ 1,604,572	$ 1,263,442
Sound wall	$ 200	/lineal foot	2,500	$ 500,000	$ 393,701	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	4	$ 2,000,000	$ 1,574,803	0	$ -	$ -
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	20,400	$ 102,000	$ 80,315	20,400	$ 102,000	$ 80,315
Utility Relocations	$ 250,000	/overpass	0	$ -	$ -	0	$ -	$ -
	ROADWAY ITEMS			$ 4,950,561	$ 3,898,080		$ 3,236,635	$ 2,548,532
Other Items								
Landscaping	10% of roadway cost			$ 495,056	$ 389,808		$ 323,664	$ 254,853
Water Quality	5% of roadway cost			$ 247,528	$ 194,904		$ 161,832	$ 127,427
Traffic Items	20% of roadway cost			$ 990,112	$ 779,616		$ 647,327	$ 509,706
Drainage	10% of roadway cost			$ 495,056	$ 389,808		$ 323,664	$ 254,853
Specialty Items	20% of roadway cost			$ 990,112	$ 779,616		$ 647,327	$ 509,706
	OTHER ITEMS			$ 3,217,865	$ 2,533,752		$ 2,103,813	$ 1,656,546
Enforcement Area				$ -	$ -		$ -	$ -
Ramp Metering Improvement				$ 1,117,486	$ 879,910		$ 1,117,486	$ 879,910
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -		$ -	$ -
	SUBTOTAL			**$ 9,285,913**	**$ 7,311,742**		**$ 6,457,935**	**$ 5,084,988**
Minor Items (5%)				$ 464,296	$ 365,587		$ 322,897	$ 254,249
Mobilization (10%)				$ 975,021	$ 767,733		$ 678,083	$ 533,924
Roadway Additions								
Supplemental Work Items (5%)				$ 487,510	$ 383,866		$ 339,042	$ 266,962
General Contingency (50%)				$ 4,875,104	$ 3,838,665		$ 3,390,416	$ 2,669,619
Total Roadway Additions				$ 5,362,615	$ 4,222,531		$ 3,729,457	$ 2,936,581
	TOTAL ROADWAY ITEMS			**$ 16,087,844**	**$ 12,667,593**		**$ 11,188,372**	**$ 8,809,742**
Structures								
Removal & Replacement	$ 175	/sq ft	3,900	$ 682,500	$ 537,402	3,900	$ 682,500	$ 537,402
US 101 Bridge Widening	$ 200	/sq ft		$ -	$ -		$ -	$ -
Abutment Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
	TOTAL STRUCTURAL ITEMS			$ 682,500	$ 537,402		$ 682,500	$ 537,402
	SUBTOTAL EST. CAPITOL COST			**$ 16,770,344**	**$ 15,245,767**		**$ 11,870,872**	**$ 9,347,143**
Right-of-Way Acquisition	$ 60	/sq ft	15,000	$ 900,000	$ 708,661	15,000	$ 900,000	$ 708,661
	TOTAL EST. RIGHT-OF-WAY COST			**$ 900,000**	**$ 708,661**		**$ 900,000**	**$ 708,661**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 838,517	$ 660,250		$ 593,544	$ 467,357
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,677,034	$ 1,320,499		$ 1,187,087	$ 934,714
Construction Engineering & Administration	15% of Capital Cost			$ 2,515,552	$ 1,980,749		$ 1,780,631	$ 1,402,072
	TOTAL EST. PROJECT DEV. COST			**$ 5,031,103**	**$ 3,961,498**		**$ 3,561,262**	**$ 2,804,143**
	TOTAL ESTIMATED PROJECT COST			**$ 22,701,447**	**$ 17,875,155**		**$ 16,332,134**	**$ 12,859,948**

Alternative B - HOV/HOT Lanes + Commuter Rail

US Route 101 Widening - Add NB Full-Use Lane from Milpas to Cabrillo/Hot Springs (1.3 Miles)

(This section will be widened from 4 lanes to 6 lanes (NB Aux, SB Lane) by a separate project to be constructed prior to the US 101 widening.)

			Full Standard			Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	0	$ -	$ -	0	$ -	$ -
Earthwork / Grading	$ 15.00	/cu yd	0	$ -	$ -	0	$ -	$ -
Pavement Construction	$ 6	/sq ft	0	$ -	$ -	0	$ -	$ -
Shoulder Construction	$ 3.50	/sq ft	0	$ -	$ -	0	$ -	$ -
Retaining Wall	$ 346	/lineal foot	0	$ -	$ -	0	$ -	$ -
Soundwall	$ 200	/lineal foot	0	$ -	$ -	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	0	$ -	$ -	0	$ -	$ -
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	0	$ -	$ -	0	$ -	$ -
	ROADWAY ITEMS			$ -	$ -		$ -	$ -
Other Items								
Landscaping	5% of roadway cost			$ -	$ -		$ -	$ -
Water Quality	5% of roadway cost			$ -	$ -		$ -	$ -
Traffic Items	20% of roadway cost			$ -	$ -		$ -	$ -
Drainage	10% of roadway cost			$ -	$ -		$ -	$ -
Specialty Items	20% of roadway cost			$ -	$ -		$ -	$ -
	OTHER ITEMS			$ -	$ -		$ -	$ -
Enforcement Area				$ -	$ -		$ -	$ -
Ramp Metering Improvements				$ 1,528,287	$ 1,389,351		$ 1,528,287	$ 1,389,351
Interchange Reconfiguration	$ 7,500,000	/interchange	1	$ 7,500,000	$ 5,769,231	1	$ 7,500,000	$ 5,769,231
Cabrillo/Hot Springs Interchange (only SB ramps replaced)								
	SUBTOTAL			**$ 9,028,287**	**$ 8,207,533**		**$ 9,028,287**	**$ 5,769,231**
Minor Items (5%)				$ 451,414	$ 410,377		$ 451,414	$ 410,377
Mobilization (10%)				$ 947,970	$ 861,791		$ 947,970	$ 861,791
Roadway Additions								
Supplemental Work Items (5%)				$ 473,985	$ 430,895		$ 473,985	$ 430,895
General Contingency (50%)				$ 4,739,850	$ 4,308,955		$ 4,739,850	$ 4,308,955
Total Roadway Additions				$ 5,213,836	$ 4,739,850		$ 5,213,836	$ 4,739,850
								$ -
	TOTAL ROADWAY ITEMS			**$ 15,641,507**	**$ 14,219,551**		**$ 15,641,507**	**$ 14,219,551**
Structures								
Removal & Replacement	$ 175	/sq ft	0	$ -	$ -	0	$ -	$ -
US 101 Bridge Widening	$ 200	/sq ft	0	$ -	$ -	0	$ -	$ -
Abutment Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
	TOTAL STRUCTURAL ITEMS			$ -	$ -		$ -	$ -
	SUBTOTAL FOR CAPITAL COST			**$ 15,641,507**	**$ 14,219,551**		**$ 15,641,507**	**$ 14,219,551**
Right-of-Way Acquisition	$ 60	/sq ft	0	$ -	$ -	0	$ -	$ -
	SUBTOTAL EST. RIGHT-OF-WAY COST			**$ -**	**$ -**		**$ -**	**$ -**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 782,075	$ 710,978		$ 782,075	$ 710,978
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,564,151	$ 1,421,955		$ 1,564,151	$ 1,421,955
Construction Engineering & Administration	15% of Capital Cost			$ 2,346,226	$ 2,132,933		$ 2,346,226	$ 2,132,933
SUBTOTAL EST. PROJECT DEV. COST				**$ 4,692,452**	**$ 4,265,865**		**$ 4,692,452**	**$ 4,265,865**
	TOTAL ESTIMATED PROJECT COST			**$ 20,333,959**	**$ 18,485,417**		**$ 20,333,959**	**$ 18,485,417**

Alternative B - HOV/HOT Lanes + Commuter Rail

US Route 101 Widening - Add NB Full-Use Lane and SB Auxiliary Lane from Cabrillo/Hot Springs to Olive Mill (0.9 Miles)

(This section will be widened from 4 lanes to 5 lanes by adding a SB Lane by a separate project to be constructed prior to the US 101 widening.)

			Full Standard			Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	151,360	$ 227,040	$ 252,267	47,300	$ 70,950	$ 78,833
Earthwork / Grading	$ 15.00	/cu yd	10,967	$ 164,499	$ 182,777	7,883	$ 118,250	$ 131,389
Pavement Construction	$ 6	/sq ft	132,440	$ 794,640	$ 882,933	141,900	$ 851,400	$ 946,000
Shoulder Construction	$ 3.50	/sq ft	189,200	$ 662,200	$ 735,778	118,250	$ 413,875	$ 459,861
Retaining Wall	$ 346	/lineal foot	9,460	$ 3,273,160	$ 3,636,844	0	$ -	$ -
Soundwall	$ 200	/lineal foot	4,730	$ 946,000	$ 1,051,111	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	4	$ 2,000,000	$ 2,222,222	4	$ 2,000,000	$ 2,222,222
Overlay of Existing Pavement	$ 1	/sq ft	283,800	$ 283,800	$ 315,333	368,940	$ 368,940	$ 409,933
Local Road Relocation/Improvement	$ 5	/sq ft	15,600	$ 78,000	$ 86,667	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	1	$ 250,000	$ 277,778	1	$ 250,000	$ 277,778
ROADWAY ITEMS				$ 8,679,339	$ 9,643,710		$ 4,073,415	$ 4,526,017
Other Items								
Landscaping	5% of roadway cost			$ 433,967	$ 482,185		$ 203,671	$ 226,301
Water Quality	5% of roadway cost			$ 433,967	$ 482,185		$ 203,671	$ 226,301
Traffic Items	20% of roadway cost			$ 1,735,868	$ 1,928,742		$ 814,683	$ 905,203
Drainage	10% of roadway cost			$ 867,934	$ 964,371		$ 407,342	$ 452,602
Specialty Items	20% of roadway cost			$ 1,735,868	$ 1,928,742		$ 814,683	$ 905,203
OTHER ITEMS				$ 5,207,603	$ 5,786,226		$ 2,444,049	$ 2,715,610
Enforcement Area				$ -	$ -		$ 3,418,285	$ 542,585
Ramp Metering Improvements				$ 280,310	$ 311,455		$ 280,310	$ 44,494
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -		$ -	$ -
SUBTOTAL				**$ 14,167,252**	**$ 15,741,391**		**$ 10,216,059**	**$ -**
Minor Items (5%)				$ 708,363	$ 787,070		$ 510,803	$ 567,559
Mobilization (10%)				$ 1,487,561	$ 1,652,846		$ 1,072,686	$ 1,191,874
Roadway Additions								
Supplemental Work Items (5%)				$ 743,781	$ 826,423		$ 536,343	$ 595,937
General Contingency (50%)				$ 7,437,807	$ 8,264,230		$ 5,363,431	$ 5,959,368
Total Roadway Additions				$ 8,181,588	$ 9,090,653		$ 5,899,774	$ 6,555,304
TOTAL ROADWAY ITEMS				**$ 24,544,764**	**$ 27,271,960**		**$ 17,699,322**	**$ 19,665,913**
Structures								
Removal & Replacement	$ 175	/sq ft	21,120	$ 3,696,000	$ 4,106,667	21,120	$ 3,696,000	$ 4,106,667
US 101 Bridge Widening	$ 200	/sq ft		$ -	$ -		$ -	$ -
Abutment Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
TOTAL STRUCTURAL ITEMS				$ 3,696,000	$ 4,106,667		$ 3,696,000	$ 4,106,667
SUBTOTAL FOR CAPITAL COST				**$ 28,240,764**	**$ 25,673,422**		**$ 21,395,322**	**$ 23,772,580**
Right-of-Way Acquisition	$ 60	/sq ft	64,281	$ 3,856,860	$ 4,285,400	40,840	$ 2,450,400	$ 2,722,667
SUBTOTAL EST. RIGHT-OF-WAY COST				**$ 3,856,860**	**$ 4,285,400**		**$ 2,450,400**	**$ 2,722,667**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 1,412,038	$ 1,568,931		$ 1,069,766	$ 1,188,629
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 2,824,076	$ 3,137,863		$ 2,139,532	$ 2,377,258
Construction Engineering & Administration	15% of Capital Cost			$ 4,236,115	$ 4,706,794		$ 3,209,298	$ 3,565,887
SUBTOTAL EST. PROJECT DEV. COST				**$ 8,472,229**	**$ 9,413,588**		**$ 6,418,597**	**$ 7,131,774**
TOTAL ESTIMATED PROJECT COST				**$ 40,569,853**	**$ 45,077,615**		**$ 30,264,318**	**$ 33,627,020**

Alternative B - HOV/HOT Lanes + Commuter Rail

US Route 101 Widening - 4 Lanes to 6 Lanes from Olive Mill to SR 150 (9.9 Miles)

19.7%	Roadway to use Reduced Cross-Section
80.3%	Roadway to use Full Standard

2% of roadway to be realigned

	Cost per Unit	Unit	Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Full Quantity	Reduced Quantity	Combination of Full Standard and Reduced Cross-Sections: Estimated Total Cost	Combination of Full Standard and Reduced Cross-Sections: Average Cost per Mile
Roadway-Related Improvements									
Pavement Removal	$ 1.50	/sq ft	1,352,343	$ 2,028,515	$ 204,900	428,089	103,076	$ 796,747	$ 80,480
Earthwork / Grading	$ 15.00	/cu yd	154,106	$ 2,311,585	$ 233,493	48,371	11,071	$ 891,631	$ 90,064
Pavement Construction	$ 6	/sq ft	1,676,894	$ 10,061,366	$ 1,016,300	1,182,986	288,614	$ 8,829,599	$ 891,879
Shoulder Construction	$ 3.50	/sq ft	2,082,926	$ 7,290,242	$ 736,388	440,141	103,076	$ 1,901,261	$ 192,047
Retaining Wall	$ 346	/lineal foot	39,310	$ 13,601,159	$ 1,373,854	16,198	3,865	$ 6,941,918	$ 701,204
Soundwall	$ 200	/lineal foot	20,000	$ 4,000,000	$ 404,040	4,366	985	$ 1,070,288	$ 108,110
Interchange Modification	$ 500,000	/ramp	36	$ 18,000,000	$ 1,818,182	36		$ 18,000,000	$ 1,818,182
Overlay of Existing Pavement	$ 1	/sq ft	2,519,659	$ 2,519,659	$ 254,511	1,968,768	494,766	$ 2,463,534	$ 248,842
Local Road Relocation/Improvement	$ 5	/sq ft	127,200	$ 636,000	$ 64,242	54,842	13,782	$ 343,119	$ 34,658
Utility Relocations	$ 250,000	/overpass	6.5	$ 1,625,000	$ 164,141	6.5		$ 1,625,000	$ 164,141
ROADWAY ITEMS				$ 62,073,525	$ 6,270,053			$ 42,863,097	$ 4,329,606
Other Items									
Landscaping	5% of roadway cost			$ 3,103,676	$ 313,503			$ 2,143,155	$ 216,480
Water Quality	5% of roadway cost			$ 3,103,676	$ 313,503			$ 2,143,155	$ 216,480
Traffic Items	20% of roadway cost			$ 12,414,705	$ 1,254,011			$ 8,572,619	$ 865,921
Drainage	10% of roadway cost			$ 6,207,353	$ 627,005			$ 4,286,310	$ 432,961
Specialty Items	20% of roadway cost			$ 12,414,705	$ 1,254,011			$ 8,572,619	$ 865,921
OTHER ITEMS				$ 37,244,115	$ 3,762,032			$ 25,717,858	$ 2,597,763
Enforcement Area				$ -	$ -			$ 3,418,285	$ 345,281
Ramp Metering Improvements				$ 4,899,076	$ 494,856			$ 4,899,076	$ 494,856
Interchange Reconfiguration	$ 15,000,000	/interchange	1	$ 15,000,000	$ 1,515,152		1	$ 15,000,000	$ 1,515,152
Sheffield Interchange									
SUBTOTAL				**$ 119,216,717**	**$ 12,042,093**			**$ 91,898,317**	**$ 9,282,658**
Minor Items (5%)				$ 5,960,836	$ 602,105			$ 4,594,916	$ 464,133
Mobilization (10%)				$ 12,517,755	$ 1,264,420			$ 9,649,323	$ 974,679
Roadway Additions									
Supplemental Work Items (5%)				$ 6,258,878	$ 632,210			$ 4,824,662	$ 487,340
General Contingency (50%)				$ 62,588,776	$ 6,322,099			$ 48,246,616	$ 4,873,396
Total Roadway Additions				$ 68,847,654	$ 6,954,308			$ 53,071,278	$ 5,360,735
TOTAL ROADWAY ITEMS				**$ 206,542,961**	**$ 20,862,925**			**$ 159,213,833**	**$ 16,082,205**
Structures									
Removal & Replacement	$ 175	/sq ft	120,505	$ 21,088,375	$ 2,130,139	113,173		$ 19,805,275	$ 2,000,533
US 101 Bridge Widening	$ 200	/sq ft	63,750	$ 12,750,000	$ 1,287,879	63,750		$ 12,750,000	$ 1,287,879
Abutment Wall	$ 80	/sq ft		$ -	$ -			$ -	$ -
TOTAL STRUCTURAL ITEMS				$ 33,838,375	$ 3,418,018			$ 32,555,275	$ 3,288,412
SUBTOTAL FOR CAPITAL COST				**$ 240,381,336**	**$ 218,528,488**			**$ 191,769,108**	**$ 19,370,617**
Right-of-Way Acquisition	$ 60	/sq ft	441,384	$ 26,483,040	$ 2,675,055	354,431	83,052	$ 26,249,004	$ 2,651,415
SUBTOTAL EST. RIGHT-OF-WAY COST				**$ 26,483,040**	**$ 2,675,055**			**$ 26,249,004**	**$ 2,651,415**
Project Development									
Preliminary Engineering & Environmental	5% of Capital Cost			$ 12,019,067	$ 1,214,047			$ 9,588,455	$ 968,531
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 24,038,134	$ 2,428,094			$ 19,176,911	$ 1,937,062
Construction Engineering & Administration	15% of Capital Cost			$ 36,057,200	$ 3,642,141			$ 28,765,366	$ 2,905,593
SUBTOTAL EST. PROJECT DEV. COST				**$ 72,114,401**	**$ 7,284,283**			**$ 57,530,733**	**$ 5,811,185**
TOTAL ESTIMATED PROJECT COST				**$ 338,978,777**	**$ 34,240,281**			**$ 275,548,845**	**$ 27,833,217**

Appendix C-2

Alternative C – HOV Lanes South/Auxiliary Lanes North + Commuter Rail

Widening of US 101 from Winchester Canyon Road to Bates Road (Santa Barbara / Ventura County Line)

Rough Order of Magnitude Cost Estimate for Highway Widening

Cost Summary

"Full Standard": $518M to $633M
Combination of "Full Standard" and Reduced Cross Sections: $449M to $549M

Route 101 Implementation Plan
Rough Order of Magnitude Cost Estimate

Alternative C - Auxiliary Lanes and HOV Lanes

General Assumptions

1. Costs are in 2004 dollars using data from Caltrans Cost Data Books and are based on general assumptions regarding typical section, existing features and right of way based on limited available data. No design plans were available nor design analysis performed that would allow refined cost estimating based on the assumed typical sections. The cost estimate is a rough order of magnitude for general comparison purposes between alternatives and is not intended to reflect the precise cost of any specific facility.

2. The "Full Standard" option is proposed to be in general compliance with Caltrans highway design standards. Nonstandard features may be included in this option as necessary to meet project requirements. Other nonstandard features may be identified in further design stages.

3. This estimate assumes the following improvements to various portions of the US 101: Refer to Appendix B Table 5.1 Alt C, except for Cabrillo/ Hot Springs interchange where only the SB half of interchange is to be reconstructed.

4. A proposed alignment utilizing a combination of symmetrical widening (maintaining the existing centerline) and asymmetrical widening (shifting the existing centerline) was developed as an approach to minimizing anticipated impacts to widening

5. Right of way estimates are based on an assumed uniform width throughout the alignment given the limitations noted above.

6. No special environmental mitigation (groundwater, hazardous waste) measures, nor any major railroad modification work are included in the rough order of magnitude cost estimate.

7. Ramp metering improvement costs are based on sketch level planning assumptions. Site specific storage assessments performed as part of any project may also identify additional storage needs and/or other site specific design requirements. HOT/HOV only in Alternatives B and C. 4’ buffer refer to High-Occupancy Vehicle Guidelines, 2003 Edition Chapter 3 HOV Geometric Design. Figure 3.2 Typical Cross Sections Buffer-Separated and Contiguous HOV Facilities. A 2' buffer is under investigation but not included in the estimate at this time. Enforcement area refer to High-Occupancy Vehicle Guidelines, 2003 Edition Chapter 6 HOV Enforcement. Figure 6.3 Enforcement Areas For Medians Less than 7.0m, Bi-Directional Enforcement Area.

8. The disposition of each bridge is based on a limited visual assessment for this estimate.

Alternative C - Add Auxiliary Lane From Glen Annie to Milpas. Add HOV Lane from Milpas to SR-150

Summary of Costs for US 101 Widening

Alternative C – Auxiliary Lanes and HOV Lanes	Glen Annie to Fairview NB Auxiliary Lane		Patterson to Carillo NB Auxiliary Lanes		Carillo to Garden SB Auxiliary Lane		Milpas to Cabrillo/Hot Springs 4-Lane to 6-Lane HOV		Cabrillo/Hot Springs to Olive Mill 4-Lane to 6-Lane HOV		Olive Mill to SR-150 4-Lane to 6-Lane HOV		**Total Cost**	
	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections
Roadway-Related Improvements														
Pavement Removal	$ 90,764	$ 90,764	$ 396,677	$ 396,677	$ 100,580	$ 67,151	$ -	$ -	$ 227,040	$ 70,950	$ 2,028,515	$ 796,747	$ 2,843,576	$ 1,422,289
Earthwork / Grading	$ 184,889	$ 184,889	$ 648,732	$ 648,732	$ 132,090	$ 1,119,986	$ -	$ -	$ 164,499	$ 118,250	$ 2,311,585	$ 891,631	$ 3,441,795	$ 2,963,488
Pavement Construction	$ 544,581	$ 544,581	$ 1,586,708	$ 1,586,708	$ 333,415	$ 222,600	$ -	$ -	$ 794,640	$ 851,400	$ 10,061,366	$ 8,829,599	$ 13,320,711	$ 12,034,888
Shoulder Construction	$ 264,727	$ 264,727	$ 925,580	$ 925,580	$ 180,230	$ 120,327	$ -	$ -	$ 662,200	$ 413,875	$ 7,290,242	$ 1,901,261	$ 9,322,978	$ 3,625,770
Retaining Wall	$ 2,359,852	$ 2,359,852	$ 3,867,602	$ 3,867,602	$ 1,444,800	$ 1,446,897	$ -	$ -	$ 2,951,520	$ -	$ 12,264,629	$ 6,259,764	$ 22,888,402	$ 13,934,114
Soundwall	$ 540,000	$ 540,000	$ 2,000,000	$ 2,000,000	$ 500,000	$ -	$ -	$ -	$ 946,000	$ -	$ 4,000,000	$ 1,070,288	$ 7,986,000	$ 3,610,288
Interchange Modification	$ 1,000,000	$ 1,000,000	$ 13,500,000	$ 13,500,000	$ 2,000,000	$ -	$ -	$ -	$ 2,000,000	$ 2,000,000	$ 18,000,000	$ 18,000,000	$ 36,500,000	$ 34,500,000
Overlay of Existing Pavement	$ -	$ -	$ 595,016	$ 595,016	$ -	$ -	$ -	$ -	$ 283,800	$ 368,940	$ 2,519,659	$ 2,463,534	$ 3,398,474	$ 3,427,490
Local Road Relocation/Improvement	$ -	$ -	$ -	$ -	$ 102,000	$ 102,000	$ -	$ -	$ 78,000	$ -	$ 636,000	$ 343,119	$ 816,000	$ 445,119
Utility Relocations	$ 250,000	$ 250,000	$ 2,000,000	$ 2,000,000	$ -	$ -	$ -	$ -	$ 250,000	$ 250,000	$ 1,625,000	$ 1,625,000	$ 4,125,000	$ 4,125,000
ROADWAY ITEMS	$ 5,234,812	$ 5,234,812	$ 25,520,315	$ 25,520,315	$ 4,793,115	$ 3,078,961	$ -	$ -	$ 8,357,699	$ 4,073,415	$ 60,736,995	$ 42,180,943	$ 104,642,937	$ 80,088,447
Other Items														
Landscaping	$ 261,741	$ 261,741	$ 1,276,016	$ 1,276,016	$ 479,312	$ 307,896	$ -	$ -	$ 417,885	$ 203,671	$ 3,036,850	$ 2,109,047	$ 5,471,803	$ 4,158,370
Water Quality	$ 261,741	$ 261,741	$ 1,276,016	$ 1,276,016	$ 239,656	$ 153,948	$ -	$ -	$ 417,885	$ 203,671	$ 3,036,850	$ 2,109,047	$ 5,232,147	$ 4,004,422
Traffic Items	$ 1,046,962	$ 1,046,962	$ 5,104,063	$ 5,104,063	$ 958,623	$ 615,792	$ -	$ -	$ 1,671,540	$ 814,683	$ 12,147,399	$ 8,436,189	$ 20,928,587	$ 16,017,689
Drainage	$ 523,481	$ 523,481	$ 2,552,031	$ 2,552,031	$ 479,312	$ 307,896	$ -	$ -	$ 835,770	$ 407,342	$ 6,073,700	$ 4,218,094	$ 10,464,294	$ 8,008,845
Specialty Items	$ 1,046,962	$ 1,046,962	$ 5,104,063	$ 5,104,063	$ 958,623	$ 615,792	$ -	$ -	$ 1,671,540	$ 814,683	$ 12,147,399	$ 8,436,189	$ 20,928,587	$ 16,017,689
OTHER ITEMS	$ 3,140,887	$ 3,140,887	$ 15,312,189	$ 15,312,189	$ 3,115,525	$ 2,001,325	$ -	$ -	$ 5,014,619	$ 2,444,049	$ 36,442,197	$ 25,308,566	$ 63,025,418	$ 48,207,016
Enforcement Areas	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,418,285	$ -	$ 3,418,285	$ -	$ 6,836,570
Ramp Metering Improvement	$ 2,662,354	$ 2,662,354	$ 5,572,230	$ 5,572,230	$ 1,117,486	$ 1,117,486	$ 1,528,287	$ 1,528,287	$ 280,310	$ 280,310	$ 4,899,076	$ 4,899,076	$ 16,059,743	$ 16,059,743
Interchange Reconfiguration	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,500,000	$ 7,500,000	$ -	$ -	$ 15,000,000	$ 15,000,000	$ 22,500,000	$ 22,500,000
SUBTOTAL	**$ 11,038,054**	**$ 11,038,054**	**$ 46,404,734**	**$ 46,404,734**	**$ 9,026,126**	**$ 6,197,771**	**$ 9,028,287**	**$ 9,028,287**	**$ 13,652,628**	**$ 10,216,059**	**$ 117,078,269**	**$ 90,806,871**	**$ 206,228,097**	**$ 173,691,775**
Minor Items (5%)	$ 551,903	$ 551,903	$ 2,320,237	$ 2,320,237	$ 451,306	$ 309,889	$ 451,414	$ 451,414	$ 682,631	$ 510,803	$ 5,853,913	$ 4,540,344	$ 10,311,405	$ 8,684,589
Mobilization (10%)	$ 1,158,996	$ 1,158,996	$ 4,872,497	$ 4,872,497	$ 473,872	$ 650,766	$ 947,970	$ 947,970	$ 1,433,526	$ 1,072,686	$ 12,293,218	$ 9,534,721	$ 21,180,079	$ 18,237,636
Roadway Additions														
Supplemental Work Items (5%)	$ 579,498	$ 579,498	$ 2,436,249	$ 2,436,249	$ 947,743	$ 325,383	$ 473,985	$ 473,985	$ 716,763	$ 536,343	$ 6,146,609	$ 4,767,361	$ 11,300,847	$ 9,118,818
General Contingency (50%)	$ 5,794,978	$ 5,794,978	$ 24,362,485	$ 24,362,485	$ 4,738,716	$ 3,253,830	$ 4,739,851	$ 4,739,851	$ 7,167,630	$ 5,363,431	$ 61,466,091	$ 47,673,607	$ 108,269,751	$ 91,188,182
Total Roadway Additions	$ 6,374,476	$ 6,374,476	$ 26,798,734	$ 26,798,734	$ 5,686,459	$ 3,579,213	$ 5,213,836	$ 5,213,836	$ 7,884,393	$ 5,899,774	$ 67,612,700	$ 52,440,968	$ 119,570,598	$ 100,307,000
	$ 19,123,428	**$ 19,123,428**	**$ 80,396,201**	**$ 80,396,201**	**$ 15,637,764**	**$ 10,737,639**	**$ 15,641,507**	**$ 15,641,507**	**$ 23,653,178**	**$ 17,699,322**	**$ 202,838,100**	**$ 157,322,903**	**$ 357,290,179**	**$ 300,921,001**
Structures														
Overpass Removal & Replacement	$ -	$ -	$ 1,002,750	$ 1,002,750	$ 682,500	$ 682,500	$ -	$ -	$ 3,696,000	$ 3,696,000	$ 21,088,375	$ 19,805,275	$ 26,469,625	$ 25,186,525
US 101 Bridge Widening	$ 420,000	$ 420,000	$ 450,000	$ 450,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,750,000	$ 12,750,000	$ 13,620,000	$ 13,620,000
Retaining Wall	$ -	$ -	$ 91,520	$ 91,520	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 91,520	$ 91,520
TOTAL STRUCTURAL ITEMS	$ 420,000	$ 420,000	$ 1,544,270	$ 1,544,270	$ 682,500	$ 682,500	$ -	$ -	$ 3,696,000	$ 3,696,000	$ 33,838,375	$ 32,555,275	$ 40,181,145	$ 38,898,045
Subtotal Est. Capital Cost	**$ 19,543,428**	**$ 19,543,428**	**$ 81,940,471**	**$ 81,940,471**	**$ 16,320,264**	**$ 11,420,139**	**$ 15,641,507**	**$ 15,641,507**	**$ 27,349,178**	**$ 21,395,322**	**$ 236,676,475**	**$ 189,878,178**	**$ 397,471,324**	**$ 339,819,046**
Right-of-Way Acquisition	$ 756,000	$ 756,000	$ 26,754,300	$ 26,754,300	$ 900,000	$ 900,000	$ -	$ -	$ 3,856,860	$ 2,450,400	$ 26,483,040	$ 26,249,004	$ 58,750,200	$ 57,109,704
TOTAL EST. RIGHT-OF-WAY COST	**$ 756,000**	**$ 756,000**	**$ 26,754,300**	**$ 26,754,300**	**$ 900,000**	**$ 900,000**	**$ -**	**$ -**	**$ 3,856,860**	**$ 2,450,400**	**$ 26,483,040**	**$ 26,249,004**	**$ 58,750,200**	**$ 57,109,704**
Project Development														
Preliminary Engineering & Environmental	$ 977,171	$ 977,171	$ 4,097,024	$ 4,097,024	$ 816,013	$ 571,007	$ 782,075	$ 782,075	$ 1,367,459	$ 1,069,766	$ 11,833,824	$ 9,493,909	$ 19,873,566	$ 16,990,952
Final Plans, Specifications, & Estimate	$ 1,954,343	$ 1,954,343	$ 8,194,047	$ 8,194,047	$ 1,632,026	$ 1,142,014	$ 1,564,151	$ 1,564,151	$ 2,734,918	$ 2,139,532	$ 23,667,648	$ 18,987,818	$ 39,747,132	$ 33,981,905
Construction Engineering & Administration	$ 2,931,514	$ 2,931,514	$ 12,291,071	$ 12,291,071	$ 2,448,040	$ 1,713,021	$ 2,346,226	$ 2,346,226	$ 4,102,377	$ 3,209,298	$ 35,501,471	$ 28,481,727	$ 59,620,699	$ 50,972,857
TOTAL EST. PROJECT DEV. COST	**$ 5,863,028**	**$ 5,863,028**	**$ 24,582,141**	**$ 24,582,141**	**$ 4,896,079**	**$ 3,426,042**	**$ 4,692,452**	**$ 4,692,452**	**$ 8,204,754**	**$ 6,418,597**	**$ 71,002,943**	**$ 56,963,453**	**$ 119,241,397**	**$ 101,945,714**
TOTAL ESTIMATED PROJECT COST	**$ 26,162,457**	**$ 26,162,457**	**$ 133,276,913**	**$ 133,276,913**	**$ 22,116,343**	**$ 15,746,180**	**$ 20,333,959**	**$ 20,333,959**	**$ 39,410,792**	**$ 30,264,319**	**$ 334,162,458**	**$ 273,090,636**	**$ 575,462,921**	**$ 498,874,464**

TOTAL ESTIMATED RANGE OF PROJECT COST	**$518M to $633M**	**$449M to $549M**

Alternative C - HOV South/Aux Lanes
North + Commuter Rail

Unit Costs

Alternative C – Auxiliary Lanes and HOV Lanes			
	Pavement Removal	$ 1.50	/sq ft
	Earthwork / Grading	$ 15.00	/cu yd
	Pavement Construction	$ 6	/sq ft
	Shoulder Construction	$ 3.50	/sq ft
	Retaining Wall	$ 312	/lineal foot
	Soundwall	$ 200	/lineal foot
	Interchange Modification	$ 500,000	/ramp
	Overlay of Existing Pavement	$ 1	/sq ft
	Local Road Relocation/Improvement	$ 5	/sq ft
	Utility Relocations	$ 250,000	/overpass
Interchange Reconfiguration		$ 15,000,000	/ea
Structures			
	Removal & Replacement	$ 175	/sq ft
	US 101 Bridge Widening	$ 200	/sq ft
	Abutment Wall	$ 80	/sq ft
Right-of-Way Acquisition		$ 60	/sq ft

Alternative C - HOV South/Aux Lanes North + Commuter Rail

Estimate Support Information

	Alternative C – Auxiliary L	Length: Symmetrical	Length: Realigned	Length: Total	% Realigned	Each: Over-crossings	Each: Bridge Widenings	Each: Ramps
1	Los Carneros to Fairview	N/A	N/A	5700		1	0	2
	SEGMENT SUM	**N/A**	**N/A**	**5700**	**N/A**	**1**	**0**	**2**
	Patterson to Turnpike	2040	3240	5280		1	1	2
	Turnpike to La Cumbre	4850	7110	11960		3	1	9
2	La Cumbre to Las Positas	2480	3980	6460		1	2	5
	Las Positas to Mission	1180	2970	4150		1	1	5
	Mission to Carillo	1550	3630	5180		2	1	6
	SEGMENT SUM	**12100**	**20930**	**33030**	**63%**	**8**	**6**	**27**
3	Carillo to Castillo	N/A	N/A	1940		0	0	2
	Castillo to Garden	N/A	N/A	2500		0	0	2
	SEGMENT SUM	**0**	**0**	**4440**	**N/A**	**0**	**0**	**4**
4	Milpas to Hot Springs	2640	3220	5860		0	1	6
	SEGMENT SUM	**2640**	**3220**	**5860**	**55%**	**0**	**1**	**6**
5	Hot Springs to Olive Mill	1770	2960	4730		1	1	4
	SEGMENT SUM	**1770**	**2960**	**4730**	**63%**	**1**	**1**	**4**
	Olive Mill to Sheffield	8170	0	8170		2	4	9
	Sheffield to N. Padaro	7920	1960	9880		1	2	4
	N. Padaro to Santa Claus	9760	0	9760		0	3	4
	Santa Claus to Linden	11700	0	11700		1	2	9
6	Linden to Bailard	7630	0	7630		2	1	7
	Bailard to SR 150	3855	0	3855		0.5	0	3
	SEGMENT SUM	**49035**	**1960**	**50995**	**4%**	**6.5**	**12**	**36**

Alternative C - HOV South/ Aux Lanes North + Commuter Rail

Average Cost of Enforcement Area

			length	rate	Estim. Quantity	Cost
Alternative C – Auxiliary Lanes	$ 1.50	/sq ft	4134	27.80	114,925	$ 172,388
Earthwork / Grading	$ 15.00	/cu yd	4134	296.59	45,411	$ 681,164
Pavement Construction	$ 6	/sq ft	4134	26.60	109,964	$ 659,786
Shoulder Construction	$ 3.50	/sq ft	4134	26.60	109,964	$ 384,875
Retaining Wall	$ 200	/lineal foot	4134	N/A	6,201	$ 1,240,200
Overlay of Existing Pavement	$ 1	/sq ft	4134	67.70	279,872	$ 279,872
					Total Cost	**$ 3,418,285**

Alternative C - HOV South/
Aux Lanes North +
Commuter Rail

Bridges

						NORTHBOUND							SOUTHBOUND							Alternative C (AUX/HOV)			
						Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Full		Red/Full	
	ary Lanes and HOV Lanes Bridges	Structure Type	Span	Abut.	Type	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Bridge Area (ft^2)	Retaining Wall (ft^2)	Bridge Area (ft^2)	Retaining Wall (ft^2)
1	Bates Ranch Road	UC													8' / 10'								
2	Rincon Creek	BRIDGE																					
3	Railroad	OH																					
4	150 / Rincon Road	SEPARATION	2	O	B	17' 1"	Additional lane	20' / 10"					16' 2"	Additional lane	15' / 10'								
5	Bailard Lane	OC	4	O	B	14' 11"	Additional lane	20' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 0"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient				
																				10560		10560	
6	Carpinteria Creek	BRIDGE					Additional lane							Additional lane	10' / 8'								
7	Casitas Pass Road	OC	2	C	I	15' 6"	Additional lane	15 / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 8"	Additional lane	10' / 8'	Replace	Vertically Deficient	Replace	Vertically Deficient				
8	Linden Avenue	OC	2	C	I	16' 6"	Additional lane	15' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	14' 11"	Additional lane	12' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient				
9	Franklin Creek	BRIDGE					Additional lane							Additional lane									
10	7th Street / Santa Ynez Avenue	OC	2	C	I	15' "	Additional lane	15' / 8'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	15' 11"	Additional lane	10' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient				
																				10560		10560	
11	Santa Monica Creek	BRIDGE					Additional lane							Additional lane									
12	Santa Monica Road	UC					Additional lane							Additional lane									
13	South San Padaro Lane	UC					Additional lane							Additional lane	6' / 10'								
14	Arroyo Paredon Creek	BRIDGE					Additional lane							Additional lane									
15	Garrapato Creek	BRIDGE					Additional lane							Additional lane									
16	Toro Canyon Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report				
																				13604.8		13085.6	
17	North Padaro Lane	OC	2	O	B	16' 0"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 6"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient				
																				11880		11880	
18	Evans Avenue/Lookout Park Road	UC					Additional lane	2' / 8'						Additional lane									
19	Sheffield Drive	UC					Additional lane							Additional lane									
																				16995		16995	
20	Romero / Buena Vista Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report				
																				10384		9152	
21	San Ysidro Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report				
																				10384		9152	
22	Oak Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report				
																				10384		8960	
23	San Ysidro Road	OC	2	C	Special	18' 0"	Additional lane	15' 10 '	Replace	Horizontally Deficient	Replace	Horizontally Deficient	16' 0"	Additional lane	10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient				
																				10560		9664	
24	Montecito Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report				
																				10384		9152	
25	On Ramp	SEPARATION		C	Special	15' 5"	Additional lane	15' / 10'	Replace	SB-101 Project Report	Replace	SB-101 Project Report	16' 4"	Additional lane	15' / 5'	Replace	SB-101 Project Report	Replace	SB-101 Project Report				
																				4950		4530	
26	Olive Mill Road	OC			Special	15' 0"	Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	17' 5"	Auxiliary lane	15' / 10'	Replace	SB-101 Project Report	Replace	SB-101 Project Report				
																				10560		9664	
27	Hot Springs Road/ Cabrillo Blvd	UC					Additional lane							Auxiliary lane	6' / 10'								
																				21120		21120	
28	Sycamore Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report				Replace	SB-101 Project Report	Replace	SB-101 Project Report				
29	Milpas Street	UC				15'	Additional lane		Replace	Vertically Deficient	Replace	Vertically Deficient			1' / 1'								
30	Calle Cesar Chavez	UC						10' / 10'							10' / 10'								
31	Garden Street	UC						8' / 10'						Auxiliary lane	10' / 10'								
32	State Street	UC						10' / 10'						Auxiliary lane	10' / 10'								
33	Mission Creek	BRIDGE												Auxiliary lane									
34	Castillo Street	UC												Auxiliary lane									

Alternative C - HOV South/
Aux Lanes North +
Commuter Rail

Bridges

						NORTHBOUND							SOUTHBOUND							Alternative C (AUX/HOV)			
						Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Full		Red/Full	
ry Lanes and HOV Lanes	Bridges	Structure Type	Span	Abut.	Type	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Bridge Area (ft^2)	Retaining Wall (ft^2)	Bridge Area (ft^2)	Retaining Wall (ft^2)
35	Ortega Pedestrian Crossing	PED OC	2	C	Special	19' 1"		10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	18' 9"	Auxiliary lane	10' / 12'	Replace	Horizontally Deficient	Replace	Horizontally Deficient				
36	Carrillo Street	UC					Additional lane							Additional lane									
37	Anapamu Pedestrian Crossing	PED OC	2	C	Special	18' 9"	Additional lane	10' / 20'					15' 9"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient				
38	Michel Torena Street	OC	3	O	B	17' 2"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall	17' 2"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall				
																					1144		1144
39	Mission Street	UC					Additional lane	8' / 8'						Additional lane									
40	Junipero Pedestrian Crossing	PED OC	2	C	Special	21' 0"	Additional lane	4' / 8'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	19' 2"	Additional lane		Replace	Horizontally Deficient	Replace	Horizontally Deficient				
																				5730		5730	
41	Las Positas Road	OC	2	O	B	15' 5"	Additional lane	4' / 8'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 6"	Additional lane	15' / 5'	Replace	Vertically Deficient	Replace	Vertically Deficient				
42	Hope Avenue	UC					Additional lane							Additional lane									
43	Arroyo Burro Creek	BRIDGE					Additional lane							Additional lane									
44	Modoc Road/ La Cumbre Road	OC	2	O	B	17' 1"	Additional lane	8' / 10'	Save	Retaining Wall	Save	Retaining Wall	18' 3"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall				
45	State Street	OC	2	C	B	15' 0"	Additional lane	8' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient	15' 3"	Additional lane	8' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient				
46	154/ San Marco Pass Road	SEPARATION	2	C	B	17' 8"	Additional lane	8' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	17' 10"	Additional lane	10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient				
47	Cieneguitas Creek	BRIDGE					Additional lane							Additional lane									
48	Atascadero Creek	BRIDGE					Additional lane							Additional lane									
49	Turnpike Road	OC	2	O	B	17' 5"	Additional lane	10' / 25'					16' 2"	Additional lane	10' / 15'								
50	Maria Ygnacio Creek	BRIDGE					Additional lane							Additional lane									
51	Patterson Avenue	OC	2	O	B	19' 5"	Additional lane	8' / 10'	Save	Retaining Wall	Save	Retaining Wall	17' 2"	Additional lane	8' / 8'	Save	Retaining Wall	Save	Retaining Wall				
																					2266		2266
52	217 / Ward Memorial Blvd	SEPARATION				18' 1"							15' 0"		8' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient				
53	San Jose Creek	BRIDGE																					
54	Fairview Avenue	OC	2	O	B	23' 6"	Auxiliary lane	3' / 10'	Save	Retaining Wall	Save	Retaining Wall	20' 11"		8' / 10'	Save	Retaining Wall	Save	Retaining Wall				
55	Las Vegas Creek	BRIDGE					Auxiliary lane																
56	San Pedro Creek	BRIDGE					Auxiliary lane																
57	Caneros Creek	BRIDGE					Auxiliary lane																
58	Los Carneros Road	OC	2	O	T	18' 9"	Auxiliary lane	15' / 10'					16' 6"		10' / 12'								
59	Glen Annie Creek	BRIDGE																					
60	Glen Annie Road/ Storke Road	OC	2	O	B	21' 8"		8' / 15'					17' 7"		20' / 20'								
61	Hollister Avenue	OC	2	O	T	16' 2"		15' / 10'					16' 2"		20' / 10'								
62	Winchester Canyon Creek	BRIDGE																					

Alternative C - HOV South/ Aux Lanes North + Commuter Rail

Ramp Metering

Alternative	101 in Motion Freeway On-Ramps Potential Ramp Metering Locations						Peak Volumes per Location Info and Specifications According to Volumes																				
Ramp No.	Interchange	Type	On-Ramp	Lanes	Length (ft)	Comments	Vol. at 1pm	Vol. at 1 am	Greater	Required # of Lanes for Peak Vol.	Additions Needed	Area of Pavement	3 Lane extra 30m area	Total Length	CHP Enforcement	Total Area	Signal Cost	Pavement Removal ($1.5 /sqft)	Earthwork/ Grading ($15 /cuyd)	Pavement Construct ($6 /sqft)	Shoulder Construction ($3.5 /sqft)	Retaining Wall ($200 /linft)	Overlay of Ex. Pavement ($1 sqft)	Sum	Sheet Total	Drainage (10% of roadway cost)	Sheet Total + Drainage
1	Bates	Diamond	WB	2 to 1	410		0	468	468	2	1	4100		410	604	4704	$ 15,000	$ 6,150	$ 16,400	$ 28,223	$ 14,350	$ 61,500	$ 4,704	$ 146,327	$ 4,453,705	$445,371	$ 4,899,076
2		Diamond	EB	1	780	*2 volumes for 1 onramp (greater given here)	1323	0	1323	3	2	15600	1181	878	604	17385	$ 35,000	$ 23,400	$ 140,547	$ 104,309	$ 30,745	$ 131,763	$ 17,385	$ 483,149			
3	Rincon Road	Diamond	WB	1	690		62	4	62	2	1	6900		690	604	7504	$ 15,000	$ 10,350	$ 27,600	$ 45,023	$ 24,150	$ 103,500	$ 7,504	$ 233,127			
4		Diamond	EB	1	830		29	0	29	2	1	8300		830	604	8904	$ 15,000	$ 12,450	$ 33,200	$ 53,423	$ 29,050	$ 124,500	$ 8,904	$ 276,527			
5	Bailard Avenue	Diamond	WB	1	660		550	374	550	3	2	13200	1181	758	604	14985	$ 35,000	$ 19,800	$ 121,347	$ 89,909	$ 26,545	$ 113,763	$ 14,985	$ 421,349			
6		Diamond	EB	1	430		203	27	203	2	1	4300		430	604	4904	$ 15,000	$ 6,450	$ 17,200	$ 29,423	$ 15,050	$ 64,500	$ 4,904	$ 152,527			
7	Casitas Pass Road	Diamond	WB	1	350	Ramp begins from Via Real	298	0	298	2	1	3500		350	604	4104	$ 15,000	$ 5,250	$ 14,000	$ 24,623	$ 12,250	$ 52,500	$ 4,104	$ 127,727			
8		Diamond	EB	1	440		47	13	47	2	1	4400		440	604	5004	$ 15,000	$ 6,600	$ 17,600	$ 30,023	$ 15,400	$ 66,000	$ 5,004	$ 155,627			
9	Linden Avenue	Loop	WB	1	560	*EB onramp volume supplied (doesn't exist)	804	598	804	3	2	11200	1181	658	604	12985	$ 35,000	$ 16,800	$ 105,347	$ 77,909	$ 23,045	$ 98,763	$ 12,985	$ 369,849			
10	Reynolds Avenuew	Partial Diamond	EB	1	160		235	185	235	2	1	1600		160	604	2204	$ 15,000	$ 2,400	$ 6,400	$ 13,223	$ 5,600	$ 24,000	$ 2,204	$ 68,827			
11	Santa Monica Road	Diamond	WB	1	210		498	548	548	3	2	4200	1181	308	604	5985	$ 35,000	$ 6,300	$ 49,347	$ 35,909	$ 10,795	$ 46,263	$ 5,985	$ 189,599			
12	South Padaro Lane	Diamond	WB	1	840		214	185	214	2	1	8400		840	604	9004	$ 15,000	$ 12,600	$ 33,600	$ 54,023	$ 29,400	$ 126,000	$ 9,004	$ 279,627			
13		Diamond	EB	1	60	Ramp begins from Santa Claus Lane	198	0	198	2	1	600		60	604	1204	$ 15,000	$ 900	$ 2,400	$ 7,223	$ 2,100	$ 9,000	$ 1,204	$ 37,827			
14	North Padaro Lane	Diamond	WB	1	530		19	3	19	2	1	5300		530	604	5904	$ 15,000	$ 7,950	$ 21,200	$ 35,423	$ 18,550	$ 79,500	$ 5,904	$ 183,527			
15		Diamond	EB	1	520		116	95	116	2	1	5200		520	604	5804	$ 15,000	$ 7,800	$ 20,800	$ 34,823	$ 18,200	$ 78,000	$ 5,804	$ 180,427			
16	Evans Avenue	Diamond	WB	2 to 1	130	Ramp begins from Ortega Hill Road	153	84	153	2	1	1300		130	604	1904	$ 15,000	$ 1,950	$ 5,200	$ 11,423	$ 4,550	$ 19,500	$ 1,904	$ 59,527			
17		Diamond	EB	1	270	Ramp begins from Wallace Avenue	89	25	89	2	1	2700		270	604	3304	$ 15,000	$ 4,050	$ 10,800	$ 19,823	$ 9,450	$ 40,500	$ 3,304	$ 102,927			
18	Sheffield Drive	Diamond	WB	1	340		178	288	288	2	1	3400		340	604	4004	$ 15,000	$ 5,100	$ 13,600	$ 24,023	$ 11,900	$ 51,000	$ 4,004	$ 124,627			
19		Diamond	EB	1	510	Merges on left side of 101	261	110	261	2	1	5100		510	604	5704	$ 15,000	$ 7,650	$ 20,400	$ 34,223	$ 17,850	$ 76,500	$ 5,704	$ 177,327			
20	Ysidro Road	Diamond	WB	1	380		482	433	482	2	1	3800		380	604	4404	$ 15,000	$ 5,700	$ 15,200	$ 26,423	$ 13,300	$ 57,000	$ 4,404	$ 137,027			
21		Diamond	EB	1	1700	Ramp includes S. Jameson Ln	264	157	264	2	1	17000		1700	604	17604	$ 15,000	$ 25,500	$ 68,000	$ 105,623	$ 59,500	$ 255,000	$ 17,604	$ 546,227			
22	Olive Mill Road	Partial Diamond	EB	1	760	Ramp begins north side and crosses over 101	223	253	253	2	1	7600		760	604	8204	$ 15,000	$ 11,400	$ 30,400	$ 49,223	$ 26,600	$ 114,000	$ 8,204	$ 254,827	$ 254,827	$ 25,483	$ 280,310
23	Hot Springs Road / Cabrillo Blvd.	Diamond	WB	1	530		675	555	675	3	2	10600	1181	628	604	12385	$ 35,000	$ 15,900	$ 100,547	$ 74,309	$ 21,995	$ 94,263	$ 12,385	$ 354,399	$ 1,389,351	$138,935	$ 1,528,287
24		Diamond	EB	1	550	Merges on left side of 101	No Data	No Data	0	0	0	0		550	604	604	$ -	$ -	$ -	$ 3,623	$ 19,250	$ 82,500	$ 604	$ 105,977			
25	Salinas Street	Partial Diamond	WB	1	100		397	421	421	2	1	1000		100	604	1604	$ 15,000	$ 1,500	$ 4,000	$ 9,623	$ 3,500	$ 15,000	$ 1,604	$ 50,227			
26	Milpas Street	Diamond	WB	1	350	Ramp begins from roundabout	1036	796	1036	3	2	7000	1181	448	604	8785	$ 35,000	$ 10,500	$ 71,747	$ 52,709	$ 15,695	$ 67,263	$ 8,785	$ 261,699			
27		Diamond	EB	1	1040		1308	444	1308	3	2	20800	1181	1138	604	22585	$ 35,000	$ 31,200	$ 182,147	$ 135,509	$ 39,845	$ 170,763	$ 22,585	$ 617,049			
28	Garden Street	Diamond	WB	1	360		895	349	895	3	2	7200	1181	458	604	8985	$ 35,000	$ 10,800	$ 73,347	$ 53,909	$ 16,045	$ 68,763	$ 8,985	$ 266,849	$ 1,015,897	$101,590	$ 1,117,486
29		Diamond	EB	1	480		891	515	891	3	2	9600	1181	578	604	11385	$ 35,000	$ 14,400	$ 92,547	$ 68,309	$ 20,245	$ 86,763	$ 11,385	$ 328,649			
30	Castillo Street	Diamond	WB	1	120		1189	781	1189	3	2	2400	1181	218	604	4185	$ 35,000	$ 3,600	$ 34,947	$ 25,109	$ 7,645	$ 32,763	$ 4,185	$ 143,249			
31		Diamond	EB	2 to 1	380		857	473	857	3	2	7600	1181	478	604	9385	$ 35,000	$ 11,400	$ 76,547	$ 56,309	$ 16,745	$ 71,763	$ 9,385	$ 277,149			
32	Carrillo Street	Diamond	WB	1	480		1696	977	1696	3	2	9600	1181	578	604	11385	$ 35,000	$ 14,400	$ 92,547	$ 68,309	$ 20,245	$ 86,763	$ 11,385	$ 328,649	$ 5,065,664	$506,566	$ 5,572,230
33		Diamond	EB	1	450		878	722	878	3	2	9000	1181	548	604	10785	$ 35,000	$ 13,500	$ 87,747	$ 64,709	$ 19,195	$ 82,263	$ 10,785	$ 313,199			
34	Arrellaga Street	Partial Diamond	WB	1	210		688	563	688	3	2	4200	1181	308	604	5985	$ 35,000	$ 6,300	$ 49,347	$ 35,909	$ 10,795	$ 46,263	$ 5,985	$ 189,599			
35	Mission Street	Diamond	WB	2 to 1	400		902	814	902	3	2	8000	1181	498	604	9785	$ 35,000	$ 12,000	$ 79,747	$ 58,709	$ 17,445	$ 74,763	$ 9,785	$ 287,449			
36		Diamond	EB	1	410		853	427	853	3	2	8200	1181	508	604	9985	$ 35,000	$ 12,300	$ 81,347	$ 59,909	$ 17,795	$ 76,263	$ 9,985	$ 292,599			
37	Las Positas Road	Diamond	WB	1	60	Ramp begins from Calle Real	987	1027	1027	3	2	1200	1181	158	604	2985	$ 35,000	$ 1,800	$ 25,347	$ 17,909	$ 5,545	$ 23,763	$ 2,985	$ 112,349			
38		Diamond	EB	1	730		782	579	782	3	2	14600	1181	828	604	16385	$ 35,000	$ 21,900	$ 132,547	$ 98,309	$ 28,995	$ 124,263	$ 16,385	$ 457,399			
39	S. Hope Ave	Partial Diamond	WB	1	210		357	201	357	2	1	2100		210	604	2704	$ 15,000	$ 3,150	$ 8,400	$ 16,223	$ 7,350	$ 31,500	$ 2,704	$ 84,327			
40	La Cumbre Road	Partial Diamond	EB	2 to 1	580		1044	780	1044	3	2	11600	1181	678	604	13385	$ 35,000	$ 17,400	$ 108,547	$ 80,309	$ 23,745	$ 101,763	$ 13,385	$ 380,149			
41	State Street	Partial Diamond	WB	2	660		889	821	889	3	1	6600	1181	758	604	8385	$ 35,000	$ 9,900	$ 30,337	$ 50,309	$ 26,545	$ 113,763	$ 8,385	$ 274,239			
42	SR 154 / San Marcos Pass Road	Partial Diamond	EB	2	580		1116	962	1116	3	1	5800	1181	678	604	7585	$ 35,000	$ 8,700	$ 27,137	$ 45,509	$ 23,745	$ 101,763	$ 7,585	$ 249,439			
43	El Sueno Road	Partial Diamond	WB	1	180		414	475	475	2	1	1800		278	604	2404	$ 15,000	$ 2,700	$ 11,137	$ 14,423	$ 9,745	$ 41,763	$ 2,404	$ 97,171			
44	Turnpike Road	Diamond	WB	1	680		609	490	609	3	2	13600	1181	778	604	15385	$ 35,000	$ 20,400	$ 124,547	$ 92,309	$ 27,245	$ 116,763	$ 15,385	$ 431,649			
45		Diamond	EB	1	850		948	1074	1074	3	2	17000	1181	948	604	18785	$ 35,000	$ 25,500	$ 151,747	$ 112,709	$ 33,195	$ 142,263	$ 18,785	$ 519,199			
46	Patterson Avenue / SR 271 Ward Memorial	Diamond	WB	1	1640	Interchanges overlap	468	320	468	2	1	16400		1640	604	17004	$ 35,000	$ 24,600	$ 65,600	$ 102,023	$ 57,400	$ 246,000	$ 17,004	$ 547,627			
47		Diamond	EB	2	1040	Interchanges overlap	1392	935	1392	3	1	10400	1181	1621	604	12185	$ 35,000	$ 15,600	$ 64,840	$ 73,109	$ 56,735	$ 243,150	$ 12,185	$ 500,619			
48	Fairview Avenue	Loop	WB	2	910		1188	249	1188	3	1	9100	1181	1008	604	10885	$ 35,000	$ 13,650	$ 40,337	$ 65,309	$ 35,295	$ 151,263	$ 10,885	$ 351,739	$ 2,420,322	$242,032	$ 2,662,354
49		Partial Diamond	EB	2	590		1131	697	1131	3	1	5900	1181	688	604	7685	$ 35,000	$ 8,850	$ 27,537	$ 46,109	$ 24,095	$ 103,263	$ 7,685	$ 252,539			
50	Los Carneros Road	Diamond	WB	2 to 1	880		610	135	610	3	2	17600	1181	978	604	19385	$ 35,000	$ 26,400	$ 156,547	$ 116,309	$ 34,245	$ 146,763	$ 19,385	$ 534,649			
51		Diamond	EB	2	1060		1178	588	1178	3	1	10600	1181	1158	604	12385	$ 35,000	$ 15,900	$ 46,337	$ 74,309	$ 40,545	$ 173,763	$ 12,385	$ 398,239			
52	Glen Annie Road	Loop	WB	2	900		978	282	978	3	1	9000	1181	998	604	10785	$ 35,000	$ 13,500	$ 39,937	$ 64,709	$ 34,945	$ 149,763	$ 10,785	$ 348,639			
53		Diamond	EB	2	620		1603	1781	1781	3	1	6200	1181	718	604	7985	$ 35,000	$ 9,300	$ 28,737	$ 47,909	$ 25,145	$ 107,763	$ 7,985	$ 261,839			
54	Hollister Avenue	Diamond	WB	1	450	No aerial photo for this interchange	No Data	No Data	0	0	0	0	1181	548	604	1785	$ -	$ -	$ -	$ 10,709	$ 19,195	$ 82,263	$ 1,785	$ 113,952			
55		Diamond	EB	1	450	No aerial photo for this interchange	266	362	362	2	1	4500		450	604	5104	$ 15,000	$ 6,750	$ 18,000	$ 30,623	$ 15,750	$ 67,500	$ 5,104	$ 158,727			
																											$ 16,059,743

Alternative C - HOV South/ Aux Lanes North + Commuter Rail

US Route 101 Widening - Northbound Auxiliary Lane from Glen Annie to Fairview (2.12 Miles - Between Ramps)

67.4% of roadway to add auxiliary lane

Alternative C – Auxiliary Lanes and HOV Lanes				Full Standard		Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	60,509	$ 90,764	$ 42,813	60,509	$ 90,764	$ 42,813
Earthwork / Grading	$ 15.00	/cu yd	12,326	$ 184,889	$ 87,212	12,326	$ 184,889	$ 87,212
Pavement Construction	$ 6	/sq ft	90,764	$ 544,581	$ 256,878	90,764	$ 544,581	$ 256,878
Shoulder Construction	$ 3.50	/sq ft	75,636	$ 264,727	$ 124,871	75,636	$ 264,727	$ 124,871
Retaining Wall	$ 312	/lineal foot	7,564	$ 2,359,852	$ 1,113,138	7,564	$ 2,359,852	$ 1,113,138
Soundwall	$ 200	/lineal foot	2,700	$ 540,000	$ 254,717	2,700	$ 540,000	$ 254,717
Interchange Modification	$ 500,000	/ramp	2	$ 1,000,000	$ 471,698	2	$ 1,000,000	$ 471,698
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	1	$ 250,000	$ 117,925	1	$ 250,000	$ 117,925
	ROADWAY ITEMS			$ 5,234,812	$ 2,469,251		$ 5,234,812	$ 2,469,251
Other Items								
Landscaping	5% of roadway cost			$ 261,741	$ 123,463		$ 261,741	$ 123,463
Water Quality	5% of roadway cost			$ 261,741	$ 123,463		$ 261,741	$ 123,463
Traffic Items	20% of roadway cost			$ 1,046,962	$ 493,850		$ 1,046,962	$ 493,850
Drainage	10% of roadway cost			$ 523,481	$ 246,925		$ 523,481	$ 246,925
Specialty Items	20% of roadway cost			$ 1,046,962	$ 493,850		$ 1,046,962	$ 493,850
	OTHER ITEMS			$ 3,140,887	$ 1,481,551		$ 3,140,887	$ 1,481,551
Enforcement Areas				$ -	$ -		$ -	$ -
Ramp Metering Improvement				$ 2,662,354	$ 1,255,827		$ 2,662,354	$ 1,255,827
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -		$ -	$ -
	SUBTOTAL			**$ 11,038,054**	**$ 5,206,629**		**$ 11,038,054**	**$ 5,206,629**
Minor Items (5%)				$ 551,903	$ 260,331		$ 551,903	$ 260,331
Mobilization (10%)				$ 1,158,996	$ 546,696		$ 1,158,996	$ 546,696
Roadway Additions								
Supplemental Work Items (5%)				$ 579,498	$ 273,348		$ 579,498	$ 273,348
General Contingency (50%)				$ 5,794,978	$ 2,733,480		$ 5,794,978	$ 2,733,480
Total Roadway Additions				$ 6,374,476	$ 3,006,828		$ 6,374,476	$ 3,006,828
	TOTAL ROADWAY ITEMS			**$ 19,123,428**	**$ 9,020,485**		**$ 19,123,428**	**$ 9,020,485**
Structures								
Overpass Removal & Replacement	$ 175	/sq ft	0	$ -	$ -	0	$ -	$ -
US 101 Bridge Widening	$ 200	/sq ft	2,100	$ 420,000	$ 198,113	2,100	$ 420,000	$ 198,113
Retaining Wall	$ 80	/sq ft	0	$ -	$ -	0	$ -	$ -
	TOTAL STRUCTURAL ITEMS			$ 420,000	$ 198,113		$ 420,000	$ 198,113
	SUBTOTAL EST. CAPITAL COST			**$ 19,543,428**	**$ 9,218,598**		**$ 19,543,428**	**$ 9,218,598**
Right-of-Way Acquisition	$ 60	/sq ft	12,600	$ 756,000	$ 356,604	12,600	$ 756,000	$ 356,604
	TOTAL EST. RIGHT-OF-WAY COST			**$ 756,000**	**$ 356,604**		**$ 756,000**	**$ 356,604**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 977,171	$ 460,930		$ 977,171	$ 460,930
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,954,343	$ 921,860		$ 1,954,343	$ 921,860
Construction Engineering & Administration	15% of Capital Cost			$ 2,931,514	$ 1,382,790		$ 2,931,514	$ 1,382,790
	SUBTOTAL EST. PROJECT DEV. COST			**$ 5,863,028**	**$ 2,765,579**		**$ 5,863,028**	**$ 2,765,579**
	TOTAL ESTIMATED PROJECT COST			**$ 26,162,457**	**$ 12,340,781**		**$ 26,162,457**	**$ 12,340,781**

Alternative C - HOV South/ Aux Lanes North + Commuter Rail

US Route 101 Widening - Northbound Auxiliary and Partial Southbound Auxiliary Lane from Patterson to Carillo (6.3 Miles)

6.7%	of roadway Auxiliary Lanes on both sides
36.7%	of roadway NB Auxiliary Lane

Alternative C – Auxiliary Lanes and HOV Lanes	Cost per Unit	Unit	Full Standard: Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Combination of Full Standard and Reduced Cross-Sections: Quantity	Combination: Estimated Total Cost	Combination: Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	264,451	$ 396,677	$ 62,965	264,451	$ 396,677	$ 62,965
Earthwork / Grading	$ 15.00	/cu yd	43,249	$ 648,732	$ 102,973	43,249	$ 648,732	$ 102,973
Pavement Construction	$ 6	/sq ft	264,451	$ 1,586,708	$ 251,858	264,451	$ 1,586,708	$ 251,858
Shoulder Construction	$ 3.50	/sq ft	264,451	$ 925,580	$ 146,917	264,451	$ 925,580	$ 146,917
Retaining Wall	$ 312	/lineal foot	12,396	$ 3,867,602	$ 613,905	12,396	$ 3,867,602	$ 613,905
Soundwall	$ 200	/lineal foot	10,000	$ 2,000,000	$ 317,460	10,000	$ 2,000,000	$ 317,460
Interchange Modification	$ 500,000	/ramp	27	$ 13,500,000	$ 2,142,857	27	$ 13,500,000	$ 2,142,857
Overlay of Existing Pavement	$ 1	/sq ft	595,016	$ 595,016	$ 94,447	595,016	$ 595,016	$ 94,447
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	8	$ 2,000,000	$ 317,460	8	$ 2,000,000	$ 317,460
ROADWAY ITEMS				$ 25,520,315	$ 4,050,844		$ 25,520,315	$ 4,050,844
Other Items								
Landscaping	5% of roadway cost			$ 1,276,016	$ 202,542		$ 1,276,016	$ 202,542
Water Quality	5% of roadway cost			$ 1,276,016	$ 202,542		$ 1,276,016	$ 202,542
Traffic Items	20% of roadway cost			$ 5,104,063	$ 810,169		$ 5,104,063	$ 810,169
Drainage	10% of roadway cost			$ 2,552,031	$ 405,084		$ 2,552,031	$ 405,084
Specialty Items	20% of roadway cost			$ 5,104,063	$ 810,169		$ 5,104,063	$ 810,169
OTHER ITEMS				$ 15,312,189	$ 2,430,506		$ 15,312,189	$ 2,430,506
Enforcement Areas				$ -	$ -		$ -	$ -
Ramp Metering Improvement				$ 5,572,230	$ 884,481		$ 5,572,230	$ 884,481
217 Ramp EB Improvements included								
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -		$ -	$ -
SUBTOTAL				**$ 46,404,734**	**$ 42,186,122**		**$ 46,404,734**	**$ 7,365,831**
Minor Items (5%)				$ 2,320,237	$ 368,292		$ 2,320,237	$ 368,292
Mobilization (10%)				$ 4,872,497	$ 773,412		$ 4,872,497	$ 773,412
Roadway Additions								
Supplemental Work Items (5%)				$ 2,436,249	$ 386,706		$ 2,436,249	$ 386,706
General Contingency (50%)				$ 24,362,485	$ 3,867,061		$ 24,362,485	$ 3,867,061
Total Roadway Additions				$ 26,798,734	$ 4,253,767		$ 26,798,734	$ 4,253,767
TOTAL ROADWAY ITEMS				**$ 80,396,201**	**$ 12,761,302**		**$ 80,396,201**	**$ 12,761,302**
Structures								
Overpass Removal & Replacement	$ 175	/sq ft	5,730	$ 1,002,750	$ 159,167	5,730	$ 1,002,750	$ 159,167
US 101 Bridge Widening	$ 200	/sq ft	2,250	$ 450,000	$ 71,429	2,250	$ 450,000	$ 71,429
Retaining Wall	$ 80	/sq ft	1,144	$ 91,520	$ 14,527	1,144	$ 91,520	$ 14,527
TOTAL STRUCTURAL ITEMS				$ 1,544,270	$ 245,122		$ 1,544,270	$ 245,122
SUBTOTAL EST. CAPITAL COST				**$ 81,940,471**	**$ 38,651,166**		**$ 81,940,471**	**$ 13,006,424**
Right-of-Way Acquisition	$ 60	/sq ft	445,905	$ 26,754,300	$ 4,246,714	445,905	$ 26,754,300	$ 4,246,714
TOTAL EST. RIGHT-OF-WAY COST				**$ 26,754,300**	**$ 4,246,714**		**$ 26,754,300**	**$ 4,246,714**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 4,097,024	$ 650,321		$ 4,097,024	$ 650,321
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 8,194,047	$ 1,300,642		$ 8,194,047	$ 1,300,642
Construction Engineering & Administration	15% of Capital Cost			$ 12,291,071	$ 1,950,964		$ 12,291,071	$ 1,950,964
TOTAL EST. PROJECT DEV. COST				**$ 24,582,141**	**$ 3,901,927**		**$ 24,582,141**	**$ 3,901,927**
TOTAL ESTIMATED PROJECT COST				**$ 133,276,913**	**$ 21,155,066**		**$ 133,276,913**	**$ 21,155,066**

Alternative C - HOV South/ Aux Lanes North + Commuter Rail

US Route 101 Widening - Southbound Auxilliary Lanes from Carillo to Garden (1.27 Miles - Between Ramps)

Alternative C – Auxiliary Lanes and HOV Lanes

69% of roadway to add auxiliary lane

25% of roadway to add full standard auxiliary lane

44% of roadway to add reduced Cross-Section auxiliary lane

	Cost per Unit	Unit	Full Standard: Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Combination of Full Standard and Reduced Cross Sections: Quantity	Combination: Estimated Total Cost	Combination: Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	67,054	$ 100,580	$ 79,197	44,767	$ 67,151	$ 52,875
Earthwork / Grading	$ 15.00	/cu yd	8,806	$ 132,090	$ 104,008	74,666	$ 1,119,986	$ 881,879
Pavement Construction	$ 6	/sq ft	55,569	$ 333,415	$ 262,532	37,100	$ 222,600	$ 175,275
Shoulder Construction	$ 3.50	/sq ft	51,494	$ 180,230	$ 141,913	34,379	$ 120,327	$ 94,746
Retaining Wall	$ 312	/lineal foot	4,631	$ 1,444,800	$ 1,137,638	4,637	$ 1,446,897	$ 1,139,289
Soundwall	$ 200	/lineal foot	2,500	$ 500,000	$ 393,701	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	4	$ 2,000,000	$ 1,574,803	0	$ -	$ -
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	20,400	$ 102,000	$ 80,315	20,400	$ 102,000	$ 80,315
Utility Relocations	$ 250,000	/overpass	0	$ -	$ -	0	$ -	$ -
ROADWAY ITEMS				$ 4,793,115	$ 3,774,106		$ 3,078,961	$ 2,424,379
Other Items								
Landscaping	10% of roadway cost			$ 479,312	$ 377,411		$ 307,896	$ 242,438
Water Quality	5% of roadway cost			$ 239,656	$ 188,705		$ 153,948	$ 121,219
Traffic Items	20% of roadway cost			$ 958,623	$ 754,821		$ 615,792	$ 484,876
Drainage	10% of roadway cost			$ 479,312	$ 377,411		$ 307,896	$ 242,438
Specialty Items	20% of roadway cost			$ 958,623	$ 754,821		$ 615,792	$ 484,876
OTHER ITEMS				$ 3,115,525	$ 2,453,169		$ 2,001,325	$ 1,575,846
Enforcement Areas				$ -	$ -		$ -	$ -
Ramp Metering Improvement				$ 1,117,486	$ 879,910		$ 1,117,486	$ 879,910
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -		$ -	$ -
SUBTOTAL				**$ 9,026,126**	**$ 7,107,186**		**$ 6,197,771**	**$ 4,880,135**
Minor Items (5%)				$ 451,306	$ 355,359		$ 309,889	$ 244,007
Mobilization (10%)				$ 473,872	$ 373,127		$ 650,766	$ 512,414
Roadway Additions								
Supplemental Work Items (5%)				$ 947,743	$ 746,255		$ 325,383	$ 256,207
General Contingency (50%)				$ 4,738,716	$ 3,731,273		$ 3,253,830	$ 2,562,071
Total Roadway Additions				$ 5,686,459	$ 4,477,527		$ 3,579,213	$ 2,818,278
TOTAL ROADWAY ITEMS				**$ 15,637,764**	**$ 12,313,200**		**$ 10,737,639**	**$ 8,454,834**
Structures								
Overpass Removal & Replacement	$ 175	/sq ft	3,900	$ 682,500	$ 537,402	3,900	$ 682,500	$ 537,402
US 101 Bridge Widening	$ 200	/sq ft	0	$ -	$ -	0	$ -	$ -
Retaining Wall	$ 80	/sq ft	0	$ -	$ -	0	$ -	$ -
TOTAL STRUCTURAL ITEMS				$ 682,500	$ 537,402		$ 682,500	$ 537,402
SUBTOTAL EST. CAPITAL COST				**$ 16,320,264**	**$ 7,698,238**		**$ 11,420,139**	**$ 8,992,235**
Right-of-Way Acquisition	$ 60	/sq ft	15,000	$ 900,000	$ 708,661	15,000	$ 900,000	$ 708,661
SUBTOTAL EST. RIGHT-OF-WAY COST				**$ 900,000**	**$ 708,661**		**$ 900,000**	**$ 708,661**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 816,013	$ 642,530		$ 571,007	$ 449,612
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,632,026	$ 1,285,060		$ 1,142,014	$ 899,224
Construction Engineering & Administration	15% of Capital Cost			$ 2,448,040	$ 1,927,590		$ 1,713,021	$ 1,348,835
SUBTOTAL EST. PROJECT DEV. COST				**$ 4,896,079**	**$ 3,855,180**		**$ 3,426,042**	**$ 2,697,671**
TOTAL ESTIMATED PROJECT COST				**$ 22,116,343**	**$ 17,414,443**		**$ 15,746,180**	**$ 12,398,567**

Alternative C - HOV South/ Aux Lanes North + Commuter Rail

US Route 101 Widening - Add NB Full-Use Lane from Milpas to Cabrillo/Hot Springs (1.3 Miles)

(This section will be widened from 4 lanes to 6 lanes (NB Aux, SB Lane) by a separate project to be constructed prior to the US 101 widening.)

Alternative C – Auxiliary Lanes and HOV Lanes

	Cost per Unit	Unit	Full Standard: Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Combination of Full Standard and Reduced Cross-Sections: Quantity	Combination: Estimated Total Cost	Combination: Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	0	$ -	$ -	0	$ -	$ -
Earthwork / Grading	$ 15	/cu yd	0	$ -	$ -	0	$ -	$ -
Pavement Construction	$ 6	/sq ft	0	$ -	$ -	0	$ -	$ -
Shoulder Construction	$ 3.50	/sq ft	0	$ -	$ -	0	$ -	$ -
Retaining Wall	$ 312	/lineal foot	0	$ -	$ -	0	$ -	$ -
Soundwall	$ 200	/lineal foot	0	$ -	$ -	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	0	$ -	$ -	0	$ -	$ -
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	0	$ -	$ -	0	$ -	$ -
	ROADWAY ITEMS			$ -	$ -		$ -	$ -
Other Items								
Landscaping	5% of roadway cost			$ -	$ -		$ -	$ -
Water Quality	5% of roadway cost			$ -	$ -		$ -	$ -
Traffic Items	20% of roadway cost			$ -	$ -		$ -	$ -
Drainage	10% of roadway cost			$ -	$ -		$ -	$ -
Specialty Items	20% of roadway cost			$ -	$ -		$ -	$ -
	OTHER ITEMS			$ -	$ -		$ -	$ -
Enforcement Area				$ -	$ -		$ -	$ -
Ramp Metering Improvements				$ 1,528,287	$ 1,175,605		$ 1,528,287	$ 1,175,605
Interchange Reconfiguration	$ 7,500,000	/interchange	1	$ 7,500,000	$ 5,769,231	1	$ 7,500,000	$ 5,769,231
Cabrillo/Hot Springs Interchange (only SB ramps replaced)								
	SUBTOTAL			**$ 9,028,287**	**$ 6,944,836**		**$ 9,028,287**	**$ 6,944,836**
Minor Items (5%)				$ 451,414	$ 347,242		$ 451,414	$ 347,242
Mobilization (10%)				$ 947,970	$ 729,208		$ 947,970	$ 729,208
Roadway Additions								
Supplemental Work Items (5%)				$ 473,985	$ 364,604		$ 473,985	$ 364,604
General Contingency (50%)				$ 4,739,851	$ 3,646,039		$ 4,739,851	$ 3,646,039
Total Roadway Additions				$ 5,213,836	$ 4,010,643		$ 5,213,836	$ 4,010,643
	TOTAL ROADWAY ITEMS			**$ 15,641,507**	**$ 12,031,929**		**$ 15,641,507**	**$ 12,031,929**
Structures								
Overpass Removal & Replacement	$ 175	/sq ft	0	$ -	$ -	0	$ -	$ -
US 101 Bridge Widening	$ 200	/sq ft	0	$ -	$ -	0	$ -	$ -
Retaining Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
	STRUCTURAL ITEMS			$ -	$ -		$ -	$ -
	SUBTOTAL FOR CAPITAL COST			**$ 15,641,507**	**$ 12,031,929**		**$ 15,641,507**	**$ 12,031,929**
Right-of-Way Acquisition	$ 60	/sq ft	0	$ -	$ -	0	$ -	$ -
	SUBTOTAL EST. RIGHT-OF-WAY COST			**$ -**	**$ -**		**$ -**	**$ -**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 782,075	$ 601,596		$ 782,075	$ 601,596
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,564,151	$ 1,203,193		$ 1,564,151	$ 1,203,193
Construction Engineering & Administration	15% of Capital Cost			$ 2,346,226	$ 1,804,789		$ 2,346,226	$ 1,804,789
	SUBTOTAL EST. PROJECT DEV. COST			**$ 4,692,452**	**$ 3,609,579**		**$ 4,692,452**	**$ 3,609,579**
	TOTAL ESTIMATED PROJECT COST			**$ 20,333,959**	**$ 15,641,507**		**$ 20,333,959**	**$ 15,641,507**

Alternative C - HOV South/
Aux Lanes North + Commuter Rail

US Route 101 Widening - Add NB Full-Use Lane and SB Auxiliary Lane from Cabrillo/Hot Springs to Olive Mill (0.9 Miles)

(This section will be widened from 4 lanes to 5 lanes by adding a SB Lane by a separate project to be constructed prior to the US 101 widening.)

Alternative C – Auxiliary Lanes and HOV Lanes

				Full Standard		Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	151,360	$ 227,040	$ 252,267	47,300	$ 70,950	$ 78,833
Earthwork / Grading	$ 15	/cu yd	10,967	$ 164,499	$ 182,777	7,883	$ 118,250	$ 131,389
Pavement Construction	$ 6	/sq ft	132,440	$ 794,640	$ 882,933	141,900	$ 851,400	$ 946,000
Shoulder Construction	$ 3.50	/sq ft	189,200	$ 662,200	$ 735,778	118,250	$ 413,875	$ 459,861
Retaining Wall	$ 312	/lineal foot	9,460	$ 2,951,520	$ 3,279,467	0	$ -	$ -
Soundwall	$ 200	/lineal foot	4,730	$ 946,000	$ 1,051,111	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	4	$ 2,000,000	$ 2,222,222	4	$ 2,000,000	$ 2,222,222
Overlay of Existing Pavement	$ 1	/sq ft	283,800	$ 283,800	$ 315,333	368,940	$ 368,940	$ 409,933
Local Road Relocation/Improvement	$ 5	/sq ft	15,600	$ 78,000	$ 86,667	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	1	$ 250,000	$ 277,778	1	$ 250,000	$ 277,778
ROADWAY ITEMS				$ 8,357,699	$ 9,286,332		$ 4,073,415	$ 4,526,017
Other Items								
Landscaping	5% of roadway cost			$ 417,885	$ 464,317		$ 203,671	$ 226,301
Water Quality	5% of roadway cost			$ 417,885	$ 464,317		$ 203,671	$ 226,301
Traffic Items	20% of roadway cost			$ 1,671,540	$ 1,857,266		$ 814,683	$ 905,203
Drainage	10% of roadway cost			$ 835,770	$ 928,633		$ 407,342	$ 452,602
Specialty Items	20% of roadway cost			$ 1,671,540	$ 1,857,266		$ 814,683	$ 905,203
OTHER ITEMS				$ 5,014,619	$ 5,571,799		$ 2,444,049	$ 2,715,610
Enforcement Area				$ -	$ -		$ 3,418,285	$ 542,585
Ramp Metering Improvements				$ 280,310	$ 311,456		$ 280,310	$ 44,494
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -		$ -	$ -
SUBTOTAL				**$ 13,652,628**	**$ 15,169,587**		**$ 10,216,059**	**$ -**
Minor Items (5%)				$ 682,631	$ 758,479		$ 510,803	$ 567,559
Mobilization (10%)				$ 1,433,526	$ 1,592,807		$ 1,072,686	$ 1,191,874
Roadway Additions								
Supplemental Work Items (5%)				$ 716,763	$ 796,403		$ 536,343	$ 595,937
General Contingency (50%)				$ 7,167,630	$ 7,964,033		$ 5,363,431	$ 5,959,368
Total Roadway Additions				$ 7,884,393	$ 8,760,436		$ 5,899,774	$ 6,555,305
TOTAL ROADWAY ITEMS				**$ 23,653,178**	**$ 26,281,309**		**$ 17,699,322**	**$ 19,665,914**
Structures								
Overpass Removal & Replacement	$ 175	/sq ft	21,120	$ 3,696,000	$ 4,106,667	21,120	$ 3,696,000	$ 4,106,667
US 101 Bridge Widening	$ 200	/sq ft		$ -	$ -		$ -	$ -
Retaining Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
STRUCTURAL ITEMS				$ 3,696,000	$ 4,106,667		$ 3,696,000	$ 4,106,667
SUBTOTAL FOR CAPITAL COST				**$ 27,349,178**	**$ 24,862,889**		**$ 21,395,322**	**$ 23,772,580**
Right-of-Way Acquisition	$ 60	/sq ft	64,281	$ 3,856,860	$ 4,285,400	40,840	$ 2,450,400	$ 2,722,667
SUBTOTAL EST. RIGHT-OF-WAY COST				**$ 3,856,860**	**$ 4,285,400**		**$ 2,450,400**	**$ 2,722,667**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 1,367,459	$ 1,519,399		$ 1,069,766	$ 1,188,629
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 2,734,918	$ 3,038,798		$ 2,139,532	$ 2,377,258
Construction Engineering & Administration	15% of Capital Cost			$ 4,102,377	$ 4,558,196		$ 3,209,298	$ 3,565,887
SUBTOTAL EST. PROJECT DEV. COST				**$ 8,204,754**	**$ 9,116,393**		**$ 6,418,597**	**$ 7,131,774**
TOTAL ESTIMATED PROJECT COST				**$ 39,410,792**	**$ 43,789,769**		**$ 30,264,319**	**$ 33,627,021**

		Realignment Adjustment Factor	
	Quantity	Full Standard	Reduced Standard
Pavement Removal		1.00	1.00

Alternative C - HOV South/ Aux Lanes North + Commuter Rail

US Route 101 Widening - 4 Lanes to 6 Lanes from Olive Mill to SR 150 (9.9 Miles)

19.7% Roadway to use Reduced Cross-Section

80.3% Roadway to use Full Standard

2% of roadway to be realigned

Alternative C – Auxiliary Lanes and HOV Lanes

	Cost per Unit	Unit	Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Combination of Full Standard and Reduced Cross-Sections: Full Quantity	Reduced Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements									
Pavement Removal	$ 1.50	/sq ft	1,352,343	$ 2,028,515	$ 204,900	428,089	103,076	$ 796,747	$ 80,480
Earthwork / Grading	$ 15	/cu yd	154,106	$ 2,311,585	$ 233,493	48,371	11,071	$ 891,631	$ 90,064
Pavement Construction	$ 6	/sq ft	1,676,894	$ 10,061,366	$ 1,016,300	1,182,986	288,614	$ 8,829,599	$ 891,879
Shoulder Construction	$ 3.50	/sq ft	2,082,926	$ 7,290,242	$ 736,388	440,141	103,076	$ 1,901,261	$ 192,047
Retaining Wall	$ 312	/lineal foot	39,310	$ 12,264,629	$ 1,238,851	16,198	3,865	$ 6,259,764	$ 632,299
Soundwall	$ 200	/lineal foot	20,000	$ 4,000,000	$ 404,040	4,366	985	$ 1,070,288	$ 108,110
Interchange Modification	$ 500,000	/ramp	36	$ 18,000,000	$ 1,818,182	36		$ 18,000,000	$ 1,818,182
Overlay of Existing Pavement	$ 1	/sq ft	2,519,659	$ 2,519,659	$ 254,511	1,968,768	494,766	$ 2,463,534	$ 248,842
Local Road Relocation/Improvement	$ 5	/sq ft	127,200	$ 636,000	$ 64,242	54,842	13,782	$ 343,119	$ 34,658
Utility Relocations	$ 250,000	/overpass	6.5	$ 1,625,000	$ 164,141	6.5		$ 1,625,000	$ 164,141
ROADWAY ITEMS				$ 60,736,995	$ 6,135,050			$ 42,180,943	$ 4,260,701
Other Items									
Landscaping	5% of roadway cost			$ 3,036,850	$ 306,753			$ 2,109,047	$ 213,035
Water Quality	5% of roadway cost			$ 3,036,850	$ 306,753			$ 2,109,047	$ 213,035
Traffic Items	20% of roadway cost			$ 12,147,399	$ 1,227,010			$ 8,436,189	$ 852,140
Drainage	10% of roadway cost			$ 6,073,700	$ 613,505			$ 4,218,094	$ 426,070
Specialty Items	20% of roadway cost			$ 12,147,399	$ 1,227,010			$ 8,436,189	$ 852,140
OTHER ITEMS				$ 36,442,197	$ 3,681,030			$ 25,308,566	$ 2,556,421
Enforcement Area				$ -	$ -			$ 3,418,285	$ 345,281
Ramp Metering Improvements				$ 4,899,076	$ 494,856			$ 4,899,076	$ 494,856
Interchange Reconfiguration	$ 15,000,000	/interchange	1	$ 15,000,000	$ 1,515,152		1	$ 15,000,000	$ 1,515,152
Sheffield Interchange									
SUBTOTAL				**$ 117,078,269**	**$ 11,826,088**			**$ 90,806,871**	**$ 9,172,411**
Minor Items (5%)				$ 5,853,913	$ 591,304			$ 4,540,344	$ 458,621
Mobilization (10%)				$ 12,293,218	$ 1,241,739			$ 9,534,721	$ 963,103
Roadway Additions									
Supplemental Work Items (5%)				$ 6,146,609	$ 620,870			$ 4,767,361	$ 481,552
General Contingency (50%)				$ 61,466,091	$ 6,208,696			$ 47,673,607	$ 4,815,516
Total Roadway Additions				$ 67,612,700	$ 6,829,566			$ 52,440,968	$ 5,297,067
TOTAL ROADWAY ITEMS				**$ 202,838,100**	**$ 20,488,697**			**$ 157,322,903**	**$ 15,891,202**
Structures									
Overpass Removal & Replacement	$ 175	/sq ft	120,505	$ 21,088,375	$ 2,130,139	113,173		$ 19,805,275	$ 2,000,533
US 101 Bridge Widening	$ 200	/sq ft	63,750	$ 12,750,000	$ 1,287,879	63,750		$ 12,750,000	$ 1,287,879
Retaining Wall	$ 80	/sq ft		$ -	$ -			$ -	$ -
STRUCTURAL ITEMS				$ 33,838,375	$ 3,418,018			$ 32,555,275	$ 3,288,412
SUBTOTAL FOR CAPITAL COST				**$ 236,676,475**	**$ 215,160,432**			**$ 189,878,178**	**$ 19,179,614**
Right-of-Way Acquisition	$ 60	/sq ft	441,384	$ 26,483,040	$ 2,675,055	354,431	83,052	$ 26,249,004	$ 2,651,415
SUBTOTAL EST. RIGHT-OF-WAY COST				**$ 26,483,040**	**$ 2,675,055**			**$ 26,249,004**	**$ 2,651,415**
Project Development									
Preliminary Engineering & Environmental	5% of Capital Cost			$ 11,833,824	$ 1,195,336			$ 9,493,909	$ 958,981
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 23,667,648	$ 2,390,671			$ 18,987,818	$ 1,917,961
Construction Engineering & Administration	15% of Capital Cost			$ 35,501,471	$ 3,586,007			$ 28,481,727	$ 2,876,942
SUBTOTAL EST. PROJECT DEV. COST				**$ 71,002,943**	**$ 7,172,014**			**$ 56,963,453**	**$ 5,753,884**
TOTAL ESTIMATED PROJECT COST				**$ 334,162,458**	**$ 33,753,784**			**$ 273,090,636**	**$ 27,584,913**

Appendix C-3

Alternative D – General Purpose Lanes

Widening of US 101 from Winchester Canyon Road to Bates Road (Santa Barbara / Ventura County Line)

Rough Order of Magnitude Cost Estimate

Cost Summary

"Full Standard": $549M to $671M
Combination of "Full Standard" and Reduced Cross-Sections: $478M to $585M

Route 101 Implementation Plan
Rough Order of Magnitude Cost Estimate

Alternative D - General Purpose Lanes

General Assumptions

1. Costs are in 2004 dollars using data from Caltrans Cost Data Books and are based on general assumptions regarding typical section, existing features and right of way based on limited available data. No design plans were available nor design analysis performed that would allow refined cost estimating based on the assumed typical sections. The cost estimate is a rough order of magnitude for general comparison purposes between alternatives and is not intended to reflect the precise cost of any specific facility.

2. The "Full Standard" option is proposed to be in general compliance with Caltrans highway design standards. Nonstandard features may be included in this option as necessary to meet project requirements. Other nonstandard features may be identified in further design stages.

3. This estimate assumes the following improvements to various portions of the US 101: Refer to Appendix Table 5.2, Alt D, except for Cabrillo/ Hot Springs interchange where only the SB half of interchange is to be reconstructed.

4. A proposed alignment utilizing a combination of symmetrical widening (maintaining the existing centerline) and asymmetrical widening (shifting the existing centerline) was developed as an approach to minimizing anticipated impacts to widening.

5. Right of way estimates are based on an assumed uniform width throughout the alignment given the limitations noted above.

6. No special environmental mitigation (groundwater, hazardous waste) measures, nor any major railroad modification work are included in the rough order of magnitude cost estimate.

7. Ramp metering improvement costs are based on sketch level planning assumptions. Site specific storage assessments performed as part of any project may also identify additional storage needs and/or other site specific design requirements.

8. The disposition of each bridge is based on a limited visual assessment for this estimate.

Alternative D - General Purpose Lanes

Summary of Costs for US 101 Widening

	Los Carneros to Fairview NB Auxiliary Lane		Patterson to Carillo 6-Lane to 8-Lane		Carillo to Garden SB Auxiliary Lane		Milpas to Cabrillo/Hot Springs 4-Lane to 6-Lane		Cabrillo/Hot Springs to Olive Mill 4-Lane to 6-Lane		Olive Mill to SR-150 4-Lane to 6-Lane		**Total Cost**	
	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections	Full Standard	Combination of Full Standard and Reduced Cross-Sections
Roadway-Related Improvements														
Pavement Removal	$ 68,400	$ 68,400	$ 1,784,254	$ 1,686,253	$ 100,580	$ 67,151	$ -	$ -	$ 212,850	$ 106,425	$ 2,028,515	$ 796,747	$ 4,194,599	$ 2,724,977
Earthwork / Grading	$ 139,333	$ 139,333	$ 4,577,945	$ 3,846,674	$ 132,090	$ 1,119,986	$ -	$ -	$ 104,586	$ 148,469	$ 1,305,400	$ 863,447	$ 6,259,354	$ 6,117,910
Pavement Construction	$ 410,400	$ 410,400	$ 8,434,541	$ 7,830,798	$ 333,415	$ 222,600	$ -	$ -	$ 681,120	$ 737,880	$ 7,546,025	$ 8,777,792	$ 17,405,501	$ 17,979,470
Shoulder Construction	$ 199,500	$ 199,500	$ 2,795,976	$ 2,665,442	$ 180,230	$ 120,327	$ -	$ -	$ 662,200	$ 413,875	$ 7,290,242	$ 1,901,261	$ 11,128,148	$ 5,300,405
Retaining Wall	$ 1,140,000	$ 1,140,000	$ 10,039,799	$ 10,105,525	$ 926,154	$ 927,498	$ -	$ -	$ 1,892,000	$ -	$ 7,861,941	$ 4,012,669	$ 21,859,894	$ 16,185,692
Sound wall	$ 540,000	$ 540,000	$ 2,000,000	$ 2,000,000	$ 500,000	$ -	$ -	$ -	$ 946,000	$ -	$ 4,000,000	$ 1,070,288	$ 7,986,000	$ 3,610,288
Interchange Modification	$ 1,000,000	$ 1,000,000	$ 13,500,000	$ 13,500,000	$ 2,000,000	$ -	$ -	$ -	$ 2,000,000	$ 2,000,000	$ 18,000,000	$ 18,000,000	$ 36,500,000	$ 34,500,000
Overlay of Existing Pavement	$ -	$ -	$ 2,283,985	$ 2,352,133	$ -	$ -	$ -	$ -	$ 283,800	$ 345,290	$ 2,519,659	$ 2,463,534	$ 5,087,444	$ 5,160,957
Local Road Relocation/Improvement	$ -	$ -	$ -	$ -	$ 102,000	$ 102,000	$ -	$ -	$ 78,000	$ -	$ 636,000	$ 343,119	$ 816,000	$ 445,119
Utility Relocations	$ 250,000	$ 250,000	$ 2,000,000	$ 2,000,000	$ -	$ -	$ -	$ -	$ 250,000	$ 250,000	$ 1,625,000	$ 1,625,000	$ 4,125,000	$ 4,125,000
ROADWAY ITEMS	$ 3,747,633	$ 3,747,633	$ 47,416,500	$ 45,986,826	$ 4,274,469	$ 2,559,562	$ -	$ -	$ 7,110,556	$ 4,001,939	$ 52,812,782	$ 39,853,857	$ 115,361,940	$ 96,149,818
Other Items														
Landscaping	$ 374,763	$ 374,763	$ 2,370,825	$ 2,299,341	$ 427,447	$ 255,956	$ -	$ -	$ 711,056	$ 400,194	$ 2,640,639	$ 1,992,693	$ 6,524,730	$ 5,322,948
Water Quality	$ 187,382	$ 187,382	$ 2,370,825	$ 2,299,341	$ 213,723	$ 127,978	$ -	$ -	$ 355,528	$ 200,097	$ 2,640,639	$ 1,992,693	$ 5,768,097	$ 4,807,491
Traffic Items	$ 749,527	$ 749,527	$ 9,483,300	$ 9,197,365	$ 854,894	$ 511,912	$ -	$ -	$ 1,422,111	$ 800,388	$ 10,562,556	$ 7,970,771	$ 23,072,388	$ 19,229,964
Drainage	$ 374,763	$ 374,763	$ 4,741,650	$ 4,598,683	$ 427,447	$ 255,956	$ -	$ -	$ 711,056	$ 400,194	$ 5,281,278	$ 3,985,386	$ 11,536,194	$ 9,614,982
Specialty Items	$ 749,527	$ 749,527	$ 9,483,300	$ 9,197,365	$ 854,894	$ 511,912	$ -	$ -	$ 1,422,111	$ 800,388	$ 10,562,556	$ 7,970,771	$ 23,072,388	$ 19,229,964
Other Items	$ 2,435,962	$ 2,435,962	$ 28,449,900	$ 27,592,096	$ 2,778,405	$ 1,663,715	$ -	$ -	$ 4,621,861	$ 2,601,261	$ 31,687,669	$ 23,912,314	$ 69,973,797	$ 58,205,347
Ramp Metering Improvement	$ 2,662,354	$ 2,662,354	$ 5,452,792	$ 5,452,792	$ 1,117,486	$ 1,117,486	$ 1,528,287	$ 1,528,287	$ 280,310	$ 280,310	$ 4,899,076	$ 4,899,076	$ 15,940,304	$ 15,940,304
Interchange Reconfiguration	$ -	$ -	$ -	$ -	$ -	$ -	$ 7,500,000	$ 7,500,000	$ -	$ -	$ 15,000,000	$ 15,000,000	$ 22,500,000	$ 22,500,000
SUBTOTAL	**$ 8,845,949**	**$ 8,845,949**	**$ 81,319,191**	**$ 79,031,713**	**$ 8,170,360**	**$ 5,340,763**	**$ 9,028,287**	**$ 9,028,287**	**$ 12,012,726**	**$ 6,883,510**	**$ 104,399,527**	**$ 83,665,247**	**$ 223,776,041**	**$ 192,795,470**
Minor Items (5%)	$ 442,297	$ 442,297	$ 4,065,960	$ 3,951,586	$ 408,518	$ 267,038	$ 451,414	$ 451,414	$ 600,636	$ 344,175	$ 5,219,976	$ 4,183,262	$ 11,188,802	$ 9,639,773
Mobilization (10%)	$ 928,825	$ 928,825	$ 8,538,515	$ 8,298,330	$ 857,888	$ 560,780	$ 947,970	$ 947,970	$ 1,261,336	$ 722,769	$ 10,961,950	$ 8,784,851	$ 23,496,484	$ 20,243,524
Roadway Additions														
Supplemental Work Items (5%)	$ 464,412	$ 464,412	$ 4,269,258	$ 4,149,165	$ 428,944	$ 280,390	$ 473,985	$ 473,985	$ 630,668	$ 361,384	$ 5,480,975	$ 4,392,425	$ 11,748,242	$ 10,121,762
General Contingency (50%)	$ 4,644,123	$ 4,644,123	$ 42,692,575	$ 41,491,650	$ 4,289,439	$ 2,803,901	$ 4,739,850	$ 4,739,850	$ 6,306,681	$ 3,613,843	$ 54,809,752	$ 43,924,255	$ 117,482,421	$ 101,217,622
Total Roadway Additions	$ 5,108,536	$ 5,108,536	$ 46,961,833	$ 45,640,815	$ 4,718,383	$ 3,084,291	$ 5,213,836	$ 5,213,836	$ 6,937,349	$ 3,975,227	$ 60,290,727	$ 48,316,680	$ 129,230,663	$ 111,339,384
TOTAL ROADWAY ITEMS	**$ 15,325,607**	**$ 15,325,607**	**$ 140,885,499**	**$ 136,922,444**	**$ 14,155,149**	**$ 9,252,873**	**$ 15,641,507**	**$ 15,641,507**	**$ 20,812,048**	**$ 11,925,681**	**$ 180,872,180**	**$ 144,950,041**	**$ 387,691,990**	**$ 334,018,151**
Structures														
Removal & Replacement	$ -	$ -	$ 11,266,850	$ 11,266,850	$ 682,500	$ 682,500	$ -	$ -	$ 3,465,000	$ 3,465,000	$ 20,466,775	$ 19,252,275	$ 35,881,125	$ 34,666,625
US 101 Bridge Widening	$ -	$ -	$ 7,660,000	$ 7,660,000	$ -	$ -	$ -	$ -	$ -	$ -	$ 12,750,000	$ 12,750,000	$ 20,410,000	$ 20,410,000
Abutment Wall	$ -	$ -	$ 868,877	$ 812,877	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 868,877	$ 812,877
TOTAL STRUCTURAL ITEMS	$ -	$ -	$ 19,795,727	$ 19,739,727	$ 682,500	$ 682,500	$ -	$ -	$ 3,465,000	$ 3,465,000	$ 33,216,775	$ 32,002,275	$ 57,160,002	$ 55,889,502
Subtotal Est. Capital Cost	**$ 15,325,607**	**$ 15,325,607**	**$ 160,681,226**	**$ 156,662,170**	**$ 14,837,649**	**$ 9,935,373**	**$ 15,641,507**	**$ 15,641,507**	**$ 24,277,048**	**$ 15,390,681**	**$ 214,088,955**	**$ 176,952,316**	**$ 444,851,992**	**$ 389,907,653**
Right-of-Way Acquisition	$ 756,000	$ 756,000	$ 26,754,300	$ 21,565,948	$ 900,000	$ 900,000	$ -	$ -	$ 1,586,460	$ 180,000	$ 1,368,000	$ 1,133,964	$ 31,364,760	$ 24,535,912
TOTAL EST. RIGHT-OF-WAY COST	**$ 756,000**	**$ 756,000**	**$ 26,754,300**	**$ 21,565,948**	**$ 900,000**	**$ 900,000**	**$ -**	**$ -**	**$ 1,586,460**	**$ 180,000**	**$ 1,368,000**	**$ 1,133,964**	**$ 31,364,760**	**$ 24,535,912**
Project Development														
Preliminary Engineering & Environmental (5% of Capital Cost)	$ 766,280	$ 766,280	$ 8,034,061	$ 7,833,109	$ 741,882	$ 496,769	$ 782,075	$ 782,075	$ 1,213,852	$ 769,534	$ 10,704,448	$ 8,847,616	$ 22,242,600	$ 19,495,383
Final Plans, Specifications, & Estimate (10% of Capital Cost)	$ 1,532,561	$ 1,532,561	$ 16,068,123	$ 15,666,217	$ 1,483,765	$ 993,537	$ 1,564,151	$ 1,564,151	$ 2,427,705	$ 1,539,068	$ 21,408,896	$ 17,695,232	$ 44,485,199	$ 38,990,765
Construction Engineering & Administration (15% of Capital Cost)	$ 2,298,841	$ 2,298,841	$ 24,102,184	$ 23,499,326	$ 2,225,647	$ 1,490,306	$ 2,346,226	$ 2,346,226	$ 3,641,557	$ 2,308,602	$ 32,113,343	$ 26,542,847	$ 66,727,799	$ 58,486,148
TOTAL EST. PROJECT DEV. COST	**$ 4,597,682**	**$ 4,597,682**	**$ 48,204,368**	**$ 46,998,651**	**$ 4,451,295**	**$ 2,980,612**	**$ 4,692,452**	**$ 4,692,452**	**$ 7,283,115**	**$ 4,617,204**	**$ 64,226,687**	**$ 53,085,695**	**$ 133,455,598**	**$ 116,972,296**
TOTAL ESTIMATED PROJECT COST	**$ 20,679,289**	**$ 20,679,289**	**$ 235,639,893**	**$ 225,226,769**	**$ 20,188,944**	**$ 13,815,985**	**$ 20,333,959**	**$ 20,333,959**	**$ 33,146,623**	**$ 20,187,885**	**$ 279,683,642**	**$ 231,171,974**	**$ 609,672,350**	**$ 531,415,860**

TOTAL ESTIMATED RANGE OF PROJECT COST	**$549M to $671M**	**$478M to $585M**

Alternative D - General Purpose Lanes

Unit Costs

Roadway-Related Improvements			
	Pavement Removal	$ 1.50	/sq ft
	Earthwork / Grading	$ 15.00	/cu yd
	Pavement Construction	$ 6	/sq ft
	Shoulder Construction	$ 3.50	/sq ft
	Retaining Wall	$ 200	/lineal foot
	Soundwall	$ 200	/lineal foot
	Interchange Modification	$ 500,000	/ramp
	Overlay of Existing Pavement	$ 1	/sq ft
	Local Road Relocation/Improvement	$ 5	/sq ft
	Utility Relocations	$ 250,000	/overpass
Interchange Reconfiguration		$ 15,000,000	/ea
Structures			
	Removal & Replacement	$ 175	/sq ft
	US 101 Bridge Widening	$ 200	/sq ft
	Abutment Wall	$ 80	/sq ft
Right-of-Way Acquisition		$ 60	/sq ft

Alternative D - General Purpose Lanes

Bridges

						NORTHBOUND							SOUTHBOUND							Alternative D (GENERAL PURPOSE)			
						Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Full		Red/Full	
	Bridges	Structure Type	Span	Abut.	Type	Clearance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Bridge Area (ft^2)	Retaining Wall (ft^2)	Bridge Area (ft^2)	Retaining Wall (ft^2)
1	Bates Ranch Road	UC													8' / 10'								
2	Rincon Creek	BRIDGE																					
3	Railroad	OH																					
4	150 / Rincon Road	SEPARATION	2	O	B	17' 1"	Additional lane	20' / 10"					16' 2"	Additional lane	15' / 10'								
5	Bailard Lane	OC	4	O	B	14' 11"	Additional lane	20' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 0"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	9240		9240	
6	Carpinteria Creek	BRIDGE					Additional lane							Additional lane	10' / 8'								
7	Casitas Pass Road	OC	2	C	I	15' 6"	Additional lane	15 / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 8"	Additional lane	10' / 8'	Replace	Vertically Deficient	Replace	Vertically Deficient				
8	Linden Avenue	OC	2	C	I	16' 6"	Additional lane	15' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	14' 11"	Additional lane	12' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient				
9	Franklin Creek	BRIDGE					Additional lane							Additional lane									
10	7th Street / Santa Ynez Avenue	OC	2	C	I	15' "	Additional lane	15' / 8'	Replace	Horizontaly Deficient	Replace	Horizontaly Deficient	15' 11"	Additional lane	10' / 10'	Replace	Htl/Vtl Deficient	Replace	Htl/Vtl Deficient	9240		9240	
11	Santa Monica Creek	BRIDGE					Additional lane							Additional lane									
12	Santa Monica Road	UC					Additional lane							Additional lane									
13	South San Padaro Lane	UC					Additional lane							Additional lane	6' / 10'								
14	Arroyo Paredon Creek	BRIDGE					Additional lane							Additional lane									
15	Garrapato Creek	BRIDGE					Additional lane							Additional lane									
16	Toro Canyon Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	12368		11896	
17	North Padaro Lane	OC	2	O	B	16' 0"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 6"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	9240		9240	
18	Evans Avenue/Lookout Park Road	UC					Additional lane	2' / 8'						Additional lane									
19	Sheffield Drive	UC					Additional lane							Additional lane						15675		15675	
20	Romero / Buena Vista Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	9440		8320	
21	San Ysidro Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	9440		8320	
22	Oak Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	9440		8320	
23	San Ysidro Road	OC	2	C	Specia	18' 0"	Additional lane	15' 10 '	Replace	Horizontally Deficient	Replace	Horizontally Deficient	16' 0"	Additional lane	10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	9240		8456	
24	Montecito Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report		Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	9440		8320	
25	On Ramp	SEPARATION		C	Specia	15' 5"	Additional lane	15' / 10'	Replace	SB-101 Project Report	Replace	SB-101 Project Report	16' 4"	Additional lane	15' / 5'	Replace	SB-101 Project Report	Replace	SB-101 Project Report	4950		4530	
26	Olive Mill Road	OC			Specia	15' 0"	Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report	17' 5"	Auxiliary lane	15' / 10'	Replace	SB-101 Project Report	Replace	SB-101 Project Report	9240		8456	
27	Hot Springs Road/ Cabrillo Blvd	UC					Additional lane							Auxiliary lane	6' / 10'					19800		19800	
28	Sycamore Creek	BRIDGE					Additional lane		Replace	SB-101 Project Report	Replace	SB-101 Project Report				Replace	SB-101 Project Report	Replace	SB-101 Project Report				
29	Milpas Street	UC				15'	Additional lane		Replace	Vertically Deficient	Replace	Vertically Deficient			1' / 1'								
30	Calle Cesar Chavez	UC						10' / 10'							10' / 10'								
31	Garden Street	UC						8' / 10'						Auxiliary lane	10' / 10'								
32	State Street	UC						10' / 10'						Auxiliary lane	10' / 10'								
33	Mission Creek	BRIDGE												Auxiliary lane									
34	Castillo Street	UC												Auxiliary lane									
35	Ortega Pedestrian Crossing	PED OC	2	C	Specia	19' 1"		10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	18' 9"	Auxiliary lane	10' / 12'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	3900		3900	

Alternative D - General Purpose Lanes

Bridges

						NORTHBOUND							SOUTHBOUND							Alternative D (GENERAL PURPOSE)			
						Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Vertical	Horizontal Clearance		Full Standard		Combination of Full Standard and Reduced Cross Sections		Full		Red/Full	
	Bridges	Structure Type	Span	Abut.	Type	Clearance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Clear-ance	Widening Requirement	Widening Available	Recomm.	Reasons	Recomm.	Reasons	Bridge Area (ft²)	Retaining Wall (ft²)	Bridge Area (ft²)	Retaining Wall (ft²)
36	Carrillo Street	UC					Additional lane							Additional lane									
37	Anapamu Pedestrian Crossing	PED OC	2	C	Specia	18' 9"	Additional lane	10' / 20'					15' 9"	Additional lane	10' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient	3200		3200	
38	Michel Torena Street	OC	3	O	B	17' 2"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall	17' 2"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall		2288		
39	Mission Street	UC					Additional lane	8' / 8'						Additional lane									
40	Junipero Pedestrian Crossing	PED OC	2	C	Specia	21' 0"	Additional lane	4' / 8'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	19' 2"	Additional lane		Replace	Horizontally Deficient	Replace	Horizontally Deficient	3500		3500	
41	Las Positas Road	OC	2	O	B	15' 5"	Additional lane	4' / 8'	Replace	Vertically Deficient	Replace	Vertically Deficient	15' 6"	Additional lane	15' / 5'	Replace	Vertically Deficient	Replace	Vertically Deficient	17572		17572	
42	Hope Avenue	UC					Additional lane							Additional lane									
43	Arroyo Burro Creek	BRIDGE					Additional lane							Additional lane									
44	Modoc Road/ La Cumbre Road	OC	2	O	B	17' 1"	Additional lane	8' / 10'	Save	Retaining Wall	Save	Retaining Wall	18' 3"	Additional lane	10' / 10'	Save	Retaining Wall	Save	Retaining Wall		4129		4129
45	State Street	OC	2	C	B	15' 0"	Additional lane	8' / 10'	Replace	Htl/ Vtl Deficient	Replace	Htl/ Vtl Deficient	15' 3"	Additional lane	8' / 10'	Replace	Htl/ Vtl Deficient	Replace	Htl/ Vtl Deficient	22538		22538	
46	154/ San Marco Pass Road	SEPARATION	2	C	B	17' 8"	Additional lane	8' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	17' 10"	Additional lane	10' / 10'	Replace	Horizontally Deficient	Replace	Horizontally Deficient	17572		17572	
47	Cieneguitas Creek	BRIDGE					Additional lane							Additional lane									
48	Atascadero Creek	BRIDGE					Additional lane							Additional lane									
49	Turnpike Road	OC	2	O	B	17' 5"	Additional lane	10' / 25'					16' 2"	Additional lane	10' / 15'								
50	Maria Ygnacio Creek	BRIDGE					Additional lane							Additional lane									
51	Patterson Avenue	OC	2	O	B	19' 5"	Additional lane	8' / 10'	Save	Retaining Wall	Save	Retaining Wall	17' 2"	Additional lane	8' / 8'	Save	Retaining Wall	Save	Retaining Wall		4532		4532
52	217 / Ward Memorial Blvd	SEPARATION				18' 1"							15' 0"		8' / 10'	Replace	Vertically Deficient	Replace	Vertically Deficient				
53	San Jose Creek	BRIDGE																					
54	Fairview Avenue	OC	2	O	B	23' 6"	Auxiliary lane	3' / 10'	Save	Retaining Wall	Save	Retaining Wall	20' 11"		8' / 10'	Save	Retaining Wall	Save	Retaining Wall				
55	Las Vegas Creek	BRIDGE					Auxiliary lane																
56	San Pedro Creek	BRIDGE					Auxiliary lane																
57	Caneros Creek	BRIDGE					Auxiliary lane																
58	Los Carneros Road	OC	2	O	T	18' 9"	Auxiliary lane	15' / 10'					16' 6"		10' / 12'								
59	Glen Annie Creek	BRIDGE																					
60	Glen Annie Road/ Storke Road	OC	2	O	B	21' 8"		8' / 15'					17' 7"		20' / 20'								
61	Hollister Avenue	OC	2	O	T	16' 2"		15' / 10'					16' 2"		20' / 10'								
62	Winchester Canyon Creek	BRIDGE																					

Alternative D - General Purpose Lanes

Ramp Metering

	101 in Motion Freeway On-Ramps Potential Ramp Metering Locations					Peak Volumes per Location Info and Specifications According to Volumes																					
Ramp No.	Interchange	Type	On-Ramp	Lanes	Length (ft)	Comments	Vol. at 1pm	Vol. at 1 am	Greater	Required # of Lanes for Peak Vol.	Additions Needed	Area of Pavement	3 Lane extra 30m area	Total Length	CHP Enforcement	Total Area	Signal Cost	Pavement Removal ($1.5 /sqft)	Earthwork/ Grading ($15 /cuyd)	Pavement Construct ($6 /sqft)	Shoulder Construction ($3.5 /sqft)	Retaining Wall ($200 /linft)	Overlay of Ex. Pavement ($1 sqft)	Sum	Sheet Total	Drainage (10% of roadway cost)	Sheet Total + Drainage
1	Bates	Diamond	WB	2 to 1	410		0	468	468	2	1	4100		410	604	4704	$ 15,000	$ 6,150	$ 16,400	$ 28,223	$ 14,350	$ 61,500	$ 4,704	$ 146,327			
2		Diamond	EB	1	780	*2 volumes for 1 onramp (greater given here)	1323	0	1323	3	2	15600	1181	878	604	17385	$ 35,000	$ 23,400	$ 140,547	$ 104,309	$ 30,745	$ 131,763	$ 17,385	$ 483,149			
3	Rincon Road	Diamond	WB	1	690		62	4	62	2	1	6900		690	604	7504	$ 15,000	$ 10,350	$ 27,600	$ 45,023	$ 24,150	$ 103,500	$ 7,504	$ 233,127			
4		Diamond	EB	1	830		29	0	29	2	1	8300		830	604	8904	$ 15,000	$ 12,450	$ 33,200	$ 53,423	$ 29,050	$ 124,500	$ 8,904	$ 276,527			
5	Bailard Avenue	Diamond	WB	1	660		550	374	550	3	2	13200	1181	758	604	14985	$ 35,000	$ 19,800	$ 121,347	$ 89,909	$ 26,545	$ 113,763	$ 14,985	$ 421,349			
6		Diamond	EB	1	430		203	27	203	2	1	4300		430	604	4904	$ 15,000	$ 6,450	$ 17,200	$ 29,423	$ 15,050	$ 64,500	$ 4,904	$ 152,527			
7	Casitas Pass Road	Diamond	WB	1	350	Ramp begins from Via Real	298	0	298	2	1	3500		350	604	4104	$ 15,000	$ 5,250	$ 14,000	$ 24,623	$ 12,250	$ 52,500	$ 4,104	$ 127,727			
8		Diamond	EB	1	440		47	13	47	2	1	4400		440	604	5004	$ 15,000	$ 6,600	$ 17,600	$ 30,023	$ 15,400	$ 66,000	$ 5,004	$ 155,627			
9	Linden Avenue	Loop	WB	1	560	*EB onramp volume supplied (doesn't exist)	804	598	804	3	2	11200	1181	658	604	12985	$ 35,000	$ 16,800	$ 105,347	$ 77,909	$ 23,045	$ 98,763	$ 12,985	$ 369,849			
10	Reynolds Avenuew	Partial Diamond	EB	1	160		235	185	235	2	1	1600		160	604	2204	$ 15,000	$ 2,400	$ 6,400	$ 13,223	$ 5,600	$ 24,000	$ 2,204	$ 68,827			
11	Santa Monica Road	Diamond	WB	1	210		498	548	548	3	2	4200	1181	308	604	5985	$ 35,000	$ 6,300	$ 49,347	$ 35,909	$ 10,795	$ 46,263	$ 5,985	$ 189,599			
12	South Padaro Lane	Diamond	WB	1	840		214	185	214	2	1	8400		840	604	9004	$ 15,000	$ 12,600	$ 33,600	$ 54,023	$ 29,400	$ 126,000	$ 9,004	$ 279,627			
13		Diamond	EB	1	60	Ramp begins from Santa Claus Lane	198	0	198	2	1	600		60	604	1204	$ 15,000	$ 900	$ 2,400	$ 7,223	$ 2,100	$ 9,000	$ 1,204	$ 37,827			
14	North Padaro Lane	Diamond	WB	1	530		19	3	19	2	1	5300		530	604	5904	$ 15,000	$ 7,950	$ 21,200	$ 35,423	$ 18,550	$ 79,500	$ 5,904	$ 183,527			
15		Diamond	EB	1	520		116	95	116	2	1	5200		520	604	5804	$ 15,000	$ 7,800	$ 20,800	$ 34,823	$ 18,200	$ 78,000	$ 5,804	$ 180,427			
16	Evans Avenue	Diamond	WB	2 to 1	130	Ramp begins from Ortega Hill Road	153	84	153	2	1	1300		130	604	1904	$ 15,000	$ 1,950	$ 5,200	$ 11,423	$ 4,550	$ 19,500	$ 1,904	$ 59,527			
17		Diamond	EB	1	270	Ramp begins from Wallace Avenue	89	25	89	2	1	2700		270	604	3304	$ 15,000	$ 4,050	$ 10,800	$ 19,823	$ 9,450	$ 40,500	$ 3,304	$ 102,927			
18	Sheffield Drive	Diamond	WB	1	340		178	288	288	2	1	3400		340	604	4004	$ 15,000	$ 5,100	$ 13,600	$ 24,023	$ 11,900	$ 51,000	$ 4,004	$ 124,627			
19		Diamond	EB	1	510	Merges on left side of 101	261	110	261	2	1	5100		510	604	5704	$ 15,000	$ 7,650	$ 20,400	$ 34,223	$ 17,850	$ 76,500	$ 5,704	$ 177,327			
20	Ysidro Road	Diamond	WB	1	380		482	433	482	2	1	3800		380	604	4404	$ 15,000	$ 5,700	$ 15,200	$ 26,423	$ 13,300	$ 57,000	$ 4,404	$ 137,027			
21		Diamond	EB	1	1700	Ramp includes S. Jameson Ln	264	157	264	2	1	17000		1700	604	17604	$ 15,000	$ 25,500	$ 68,000	$ 105,623	$ 59,500	$ 255,000	$ 17,604	$ 546,227	$ 4,453,705	$ 445,371	$ 4,899,076
22	Olive Mill Road	Partial Diamond	EB	1	760	Ramp begins north side and crosses over 101	223	253	253	2	1	7600		760	604	8204	$ 15,000	$ 11,400	$ 30,400	$ 49,223	$ 26,600	$ 114,000	$ 8,204	$ 254,827	$ 254,827	$ 25,483	$ 280,310
23	Hot Springs Road / Cabrillo Blvd.	Diamond	WB	1	530		675	555	675	3	2	10600	1181	628	604	12385	$ 35,000	$ 15,900	$ 100,547	$ 74,309	$ 21,995	$ 94,263	$ 12,385	$ 354,399			
24		Diamond	EB	1	550	Merges on left side of 101	No Data	No Data	0	0	0	0		550	604	604	$ -	$ -	$ -	$ 3,623	$ 19,250	$ 82,500	$ 604	$ 105,977			
25	Salinas Street	Partial Diamond	WB	1	100		397	421	421	2	1	1000		100	604	1604	$ 15,000	$ 1,500	$ 4,000	$ 9,623	$ 3,500	$ 15,000	$ 1,604	$ 50,227			
26	Milpas Street	Diamond	WB	1	350	Ramp begins from roundabout	1036	796	1036	3	2	7000	1181	448	604	8785	$ 35,000	$ 10,500	$ 71,747	$ 52,709	$ 15,695	$ 67,263	$ 8,785	$ 261,699			
27		Diamond	EB	1	1040		1308	444	1308	3	2	20800	1181	1138	604	22585	$ 35,000	$ 31,200	$ 182,147	$ 135,509	$ 39,845	$ 170,763	$ 22,585	$ 617,049	$ 1,389,351	$ 138,935	$ 1,528,287
28	Garden Street	Diamond	WB	1	360		895	349	895	3	2	7200	1181	458	604	8985	$ 35,000	$ 10,800	$ 73,347	$ 53,909	$ 16,045	$ 68,763	$ 8,985	$ 266,849			
29		Diamond	EB	1	480		891	515	891	3	2	9600	1181	578	604	11385	$ 35,000	$ 14,400	$ 92,547	$ 68,309	$ 20,245	$ 86,763	$ 11,385	$ 328,649			
30	Castillo Street	Diamond	WB	1	120		1189	781	1189	3	2	2400	1181	218	604	4185	$ 35,000	$ 3,600	$ 34,947	$ 25,109	$ 7,645	$ 32,763	$ 4,185	$ 143,249			
31		Diamond	EB	2 to 1	380		857	473	857	3	2	7600	1181	478	604	9385	$ 35,000	$ 11,400	$ 76,547	$ 56,309	$ 16,745	$ 71,763	$ 9,385	$ 277,149	$ 1,015,897	$ 101,590	$ 1,117,486
32	Carrillo Street	Diamond	WB	1	480		1696	977	1696	3	2	9600	1181	578	604	11385	$ 35,000	$ 14,400	$ 92,547	$ 68,309	$ 20,245	$ 86,763	$ 11,385	$ 328,649			
33		Diamond	EB	1	450		878	722	878	3	2	9000	1181	548	604	10785	$ 35,000	$ 13,500	$ 87,747	$ 64,709	$ 19,195	$ 82,263	$ 10,785	$ 313,199			
34	Arrellaga Street	Partial Diamond	WB	1	210		688	563	688	3	2	4200	1181	308	604	5985	$ 35,000	$ 6,300	$ 49,347	$ 35,909	$ 10,795	$ 46,263	$ 5,985	$ 189,599			
35	Mission Street	Diamond	WB	2 to 1	400		902	814	902	3	2	8000	1181	498	604	9785	$ 35,000	$ 12,000	$ 79,747	$ 58,709	$ 17,445	$ 74,763	$ 9,785	$ 287,449			
36		Diamond	EB	1	410		853	427	853	3	2	8200	1181	508	604	9985	$ 35,000	$ 12,300	$ 81,347	$ 59,909	$ 17,795	$ 76,263	$ 9,985	$ 292,599			
37	Las Positas Road	Diamond	WB	1	60	Ramp begins from Calle Real	987	1027	1027	3	2	1200	1181	158	604	2985	$ 35,000	$ 1,800	$ 25,347	$ 17,909	$ 5,545	$ 23,763	$ 2,985	$ 112,349			
38		Diamond	EB	1	730		782	579	782	3	2	14600	1181	828	604	16385	$ 35,000	$ 21,900	$ 132,547	$ 98,309	$ 28,995	$ 124,263	$ 16,385	$ 457,399			
39	S. Hope Ave	Partial Diamond	WB	1	210		357	201	357	2	1	2100		210	604	2704	$ 15,000	$ 3,150	$ 8,400	$ 16,223	$ 7,350	$ 31,500	$ 2,704	$ 84,327			
40	La Cumbre Road	Partial Diamond	EB	2 to 1	580		1044	780	1044	3	2	11600	1181	678	604	13385	$ 35,000	$ 17,400	$ 108,547	$ 80,309	$ 23,745	$ 101,763	$ 13,385	$ 380,149			
41	State Street	Partial Diamond	WB	2	660		889	821	889	3	1	6600	1181	758	604	8385	$ 35,000	$ 9,900	$ 30,337	$ 50,309	$ 26,545	$ 113,763	$ 8,385	$ 274,239			
42	SR 154 / San Marcos Pass Road	Partial Diamond	EB	2	580		1116	962	1116	3	1	5800	1181	678	604	7585	$ 35,000	$ 8,700	$ 27,137	$ 45,509	$ 23,745	$ 101,763	$ 7,585	$ 249,439			
43	El Sueno Road	Partial Diamond	WB	1	180		414	475	475	2	1	1800		278	604	2404	$ 15,000	$ 2,700	$ 11,137	$ 14,423	$ 9,745	$ 41,763	$ 2,404	$ 97,171			
44	Turnpike Road	Diamond	WB	1	680		609	490	609	3	2	13600	1181	778	604	15385	$ 35,000	$ 20,400	$ 124,547	$ 92,309	$ 27,245	$ 116,763	$ 15,385	$ 431,649			
45		Diamond	EB	1	850		948	1074	1074	3	2	17000	1181	948	604	18785	$ 35,000	$ 25,500	$ 151,747	$ 112,709	$ 33,195	$ 142,263	$ 18,785	$ 519,199			
46	Patterson Avenue / SR 271 Ward Memorial	Diamond	WB	1	1640	Interchanges overlap	468	320	468	2	1	16400		1640	604	17004	$ 35,000	$ 24,600	$ 65,600	$ 102,023	$ 57,400	$ 246,000	$ 17,004	$ 547,627			
47		Diamond	EB	2	1040	Interchanges overlap	1392	935	1392	3	1	10400	1181	1138	604	12185	$ 35,000	$ 15,600	$ 45,537	$ 73,109	$ 39,845	$ 170,763	$ 12,185	$ 392,039	$ 4,957,083	$ 495,708	$ 5,452,792
48	Fairview Avenue	Loop	WB	2	910		1188	249	1188	3	1	9100	1181	1008	604	10885	$ 35,000	$ 13,650	$ 40,337	$ 65,309	$ 35,295	$ 151,263	$ 10,885	$ 351,739			
49		Partial Diamond	EB	2	590		1131	697	1131	3	1	5900	1181	688	604	7685	$ 35,000	$ 8,850	$ 27,537	$ 46,109	$ 24,095	$ 103,263	$ 7,685	$ 252,539			
50	Los Carneros Road	Diamond	WB	2 to 1	880		610	135	610	3	2	17600	1181	978	604	19385	$ 35,000	$ 26,400	$ 156,547	$ 116,309	$ 34,245	$ 146,763	$ 19,385	$ 534,649			
51		Diamond	EB	2	1060		1178	588	1178	3	1	10600	1181	1158	604	12385	$ 35,000	$ 15,900	$ 46,337	$ 74,309	$ 40,545	$ 173,763	$ 12,385	$ 398,239			
52	Glen Annie Road	Loop	WB	2	900		978	282	978	3	1	9000	1181	998	604	10785	$ 35,000	$ 13,500	$ 39,937	$ 64,709	$ 34,945	$ 149,763	$ 10,785	$ 348,639			
53		Diamond	EB	2	620		1603	1781	1781	3	1	6200	1181	718	604	7985	$ 35,000	$ 9,300	$ 28,737	$ 47,909	$ 25,145	$ 107,763	$ 7,985	$ 261,839			
54	Hollister Avenue	Diamond	WB	1	450	No aerial photo for this interchange	No Data	No Data	0	0	0	0	1181	548	604	1785	$ -	$ -	$ -	$ 10,709	$ 19,195	$ 82,263	$ 1,785	$ 113,952			
55		Diamond	EB	1	450	No aerial photo for this interchange	266	362	362	2	1	4500		450	604	5104	$ 15,000	$ 6,750	$ 18,000	$ 30,623	$ 15,750	$ 67,500	$ 5,104	$ 158,727	$ 2,420,322	$ 242,032	$ 2,662,354
																											$ 15,940,304

Alternative D - General Purpose Lanes
Estimate Support Information

		Length				Each		
		Symmetrical	Realigned	Total	% Realigned	Over-crossings	Bridge Widenings	Ramps
1	Los Carneros to Fairview	N/A	N/A	5700		1	0	2
	SEGMENT SUM	**N/A**	**N/A**	**5700**	**N/A**	**1**	**0**	**2**
2	Patterson to Turnpike	2040	3240	5280		1	1	2
	Turnpike to La Cumbre	4850	7110	11960		3	1	9
	La Cumbre to Las Positas	2480	3980	6460		1	2	5
	Las Positas to Mission	1180	2970	4150		1	1	5
	Mission to Carillo	1550	3630	5180		2	1	6
	SEGMENT SUM	**12100**	**20930**	**33030**	**63%**	**8**	**6**	**27**
3	Carillo to Castillo	N/A	N/A	1940		0	0	2
	Castillo to Garden	N/A	N/A	2500		0	0	2
	SEGMENT SUM	**0**	**0**	**4440**	**N/A**	**0**	**0**	**4**
4	Milpas to Hot Springs	2640	3220	5860		0	1	6
	SEGMENT SUM	**2640**	**3220**	**5860**	**55%**	**0**	**1**	**6**
5	Hot Springs to Olive Mill	1770	2960	4730		1	1	4
	SEGMENT SUM	**1770**	**2960**	**4730**	**63%**	**1**	**1**	**4**
6	Olive Mill to Sheffield	8170	0	8170		2	4	9
	Sheffield to N. Padaro	7920	1960	9880		1	2	4
	N. Padaro to Santa Claus	9760	0	9760		0	3	4
	Santa Claus to Linden	11700	0	11700		1	2	9
	Linden to Bailard	7630	0	7630		2	1	7
	Bailard to SR 150	3855	0	3855		0.5	0	3
	SEGMENT SUM	**49035**	**1960**	**50995**	**4%**	**6.5**	**12**	**36**

Alternative D - General Purpose Lanes

US Route 101 Widening - Northbound Auxiliary Lane from Los Carneros to Fairview (1.1 Miles - Between Ramps)

			Full Standard			Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	45,600	$ 68,400	$ 62,182	45,600	$ 68,400	$ 62,182
Earthwork / Grading	$ 15.00	/cu yd	9,289	$ 139,333	$ 126,667	9,289	$ 139,333	$ 126,667
Pavement Construction	$ 6	/sq ft	68,400	$ 410,400	$ 373,091	68,400	$ 410,400	$ 373,091
Shoulder Construction	$ 3.50	/sq ft	57,000	$ 199,500	$ 181,364	57,000	$ 199,500	$ 181,364
Retaining Wall	$ 200	/lineal foot	5,700	$ 1,140,000	$ 1,036,364	5,700	$ 1,140,000	$ 1,036,364
Soundwall	$ 200	/lineal foot	2,700	$ 540,000	$ 490,909	2,700	$ 540,000	$ 490,909
Interchange Modification	$ 500,000	/ramp	2	$ 1,000,000	$ 909,091	2	$ 1,000,000	$ 909,091
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	1	$ 250,000	$ 227,273	1	$ 250,000	$ 227,273
	ROADWAY ITEMS			$ 3,747,633	$ 3,406,939		$ 3,747,633	$ 3,406,939
Other Items								
Landscaping	10% of roadway cost			$ 374,763	$ 340,694		$ 374,763	$ 340,694
Water Quality	5% of roadway cost			$ 187,382	$ 170,347		$ 187,382	$ 170,347
Traffic Items	20% of roadway cost			$ 749,527	$ 681,388		$ 749,527	$ 681,388
Drainage	10% of roadway cost			$ 374,763	$ 340,694		$ 374,763	$ 340,694
Specialty Items	20% of roadway cost			$ 749,527	$ 681,388		$ 749,527	$ 681,388
	OTHER ITEMS			$ 2,435,962	$ 2,214,511		$ 2,435,962	$ 2,214,511
Ramp Metering Improvement				$ 2,662,354	$ 2,420,322		$ 2,662,354	$ 2,420,322
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -			$ -	$ -
	SUBTOTAL			**$ 8,845,949**	**$ 8,041,772**		**$ 8,845,949**	**$ 8,041,772**
Minor Items (5%)				$ 442,297	$ 402,089		$ 442,297	$ 402,089
Mobilization (10%)				$ 928,825	$ 844,386		$ 928,825	$ 844,386
Roadway Additions								
Supplemental Work Items (5%)				$ 464,412	$ 422,193		$ 464,412	$ 422,193
General Contingency (50%)				$ 4,644,123	$ 4,221,930		$ 4,644,123	$ 4,221,930
Total Roadway Additions				$ 5,108,536	$ 4,644,123		$ 5,108,536	$ 4,644,123
	TOTAL ROADWAY ITEMS			**$ 15,325,607**	**$ 13,932,370**		**$ 15,325,607**	**$ 13,932,370**
Structures								
Removal & Replacement	$ 175	/sq ft	0	$ -	$ -	0	$ -	$ -
US 101 Bridge Widening	$ 200	/sq ft		$ -	$ -		$ -	$ -
Abutment Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
	TOTAL STRUCTURAL ITEMS			$ -	$ -		$ -	$ -
	Subtotal Est. Capitol Cost			$ 15,325,607	$ 13,932,370		$ 15,325,607	$ 13,932,370
Right-of-Way Acquisition	$ 60	/sq ft	12,600	$ 756,000	$ 687,273	12,600	$ 756,000	$ 687,273
	TOTAL EST. RIGHT-OF-WAY COST			**$ 756,000**	**$ 687,273**		**$ 756,000**	**$ 687,273**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 766,280	$ 696,618		$ 766,280	$ 696,618
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,532,561	$ 1,393,237		$ 1,532,561	$ 1,393,237
Construction Engineering & Administration	15% of Capital Cost			$ 2,298,841	$ 2,089,855		$ 2,298,841	$ 2,089,855
	TOTAL EST. PROJECT DEV. COST			**$ 4,597,682**	**$ 4,179,711**		**$ 4,597,682**	**$ 4,179,711**
	TOTAL ESTIMATED PROJECT COST			**$ 20,679,289**	**$ 18,799,354**		**$ 20,679,289**	**$ 18,799,354**

Alternative D - General Purpose Lanes

US Route 101 Widening - 6 Lanes to 8 Lanes from Patterson to Carillo (6.3 Miles)

66.0% of roadway to be realigned

66.0% of roadway to be realigned for Full Standard

44.1% of roadway to be realigned for Full Standard
21.9% of roadway to be realigned for Reduced Cross-Section

	Cost per Unit	Unit	Full Standard: Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Combination of Full Standard and Reduced Cross-Sections: Full Quantity	Combination: Reduced Quantity	Combination: Estimated Total Cost	Combination: Average Cost per Mile
Roadway-Related Improvements									
Pavement Removal	$ 1.50	/sq ft	1,189,503	$ 1,784,254	$ 283,215	914,048	210,120	$ 1,686,253	$ 267,659
Earthwork / Grading	$ 15.00	/cu yd	305,196	$ 4,577,945	$ 726,658	223,428	33,017	$ 3,846,674	$ 610,583
Pavement Construction	$ 6	/sq ft	1,405,757	$ 8,434,541	$ 1,338,816	1,058,545	246,588	$ 7,830,798	$ 1,242,984
Shoulder Construction	$ 3.50	/sq ft	798,850	$ 2,795,976	$ 443,806	653,022	108,533	$ 2,665,442	$ 423,086
Retaining Wall	$ 200	/lineal foot	50,199	$ 10,039,799	$ 1,593,619	39,132	11,396	$ 10,105,525	$ 1,604,052
Soundwall	$ 200	/lineal foot	10,000	$ 2,000,000	$ 317,460	10,000	0	$ 2,000,000	$ 317,460
Interchange Modification	$ 500,000	/ramp	27	$ 13,500,000	$ 2,142,857	27	0	$ 13,500,000	$ 2,142,857
Overlay of Existing Pavement	$ 1	/sq ft	2,283,985	$ 2,283,985	$ 362,537	1,794,417	557,716	$ 2,352,133	$ 373,354
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	8	$ 2,000,000	$ 317,460	0	8	$ 2,000,000	$ 317,460
ROADWAY ITEMS				$ 47,416,500	$ 7,526,429			$ 45,986,826	$ 7,299,496
Other Items									
Landscaping	5% of roadway cost			$ 2,370,825	$ 376,321			$ 2,299,341	$ 364,975
Water Quality	5% of roadway cost			$ 2,370,825	$ 376,321			$ 2,299,341	$ 364,975
Traffic Items	20% of roadway cost			$ 9,483,300	$ 1,505,286			$ 9,197,365	$ 1,459,899
Drainage	10% of roadway cost			$ 4,741,650	$ 752,643			$ 4,598,683	$ 729,950
Specialty Items	20% of roadway cost			$ 9,483,300	$ 1,505,286			$ 9,197,365	$ 1,459,899
OTHER ITEMS				$ 28,449,900	$ 4,515,857			$ 27,592,096	$ 4,379,698
Ramp Metering Improvement				$ 5,452,792	$ 865,522			$ 5,452,792	$ 865,522
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -			$ -	$ -
SUBTOTAL				**$ 81,319,191**	**$ 12,907,808**			**$ 79,031,713**	**$ 12,544,716**
Minor Items (5%)				$ 4,065,960	$ 645,390			$ 3,951,586	$ 627,236
Mobilization (10%)				$ 8,538,515	$ 1,355,320			$ 8,298,330	$ 1,317,195
Roadway Additions									
Supplemental Work Items (5%)				$ 4,269,258	$ 677,660			$ 4,149,165	$ 658,598
General Contingency (50%)				$ 42,692,575	$ 6,776,599			$ 41,491,650	$ 6,585,976
Total Roadway Additions				$ 46,961,833	$ 7,454,259			$ 45,640,815	$ 7,244,574
TOTAL ROADWAY ITEMS				**$ 140,885,499**	**$ 22,362,778**			**$ 136,922,444**	**$ 21,733,721**
Structures									
Removal & Replacement	$ 175	/sq ft	64,382	$ 11,266,850	$ 1,788,389		64,382	$ 11,266,850	$ 1,788,389
US 101 Bridge Widening	$ 200	/sq ft	38,300	$ 7,660,000	$ 1,215,873		38,300	$ 7,660,000	$ 1,215,873
Abutment Wall	$ 80	/sq ft	10,861	$ 868,877	$ 137,917		10,161	$ 812,877	$ 129,028
TOTAL STRUCTURAL ITEMS				$ 19,795,727	$ 3,142,179			$ 19,739,727	$ 3,133,290
Subtotal Est. Capitol Cost				$ 160,681,226	$ 146,073,842			$ 156,662,170	$ 24,867,011
Right-of-Way Acquisition	$ 60	/sq ft	445,905	$ 26,754,300	$ 4,246,714	339,780	19,653	$ 21,565,948	$ 3,423,166
TOTAL EST. RIGHT-OF-WAY COST				**$ 26,754,300**	**$ 4,246,714**			**$ 21,565,948**	**$ 3,423,166**
Project Development									
Preliminary Engineering & Environmental	5% of Capital Cost			$ 8,034,061	$ 1,275,248			$ 7,833,109	$ 1,243,351
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 16,068,123	$ 2,550,496			$ 15,666,217	$ 2,486,701
Construction Engineering & Administration	15% of Capital Cost			$ 24,102,184	$ 3,825,743			$ 23,499,326	$ 3,730,052
TOTAL EST. PROJECT DEV. COST				**$ 48,204,368**	**$ 7,651,487**			**$ 46,998,651**	**$ 7,460,103**
TOTAL ESTIMATED PROJECT COST				**$ 235,639,893**	**$ 37,403,158**			**$ 225,226,769**	**$ 35,750,281**

Alternative D - General Purpose Lanes

US Route 101 Widening - Southbound Auxiliary Lanes from Carillo to Garden (1.27 Miles - Between Ramps)

69% of roadway to add auxiliary lane

25% of roadway to add full standard auxiliary lane

44% of roadway to add reduced Cross-Section auxiliary la

	Cost per Unit	Unit	Full Standard: Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Combination of Full Standard and Reduced Cross-Sections: Quantity	Combination: Estimated Total Cost	Combination: Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	67,054	$ 100,580	$ 79,197	44,767	$ 67,151	$ 52,875
Earthwork / Grading	$ 15.00	/cu yd	8,806	$ 132,090	$ 104,008	74,666	$ 1,119,986	$ 881,879
Pavement Construction	$ 6	/sq ft	55,569	$ 333,415	$ 262,532	37,100	$ 222,600	$ 175,275
Shoulder Construction	$ 3.50	/sq ft	51,494	$ 180,230	$ 141,913	34,379	$ 120,327	$ 94,746
Retaining Wall	$ 200	/lineal foot	4,631	$ 926,154	$ 729,255	4,637	$ 927,498	$ 730,313
Sound wall	$ 200	/lineal foot	2,500	$ 500,000	$ 393,701	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	4	$ 2,000,000	$ 1,574,803	0	$ -	$ -
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	20,400	$ 102,000	$ 80,315	20,400	$ 102,000	$ 80,315
Utility Relocations	$ 250,000	/overpass	0	$ -	$ -	0	$ -	$ -
ROADWAY ITEMS				$ 4,274,469	$ 3,365,724		$ 2,559,562	$ 2,015,403
Other Items								
Landscaping	10% of roadway cost			$ 427,447	$ 336,572		$ 255,956	$ 201,540
Water Quality	5% of roadway cost			$ 213,723	$ 168,286		$ 127,978	$ 100,770
Traffic Items	20% of roadway cost			$ 854,894	$ 673,145		$ 511,912	$ 403,081
Drainage	10% of roadway cost			$ 427,447	$ 336,572		$ 255,956	$ 201,540
Specialty Items	20% of roadway cost			$ 854,894	$ 673,145		$ 511,912	$ 403,081
OTHER ITEMS				$ 2,778,405	$ 2,187,720		$ 1,663,715	$ 1,310,012
Ramp Metering Improvement				$ 1,117,486	$ 879,910		$ 1,117,486	$ 879,910
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -		$ -	$ -
SUBTOTAL				**$ 8,170,360**	**$ 6,433,355**		**$ 5,340,763**	**$ 4,205,326**
Minor Items (5%)				$ 408,518	$ 321,668		$ 267,038	$ 210,266
Mobilization (10%)				$ 857,888	$ 675,502		$ 560,780	$ 441,559
Roadway Additions								
Supplemental Work Items (5%)				$ 428,944	$ 337,751		$ 280,390	$ 220,780
General Contingency (50%)				$ 4,289,439	$ 3,377,511		$ 2,803,901	$ 2,207,796
Total Roadway Additions				$ 4,718,383	$ 3,715,262		$ 3,084,291	$ 2,428,576
TOTAL ROADWAY ITEMS				**$ 14,155,149**	**$ 11,145,787**		**$ 9,252,873**	**$ 7,285,727**
Structures								
Removal & Replacement	$ 175	/sq ft	3,900	$ 682,500	$ 537,402	3,900	$ 682,500	$ 537,402
US 101 Bridge Widening	$ 200	/sq ft		$ -	$ -		$ -	$ -
Abutment Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
TOTAL STRUCTURAL ITEMS				**$ 682,500**	**$ 537,402**		**$ 682,500**	**$ 537,402**
Subtotal Est. Capitol Cost				$ 14,837,649	$ 13,488,772		$ 9,935,373	**$ 7,823,128**
Right-of-Way Acquisition	$ 60	/sq ft	15,000	$ 900,000	$ 708,661	15,000	$ 900,000	$ 708,661
TOTAL EST. RIGHT-OF-WAY COST				**$ 900,000**	**$ 708,661**		**$ 900,000**	**$ 708,661**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 741,882	$ 584,159		$ 496,769	$ 391,156
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,483,765	$ 1,168,319		$ 993,537	$ 782,313
Construction Engineering & Administration	15% of Capital Cost			$ 2,225,647	$ 1,752,478		$ 1,490,306	$ 1,173,469
TOTAL EST. PROJECT DEV. COST				**$ 4,451,295**	**$ 3,504,957**		**$ 2,980,612**	**$ 2,346,938**
TOTAL ESTIMATED PROJECT COST				**$ 20,188,944**	**$ 15,896,806**		**$ 13,815,985**	**$ 10,878,728**

Alternative D - General Purpose Lanes

US Route 101 Widening - Add NB Full-Use Lane from Milpas to Cabrillo/Hot Springs (1.3 Miles)

(This section will be widened from 4 lanes to 6 lanes (NB Aux, SB Lane) by a separate project to be constructed prior to the US 101 widening.)

			Full Standard			Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	0	$ -	$ -	0	$ -	$ -
Earthwork / Grading	$ 15.00	/cu yd	0	$ -	$ -	0	$ -	$ -
Pavement Construction	$ 6	/sq ft	0	$ -	$ -	0	$ -	$ -
Shoulder Construction	$ 3.50	/sq ft	0	$ -	$ -	0	$ -	$ -
Retaining Wall	$ 200	/lineal foot	0	$ -	$ -	0	$ -	$ -
Soundwall	$ 200	/lineal foot	0	$ -	$ -	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	0	$ -	$ -	0	$ -	$ -
Overlay of Existing Pavement	$ 1	/sq ft	0	$ -	$ -	0	$ -	$ -
Local Road Relocation/Improvement	$ 5	/sq ft	0	$ -	$ -	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	0	$ -	$ -	0	$ -	$ -
	ROADWAY ITEMS			$ -	$ -		$ -	$ -
Other Items								
Landscaping	5% of roadway cost			$ -	$ -		$ -	$ -
Water Quality	5% of roadway cost			$ -	$ -		$ -	$ -
Traffic Items	20% of roadway cost			$ -	$ -		$ -	$ -
Drainage	10% of roadway cost			$ -	$ -		$ -	$ -
Specialty Items	20% of roadway cost			$ -	$ -		$ -	$ -
	OTHER ITEMS			$ -	$ -		$ -	$ -
Ramp Metering Improvement				$ 1,528,287	$ 1,175,605		$ 1,528,287	$ 1,175,605
Interchange Reconfiguration	$ 7,500,000	/interchange	1	$ 7,500,000	$ 5,769,231	1	$ 7,500,000	$ 5,769,231
Cabrillo/Hot Springs Interchange (only SB ramps replaced)								
	SUBTOTAL			**$ 9,028,287**	**$ 6,944,836**		**$ 9,028,287**	**$ 6,944,836**
Minor Items (5%)				$ 451,414	$ 347,242		$ 451,414	$ 347,242
Mobilization (10%)				$ 947,970	$ 729,208		$ 947,970	$ 729,208
Roadway Additions								
Supplemental Work Items (5%)				$ 473,985	$ 364,604		$ 473,985	$ 364,604
General Contingency (50%)				$ 4,739,850	$ 3,646,039		$ 4,739,850	$ 3,646,039
Total Roadway Additions				$ 5,213,836	$ 4,010,643		$ 5,213,836	$ 4,010,643
	TOTAL ROADWAY ITEMS			**$ 15,641,507**	**$ 12,031,928**		**$ 15,641,507**	**$ 12,031,928**
Structures								
Removal & Replacement	$ 175	/sq ft	0	$ -	$ -	0	$ -	$ -
US 101 Bridge Widening	$ 200	/sq ft	0	$ -	$ -	0	$ -	$ -
Abutment Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
	TOTAL STRUCTURAL ITEMS			**$ -**	**$ -**		**$ -**	**$ -**
	Subtotal Est. Capitol Cost			$ 15,641,507	$ 14,219,551		$ 15,641,507	**$ 12,031,928.1**
Right-of-Way Acquisition	$ 60	/sq ft	0	$ -	$ -	0	$ -	$ -
	TOTAL EST. RIGHT-OF-WAY COST			**$ -**	**$ -**		**$ -**	**$ -**
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 782,075	$ 601,596		$ 782,075	$ 601,596
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 1,564,151	$ 1,203,193		$ 1,564,151	$ 1,203,193
Construction Engineering & Administration	15% of Capital Cost			$ 2,346,226	$ 1,804,789		$ 2,346,226	$ 1,804,789
	TOTAL EST. PROJECT DEV. COST			**$ 4,692,452**	**$ 3,609,578**		**$ 4,692,452**	**$ 3,609,578**
	TOTAL ESTIMATED PROJECT COST			**$ 20,333,959**	**$ 15,641,507**		**$ 20,333,959**	**$ 15,641,507**

Alternative D - General Purpose Lanes

US Route 101 Widening - Add NB Full-Use Lane and SB Auxiliary Lane from Cabrillo/Hot Springs to Olive Mill (0.9 Miles)

(This section will be widened from 4 lanes to 5 lanes by adding a SB Lane by a separate project to be constructed prior to the US 101 widening.)

			Full Standard			Combination of Full Standard and Reduced Cross-Sections		
	Cost per Unit	Unit	Quantity	Estimated Total Cost	Average Cost per Mile	Quantity	Estimated Total Cost	Average Cost per Mile
Roadway-Related Improvements								
Pavement Removal	$ 1.50	/sq ft	141,900	$ 212,850	$ 236,500	70,950	$ 106,425	$ 118,250
Earthwork / Grading	$ 15.00	/cu yd	6,972	$ 104,586	$ 116,206	9,898	$ 148,469	$ 164,966
Pavement Construction	$ 6	/sq ft	113,520	$ 681,120	$ 756,800	122,980	$ 737,880	$ 819,867
Shoulder Construction	$ 3.50	/sq ft	189,200	$ 662,200	$ 735,778	118,250	$ 413,875	$ 459,861
Retaining Wall	$ 200	/lineal foot	9,460	$ 1,892,000	$ 2,102,222	0	$ -	$ -
Soundwall	$ 200	/lineal foot	4,730	$ 946,000	$ 1,051,111	0	$ -	$ -
Interchange Modification	$ 500,000	/ramp	4	$ 2,000,000	$ 2,222,222	4	$ 2,000,000	$ 2,222,222
Overlay of Existing Pavement	$ 1	/sq ft	283,800	$ 283,800	$ 315,333	345,290	$ 345,290	$ 383,656
Local Road Relocation/Improvement	$ 5	/sq ft	15,600	$ 78,000	$ 86,667	0	$ -	$ -
Utility Relocations	$ 250,000	/overpass	1	$ 250,000	$ 277,778	1	$ 250,000	$ 277,778
ROADWAY ITEMS				$ 7,110,556	$ 7,900,617		$ 4,001,939	$ 4,446,599
Other Items								
Landscaping	10% of roadway cost			$ 711,056	$ 790,062		$ 400,194	$ 444,660
Water Quality	5% of roadway cost			$ 355,528	$ 395,031		$ 200,097	$ 222,330
Traffic Items	20% of roadway cost			$ 1,422,111	$ 1,580,123		$ 800,388	$ 889,320
Drainage	10% of roadway cost			$ 711,056	$ 790,062		$ 400,194	$ 444,660
Specialty Items	20% of roadway cost			$ 1,422,111	$ 1,580,123		$ 800,388	$ 889,320
OTHER ITEMS				$ 4,621,861	$ 5,135,401		$ 2,601,261	$ 2,890,290
Ramp Metering Improvement				$ 280,310	$ 311,455		$ 280,310	$ 311,455
Interchange Reconfiguration	$ 15,000,000	/interchange		$ -	$ -		$ -	$ -
SUBTOTAL				**$ 12,012,726**	**$ 13,347,474**		**$ 6,883,510**	**$ 7,648,344**
Minor Items (5%)				$ 600,636	$ 667,374		$ 344,175	$ 382,417
Mobilization (10%)				$ 1,261,336	$ 1,401,485		$ 722,769	$ 803,076
Roadway Additions								
Supplemental Work Items (5%)				$ 630,668	$ 700,742		$ 361,384	$ 401,538
General Contingency (50%)				$ 6,306,681	$ 7,007,424		$ 3,613,843	$ 4,015,381
Total Roadway Additions				$ 6,937,349	$ 7,708,166		$ 3,975,227	$ 4,416,919
TOTAL ROADWAY ITEMS				**$ 20,812,048**	**$ 23,124,498**		**$ 11,925,681**	**$ 13,250,756**
Structures								
Removal & Replacement	$ 175	/sq ft	19,800	$ 3,465,000	$ 3,850,000	19,800	$ 3,465,000	$ 3,850,000
US 101 Bridge Widening	$ 200	/sq ft		$ -	$ -		$ -	$ -
Abutment Wall	$ 80	/sq ft		$ -	$ -		$ -	$ -
TOTAL STRUCTURAL ITEMS				**$ 3,465,000**	**$ 3,850,000.0**		**$ 3,465,000**	**$ 3,850,000.0**
Subtotal Est. Capitol Cost				$ 24,277,048	$ 22,070,044		$ 15,390,681	**$ 17,100,756.3**
Right-of-Way Acquisition	$ 60	/sq ft	26,441	$ 1,586,460	$ 1,762,733	3,000	$ 180,000	$ 200,000
					$ -			
TOTAL EST. RIGHT-OF-WAY COST				**$ 1,586,460**	**$ 1,762,733**		**$ 180,000**	**$ 200,000**
					$ -			
Project Development								
Preliminary Engineering & Environmental	5% of Capital Cost			$ 1,213,852	$ 1,348,725		$ 769,534	$ 855,038
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 2,427,705	$ 2,697,450		$ 1,539,068	$ 1,710,076
Construction Engineering & Administration	15% of Capital Cost			$ 3,641,557	$ 4,046,175		$ 2,308,602	$ 2,565,113
SUBTOTAL EST. PROJECT DEV. COST				**$ 7,283,115**	**$ 8,092,349**		**$ 4,617,204**	**$ 5,130,227**
TOTAL ESTIMATED PROJECT COST				**$ 33,146,623**	**$ 30,133,294**		**$ 20,187,885**	**$ 18,352,623**

Alternative D - General Purpose Lanes

US Route 101 Widening - 4 Lanes to 6 Lanes from Olive Mill to SR 150 (9.9 Miles)

2% of roadway to be realigned

19.7% Roadway to use Reduced Cross-Section

80.3% Roadway to use Full Standard

	Cost per Unit	Unit	Full Standard: Quantity	Full Standard: Estimated Total Cost	Full Standard: Average Cost per Mile	Combination of Full Standard and Reduced Cross-Sections: Full Quantity	Combination: Reduced Quantity	Combination: Estimated Total Cost	Combination: Average Cost per Mile
Roadway-Related Improvements									
Pavement Removal	$ 1.50	/sq ft	1,352,343	$ 2,028,515	$ 204,900	428,089	103,076	$ 796,747	$ 80,480
Earthwork / Grading	$ 15.00	/cu yd	87,027	$ 1,305,400	$ 131,859	46,492	11,071	$ 863,447	$ 87,217
Pavement Construction	$ 6	/sq ft	1,257,671	$ 7,546,025	$ 762,225	1,174,352	288,614	$ 8,777,792	$ 886,646
Shoulder Construction	$ 3.50	/sq ft	2,082,926	$ 7,290,242	$ 736,388	440,141	103,076	$ 1,901,261	$ 192,047
Retaining Wall	$ 200	/lineal foot	39,310	$ 7,861,941	$ 794,136	16,198	3,865	$ 4,012,669	$ 405,320
Soundwall	$ 200	/lineal foot	20,000	$ 4,000,000	$ 404,040	4,366	985	$ 1,070,288	$ 108,110
Interchange Modification	$ 500,000	/ramp	36	$ 18,000,000	$ 1,818,182	36		$ 18,000,000	$ 1,818,182
Overlay of Existing Pavement	$ 1	/sq ft	2,519,659	$ 2,519,659	$ 254,511	1,968,768	494,766	$ 2,463,534	$ 248,842
Local Road Relocation/Improvement	$ 5	/sq ft	127,200	$ 636,000	$ 64,242	54,842	13,782	$ 343,119	$ 34,658
Utility Relocations	$ 250,000	/overpass	6.5	$ 1,625,000	$ 164,141	6.5		$ 1,625,000	$ 164,141
									$ -
ROADWAY ITEMS				$ 52,812,782	$ 5,334,624			$ 39,853,857	$ 4,025,642
									$ -
Other Items									**$ -**
Landscaping	5% of roadway cost			$ 2,640,639	$ 266,731			$ 1,992,693	$ 201,282
Water Quality	5% of roadway cost			$ 2,640,639	$ 266,731			$ 1,992,693	$ 201,282
Traffic Items	20% of roadway cost			$ 10,562,556	$ 1,066,925			$ 7,970,771	$ 805,128
Drainage	10% of roadway cost			$ 5,281,278	$ 533,462			$ 3,985,386	$ 402,564
Specialty Items	20% of roadway cost			$ 10,562,556	$ 1,066,925			$ 7,970,771	$ 805,128
OTHER ITEMS				$ 31,687,669	$ 3,200,775			$ 23,912,314	$ 2,415,385
Ramp Metering Improvement				$ 4,899,076	$ 494,856			$ 4,899,076	$ 494,856
Interchange Reconfiguration	$ 15,000,000	/interchange	1	$ 15,000,000	$ 1,515,152		1	$ 15,000,000	$ 1,515,152
				$ 104,399,527	**$ 10,545,407**			**$ 83,665,247**	**$ 8,451,035**
Minor Items (5%)				$ 5,219,976	$ 527,270			$ 4,183,262	$ 422,552
Mobilization (10%)				$ 10,961,950	$ 1,107,268			$ 8,784,851	$ 887,359
Roadway Additions									
Supplemental Work Items (5%)				$ 5,480,975	$ 553,634			$ 4,392,425	$ 443,679
General Contingency (50%)				$ 54,809,752	$ 5,536,339			$ 43,924,255	$ 4,436,793
Total Roadway Additions				$ 60,290,727	$ 6,089,972			$ 48,316,680	$ 4,880,473
TOTAL ROADWAY ITEMS				**$ 180,872,180**	**$ 18,269,917**			**$ 144,950,041**	**$ 14,641,418**
Structures									
Removal & Replacement	$ 175	/sq ft	116,953	$ 20,466,775	$ 2,067,351	110,013		$ 19,252,275	$ 1,944,674
US 101 Bridge Widening	$ 200	/sq ft	63,750	$ 12,750,000	$ 1,287,879	63,750		$ 12,750,000	$ 1,287,879
Abutment Wall	$ 80	/sq ft		$ -	$ -			$ -	$ -
TOTAL STRUCTURAL ITEMS				**$ 33,216,775**	**$ 3,355,229.8**			**$ 32,002,275**	**$ 3,232,553.0**
Subtotal Est. Capitol Cost				$ 214,088,955	$ 194,626,323			$ 176,952,316	**$ 17,873,971.3**
Right-of-Way Acquisition	$ 60	/sq ft	22,800	$ 1,368,000	$ 138,182	18,308	591	$ 1,133,964	$ 114,542
TOTAL EST. RIGHT-OF-WAY COST				**$ 1,368,000**	**$ 138,182**			**$ 1,133,964**	**$ 114,542**
Project Development									
Preliminary Engineering & Environmental	5% of Capital Cost			$ 10,704,448	$ 1,081,257			$ 8,847,616	$ 893,699
Final Plans, Specifications, & Estimate	10% of Capital Cost			$ 21,408,896	$ 2,162,515			$ 17,695,232	$ 1,787,397
Construction Engineering & Administration	15% of Capital Cost			$ 32,113,343	$ 3,243,772			$ 26,542,847	$ 2,681,096
SUBTOTAL EST. PROJECT DEV. COST				**$ 64,226,687**	**$ 6,487,544**			**$ 53,085,695**	**$ 5,362,191**
TOTAL ESTIMATED PROJECT COST				**$ 279,683,642**	**$ 28,250,873**			**$ 231,171,974**	**$ 23,350,704**

Appendix D

Commuter Rail Preliminary Analysis

APPENDIX D

Commuter Rail Preliminary Analysis

Prepared for:

Santa Barbara County Association of Governments

Prepared by

Wilbur Smith Associates

in association with

PB Transit & Rail Systems

August 18, 2005 (Revised March 21, 2006)

Commuter Rail Preliminary Analysis

INTRODUCTION

What follows is a conceptual planning level analysis of a weekday commuter rail service operating between Ventura County and the major Santa Barbara County destinations of Santa Barbara and Goleta along the Union Pacific Railroad's (UP) Coast Line in year 2030. The study was performed for the Santa Barbara County Association of Governments (SBCAG) as part of the ongoing 101 in Motion project. The main thrust of the analysis described below was to provide input on a decision of whether or not commuter rail should be part of the long range solution for reducing congestion in the U.S. 101 corridor.

The analysis begins with an assessment of potential southern terminus locations in Ventura County. The conceptual operating plan then follows, with an illustrative schedule for the commuter train. Next, the analysis presents a preliminary ridership forecast for the commuter rail service. Based on the ridership forecast, the study estimates revenue, operating costs, and capital costs. The study also considers ridership, revenue and costs if the service were up and running in 2010 and 2020. The analysis compares two rolling stock types envisioned for the service, and concludes with a discussion of next steps on the road to implementation of the service.

The study investigators were planners and engineers from Wilbur Smith Associates (WSA) and PB Transit & Rail Systems (PB). WSA's effort focused on the service concept definition, ridership and revenue forecasts, operating cost estimates, and a rail line capacity analysis. PB provided unit costs for capital costing. WSA is completing the Commuter Rail Strategic Assessment for the Metrolink commuter rail system serving Oxnard and the greater Los Angeles area. Per the direction of SBCAG, the study team employed the methodology for ridership forecasting developed for the Metrolink study. Agencies contacted during the study included staff at Caltrans, Division of Rail; Metrolink; and Ventura County Transportation Commission (VCTC). VCTC staff participated on the Technical Advisory Group (TAG) for 101 in Motion and is in general supportive of the101 in Motion project, yet has not taken specific actions toward implementing any activities to support the commuter rail element. As is typical for a preliminary analysis, no contact was attempted with representatives of the Union Pacific Railroad.

VENTURA COUNTY STATION ASSESSMENT

This section explores various sites as a potential Ventura County-Santa Barbara County commuter rail service (Santa Barbara commuter rail service). Existing stations and alternatives were considered. Stations south of Camarillo were not part of the assessment, as interest in a northbound morning commuter rail service was presumed to be stronger west of Moorpark. The predominant means of accessing these stations would be by automobile via U.S. 101 and connecting city streets. Table 1 summarizes the characteristics of the station sites considered. The characteristics are as follows.

- ***Parking Availability:*** Does the site have parking available for passengers to access the commute trains?
- ***Space to Expand:*** Does space exist around the site for building station and/or parking?
- ***Road Access:*** Does the site have good access by automobile?
- ***Growth Area Potential:*** Is the site likely to experience rapid business and residential growth? (Sites are subjectively rated as having high, medium, and low growth potential.)
- ***Layover Facility Space:*** Does the site have the space for a layover facility, where running maintenance and equipment swaps with Metrolink could be performed? (Metrolink in this analysis is the assumed operator of the Santa Barbara commuter rail service.)

In the table below, the station sites assessed appear in alphabetical order. The assessments were developed in consultation with the Ventura County Transportation Commission (VCTC).

Camarillo is an existing station, serving Metrolink commuter rail and the Amtrak Pacific Surfliner trains. The station will have a new parking facility with 370 spaces (assumed here to be paved spaces; parking capacity could be further enhanced if a parking structure were built) in the near future; this capacity may be sufficient to handle northbound commuter demand for parking there (please see the ridership discussion in a subsequent section of this analysis). Access from nearby U.S. 101 is good. The area surrounding the site is experiencing rapid residential and business growth. Space for a layover facility appears to exist to the south (or geographically east) of the station, and would require a lease or purchase agreement from UP.

Table 1: Summary of Existing and Potential Ventura County Station Characteristics

Station	Parking Availability	Space to Expand	Road Access	Growth Area Potential	Layover Facility Space
Camarillo	370-space facility planned	Constrained by surrounding development	Good access by city streets from U.S. 101	High	Space exists to south
Oxnard	Multi-level structure planned nearby	Constrained by surrounding development	Poor access by city streets from U.S. 101	Medium	Space could be acquired in UP yard
Montalvo	60 spaces only	Constrained by surrounding development	Good access by city streets from U.S. 101	Low	Space exists to east
Rice Avenue	Undeveloped rural site	Undeveloped rural site	Good access by Rice Ave, from U.S. 101	Medium	Space exists to south
Ventura Fairgrounds	Fairgrounds parking	Constrained by surrounding development	Good access by city streets off U.S. 101	Medium	None available
Old Ventura Station	Constrained	Site constrained by surrounding development	Good access by city streets off U.S. 101	Medium	None available

Montalvo is an existing station, serving Metrolink. Unlike the other stations, which are located on the UP Coast Line, the Montalvo station is on the Santa Paula Branch Line (owned by

Ventura County) just east of the Coast Line. It is the terminus for Metrolink's Ventura County Line service. Trains overnight at a layover facility there at the end of their weekday runs from Los Angeles and emanate from there the following weekday mornings for their runs to Los Angeles. Montalvo today has 60 parking spaces. Expansion of parking there is constrained by the surrounding residential area. The station is comparatively close to U.S. 101, so access is good. The station serves an area experiencing rapid residential and business growth. Because it is located off the main line, it offers less utility as a passenger station than existing stations in Oxnard and Camarillo, and could only function as a southern terminal station. While it could serve as an overnight layover location, it would require "deadheading" of equipment from Oxnard or Camarillo if either of those locations were the southern terminal of the service. Expansion of the existing layover facility there may be problematic, considering the developed residential area surrounding the site. However, an expanded layover facility could be constructed on the Santa Paula Branch to the east of the existing station and layover site.

Oxnard is an existing station servicing Metrolink, the Pacific Surfliner, and Amtrak's Coast Starlight trains. The site has very limited parking, and it is constrained by existing development. However, a multi-level parking structure with an estimated 600 spaces is planned nearby at 5th Street and Oxnard Boulevard. Road access is considered poor, as the site is about two miles over city streets from the U.S. 101 and Oxnard Boulevard intersection. Downtown Oxnard is well developed. However, some redevelopment will likely occur there. A layover facility could be located in the adjacent UP yard.

Rice Avenue is a station location illustrative of an alternative to Downtown Oxnard that offers better access to commuters from south and east of Oxnard. This site today is in an agricultural area. Abundant land exists for a station, parking and a layover facility, provided that the development of a station was in conformance with zoning. Access from U.S. 101 is also good via Rice Avenue.

Ventura Fairgrounds is an existing Pacific Surfliner station. Ample parking exists at the adjacent fairgrounds parking lot, which is comparatively empty during the vast majority of weekdays during the year. This parking capacity could be enhanced with a parking structure or additional surface parking, space permitting. Expansion of surface parking at the station is constrained by U.S. 101 on the east side of the station and the existing fairgrounds parking on the west. Road access from adjacent U.S. 101 is good. The area surrounding the site is growing in terms of new business and residential development. There is no room at the station for a layover facility.

Old Ventura Station area is on the south side of the UP rail trestle spanning U.S. 101 near downtown Ventura. The City of Ventura developed the concept of a new station at this site, as part of an effort to revitalize the city center. The station was envisioned as an alternative to the existing Ventura Fairgrounds station. With the development of this alternative, the Surfliner would cease to stop at the Fairgrounds station. There is very little existing parking at the old station site, and new parking space is constrained by surrounding residential housing. Located just east of U.S. 101, the site has good access via city streets. Like the downtown Oxnard station site, this site is in the midst of a mature urban setting. However, some redevelopment is likely to occur. There is no room in the immediate vicinity for a layover facility.

The review of these existing station sites points to Camarillo as the most appropriate location for originating a new AM northbound commuter rail service. The determining factors are:

- The station already exists, and thus none has to be built, as would be the case for the Rice Avenue and the Old Ventura Station sites.
- A new parking facility with 370 spaces may obviate the need to add parking at the site.
- The site is closer to the southern end of the Santa Barbara commute shed, and would conveniently serve Camarillo area riders who otherwise would have to access commuter trains at more northern sites.
- Access to the site by city streets is good, and superior to Oxnard.
- Space for a layover facility appears to exist to the south (geographically east) of the station.

COMMUTER RAIL OPERATING PLAN

Service Concept

This analysis assumes three AM peak period departures weekdays from Camarillo to Santa Barbara and Goleta, and the reverse during the afternoon commute period. Four Pacific Surfliner trains would provide off-peak service northbound, and likewise four Surfliners would provide off-peak service southbound. Amtrak's Coast Starlight would provide one additional round trip between Oxnard and Santa Barbara. Current schedules of the Metrolink, Surfliner and Coast Starlight were assumed, as it was not possible to identify what the schedules might be in Year 2030, which was the planning horizon for that study. However, it is very possible that additional passenger service may be operating along the Coast Line and in this analysis's study area (Camarillo-Goleta) by that time[1].

A conceptual schedule for the commuter rail service appears in Table 2 below.

Table 2: Expanded Commuter Rail Concept Schedule

#2	#4	#6		#1	#3	#5
16:35	17:20	17:55	Goleta	7:19	8:04	8:49
16:48	17:33	18:08	Santa Barbara	7:08	7:53	8:38
17:04	17:49	18:24	Carpinteria	6:52	7:37	8:22
17:26	18:11	18:40	Ventura	6:30	7:15	8:00
17:40	18:25	19:00	Oxnard	6:16	7:01	7:46
17:49	18:34	19:09	Camarillo	6:05	6:50	7:35

[1] The *LOSSAN North Corridor Strategic Plan Draft Report* (June 2005) indicates on page 34 that the Metrolink and Caltrans/Amtrak will have several more trains in the operating on the Coast Line in year 2025. The report anticipates that there will be between 70 and 76 trains on the Coast Line in that year, as compared with 38 to 42 today.

The three commuter rail round trips, four off-peak Pacific Surfliner round trips, and one Coast Starlight round trips provide for 16 trains between Oxnard and Santa Barbara, and 14 between all other stations above. Assuming something like the current Metrolink-Amtrak Rail 2 Rail program could be fashioned for this commuter rail service, monthly pass commuter riders could board any of the Amtrak Surfliner trains without having to pay a supplemental fare (Amtrak fares typically are higher than commuter rail fares).

Use of six existing Amtrak Surfliner passenger stations was assumed. These are located at Goleta, Santa Barbara, Carpinteria, Ventura, Oxnard, and Camarillo. These stations are served by Surfliner trains. The Amtrak's Coast Starlight train also services Santa Barbara and Oxnard.
During the course of the analysis, the study team received a suggestion to the effect that Surfliner 763 from Los Angeles to San Luis Obispo be rescheduled to leave earlier so as to provide a fourth northbound departure in the a.m. commute period from Camarillo. Train 763 leaves Los Angeles at 7:30 AM, and arrives at Camarillo 9:08 AM. However, Caltrans Division of Rail commented that Metrolink would have major concerns over any Surfliner trains originating from Los Angeles Union Station (LAUS) between 6:15 and 7:30 AM due to their own heavy train volume at LAUS. Given the potential conflicts with current Metrolink trains, Caltrans felt is was unlikely that it could move the Train 763 to an earlier time slot.

PRELIMINARY RIDERSHIP FORECAST

The ridership forecast employed a ridership forecasting methodology developed for the ongoing *Metrolink Commuter Rail Strategic Assessment*. In brief, the methodology first identifies the work trips that occur between areas around origin stations and areas around destination stations, and then applies a mode share which commuter rail could reasonably be expected to capture. The ridership is them adjusted to reflect the anticipated impact of increasing congestion on the parallel highway system.

Methodology and Data Source

The basis for ridership forecasts was the projected peak hour home to work trip volume between traffic analysis zones (TAZs) in the Santa Barbara commuter service area. The data were obtained from the SBCAG regional transportation model. TAZs around each potential commuter station were grouped to represent the station service area, and the forecasted peak hour movements between the station service areas were adjusted to represent total AM home to work trips.

Commuter Rail Mode Share

Research for the Metrolink study and the other commuter rail studies has established a typical "capture rate" or mode share for commuter rail trips between stations of varying distance, and with varying levels of service. For these forecasts, capture rates currently being experienced on Metrolink services were applied to the total peak period home to work travel to determine the number of probable rail commuters. The rates were based on a correlation of Metrolink ridership to train frequency (i.e. with the more trains, people are more drawn to the service), and ridership to travel distance (i.e. people are more drawn to commuter rail for longer trips than for shorter trips). The rates range from less than one percent for short trips to 12-14 percent for trips in the 40 to 50 mile range, assuming three trains during the AM peak period. These rates assume a high level of integration with local transit or employer shuttle services to move train riders to work centers[2]. Application of the capture rates to the morning work trips produced the forecast of morning commuter train ridership. Total ridership would be double the morning figures.

Congestion Adjustment Factors

The ridership forecasts then were adjusted to reflect ridership under three conditions: current congestion levels, increased highway congestion levels, and congested highways with high occupancy vehicle (HOV) lanes between Carpinteria and Goleta and express bus service between the counties. Current congestion levels assume that travel times would be the same as they are today. Increased congestion levels assume that travel times would take longer. Congested highways with HOV lanes and express bus service assume that commuters could shorten their travel time by availing themselves of HOV lanes by carpooling and express buses that would operate in those lanes.

Team member Parsons Brinckerhoff calculated the auto travel times for a “no build” assumption between Ventura and Santa Barbara for 2030 as compared to today. The analysis indicated that typical commutes will be at least 10 minutes longer. This observation allowed a congestion factor of 1.5, boosting ridership by 50 percent assuming increased congestion. This ridership forecast assumed graduated congestion factors of 1.1 in 2010 and 1.3 in 2020, escalating with congestion.

Ridership Forecast

Ridership was forecast for 2010, 2020 and 2030 under three conditions: current congestion levels (provided by some capacity improvements in the highways), increased congestion (no improvements), and HOV lanes with Express Bus transit (highway improvements with a competing transit mode making use of the improvements).

Table 3: Commuter Rail Ridership Forecasts
Three A.M. Train Service Plan

	2010	2020	2030
With HOV/Bus	242,491	334,032	439,868
Current Congestion	440,892	513,896	586,490
Increased Congestion	484,981	668,064	879,735

Recent travel demand modeling for a potential commuter rail corridor in Houston revealed that high occupancy lane improvements would reduce the attraction for commuter rail by about half[3] from no improvement conditions. Accordingly, the forecasted ridership for scenarios assuming HOV/express bus improvements was halved from increased congestion scenarios.

[2] This analysis does not estimate the cost to local agencies of this integration. However, these costs are addressed in other studies that are part of the alternatives analysis of improvements in the U.S. 101 Corridor in Santa Barbara County.

[3] SH 288 Corridor Feasibility Study, Texas Department of Transportation.

Table 4 shows the boardings (ons) and alightings (offs) at each station from Camarillo to Goleta generated by three commuter rail AM northbound departures in 2030, assuming the different assumptions of congestion. Adding the totals and multiplying by 254 weekdays produces the yearly totals in Table 3 (slight discrepancies are due to rounding).

Table 4: Morning Ons and Offs in 2030

	With HOV and Express Bus		Current Congestion		Increased Congestion	
	Ons	Offs	Ons	Offs	Ons	Offs
Camarillo	134	0	178	0	268	0
Oxnard	242	0	323	0	485	0
Ventura	385	0	513	0	769	0
Carpinteria	71	32	95	42	143	63
Santa Barbara	34	506	45	674	67	1,011
Goleta	0	329	0	438	0	658
	866	866	1,155	1,155	1,732	1,732

Appendix Table 1 calculates the number of total AM work trips between Camarillo and Goleta that could be attracted to commuter rail in 2010, 2020, and 2030, assuming current congestion levels. The year 2000 is shown for illustrative purposes.

The highest ridership forecast for 2030 (with congestion) translates to an average of 577 passengers per train trip with the three trains envisioned by this analysis. Some trains may carry more, and others will carry fewer passengers. The mid-range forecast (current congestion level) translates to an average of 385 riders per train. The lowest forecast (with HOV/Bus) translates to an average of 289 riders per train.

The more likely scenarios are those that assume some capacity improvements will be made to U.S. 101, so that conditions are no worse than current congestion levels. These are the scenarios generating 866 commuter rail round trips (289 riders per train) or 1,155 commuter round trips (385 riders per train). They are the more likely scenarios because it is unlikely that no improvements will be undertaken to ameliorate congestion on U.S. 101, resulting in the assumption of substantially increased congestion (and consequently the 1,732 commuter rail round trips).

As stated above, the forecasts depend on estimates of work trips between aggregations of TAZs around stations. The work trip forecasts of zone-to-zone travel come from SBCAG. The analysis then applied the capture rates (mode shares) derived from Metrolink's experience for two and three AM peak period trains against these work trips to determine the total commuter rail potential. The only exception to this formula was Carpinteria. The reason was that SBCAG data seemed to understate the work trips that are occurring and will likely occur between

Carpinteria and both Santa Barbara and Goleta. As a result, this forecast used work trip figures from SBCAG's *2002 Commute Profile*, which pointed to 2,400 work trips occurring between Carpinteria and both Santa Barbara and Goleta – a total that is seven times as much as the SBCAG work trip data indicated.

REVENUE FORECAST

Revenue forecasts are derived directly from the ridership forecasts, using an assumed fare structure with three travel zones. Most of the riders would be traveling through all three zones (from Camarillo through Carpinteria to Santa Barbara/Goleta) so the average fare per trip would be close to the fare for the longest trips. An average 3-zone fare of $3.25 in 2005 dollars was assumed, declining to $2.50 for two zones and $1.75 for a single zone. These average rates reflect a mix of one-way and multi-ride fares typical of other commuter rail systems. The weighted average fare would be $3.20 per trip. This fare is higher than what monthly pass holders pay per trip ($1.80[4]) for the VISTA Coastal Express bus service operating between the Ventura County Government Center (in Ventura) and Goleta. However, commuter rail typically is able to achieve a fare premium over express bus services for trips of comparable distances. Amtrak's monthly pass for trips between Oxnard and Santa Barbara is $119, or approximately $3 per ride, assuming 40 rides per month.

Table 5 shows the anticipated fare revenue generated by the three commuter rail round trips between Camarillo and Goleta.

Table 5: Revenue Forecasts

2030	Ridership	Avg. Fare	Revenue
With HOV and Express Bus	439,868	3.20	1,406,772
With Current Congestion Levels	586,490	3.20	1,875,694
With Increased Congestion Levels	879,735	3.20	2,813,541
2020			
With HOV and Express Bus	334,032	3.20	1,068,291
With Current Congestion Levels	513,896	3.20	1,643,526
With Increased Congestion Levels	668,064	3.20	2,136,581
2010			
With HOV and Express Bus	242,491	3.20	775,527
With Current Congestion Levels	440,892	3.20	1,410,047
With Increased Congestion Levels	484,981	3.20	1,551,051

[4] The estimated cost per trip with a monthly pass would be $1.80, calculated as follows: the $75 monthly pass divided by 20 weekdays per month divided by two trips each way equals $1.80 per trip.

OPERATING COSTS

Operating cost forecasts are based on costs experienced by comparable commuter rail operations, and principally by Metrolink. Costs include train operations and maintenance; payments to UP for dispatching, track maintenance, and use of the route; station maintenance; layover facility maintenance; and sponsoring agency administrative costs. All costs are in 2005 dollars.

Operations and Maintenance: The simplifying assumption made for this study is that the sponsoring agency would contract with Metrolink (rather than joining Metrolink as a member agency) for train operations, routine equipment servicing, and equipment maintenance. Attempting to duplicate Metrolink maintenance facilities on a smaller scale for only three train sets (the number required to handle the ridership of the more likely scenarios) would not be cost-effective. Furthermore, Metrolink-type equipment (locomotive-hauled trains) would be used. Metrolink's current operating and maintenance cost is $41.31 per train mile (excluding payments to railroads and maintenance of Metrolink-owned track). This cost includes insurance. A similar cost is assumed for the Santa Barbara service. Total costs would be $3.5 million.

Railroad Payments: UP would expect contributions to capital maintenance of about $1.2 million per year. UP also would expect contributions for dispatching and maintenance of way of $7.30 per train mile. Lastly, UP would expect a rental payment for the use of its track of about $0.3 million. These estimates are based on what the Ventura County Transportation Commission is paying UP today for Metrolink trains operating between Moorpark and Montalvo. Total costs would be $2.1 million

Station Maintenance: Stations would incur annual costs for cleaning, sweeping, lighting, and landscape maintenance. For purposes of this study, the existing stations are assumed to continue in operation. Parking may need to be expanded at some locations. An allowance of $1,500 per station to cover incremental costs associated with the commuter service is assumed[5]. Total costs for using the six stations would be $9,000.

Support Facility Maintenance: Maintenance of the mid-day storage track at Goleta and the overnight storage/service facility at Camarillo will be an added expense. A lump-sum figure of $10,000 is assumed.

General and Administrative Expenses: The commuter service will need to be sponsored and administered by a public agency. Costs will be incurred for management, contract oversight, fiscal reporting, legal representation, and similar functions associated with the operation of the commuter service. The services could be provided by a separate agency staff, or contracted through an existing county or regional agency. A lump-sum of $500,000 is assumed.

Total annual operating costs for the service are summarized in Table 6. Capital rehabilitation for rolling stock, the layover facilities (discussed in a subsequent section), and the Metrolink Central Maintenance Facility in Los Angeles where rolling stock will be maintained is not included. These costs could total an additional $600,000 per year.

[5] Per 2005 Shore Line East commuter rail budget, Connecticut Department of Transportation.

The three round trips should generate operating and maintenance costs totaling $6.1 million. The largest component of this figure is train operations and maintenance, which in turn is an aggregate cost of operating and maintaining Metrolink train sets of various sizes from two to six cars. For the purpose of this analysis, the $6.1 million figure is assumed to represent the cost of operating three five-car train sets, plus spares. It is reasonable to assume some savings for operating a fleet of smaller train sets. Operating costs of $5.8 million (5 percent lower) for are assumed for three four-car train sets, and $5.5 million (10 percent lower) for three three-car train sets.

Table 6: Pro Forma Annual Operating Costs for Santa Barbara Commuter Rail Service
Three Train Scenario

Cost Items	Unit Cost	Unit Measure	Cost
Train Operations & Equipment Maintenance	$41.31 per train mile	83,820 train miles	$3,462,604
UP Capital Maintenance	$22,222 per route mile	55 route miles	1,222,222
UP Operations	$7.30 per train mile	83,820 train miles	611,886
UP Interest Rental	$5,555.56	55 route miles	305,556
Shared Station Maintenance	$1,500 per station	6 stations	9,000
Support Facility Maintenance	$10,000 per year	1 year	10,000
General & Administrative Costs	$500,000 per year	1 year	500,000
Total Annual Cost			6,121,268

FINANCIAL PERFORMANCE SUMMARY

The financial figures below represent the operating performance of the three round trip commuter rail service between Ventura and Santa Barbara Counties. The figures were derived according to assumptions of conditions prevailing on U.S. 101 in the future. Financial performance is best in 2030. The superior results are a function of more people riding the trains. The scenarios highlighted in ***bold italic*** represent the most likely range of outcomes, as these assume some level of improvements to U.S. 101 mitigating congestion in future years.

Table 7: Financial Summary of Santa Barbara Commuter Rail Service
Three Train Scenario

2030	Ridership	Revenue	Operating Cost	Operating Subsidy	Subsidy Per Psgr,	Fare Box Recovery
With HOV and Express Bus	***439,868***	***$1,406,772***	***$5,509,141***	***$4,102,369***	***$9.33***	***26%***
With Current Congestion Levels	***586,490***	***1,875,694***	***5,509,141***	***3,633,447***	***6.20***	***34%***
With Increased Congestion Levels	879,735	2,813,541	6,121,268	3,307,727	3.76	46%
2020						
With HOV and Express Bus	***334,032***	***1,068,291***	***5,509,141***	***4,440,851***	***13.29***	***19%***
With Current Congestion Levels	***513,896***	***1,643,526***	***5,509,141***	***3,865,615***	***7.52***	***30%***
With Increased Congestion Levels	668,064	2,136,581	5,815,205	3,678,623	5.51	37%
2010						
With HOV and Express Bus	***242,491***	***775,527***	***5,509,141***	***4,733,614***	***19.52***	***14%***
With Current Congestion Levels	***440,892***	***1,410,047***	***5,509,141***	***4,099,094***	***9.30***	***26%***
With Increased Congestion Levels	484,981	1,551,051	5,509,141	3,958,090	8.16	28%

CAPACITY ANALYSIS

This preliminary analysis studied the capacity of the Union Pacific Coast Line between Camarillo and Goleta. The purpose of the analysis was to determine the likelihood that any major capital improvements would be required to support the three commuter rail round trips in addition to those improvements cited in the previous analysis. A more detailed capacity analysis is being conducted through the LOSSAN North Strategic Plan which will take into account projected growth in freight and intercity passenger rail usage in the corridor. For this preliminary analysis the study team used Rail Traffic Controller (RTC) operations simulation program for the analysis. RTC is the industry standard for performing capacity analyses. Inputs include forecasted volumes of train activity and the assumptions of the rail infrastructure. UPRR uses RTC routinely to check capacity conditions on its routes, and to identify solutions for bottlenecks.

WSA simulated current Amtrak, Metrolink, and Union Pacific operations over the Coast Line between Capitan Siding on the north (16 miles north of Goleta) and Hassan Siding on the south (24 miles south of Camarillo). WSA then added the proposed commuter service between Camarillo and Goleta to the mix of trains, and simulated the resulting operations. The simulation confirmed the need for capacity improvements, because train performance with the additional commuter trains was unacceptable. The results confirmed that various improvements are required for timely operation of the three added commuter round trips, without any degradation of other current operations. The improvements included upgrading the Oxnard siding to a main track, extending that track north to the Montalvo wye, and constructing a new siding north of Carpinteria (assumed to be at Summerland). The addition of layover tracks at Camarillo and Goleta also were modeled. The extended Oxnard trackage is necessary to permit northbound Goleta commuter trains and southbound Metrolink commuter trains to pass during the morning commuter hours. The additional siding north of Carpinteria is necessary for Surfliner service trains to meet Goleta commuter trains, both in the morning and afternoon periods, without substantial delays to one service or the other.

The simulations confirmed these improvements as necessary for start-up of three added commuter trips under current rail traffic conditions. The simulations did not test any assumptions or projections of future Metrolink, Amtrak, or UP operations, as schedules were not available.. Thus, it is still likely that prior to negotiating any commuter service over this portion of the Coast Line, UP would require a more complete operations simulation analysis that includes varying levels of freight service. Similarly, both Metrolink and Amtrak would need to cooperate by providing forecasts and schedules of added passenger services in future years.

Statistical measures of train performance with existing and upgraded trackage are shown in Appendix Table 2. The simulations included analysis for weekday two round trips as well.

CAPITAL COSTS

The following items outline the capital costs for implementing the Santa Barbara commuter rail service in 2030. All costs are in 2005 dollars, with the exception of rolling stock, for the reasons noted below. All the capital costs presented here are based on the three round trip scenario.

Construction costs for all capital projects were provided by PB, using current construction unit costs for similar projects in California. Siding construction was assumed to be entirely within the existing right-of-way. The costs include factors for start-up and testing (1 percent); construction contingency (25 percent); and add-on allowances for engineering design, environmental impact investigation, construction management, change orders during construction, a project reserve account for costs outside normal contingencies, project sponsor costs related to implementation, and station art (39 percent). Land acquisition costs for layover facilities and parking improvements were estimated.

Rolling Stock: In 2030, a commuter rail train set will require one locomotive and three bi-level cars to move about 300 riders each way[6]. The service's rolling stock would be interchangeable with Metrolink, with equipment swaps occurring at Camarillo. Metrolink would maintain the equipment at its Los Angeles maintenance facility. The service's sponsoring agency would purchase the following equipment to support operations. The rolling stock costs are in 2004 dollars, as firm quotes for the rolling stock in today's dollars are not available the time of this writing. The cost includes an allowance for procurement expenses (transportation, inspection, and testing).

Table 8: 2030 Rolling Stock Requirements

Cost Items	Units	Unit Cost	Total Cost
Diesel Locomotives (with Spare)	4	$3,500,000	$14,000,000
Passenger Cars (with Spare)	7	2,000,000	14,000,000
Cab Cars (with Spare)	4	2,300,000	9,200,000
Procurement Allowance	1	400,000	400,000
Total Costs			37,600,000

The minimum train set configuration would be one locomotive, two coaches and a cab car. This configuration provides for 420 seats total (140 per car). The seated capacity will be sufficient to handle the average 289 riders to 385 riders per train on average assumed for the two more likely service scenarios in 2030. For the high-end ridership forecast, train sets of five cars would be needed. In such a case, total capital costs, inclusive of spares and a slightly higher procurement allowance, would be $51.7 million.

Station Improvements: Parking improvements at Camarillo and Oxnard appear to be sufficient to handle the incremental demand for parking at these stations triggered by the Santa Barbara

[6] The most conservative ridership forecast indicates that there would be about 866 riders each way, or 289 per train on average. Actual ridership per train will vary. Of the three departures from either terminus, more riders may opt to take the middle train than either the earlier train or later train. The car count assumes a not-to-exceed maximum of 95 percent of seated capacity per car in order to provide a seat for every rider on every train.

commuter rail service. Also, VCTC related its impression that the Ventura County Fairgrounds parking lot, adjacent to the existing Ventura Surfliner Station, would likely provide more than enough capacity on weekdays for riders seeking to access trains by their cars there. However, Carpinteria likely need some additional parking[7], and this analysis assumes 100 additional paved spaces[8]. The cost, totaling to $3.3 million, appears in the table below, and includes land acquisition.

Table 9: Additional Parking at Carpinteria	
Construction Cost	$386,250
Start-up and Testing at 1%	3,863
Construction Contingency at 25%	97,528
Add-on Allowance at 39%	190,180
Total Construction Cost	677,820
Land Acquisition	2,613,600
Total Facility Cost	3,291,420

Oxnard would need various improvements to handle the additional trains. These appear in Table 10 below and total to $11.4 million. The improvements will be located either on existing station land or on UP property. In the case of the latter, UP would grant an easement for construction. Accordingly, no land acquisition cost is assumed.

Table 10: Oxnard Station Improvements

Improvements	Total Cost
Construct 2nd Passenger Platform along Upgraded Siding	$1,355,641
Construct Overhead Pedestrian Overcrossing	3,615,043
Allowance for Freight Yard Track Revisions	3,817,485
Upgrade Siding to Main Track	2,632,313
Total	11,420,481

The costs include the aforesaid factors for start-up and testing, construction contingency, and an add-on allowance.

Santa Barbara and Goleta will need some modification to handle shuttle buses assumed to meet the trains, as well as to provide some additional parking. This analysis assumes a $1.8 million allowance for improvements for each station, as noted in the following table. The improvements will be on existing station land, so no land acquisition costs are assumed.

Table 11: Station Shuttle and Parking Improvements	
Construction cost	$1,000,000
Start-up and Testing at 1%	10,000
Construction Contingency at 25%	252,500
Add-on Allowance at 39%	492,375
Total Facility Cost	1,754,875

7 Caltrans Division of Rail reported 100 parking spaces at the Carpinteria station, with a utilization rate of about 90 percent. The lot is used both for downtown Carpinteria parking and for station parking, with the latter being a minor portion of the utilization.

8 100 spaces would be sufficient to handle the parking demand created by the forecasted 2030 AM boardings under the two more likely scenarios.

Goleta and Camarillo Layover Facilities: Layover facilities will be needed for the northern and southern termini of the Santa Barbara commuter rail service. This analysis assumes a total cost of $4.3 million for such a facility at Goleta, inclusive of land acquisition. A similar facility at Camarillo would cost the same. A land acquisition cost is included.

Table 12: Layover Facility	
Construction Cost	$1,064,859
Start-up and Testing at 1%	10,649
Construction Contingency at 25%	268,877
Add-on Allowance at 39%	524,310
Subtotal Construction Cost	1,868,695
Land Acquisition	2,400,000
Total Facility Cost	4,268,695

The cost includes 1,000 feet of new track; a road access for service vehicles; paved parking; fencing, gates, and lighting for security; and electric and water services.

Track Upgrades at Summerland and Oxnard: The foregoing capacity analysis demonstrated the need for a new 9,000-foot passing siding at Summerland, with signalized turnouts from the main track at each end. The total cost for this improvement will be $6.0 million.

Table 13: Summerland Passing Siding	
Construction Cost	$3,401,429
Start-up and Testing at 1%	34,014
Construction Contingency at 25%	858,861
Add-on Allowance at 39%	1,674,778
Total Siding Cost	5,969,082

Also required will be upgrading of the Oxnard siding and extending the siding almost four miles to the south side of the Santa Clara River crossing. The total costs for this improvement will be $9.1 million.

Table 14: Oxnard Siding Extension	
Construction Cost	$5,220,864
Start-up and Testing at 1%	53,775
Construction Contingency at 25%	1,318,660
Add-on Allowance at 39%	2,571,386
Total Siding Cost	9,164,685

Both of these improvements will occur in the UP right of way, so land acquisition cost is included.

Thus, the sum of capital costs appears in Table 15. These total to $79.5 million.

Table 15: Total Estimated Capital Costs	
Cost Item	Costs
Rolling Stock	$37,600,000
Carpinteria Parking Improvements	3,291,420
Oxnard Station Improvements	11,420,481
Santa Barbara Shuttle Improvements	1,754,875
Goleta Shuttle Improvements	1,754,875
Goleta Layover Facility	4,268,695
Camarillo Layover Facility	4,268,695
Summerland Siding	5,969,082
Oxnard Siding Improvements	9,164,685
Total Costs	79,492,809

Not all of these costs need to be incurred at one time. Implementation could be phased. Start-up of commuter rail service might offer just two round trips, a level of service which could mean fewer capital improvements would be required. Another potential strategy to lower costs at start-up might be use of used rail equipment, providing that Metrolink would be willing to maintain this equipment.

The costs above do not reflect any cost sharing allocations. Presumably, the commuter rail sponsoring agency might be able to negotiate some cost sharing for line capacity improvements with the UP, along with Surfliner and even Metrolink service sponsors, as all trains would benefit from the capacity enhancements. Such cost sharing allocations will be the subject of subsequent analyses and negotiations if commuter rail becomes part of the selected package of improvements in the U.S. 101 corridor.

DIESEL MULTIPLE UNIT ASSESSMENT

This section compares two different types of rolling stock that could be deployed for the Santa Barbara commuter rail service. These are:

- Locomotive-hauled push-pull train sets
- Self-powered rail car train sets, also known as Diesel Multiple Units (DMU)

Details on these two possible equipment configurations are listed in Table 16. The cost figures per train set are based on the minimum configurations of locomotives, conventional bi-level cars, and DMUs that would be needed to handle the likely volumes anticipated for 2030. For locomotive-hauled equipment, the minimum consist would be a locomotive, two bi-level coaches and a bi-level cab car, providing for a 420 seats. The cars are manufactured by the Bombardier Corporation of Canada. For DMUs, it would be three bi-level cars – two powered and one unpowered – providing for 594 seats. The seated capacities of both options exceed the average ridership per train forecasted under the two more likely scenarios. This is true as well for a two-car DMU option, which would provide 406 seats. However, this analysis conservatively assumes that UP will require that a train set configuration have 12 axles to ensure the contact required with the rails to shunt or trigger signals and grade crossing protection[9]. Twelve axles dictate a three-car DMU train set.

Table 16: Comparison of Locomotive-hauled Train Sets and DMUs for Commuter Rail Operation in 2030

Points of Comparison	Locomotive-hauled Train Set	Colorado Railcar Bi-level DMU
Minimum Configuration	1 Locomotive, 2 Coaches and 1 Cab Car	2 Powered Cars and 1 Trailing Coach
Seating Capacity[10]	420	594
Capital Cost (Millions)	$9.8	$11.4
Horsepower	3,000	1,200
Capital Cost per Seat	$23,333	$19,191
Weight (Tons)[11]	319	273
Length (Feet)[12]	315	255
Tons per Seat	.76	.46
Fuel Consumption[13]	0.45 miles per gallon	1.05 miles per gallon
Horse-power per Ton	9.4	4.4
Noise and Vibration	High	Medium/Low
Total Fleet Size (Units)	15	15
Minimum Capital Cost for Fleet (Millions) Needed in 2030	$37.6	$45.6

Colorado Railcar is the only manufacturer of FRA-compliant DMU equipment in North America today. Bombardier has plans on the books for a production of a DMU train set, but so far they are only plans. Bombardier reported that to date, there are only comparatively small orders for DMUs, and these order sizes are not sufficient to allow profitable production of the Bombardier design. Today it remains a “paper train.” The design would build upon Bombardier’s existing single-level M7 electric multiple unit (EMU) rail car produced for Long Island Railroad.

Another paper train is a DMU designed proposed for Triangle Transit Authority (TTA) of Raleigh-Durham, North Carolina. This car was to be build by a Korean-Japanese consortium, with some drive train components provided by Colorado Railcar. TTA was to order 32 cars, to operate in single level “married pairs” of one power car and one trailing coach. However, the

9 Metrolink’s minimum train set configuration is one locomotive, one coach, and one cab car, totaling to 12 axles.

10 Bombardier bi-level cars have typically around 140 seats per car. The DMUs have 188 seats for powered cars, and 218 seats for unpowered cars.

11 Locomotive hauled train set: 140 tons per locomotive, 59 tons per coach, and 61 tons per cab car. DMUs: 97 tons per powered car, and 79 tons per unpowered car.

12 Coaches, cab cars, and DMU powered and unpowered cars are all 85 feet long. A typical locomotive is about 60 feet long.

13 Per comments from manufacturers and users of the equipment.

purchase reportedly is on hold until TTA can secure funding for implementation of DMU service.

Table 14 identifies various advantages that the Colorado Railcar DMU train sets have over conventional locomotive-hauled equipment. On a per seat basis, the DMU is less expensive. Also, it consumes less fuel that a heavier conventional train set (otherwise operating costs would remain the same[14]), and with less noise and vibration impacts to the immediately surrounding area, it is commonly perceived as less invasive to sensitive noise receptors. Still, considering the size of the fleet required, the locomotive-hauled equipment is $8 million dollars less expensive.

Beyond the purchase price is the issue of maintenance. With a DMU fleet, the service sponsors will most likely have to construct a multi-million-dollar maintenance facility, probably near Camarillo. The cost of such a facility could range from $10 to $30 million, depending on the service and maintenance equipment included. The facility would service a relatively small fleet, but would need to stock spare parts and employ a skilled maintenance crew. On the other hand, this analysis assumes that the conventional equipment would be interchangeable with Metrolink equipment, and that a contract would be reached with Metrolink to maintain the Santa Barbara service's cars and locomotives in Metrolink's Los Angeles maintenance facility, obviating the need for such a facility in Camarillo. To minimize any added operating costs for deadheading to and from the Metrolink maintenance facility, it is assumed that equipment could come out from Los Angeles taking Metrolink passengers on a Ventura Line revenue run ending in Montalvo. It would overnight in Montalvo, and be put into service on the Santa Barbara branch the next day. Inversely, equipment that returns from Santa Barbara to Montalvo could be put into revenue service to Los Angeles the next day. From there it could be rotated into the maintenance schedule.

A separate DMU maintenance facility might be more justified if there were other rail services operating in the vicinity that could share the expenses. However, if it were not located at the south end of the Goleta-Camarillo route, where cars would be stored nights and weekends, it would incur the expense of deadheading equipment to the facility for maintenance and might require additional spare equipment to cover the time required to access a remote facility.

One last consideration is the resale of equipment. There exists a comparatively broad and proven resale market for Bombardier bi-level commuter rail equipment. This equipment is in use not only at Metrolink, but at several other commuter rail services including The Coaster in San Diego, Altamont Commuter Express in the East Bay, Sounder in Seattle, Trinity Rail Express in Dallas-Fort Worth, and West Coast Express in Vancouver, British Columbia. Thus, if the Santa Barbara service orders too much equipment, the very real opportunity exists to lease the

[14] Recent year data from Caltrain operations on the San Francisco Peninsula showed fuel costs at 6-8 percent of operating costs. Presumably, fuel costs for Metrolink would be similar. As DMUs envisioned in this analysis would consume about half the fuel of a locomotive-hauled train set, operating costs assuming DMUs would be slightly lower, around $40 per train mile, excluding payments to UP, shared station maintenance, support facility maintenance, and G&A costs.

equipment to other operators, as evidenced by the recent experience of the Seattle Sounder system[15]. Whether or not much of a secondary market develops for DMUs remains to be seen.

Specific insight on why one agency opted for DMUs over conventional equipment came from Tri-Met in Portland, Oregon. This public transit agency is implementing a DMU service between Beaverton (just west of Portland) and Wilsonville (south of Portland), a distance of about 15 miles. It reportedly has selected a variant of the single-level Colorado Railcar DMU, which will be operated either as single cars or in pairs consisting of a powered car and a trailing coach. Powered cars will have a cab at either end, and the trailing coaches will have cabs at one end, allowing for push-pull operation. Tri-Met related that it selected DMUs because it felt that DMUs offered the more cost effective solution for the kind of service envisioned. The agency said that the economics of handling a large number of commuters during concentrated peak periods on trains several cars long with stops at only a few stations tend to favor traditional locomotive-hauled equipment. However, the Wilsonville-Beaverton service will carry riders for relatively short trips all day long. The trips would appear to be more transit service-oriented than traditional commuter rail trips, with a lot of walk-up business rather than park and ride business. Given trips of these characteristics, DMUs make sense, Tri-Met said.

In the end, a decision on rolling stock may involve more than just a tally of the obvious advantages and disadvantages of the rolling stock types, the existence of a resale market, or even the insight from users. Intangibles have a role. DMUs to some offer a more cleaner, quieter, less invasive, and more modern image than conventional rail rolling stock, and such a perception may be important when sponsors seek to sell the service to the public at large. Should the commuter rail service be studied further, a more detailed analysis of such intangibles and their merit for selling the service to those who would have to pay for it should be undertaken. With a potential start date several, if not many, years away, there is plenty of time to study the issue. That said, Metrolink recently reported that it can take up to three years from a formal Notice to Proceed (NTP) to acquire new equipment.

NEXT STEPS TOWARD IMPLEMENTATION

The 101 In Motion evaluation of alternatives, of which this commuter rail study is a part, indicates that commuter rail service between Ventura and Santa Barbara Counties could be a viable component of a multi-facet approach to solving existing and future congestion in the Highway 101 corridor. A finding of preliminary feasibility is only the first step in a lengthy process. There are numerous operational, political, and financial hurdles facing the start-up of any commuter rail service Implementation will require the consensus of stakeholders and tax payers in both counties that a commuter rail service and a funding mechanism to support it are necessary as part of the 101 In Motion solution package. Such a consensus will likely take significant time and effort to build.

[15] In brief, Sounder ordered too much equipment too soon. Service did not begin north of Seattle as planned, and implementation of additional trains to Tacoma was also slow. Meanwhile Sounder had order Bombardier bi-levels to support its expansion plans, and these were arriving on time. Sounder found temporary homes for these cars at Caltrain on the San Francisco Peninsula as well as at Metrolink. Sounder now had need for more equipment, and its outplaced equipment may be returning *en masse* to Seattle.

Should that consensus be achieved, there are many technical and institutional issues that would need to be resolved before service can start. Some of the key issues are outline below. Dealing with them effectively could take several years.

- ***Formation of a sponsoring agency*** **–** One of the first steps will be to decide how the service will be sponsored. Sponsorship may take the form of a Joint Powers Agreement (JPA), to which Santa Barbara and Ventura Counties would be members. The key role of the sponsoring agency would be to determine how capital needs and recurring operating subsidies are to be covered. This would require negotiation by the two counties as how to share the costs. Models for doing so are as varied as the number of commuter rail sponsoring JPAs, as circumstances in different service areas vary. That noted, the funding agreements among members of the Southern California Regional Rail Authority (Metrolink's sponsor) and Peninsula Corridor Joint Powers Board (sponsor of Caltrain in the San Francisco Bay Area) offer examples of successful cost sharing methods.

  The sponsoring agency would also have to negotiate a trackage rights agreement with UP, an operating and maintenance agreement with Metrolink (the operator assumed in the preceding analysis), and a station sharing agreement with station owners along the route. If a Rail 2 Rail ticket honoring program is implemented with Amtrak, the agency would have to negotiate with Amtrak on how the system will be implemented and how Amtrak will be reimbursed.

- ***Track rights agreement with UP*** **–** The service would run on the UP's Coast Line. Accordingly, UP would need to agree to host the service. The price for trackage rights predictably would include capacity improvements, as suggested by the preceding capacity analysis; and regular payments for train dispatching and maintenance of way, as suggested by the preceding operating cost analysis.

  A key step here would be a more detailed capacity analysis than was conducted in this preliminary study. Though the simulation program (RTC) would be the same, train input data for future years would come directly from UP, Amtrak, and Metrolink. All three entities would likely be part of the study. UP's participation is essential, as the railroad would want confidence that the capacity improvements identified will be sufficient to handle the freight traffic, along with the new commuter rail service, and increased Amtrak and Metrolink service.

  Once the capacity improvements have been identified, UP would seek assurance that the improvements would be made, before it agrees to host the new commuter service. Implementing these improvements will likely be a condition of any agreement with UP.

- ***Operating agreement with Metrolink*** **–** This analysis assumed that a sponsoring agency will contract with Metrolink to operate the service and maintain the rolling stock. If this arrangement is acceptable to both the sponsoring agency and Metrolink, an agreement would need to be reached. It would include specifics of what Metrolink will do, and also how much Metrolink will be paid. If equipment purchased for this service is to be pooled with Metrolink, the details of the pooling arrangements would be part of the agreement.

- ***Secure funding sources*** **–** As noted, this is a key role for the sponsoring agency. The agency would need to develop a multi-year funding plan. That plan would detail secured funding sources and the timing of funding to ensure capital improvements, rolling stock acquisitions, and recurring subsidies are covered. Nearly all transit funds in the two counties today are used for existing transit and commuter rail services. So, new sources would have to be found for this service's implementation. Typical new sources include revenues from sales tax initiatives. Ventura County does not have such a tax at the present time. Santa Barbara County will be seeking renewal of Measure D in 2006. Another source of funding is the Federal Transit Administration (FTA). SAFETY-LU includes authorization for a "Small" New Starts program for which the commuter rail program could be eligible. A grant application would need to be submitted to compete for these funds.
- ***Order and receive rolling stock*** **–** The service concept outlined in this analysis assumes acquisition of Metrolink type rolling stock. Orders for such equipment can take several years to be filled, per Metrolink. Colorado Railcar reported lead times of 18 months to two years from date of an NTP for new DMU equipment. The sponsoring agency therefore should be mindful of these long lead times when planning implementation.
- ***Construction*** **–** Implementation of the commuter rail service would require construction of various improvements, as indicated in this study. These are expected to include station improvements at Oxnard, Carpinteria, Santa Barbara, and Goleta; track improvements at Summerland and north of Oxnard; and layover facilities in Camarillo and Goleta. Some of these improvements may be easier to effect than others, due to environmental concerns or physical constraints. Track improvements within an existing right of way lie outside of environmental review by local jurisdictions. However, this is not the case for improvements outside the right of way. At this point in time, it is unclear whether or not the layover facilities, for example, would be within the rail right of way. If not, their construction could spark the concern of any adjacent residents or businesses, who might demand mitigation and, in so doing, potentially prolong implementation.
- ***Transit integration*** **–** The service concept assumes a thoughtful and thorough integration of the commuter rail service with transit systems along the route. Accordingly, the sponsoring agency should begin negotiations as soon as practical with the agencies to determine how such integration of commuter rail with local transit can be effected. To the degree that the meaningful integration triggers additional costs for the local transit operators, new funding sources may need to be found.

POTENTIAL COMMUTER RAIL EARLY START PROJECT

Alternative Concepts

Presented below are two concepts for an early starts commuter rail service to and from Santa Barbara/Goleta and Ventura County:

Alternative A

- Two a.m. departures from Montalvo
- Lease or purchase ***Used push pull or DMU equipment***
- Contract with Connex for operations
- Temporary layover facility in Goleta
- Temporary maintenance facility east of Montalvo on Santa Paula branch on land provided by VCTC (commuter trains for Santa Barbara would begin northward runs only after the Metrolink trains have departed Montalvo southbound) or at Port Hueneme
- Costs avoided from the full commuter rail project defined in the “Commuter Rail Final Report": new equipment, Summerland siding, Oxnard and Camarillo Station improvements, double tracking north of Oxnard, and land acquisition for layover facilities
- Potential issues: where to get equipment; UP agreement to no track capacity improvements unlikely

Alternative B

- Two a.m. departures from Montalvo
- ***New push pull equipment*** leased from Metrolink **or new DMU equipment** leased from the manufacturer
- Contract with Metrolink for operations
- Temporary layover facility in Goleta
- Temporary layover facility for Metrolink equipment (or maintenance facility with DMU equipment) on Santa Paula branch or at Port Hueneme on land provided by VCTC
- Costs avoided from the full commuter rail project defined in the “Commuter Rail Final Report": purchase of equipment, Summerland siding, Oxnard and Camarillo Station improvements, double tracking north of Oxnard, and land acquisition for layover facilities
- Potential issues: might have to buy new equipment anyway, if Metrolink or DMU manufacturer has none to lend; UP agreement to no track capacity improvements unlikely

Notes:

The main difference between the two alternatives is the assumption of equipment.

At least two round trips are needed for a start-up project. Sounder in Washington State ran one round trip from Everett to Seattle, and performance was unimpressive. Three round trips would be too much at the outset.

There is Amtrak and other used equipment on the market. One source for serviceable equipment might be Metra (Chicago), which last year was selling gallery cars for a dollar each! They would need to be push pull. Metrolink needs equipment now, and probably would not have equipment to lend. There is at present only one manufacturer of FRA compliant DMU vehicles that could be operated using shared trackage with freight. It is doubtful that they have surplus cars that they could lease.

The operations simulation showed that with two trains 45 minutes apart, the Summerland siding would not be necessary, for at least the start-up project. Whether or not UP would agree to this is an open question, but is considered unlikely. As part of the on-going LOSSAN project Caltrans will be doing operation simulations that reflect increases in freight and intercity passenger services as well. It should be noted that Caltrans has a Summerland siding in its LOSSAN Corridor Strategic Plan, but whether or not Caltrans would pay for a siding in the time frame of the start-up project is an open question. If the state funds aren't in place, local funds might be used to pay for the Summerland siding with a MOU with Caltrans that these funds would be reimbursed once LOSSAN funding is in place.
There would be stops at Montalvo (since all the LA-bound Metrolink trains would be out of there before the first northbound run to Santa Barbara), Ventura (at the Fairgrounds), Carpinteria, Santa Barbara, and Goleta.

Service would start northbound at 7 a.m., with another to follow at 7:45. The rail operations simulation showed that there would not be a conflict with Amtrak at that time. Freight service was assumed to pass through Ventura earlier southbound. However, if a UP train was late this would pose a problem in meeting the commuter trains schedule.

Implementation Steps

1. Define the start-up project.
2. Identify the lead agency. This probably would be either SBCAG, or VCTC, or a JPA of the two, or Caltrans, or even Metrolink.
3. Obtain funding for staff of the lead agency to negotiate details with equipment providers, UP, and users of the line, including Metrolink (shared station at Montalvo) and Amtrak/Caltrans (Surfliner sponsors).
4. Obtain funding for implementation of start-up service. This will include both operating and capital funding.
5. Obtain agreements with equipment providers, an operator, UP, and other users of the line.. Concept here is to avoid as much as possible any capital improvements that could be put off until the service is well established.

6. Start the commuter rail service when construction begins in earnest on 101, restricting capacity and exacerbating congestion. Service will be to/from Montalvo, with 2 peak period round trips on weekdays.

7. If the start-up service is deemed successful, expand in stages. Stages would include extensions to Oxnard or Camarillo, construction of the two passing sidings and permanent storage and maintenance facilities, station improvements, addition of a third round trip, and possible implementation of off-peak service.

Appendix E

Community Outreach Summary

This Appendix describes the outreach activities conducted and community involvement during the 101 In Motion project that led up to the community consensus recommendation adopted by the Santa Barbara County Association of Governments Board of Directors in October 2005.

Prior to the public launch of *101 in Motion* a comprehensive Public Participation/ Outreach Plan was developed by the consultant team and approved by the Project Steering Committee.

Also, prior to the public launch of the project, the consultant team worked with the Santa Barbara County Association of Governments' staff and the Technical Advisory Committee to establish a project brand. After careful analysis, "101 in Motion, Creating Transportation Solutions" was selected. A logo and project letterhead was developed, and the overall graphic identify established. *101 in Motion* successfully replaced the name "Highway 101 Implementation Plan."

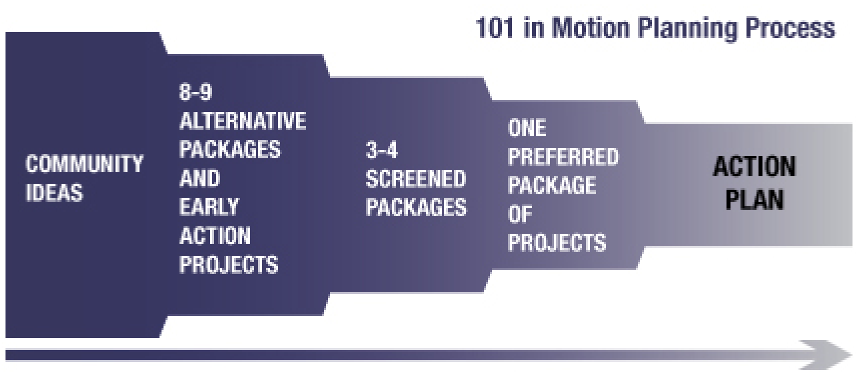
Outreach activities were integral to each of the four 101 In Motion phases:

Phase 1: Community Ideas Phase

Phase 2: Eight Alternative Packages

Phase 3: Four Screened Solution Packages

Phase 4: Final Solution Package & Recommendation



Phase 1: Community Ideas Phase

The goal of the Community Ideas Phase was to gather and better understand the values of a broad spectrum of the community in order to determine what long-term solutions might be acceptable. These values were considered in developing screening criteria and a comprehensive list of possible solutions.

Outreach Activities:

The outreach activities and tools utilized during the Community Ideas Phase were designed to facilitate participation, and engage a diverse group of stakeholders to reach beyond the usual participants. Information was provided to participants and feedback was elicited on what issues were important to them and their ideas for solving the 101 Corridor transportation related problems.

Activities and Tools:

- 4 workshops were held: Goleta Valley Community Center (March 9, 2004), Cabrillo Pavilion Arts Center, Santa Barbara (March 11, 2004) Pea Soup Andersen's, Buellton (March 16, 2004), Carpinteria City Hall (April 7, 2004), to provide an opportunity for the pubic to learn more about the project and share ideas and opinions on values, problem areas and possible solutions. Each workshop included an open house with individual project information stations and experts available to answer questions, a brief presentation, and a community brainstorming session.

- 13 activity centers where people gather were visited to provide information the 101 in Motion project and elicit feedback on issues and potential solutions. By going to places where community members shop, conduct business, and congregate, the project team was able to gather feedback from a diverse group of stakeholders. Project team members were able to obtain input from those stakeholders who may not normally get involved through a process that does not require them to go to meetings. Fact sheets and questionnaires were provided in English and Spanish, and Spanish speaking team members were available. Activity Centers visited:

- Downtown Santa Barbara Farmer's Market — April 17, 2004
- Earth Day 2004 (Sunken Gardens) — April 18, 2004
- Carpinteria Farmer's Market — April 22, 2004
- Santa Barbara Fair & Expo — April 24, 2004
- Camino Real Marketplace, Goleta — April 27, 2004
- La Cumbre Plaza Farmer's Market — April 28, 2004
- St. Joseph's Church, Carpinteria — May 1, 2004
- Our Lady of Guadalupe, Santa Barbara — May 2, 2004
- UCSB University Center — May 4, 2004
- Montecio/Coast Village Road Farmer's Market — May 7, 2004
- AMTRAK Santa Barbara Station — May 7, 2004
- US 101 Gaviota Pass Rest Stop — May 11, 2004
- Goleta Farmer's Market, Calle Real Center — May 13, 2004

- 15 city, county and state officials were briefed and contributed strategies for reaching their local constituencies.

- Stakeholder Advisory Committee was formed from local leaders representing and serving as liaisons between their various constituencies and the project team. During this phase an informal retreat and three official meetings were held during this phase.
- Website in English and Spanish was created to provide information to the general public about the project. The website linked to the SBCAG website and the websites of partner agencies. The SBCAG website also featured information on 101 in Motion.

- Hotline, a toll free information line was established to solicit input to the project.

- Printed Materials: Printed materials used during this phase included outreach cards in English & Spanish; March 2004 Fact Sheet in English and Spanish;

- SBCAG Newswire provided information on the launch of the project and periodic updates during the project.

- Database, over 2,400 individuals were included in the initial outreach data base. The database was used for communicating information on meetings and workshops to stakeholders and community groups via direct mail, email and fax.

- Media, the 101 in Motion public outreach program was launched at a press conference on February 20, 2004, featuring Congresswoman Lois Capps, Assemblymember Hannah-Beth Jackson, Supervisor Susan Rose and Mayor Larry Lavagnino. Twelve local newspapers from Ventura County to Lompoc covered the launch of 101 in Motion. KEYT and KCOY aired segments on 101 in Motion on their morning and evening news shows.

Over 1,800 stakeholders were reached during the Community Ideas Phase, and 509 stakeholders submitted feedback through the various outreach activities, via email, mail, website and the hotline.

<u>Stakeholder Advisory Committee</u>

The Stakeholder Advisory Committee (SAC) represents various interests in Santa Barbara County. When invitations were offered, the committee's advisory role was delineated to participants who were also advised that they would be expected to serve as liaisons to their individual constituencies. Members of the SAC include representatives of the business community, major employers, commuters, environmental interests, automobile advocates, alternative transportation advocates, non-profit community organizations, neighborhood and homeowner's associations.

The SAC met four times during the first phase. A retreat was held in early March 2004 to acquaint the committee with each other, and explain the project goals and outreach process. Three subsequent meetings were held at the end of March, April and June.

The SAC provided feedback on:

- The best ways to reach and engage their constituency groups
- The perceptions and feedback they have received from their broader constituencies on certain issues, including (but not limited to):
    - Purpose and need
    - Evaluation criteria
    - The process to be used in the selection of alternatives
    - The alternative packages.

<u>Steering Committee</u>

The South Coast Subregional Planning Committee (SCSPC) is a Board subcommittee of the Santa Barbara County Association of Governments and also serves as the steering committee for 101 in Motion. The Steering Committee met six times during the Community Ideas Phase, each of these meetings were open to the public and time was allowed for public comment.

- February 5, 2004: Review of the Committee Structure and draft of the Public Participation Plan, media launch, and makeup of the Stakeholder Advisory Committee.
- March 3, 2004: Review of the Roles and Responsibilities of Committees, Public Outreach and Initial Screening Criteria.
- April 7, 2004: Status report on public participation.
- June 2, 2004: Review of the Baseline Performance of the Existing System/Purpose and Need Technical Memorandum; and review of the initial criteria for screening of alternatives and a report on community feedback to date.

- July 7, 2004: Received report on outreach activities; and the draft plan to develop 8 to 9 alternative packages; received draft travel forecasts; and reviewed budget and schedule.

Issues:

Participants who attended the workshops, visited the activity center booths, or logged on to the website were asked to indicate which issues from a list of 16 choices were most important to them when considering transportation solutions, and to provide ideas for possible solutions. Each stakeholder was given the same set of choices. There were the most frequent responses:

• Expanding transportation alternatives, providing more choices	21%
• Reducing delays	17%
• Reducing demand	17%
• Improving safety	13%

Potential Solutions:

Participants were also asked to list what long-term solutions they think will be most effective for improving traffic congestion. These were the most frequent responses:

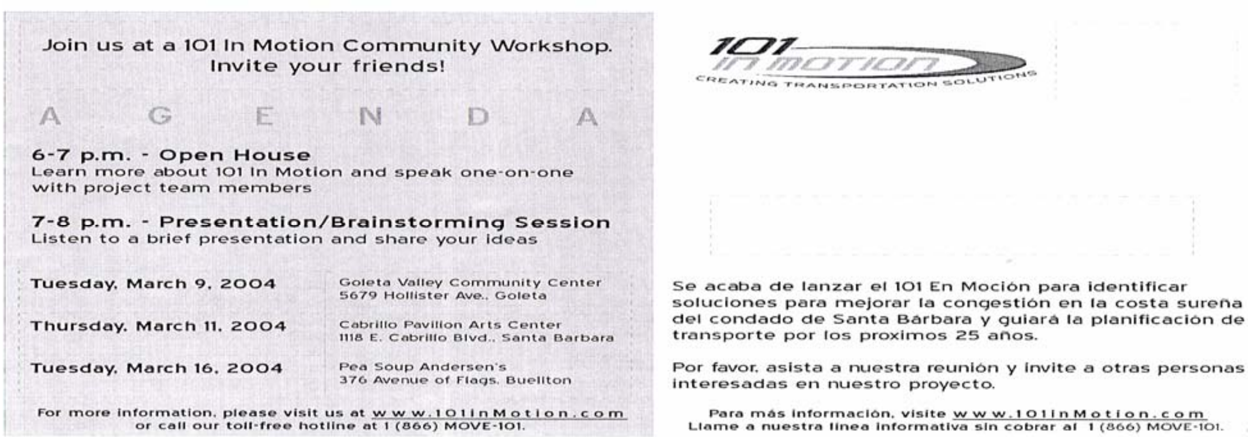
• Commuter rail	45%
• Adding lanes/widening 101	35%
• Instituting Transportation Demand Management Programs	5%
• Ferry	2%

Analysis

There is a high level of awareness of transportation problems in the 101 Corridor. People who regularly participate in Santa Barbara's transportation issues were likely to do so again in every possible venue. Despite significant efforts to inform and invite the community-at-large, the workshops attracted primarily people who were already engaged with the issues in the 101 Corridor and have shown up at transportation forums in the past. Activity Center efforts, however, reached a greater number of people new to transportation planning. These people were interested, grateful for the information and the opportunity to provide feedback. Most signed up on the mailing list to receive updates information as the project progressed.

Generally, participants in the Phase 1 outreach want to see alternatives to automobiles to help alleviate congestion on Highway 101. Commuter rail is the alternative mode that received the most mention. About 35% of the participants, who filled out comment sheets at the workshops and activity centers mentioned that they would like to see a third lane added to Highway 101 in both directions. 10% of the comments from workshop participants residing within close proximity to the highway indicated the importance of avoiding construction to add lanes, and would rather designate an existing lane for carpools. About 5% of the workshop and activity center participants indicated that they are skeptical of the process because of pervious 101 planning efforts, but have said they would participate more actively as the alternative solution packages were developed and more detailed information became available.

A comprehensive report on the Community Ideas Phase and Issues Analysis was prepared by Consensus Planning Group at the end of the Community Ideas Phase in August 2004. This document is available for review at the SBCAG Office.



Welcome...

Tonight 's workshop is to provide you information on 101 In Motion and to hear your comments and ideas.

Your feedback is important to us!

Please provide your input by:

- talking to a project team member
- participating in the brainstorming session
- completing a comment sheet

Tonight 's Schedule

6:00 – 7:00 p.m. – Open House
Speak one-on-one with project team members and visit our project stations:

- *Project Background*
- *Process/Schedule*
- *Issues Important to You*
- *Problem Locations*
- *Developing Solutions*
- *Comments Table*

7:00 – 8:00 p.m. – Project Presentation/Community Brainstorming Session
Listen to a brief presentation and share your ideas.

Thank you for coming.

101 In Motion, P.O. Box 90610, Santa Barbara, CA 93190 or fax to: (213) 437-1764
Contact us at: 1 (866) MOVE-101 or www.101inMotion.com

Bienvenido ...

La reunión de esta tarde es para proveerle información sobre 101 En Moción y oír sus comentarios e ideas.

¡Sus opiniones son importantes para nosotros!

Por favor comparta sus comentarios por medio de:

- hablando con miembros del equipo del proyecto
- participando en la sesión para colectar ideas
- completando una forma de comentarios

Agenda

6:00 – 7:00 p.m. – Reunion Informal
Hable directamente con miembros del equipo y visite las estaciones sobre el proyecto.

- *Historia del Proyecto*
- *Proceso/Plan*
- *Asuntos Importantes Para Usted*
- *Lugares Con Problemas*
- *Desarrollando Soluciones*
- *Comentarios*

7:00 – 8:00 p.m. – Presentación del Proyecto/Sesión para colectar ideas

Gracias por asistir.

101 In Motion, P.O. Box 90610, Santa Bárbara, CA 93190 o por fax al: (213) 437-1764
Llámenos al: 1 (866) MOVE-101 o visite nuestro portal en Internet www.101inMotion.com

WHAT MATTERS MOST TO YOU WHEN CONSIDERING TRANSPORTATION SOLUTIONS?

Please provide:

Home Zip Code________ Work Zip Code ________

Please check the top five issues of importance to you:

____ Increasing safety on Highway 101

____ Expanding transportation choices for the community such as, creating commuter rail, adding bus routes, adding park and ride lots, etc.

____ Finding ways to reduce demand on Highway 101, including increasing ridesharing, flexible work hours, building housing near jobs, etc.

____ Keeping construction impacts on local communities at a minimum

____ Reducing traffic delays on Highway 101

____ Reducing traffic delays on major parallel routes to Highway 101

____ Reducing neighborhood and local traffic

____ Being able to use alternative routes to Highway 101

____ Keeping solutions free of charge, or of minimal expense

____ Limiting or not allowing residential property acquisition

____ Limiting or not allowing business/commercial property acquisition

____ Eliminating noise pollution

____ Reducing air pollution

____ Maintaining the existing landscaping in the freeway median

____ Maintaining existing views from Highway 101

____ Maintaining the economic vitality of Santa Barbara County

Other issues of importance to you:

Comment Sheet

Your feedback is important to us. Please use this page to submit your comments about 101 In Motion.
You may answer the questions below or comment on any aspect of the project.
Please return to any staff member or the Comment Box.
(please print clearly)

Name ______________________ Organization ______________________

Address ______________________ E-mail ______________________

City ______________ State ________ Zip Code ________ Work Zip Code (if different) ________

1. How did you hear about tonight's community workshop?

2. Have you ever been involved in a public process on transportation issues? Yes______ No______

3. When considering transportation solutions, what issues are most important to you? (examples: improving safety, traveling faster, adding public transit options, other)

4. What long-term solutions do you think will be most effective for improving traffic congestion on the South Coast of Santa Barbara County?

4. Please list specific areas along the 101 corridor you think need improvement.

5. Other comments (please use reverse side if necessary):

Please return to any staff member, the comment box or mail form to:
101 In Motion, P.O. Box 90610, Santa Barbara, CA 93190 or fax to: (213) 438-1764
Contact us at: 1 (866) MOVE-101 or www.101inMotion.com

Comentarios

Sus comentarios son importantes para nosotros. Por favor use esta página para someter sus comentarios sobre el proyecto 101 En Moción. Usted puede contestar las preguntas debajo o comentar sobre cualquier aspecto del proyecto. Por favor regrese esta página a un representante o póngala dentro de la caja de Comentarios. (Por favor escriba claramente.)

Nombre ______________________ Organización ______________________

Domicilio ______________________ Correo electrónico ______________________

Ciudad __________ Estado ______ Código Postal ________ Código postal de empleo (si es diferente) ______

1. ¿Cómo se enteró usted sobre la junta comunitaria de esta noche?

2. ¿Usted ha participado en un proceso público sobre temas de trasporte en el pasado? Si_____ No_____

3. ¿Cuando considera soluciones de transporte, cuáles son los temas más importantes para usted? (por ejemplo: mejorando la seguridad, viajando mas rápido, agregando opciones de transporte, otro)

4. ¿Que soluciones piensa usted que mejorarán la congestión de tráfico en la costa sur del Condado de Santa Bárbara?

4. Por favor escriba las áreas especificas a lo largo de la autopista 101 que usted piensa necesitan mejorías.

5. Otros comentarios (por favor use el lado reverso si es necesario):

Por favor entregué esta página a un representante, póngala dentro de la caja de comentarios o envíela a:
101 In Motion, P.O. Box 90610, Santa Bárbara, CA 93190 o mándela por fax al (213) 438-1764
Llámenos al 1 (866) MOVE-101 o visite www.101inMotion.com

¿QUÉ SOLUCIONES DE TRANSPORTE CONSIDERA USTED IMPORTANTES?

Por favor proporcione su:

Código Postal Residencial________   Código Postal de Empleo ________

Por favor escoja cinco temas de más importancia para usted:

____ Aumentar la seguridad en la autopista 101

____ Extender opciones de transporte para la comunidad - por ejemplo, crear un tren ligero, agregar rutas de autobuses, incrementar lotes de estacionamiento junto a estaciones de transportación, etc.

____ Encontrar maneras para reducir la demanda en la autopista 101, incluyendo aumentar viajes compartidos, implementar un plan para que empleadores adopten horas flexibles de trabajo para sus empleados, construir viviendas cerca de empleos, etc.

____ Reducir los retrasos de tráfico en la autopista 101

____ Reducir los retrasos de tráfico en rutas paralelas a la autopista 101

____ Poder usar rutas alternativas a la autopista 101

____ Mantener soluciones gratuitas o de costo mínimo

____ Limitar o no permitir la adquisición residencial

____ Limitar o no permitir la adquisición de negocios/propiedad comercial

____ Mantener la jardinería existente en medio de la autopista

____ Mantener escenas/perspectivas/vistas existentes de la autopista 101

____ Mantener la vitalidad económica del Condado de Santa Bárbara

Otros temas importancia:

Phase 2: Eight Alternative Packages

Following the Community Ideas Phase, the Consultant Team performed an initial screening process to evaluate the community based solutions. Following this initial evaluation, the Technical Advisory Group (TAG) and SAC met separately and together to develop a consensus on 8 alternative packages to receive further evaluation.

The Stakeholder Advisory Committee met August 9, 2004 to review the technical information and develop recommendations on the Eight Solution Packages which would receive evaluation. A combined meeting of the SAC and the Technical Advisory Committee was held August 30, 2004, where the two advisory groups made a recommendation on the contents of the Eight Alternative Solution Packages which would receive further evaluation and public input. On September 1, the Steering Committee reviewed the results of the SAC and TAG workshops, and approved the outreach plan for the Eight Alternative Packages. On September 16, 2004, the Santa Barbara County Association of Governments Board of Directors received a report on the composition of the Eight Alternative Solution packages.

Following the identification of the 8 alternative packages by the SAC and the TAG in September 2004, the SBCAG Staff and consulting team presented the packages to the community by way of City Council and community organization meetings. Members of the public were invited and encouraged to attend these presentation and offer comments on which alternative packages should move forward for further analysis. In addition to the pubic meeting and organization presentations, the public was encouraged to participate through general media outreach, an email newsletter update, the website, and public events.

Tools:

- PowerPoint Presentations
- Website
- Hotline
- Media
- Email newsletter (October 2004)
- Fall 2004 Fact Sheet and Feedback Form

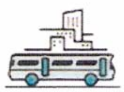
101 IN MOTION
CREATING TRANSPORTATION SOLUTIONS

101 IN MOTION E-NEWSLETTER FALL 2004

101 In Motion Newsletter - Fall 04

October 14, 2004

ESTABLISHING ALTERNATIVE SOLUTION PACKAGES



Eight alternative packages have been developed by the 101 In Motion project's Stakeholder Advisory Committee (SAC) and the Technical Advisory Group (TAG). The committees participated in roundtable meetings in August where they mixed and matched the 33 primary solution concepts into 8 alternative solution packages. The 8 packages consist of solutions from four categories: Roadway, Transit, Demand Management, and Operational Improvements.

These alternative packages will be presented to the community by way of City Council and community organization meetings. Members of the public are invited and encouraged to attend these presentations and offer comments on which alternative packages should move forward for further analysis.

Visit the News & Events section of our website for the presentation schedule. In November 2004, the Steering Committee is expected to make final decisions on the make-up of the 8 solution packages that will be put through further technical evaluation.

ELEMENTS OF THE PACKAGES

The main differences between the alternative solution packages are in the specific Roadway and Transit elements. In addition to the
Roadway and Transit elements, all of the 8 alternative packages include Demand Management and Operational Improvements. For a complete description of the 8 packages, and the elements that make up the packages, visit www.101inMotion.com.

YOUR FEEDBACK IS IMPORTANT!

Before the alternative solution packages receive further analysis, we want to know what you think. Submit your comments on the proposed packages at www.101inMotion.com.

101 In Motion is a project with the objective of developing long-term solutions for improving traffic congestion along the 101 corridor in the South Coast of Santa Barbara County.

If you have trouble seeing the images in this message, click here to view it online.

Call our toll-free hotline: 1(866) MOVE 101
www.101inMotion.com

P.O. Box 90610, Santa Barbara, CA 93190 • info@101inMotion.com

Activities:

Between September 2004 and April 2005, 30 public outreach presentations were held.

Carpinteria City Council	9/27/2004
Coalition for Alternative and Sustainable Transportation	9/28/2004
Goleta Chamber Government Relations Committee	9/28/2004
Santa Barbara City Council	9/28/2004
Santa Maria Chamber Transportation Committee	10/11/2004
Montecito Association Land Use Committee	10/12/2004
Santa Barbara County Taxpayers Association Board of Directors	10/14/2004
Coast Village Road Association Board of Directors	10/20/2004
University of California Santa Barbara	10/20/2004
Hispanic Chamber of Commerce	10/21/2004
Santa Barbara Area Chamber of Commerce	10/25/2004
University of California Santa Barbara	10/27/2004
South Coast Transit Advisory Council	11/5/2004
Metropolitan Transit District Board of Directors	11/9/2004
Summerland Citizens Association	11/10/2004
Carpinteria Chamber of Commerce Board of Directors	11/15/2004
Goleta City Council	11/15/2004
Sustainability Project	11/18/2004
City of Santa Barbara Transportation and Circulation Committee	11/18/2004
Santa Barbara Women's Club	1/26/2005
California Highway Patrol	1/31/2005
City of Santa Barbara Commuter Rail Forum	2/7/2005
Coalition for Alternative and Sustainable Transportation	2/15/2005
Santa Barbara Area Chamber of Commerce Government Relations Committee	2/17/'2005
Santa Barbara Industry Association	3/2/2005
Santa Barbara County Executives Association	3/7/2005
Santa Barbara Suburban Kiwanis Club	3/8/2005
Coast Village Road Merchants Association	3/16/2005
City of Santa Barbara Transportation & Circulation Committee	3/24/2005

In addition to the Santa Barbara County Association of Governments Hearing on September 18, 2004, five of the outreach presentations were televised on public access television.

Steering Committee:

The South Coast Subregional Planning Committee (SCSPC) is a Board subcommittee of the Santa Barbara County Association of Governments and also serves as the steering committee for 101 in Motion. The Steering Committee met five times during Phase II:

Evaluation of 8 Alternative Solution Packages, each of these meetings were open to the public and time was allowed for public comment

- September 1, 2004: review of the results of the SAC/TAG Workshop to develop the Eight Alternative Packages; review of the outreach plan for the Eight Alternative Packages.
- November 3, 2004: update on the public outreach plan and feedback to date; final approval of the alternative packages for evaluation; and review of the process for evaluation and screening of the Alternative Packages.
- February 2, 2005: receive report on background and process for developing 8 alternative packages; preliminary technical evaluation results for alternative packages leading to consideration of eliminating selected alternative packages from further evaluation; summary of public outreach process; and project budget and schedule.
- March 2, 2005: Summary of evaluation results for 6 alternative packages; review of progress and possible recommendations of the TAG and SAC to identify three to four alternative packages for public input and provide direction; review subsequent steps in the public outreach process; and review land use sensitivity testing proposal recommended by the TAG and SAC.
- April 6, 2005: Review TAG and SAC recommendations on the 4 Alternative Solution Packages to advance for further evaluation and those elements not recommended for further evaluation; approve 4 Alternative Solution Packages to advance for further evaluation and public review; review subsequent steps in public outreach process; and review project budget and schedule.

Phase 3: Four Screened Solution Packages

Following the adoption of the Eight Alternative Packages, the SAC and TAG continued to meet to evaluate the technical information as it was available. The SAC and TAG met in combined session October 25, 2004, and the SAC met again in January, February, and March 2005. In March 2005, the SAC finished the initial review of the technical materials and recommendations from the TAG. At this point, they made recommendations to the TAG and Steering Committee regarding the analysis and proposed make up of the Four Alternative Packages which would receive further input and screening. The TAG agreed to the revisions.

At the April 6th, the *101 In Motion* Steering Committee (SBCAG South Coast Subregional Planning Committee), reviewed the technical findings and public input to date, and voted unanimously to approve the recommendation from the SAC and the TAG on the makeup of the four alternative solution packages which will receive additional analysis and public input.

Following the identification of the 4 alternative solution packages in April 2005, the SBCAG Staff and consulting team continued to update the community on the screening process by way of City Council and community organization meetings. Members of the public were invited and encouraged to attend these presentation and offer comments on the packages. In addition to the pubic meeting and organization presentations, the public was encouraged to participate through general media outreach, the website, and public events.

Between April and August the outreach focused on the process to reach the four solution packages. On August 3, 2005 the Steering Committee received the consultant team's evaluation of the Final Four Packages, and new presentation and information materials were developed to reflect the findings and conclusions about the four alternative packages.

Tools:

- PowerPoint Presentations
- Website
- Hotline
- Media
- Spring 2005 Fact Sheet and Feedback Form

Activities:

Between April and September 2005, 23 public outreach presentations were held.

Tri-Counties Realtors Association Housing Summit	4/8/2005
Earth Day Festival	4/23/2005
Metropolitan Transit District Board of Directors	4/26/2005
South Coast Employers – Human Resources Association	4/27/2005
UCSB Employers Transportation Forum	4/27/2005
Community Environmental Council	4/28/2005
Hispanic Chamber of Commerce	4/28/2005
City of Santa Barbara Housing Authority Residents Council	5/11/2005
Goleta City Council	5/16/2005
Citizens Planning Association Land Use Committee	5/23/2005
Solvang City Council	5/23/2005
Santa Barbara City Council	5/24/2005
Buellton City Council	5/26/2005
Carpinteria Planning Commission	6/6/2005
Lompoc City Council	6/7/2005
Santa Barbara City Planning Commission	6/9/2005
Carpinteria City Council	6/13/2005
Allied Neighborhood Association	6/22/2005
Livable Streets Coalition	7/14/2005
Bicycle Coalition	8/2/2005
Coast Village Road business Association	8/24/2005
Montecito Association Land Use Committee	9/6/2005
Goleta Chamber of Commerce Government Relations Committee	9/13/2005

Four of these meetings were televised on public access television.

During this period 74 postcards were received by 101 in Motion urging that commuter rail be included as an early action item in the final solution package.

Steering Committee:

The Steering committee for 101 in Motion met at the end of the evaluation of 4 Screened Solution Packages to hear results of the technical evaluation, this meeting was open to the public and time was allowed for public comment

- August 3, 2005: Received report on evaluation of four alternative packages; and received report on the travel model results of the alternative land use scenario.

Phase 4: Final Solution Package & Recommendations

Between July and September, 2005 the Stakeholder Advisory Committee and Technical Advisory Group met and sought to develop a consensus recommendation based on the technical data and public input received to date. The emerging consensus was a hybrid of elements from the Final Four Solution Packages

The public was introduced to the emerging consensus recommendation, starting at a public workshop on September 15, 2005. The data was presented to the Santa Barbara County Association of Governments Board of Directors the next day. The emerging consensus was presented to the public until the recommendation was finalized at a joint meeting of the SAC and the TAG on September 27, 2005, and adopted by the 101 in Motion Steering Committee on October 5, 2005.

Tools:

- PowerPoint Presentations
- Workshop invitation flyer
- Workshop Materials including View Simulations for Freeway widening options, and Feedback Form
- Website
- Hotline
- Media
- Email invitation to Workshop
- Fact Sheet and Feedback Form

Public Workshop

On September 14, 2005, Santa Barbara County Association of Governments and the 101 in Motion consultant team held a public workshop to present the results of the screening of the Final Four Alternative Solution Packages and the emerging consensus which was being developed by the Stakeholders Advisory Group and the Technical Advisory Group. The workshop was widely publicized in the News Press, flyers were available in public places, and were distributed via email to concerned individuals and transportation advocacy groups. The pubic workshop was televised live on government access television and repeated during the following week. All materials from the workshop presentations were available on the website. Approximately 60 members of the public attended the Workshop, fourteen people spoke and twenty three concerned residents filled out feedback forms.

Additional Public Presentations:

Santa Barbara County Association of Governments Board of Directors	9/15/2005
City of Santa Barbara Transportation & Circulation Committee	9/15/2005
Montecito Planning Commission	9/21/2005
City of Santa Barbara Planning Commission	9/22/2005
Santa Barbara County Planning Commission	9/28/2005
Santa Barbara County Economic Vitality Committee	9/29/2005
Carpinteria Planning Commission	10/3/2005
Goleta City Council	10/3/2005
Santa Barbara City Council	10/4/2005
Carpinteria City Council	10/10/2005
Santa Barbara County Planning Commission	10/12/2005

Eight of these meetings were televised on government access television.

Steering Committee:

The Steering committee for 101 in Motion met at the on October 12, 2005 to consider approve of the consensus recommends from the SAC and TAG to be presented to the SBCAG Board of adoption.

Adopted Solution Package

After two years of study, pubic outreach and consensus building the final 101 in motion consensus package recommended the Stakeholders Advisory Committee and the Technical Advisory Committee was unanimously recommended for adoption by the SBCAG Board by the Project Steering Committee at their meeting on October 12, 2005.

On October 20, 2005, the SBCAG Board of Directors unanimously approved the hybrid of elements from the final four packages.

	ORGANIZATION	DATE	ATTENDEES	Backup Materials
1	Carpinteria City Council	9/27/2004	15 + TV	Agenda, minutes, PowerPoint, fact sheet, feedback form
2	Coalition for Alternative and Sustainable Transportation	9/28/2004	10	
3	Goleta Chamber Government Relations Committee	9/28/2004	25	
4	Santa Barbara City Council	9/28/2004	20 + TV	PowerPoint (see #1)
5	Santa Maria Chamber Transportation Committee	10/11/2004	17	
6	Montecito Association Land Use Committee	10/12/2004	22	
7	Santa Barbara County Taxpayers Association Board of Directors	10/14/2004	14	
8	Coast Village Road Association Board of Directors	10/20/2004	9	
9	University of California Santa Barbara	10/20/2004	44	
10	Hispanic Chamber of Commerce	10/21/2004	11	
11	Santa Barbara Chamber of Commerce	10/25/2004	24	
12	University of California Santa Barbara	10/27/2004	38	
13	South Coast Transit Advisory Council	11/5/2004	12	
14	Metropolitan Transit District Board of Directors	11/9/2004	13	Minutes
15	Summerland Citizens Association	11/10/2004	19	
16	Carpinteria Chamber of Commerce Board of Directors	11/15/2004	25	
17	Goleta City Council	11/15/2004	19	Meeting notes
18	Sustainability Project	11/18/2004	22	
19	City of Santa Barbara Transportation & Circulation Committee	11/18/2004	20	
20	Santa Barbara Women's Club	1/26/2005	105	
21	California Highway Patrol	1/31/2005	3	
22	City of Santa Barbara - Commuter Rail Forum	2/7/2005	225	PowerPoint
23	Coalition for Alternative and Sustainable Transportation	2/15/2005	8	
24	Santa Barbara Chamber of Commerce Government Relations Committee	2/17/2005	35	
25	Santa Barbara Industrial Association	3/2/2005	12	
26	Santa Barbara County Executives Association	3/7/2005	25	

27	Santa Barbara Suburban Kiwanis Club	3/8/2005	25	
28	Montecito Association Board of Directors	3/8/2005	35	
29	Coast Village Road Merchants Association	3/16/2005	15	
30	City of Santa Barbara Transportation & Circulation Committee	3/24/2005	20	
31	Tri Counties Realtors Association Housing Summit	4/8/2005	230	
32	Earth Day Festival	4/23/2005	125	Fact sheets
33	Metropolitan Transit District Board	4/26/2005	12	minutes
34	South Coast Employers - Human Resources Association	4/27/2005	40	
35	UCSB Employers Transportation Forum	4/27/2005	75	
36	Community Environmental Council	4/28/2005	20	
37	Hispanic Chamber of Commerce	4/28/2005	10	
38	City of Santa Barbara Housing Authority Residents Council	5/11/2005	10	
39	Goleta City Council	5/16/2005	35	agenda, minutes, staff report, PowerPoint
40	Citizens Planning Association Land Use Committee	5/23/2005	5	
41	Solvang City Council	5/23/2005	30	minutes
42	Santa Barbara City Council	5/24/2005	35 + TV	
43	Buellton City Council	5/26/2005	20	minutes
44	Carpinteria Planning Commission	6/6/2005	18	
45	Lompoc City Council	6/7/2005	45 + TV	minutes, agenda
46	Santa Barbara Planning Commission	6/9/2005	25 + TV	
47	Carpinteria City Council	6/13/2005	10 + TV	agenda, minutes, staff report, PowerPoint
48	Allied Neighborhood Association	6/22/2005	22	
49	Livable Streets Coalition	7/14/2005	12	
50	Bicycle Coalition	8/2/2005	7	
51	Coast Village Road Business Association	8/24/2005	21	
52	Montecito Association Land Use Committee	9/6/2005	32	notes, PowerPoint - final 4 evaluation, fact sheet
53	Goleta Chamber of Commerce Government Relations Committee	9/13/2005		

54	101 in Motion Public Hearing	9/14/2005	60 TV	PowerPoint, information boards, fact sheet, questionnaire/ feedback forms
55	City of Santa Barbara Transportation & Circulation Committee	9/15/2005	TV	
56	Montecito Planning Commission	9/21/2005	TV	
57	City of Santa Barbara Planning Commission	9/22/2005	TV	
58	Santa Barbara County Planning Commission	9/28/2005	TV	marked agenda
59	Santa Barbara County Economic Vitality Committee	9/29/2005		
60	Carpinteria Planning Commission	10/3/2005		
61	Goleta City Council Meeting	10/3/2005		agenda, staff report, minutes
62	Santa Barbara City Council	10/4/2005	TV	
63	Carpinteria City Council	10/10/2005	TV	agenda, minutes, staff report,
64	Santa Barbara County Planning Commission	10/12/2005	TV	marked agenda

TV indicates meeting was televised on government access television.

Stakeholder Advisory Committee Members

John Bowen
Raytheon/Santa Barbara Industry Association

Emilio Casanueva
SB County Action Network

Steve Engles
Past President, Santa Barbara Chamber of Commerce

Bob Ferris
Community Environmental Council

Mary Frink
Postmaster

David Gonzales
Assistant Vice Chancellor, UCSB

Robin Hayhurst
Santa Maria Valley Contractors Association (to Jan 05)
District Director for 33rd District Assemblyman Sam Blakeslee

Bud Laurent
Omnium Associates/Coastal Housing Partnership

Jack Overall
Montecito Association

Miguel Ramirez (replaced Marilu Alcantar)
PUEBLO

Mark Bradley (replaced Jessica Sheeter)
COAST

Alan Smith
Santa Barbara County Taxpayers Association

Dennis Story
Citizens Planning Association/Citizens Planning Foundation

Luis Villegas
Santa Barbara Hispanic Chamber of Commerce

Bob Westwick
Easy Lift

Guy Wysinger
Automobile Club of Southern California

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APPENDIX F - 2030 Demographic Growth Forecast Assumptions

Santa Barbara County, Regional Growth Forecast 2000 presents a forecast of population, employment, and land use to the year 2030 for Santa Barbara County, its major economic and demographic regions, and its eight incorporated cities. Hereafter it is referred to as the Regional Growth Forecast, or the RGF 2000.

Structure of Forecast Model
Forecasting population, employment and land use is a complex process. To simplify this process the forecast is disaggregated into three sub models; 1) population, 2) employment, and 3) constraints. The population and employment models are linked by the constraints model.

The RGF 2000 assumes that no major natural, or man made disasters, e.g., catastrophic earthquakes, will significantly disrupt the area during the forecast period. While our seismic history suggests that a significant seismic event could occur during the forecast period of 30 years, it is beyond the ability of the forecaster to foresee the magnitude and impacts of such an event.

The **population model** provides population forecasts for Santa Barbara County, each of five subregions, and each of the eight cities within the county. The forecast spans the period 2000 to 2030. It uses 1990 census data as a baseline, and is calibrated using 1990 to 2000 population, housing and demographic estimates from the Department of Finance and other sources such as the State Department of Health for birth and mortality rates. For each 5 year forecast period and geographic region, the model forecasts male and female population by five-year age groups (0-4, 5-9, etc.).

Another variable in the population model is net migration. The model receives input in the form of migrants coming in and out of Santa Barbara County. In-migrants may arrive in search of a new job, education, or other reasons. Out-migrants leave due to lack of housing or employment. Migrants are either added or subtracted from the existing population that age over time. The population model also adds new births and subtracts out deaths to the population by applying age specific birth and mortality rates. Every 5 years the age group is advanced, or aged, so that over time someone born in 2000 will be 30 years of age in 2030.

The population model also contains a separate assessment of the "fixed aged" population residing at institutions such as the University of California, Santa Barbara (UCSB). This institution generally cycles people in-and-out of school on a rotating basis so that the population does not generally age, as does the population that stays in the area for a longer period. The "group quarters" population is also forecast separately since it contains a special population, e.g., correctional facilities, dormitories, and group care homes. This group quarters population does not utilize conventional housing units. They are not considered part of the household population that requires a housing unit.

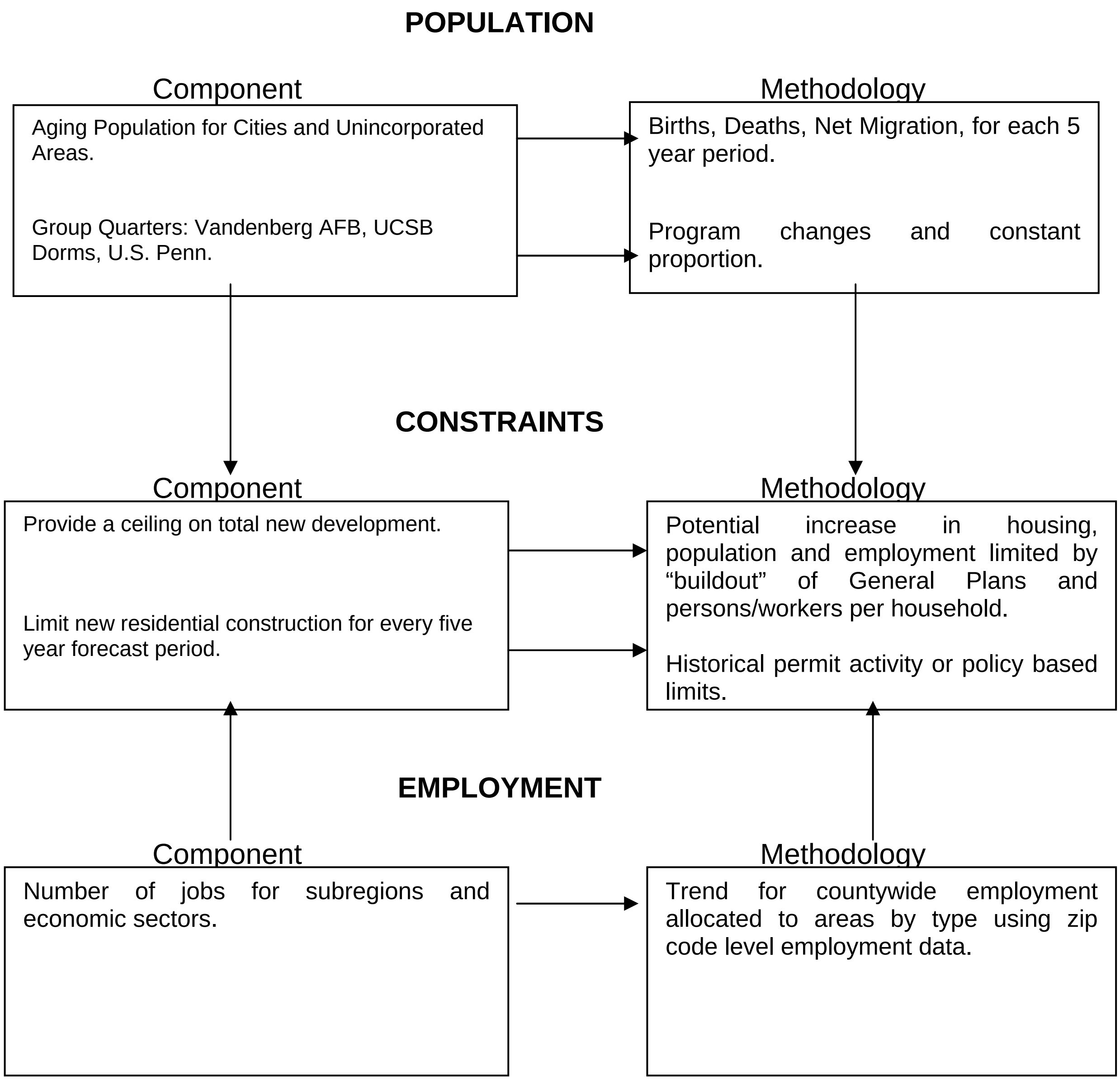
The **employment model** forecasts the number and type of jobs for each subregion by five-year increments (2000, 2005, etc.). The countywide employment forecast is based on an assessment of economic trends and historical employment data. The countywide forecast is then allocated to subregions and economic sectors based on zip code level employment data. There is no employment forecast for individual cities and unincorporated areas. Commercial, retail and industrial land availability, as derived from the local community land use plans, is taken into consideration as a potential limiting factor. The forecast also estimates the potential increase in the workforce, due to more women entering the labor force etc. As stated earlier, the employment database was refined for the travel model to fill some gaps, e.g., retail shopping centers, greenhouse employment, etc.

The **constraints model** limits the potential rate and buildout of residential development and may therefore limit new housing available for those in-migrants who arrive to take new jobs or persons who are born in the area and wish to stay. The constraints model places a limit on the rate at which new housing is developed and a ceiling on the "ultimate" buildout of each jurisdiction. This ultimate buildout is based on the potential for additional housing as allowed by the community land use plans of each jurisdiction. As population (from the population model) increases (due to new births minus deaths and net migration), they are converted into households by assuming a certain number of persons per household. The constraints model limits new housing supply. For areas where the supply falls short of demand, population is allocated elsewhere to other jurisdictions within Santa Barbara County or to Ventura or San Luis Obispo County.

The constraints model links the employment model to the population model by the generation of new workers who are able to fill the new jobs estimated in the employment model. New workers occur due to a variety of factors such as more women entering the labor force, new immigrants, and a natural increase of younger workers while some workers retire and leave the labor force. The constraints model balances the available housing units, with the workers (using a workers per household density), and population (using a household size density).

Exhibit D-1 describes the characteristics of the population, employment, and constraints models. Each of the factors relies on a considerable amount of data and assumptions to produce a 30-year forecast.

Exhibit F-1
Elements of the Forecast Model



2030 Growth Forecasts

Table F-1 summarizes the 2030 demographic growth forecast for Santa Barbara County. Total population is projected to increase from 399,000 in 2000 to 523,500 in 2030, representing an increase of approximately 31%. Similarly, the total number of households is projected to increase from 136,600 to 167,000, a 22% increase and employment is projected to increase from 200,300 to 278,500, a 39% increase respectively. Among the five major employment categories, the service sector, which represents the largest employment category, is expected to grow approximately 40% by 2030 whereas the industrial sector is expected to double the employment for the same period.

Table F-1: 2030 Demographic Forecast, Santa Barbara County

Parameter	2000	2030	% Incr.
Population	399,343	523,529	31.1%
Households	136,620	167,031	22.3%
Employment	200,332	278,522	39.0%
Employment			
Office	14,222	15,568	9.5%
Industrial	20,377	44,813	119.9%
Service	86,843	121,209	39.9%
Commercial	63,179	75,799	20.0%
Agricultural	15,711	21,133	34.5%
Total Employment	**200,332**	**278,522**	**39.0%**

The 2030 Countywide and South Coast Growth Forecasts

As discussed earlier, the forecast used to generate new person and vehicle trips in the travel model is based on the SBCAG Regional Growth Forecast 2000 adopted by the board in March, 2002. The forecast is based on an assessment of demographic and economic growth trends generating new jobs, households, and population whose locations are constrained by the capacity of local land use plans (in effect during 2000) to accommodate future growth. This countywide growth potential from land use plans, using the year 2000 as a baseline, is significant; 33,000 potential units countywide and 30 million square feet of potential new industrial, commercial, and retail development.

Table F-2 summarizes the comparison of 2000-2030 population, households, and employment forecasts between the County and the South Coast. As a comparison, population, households, and employment on the South Coast represent approximately 50%, 54% and 61% of the county's totals in 2000, are forecast to increase by 21%, 13% and 38% respectively. Total South Coast employment is forecast to increase 38% by the year 2030.

Table F-2: 2030 Demographic Forecast, Santa Barbara County

	Countywide			South Coast			South Coast as % of County	
Parameter	**2000**	**2030**	**% Incr.**	**2000**	**2030**	**% Incr.**	**2000**	**2030**
Population	399,343	523,500	31.1%	201,000	243,600	21.2%	50.3%	46.5%
Households	136,620	167,000	22.2%	73,700	82,900	12.5%	53.9%	49.6%
Employment	200,332	278,500	39.2%	121,600	168,300	38.4%	60.7%	60.4%
Employment								
Office	14,222	15,600	9.7%	10,237	10,700	4.3%	72.0%	68.4%
Industrial	20,377	44,800	119.9%	12,808	28,200	120.2%	62.9%	62.9%
Service	86,843	121,200	39.6%	51,260	71,200	38.9%	59.0%	58.7%
Commercial	63,179	75,800	20.0%	39,011	46,400	18.9%	61.7%	61.2%
Agricultural	15,711	21,100	34.3%	8,308	11,800	42.0%	52.9%	55.9%
Total Employment	**200,332**	**278,500**	**39.0%**	**121,624**	**168,276**	**38.4%**	**60.7%**	**60.4%**

Appendix G

Potential Transit Oriented Land Use Policies for the South Coast

Appendix G

Potential Transit Oriented Land Use Policies for the South Coast

Introduction

The 101 In Motion project has identified a multi-faceted approach for solving existing and future transportation system deficiencies in the South Coast portion of Santa Barbara County. After a thorough evaluation of a variety of alternative solution alternatives, a consensus package has emerged that features adding a carpool lane on Highway 101 south of Milpas Street in combination with a commuter rail line between Ventura County and Santa Barbara County. These flagship projects will be supported by an array of ridesharing, transportation demand management and transportation system operational improvements. In addition, the project's Technical Advisory Group (TAG) and Stakeholders Advisory Committee (SAC) recognize that complementary land use policies are essential for encouraging a shift to alternative modes of travel.

This paper describes general land use strategies that the County and corridor cities can consider to promote transit-oriented development (TOD) around commuter rail stations, transit centers, concentrated transit corridors and other locations to help lessen growth in future automobile travel. The paper is intended to serve as a foundation upon which the affected jurisdictions could continue to discuss and develop more specific land use policies in the future. In that sense, it is more of a discussion guide than a set of detailed and prescriptive guidelines.

The land use strategies described in this paper include: increased development densities, mixing land uses, pedestrian-oriented design, managing parking supply, and station area planning. For each tool we briefly discuss why the tool is expected to affect travel behavior (i.e., the theory) and provide illustrative findings where applicable. Finally, as land development results from a process involving market forces and many actors, the paper identifies the tools that can be influenced by policy makers (e.g., local zoning), and factors that are less directly controllable (e.g., regional economic growth).

The paper does not estimate potential impacts that would result from implementation of these strategies in the study area, as this would require a significant modeling effort, and because any adopted land use strategies will require further study and significant refinement. The paper includes potential policies applicable to transit stations located at the residential end of the proposed commuter rail line (i.e. Carpinteria) as well as the employment/education end of the rail system (i.e. Santa Barbara and Goleta stations) as well as at transit centers, and along concentrated corridors with a high level of bus service (such as State Street and Hollister Avenue).

In the end one of the least expensive solutions to the101 Corridor's traffic congestion problems is a trip avoided or reduced. That's why the jobs/housing relationship is so important a foundation for each community's land use policies and planning. The closer that regional workers live to their jobs, the less money will have to be spent on highway expansion and transportation systems, the less air and water pollution will have to be dealt with, and the more stable the local economies will become. (For more information on this regional problem and potential solutions see Inter-Regional Partnership for Jobs, Housing and Mobility, July, 2004)

Land Use Strategies to Promote TOD and Reduce Auto Use

Highway 101 Corridor Overview
Highway 101 is the primary travel route in the South Coast of Santa Barbara County, and is heavily used by local residents, commuters from Ventura County and north Santa Barbara County, and tourists who visit the area. Many employees that work in the South Coast have to commute because of the high cost of housing in the South Coast. South Coast residents currently enjoy spectacular views of the ocean and mountains, have access to natural areas, and tend to live in high-value, single-family and low-density multi-family residences. When developers have proposed to build projects with higher residential densities, however, existing residents have often opposed the projects. As the South Coast continues to add primarily single-family and low-density multi-family housing, affordable housing is becoming harder to find.

Increasingly, employers in Santa Barbara and Goleta are relying on employees that live in Ventura County and Santa Barbara communities north and east of the major employment areas due to the shortage of local workforce housing options. This growth in long distance travel has contributed to increased congestion along Highway 101.

Potential land use strategies that could help to reduce auto use along Highway 101 include:

- Focusing some future commercial and retail employment near the rail stations and transit centers in Santa Barbara and Goleta, and
- Increasing workforce housing opportunities in station areas and closer to South Coast employers.

Increasing the amount of condominiums, apartments and alternative housing choices in the corridor could provide South Coast employees an opportunity to live closer to their jobs, thus helping to alleviate the demand for auto trips on Highway 101. This would also serve to increase rail ridership that could also help to reduce congestion on Highway 101. Two ways to increase ridership include making access to the station convenient and increasing development densities within ¼ to ½ mile of station areas. Convenient access to-and-from a rail station includes providing local bus routes and employer shuttles that connect the station to surrounding residential and employment areas, and providing station area parking at the origin end of the trip. Subsequent sections of this paper elaborate on these strategies.

The Benefits of Transit Oriented Development (TOD)
Implementing TOD can confer benefits to individuals, neighborhoods, communities, and the larger region. The extent to which these benefits are realized depends on whether developments have the primary characteristics of TOD, as well as on the type and quality of transit service available. Ten potential types of benefits resulting from TOD are described below (from Parsons Brinckerhoff, 2001):

1. TOD can provide mobility choices. By creating “activity nodes” linked by transit, TOD provides mobility options, including people who don’t own cars or prefer not to drive.

2. TOD can increase public safety. By creating active places that are busy through the day and evening and providing “eyes on the street”, TOD helps increase safety for pedestrians, transit users, and many others.

3. TOD can increase transit ridership. TOD improves the efficiency and effectiveness of transit service investments by increasing the use of transit near stations and transit centers.

4. TOD can reduce rates of vehicle miles traveled (VMT). Vehicle travel has been increasing faster than population growth. TOD can lower annual household rates of driving for those living, working, and/or shopping within transit station and transit center areas.

5. TOD can increase households' disposable income. Housing and transportation are the first and second largest household expenses, respectively. TOD can free-up disposable income by reducing the need for more than one car and reducing driving costs, saving $3-4,000 per year for households.

6. TOD reduces air pollution and energy consumption rates. By providing safe and easy pedestrian access to transit, TOD can lower rates of air pollution and energy consumption. Also, TODs can reduce rates of greenhouse gas emissions by 2.5 to 3.7 tons per year per household.

7. TOD can help conserve resource lands and open space. Because TOD consumes less land than low-density, auto-oriented growth, it reduces the need to convert agricultural land and open space to development.

8. TOD can play a role in economic development. TOD is increasingly used as a tool to help revitalize declining urban areas, and to enhance tax revenues for local jurisdictions.

9. TOD can contribute to more affordable housing. TOD can add to the supply of affordable housing by providing lower-cost and accessible housing, and by reducing household transportation expenditures. Housing costs for land and structures can be significantly reduced through more compact growth patterns.

10. TOD can decrease local infrastructure costs. Depending on local circumstances, TOD can help reduce infrastructure costs (such as for water, sewage, and roads) to local governments and property owners through more compact and infill development.

TOD Land Uses Strategies

Density, mixed uses (i.e., diversity), pedestrian-oriented design, parking management, and station area planning are primary attributes for a commuter rail TOD. Density needs to be transit supportive yet designed to be attractive and readily absorbed by the market. Diversity of residents and dwelling unit type can create long-term value by providing for multiple incomes and lifestyles. Mixed uses, both vertically and horizontally, create interest and vitality and balance neighborhoods with places to live and work. Parking management around transit facilities can help to prioritize direct pedestrian access to the transit facility, decrease the demand for land allocated for parking, and prevent the local community from being physically separated from the station with a large expanse of asphalt and parking spaces. Station area planning is the package that contains all these attributes and concentrates development and pedestrian activities to form a dynamic sense of place with close proximity to transit.

Density

Higher density residential development near transit stations can help to increase transit trips. Increased density brings more trip productions and attractions (i.e., activities) into proximity. When numerous activities are accessible within a small area, the average trip distance decreases and more people are inclined to use slower modes of travel (walk, bike) for short trips, especially if many activities can be combined. Increased density also provides a larger pool of potential transit riders.

Residential density that includes a variety of housing types, ownership options and costs, near commuter rail stations can help to create a diverse community that in turn can help to support local retail and businesses. Housing types can include apartments, condominiums, single-family townhouses, lofts and live/work units. While the mix of housing units can add to station area vitality and diversity by including housing opportunities at a variety of price points, the density of the mix of housing units needs to be considered when aiming to reduce trips on Highway 101. Housing densities may vary by project or building, but the average housing density of the area within a 5 to 10 minute walk of the station (typically ¼-mile up to ½-mile) needs to be at a level that is transit supportive. Research by Frank and Pivo (1994) indicates that 15-24 housing units per acre will support a high level of bus or rail service to a station area.

Table 1: Density/Intensity Thresholds for Transit

Transit Service	Residential Density (DU/A)[1]	Employee Density (E/A)[2]
Local Bus Service with 1-Hour Headways	4 - 6	NA[4]
Local Bus Service with 1/2 Hour Headways	7 - 8	25
Local Bus Service with 10-Minute Headways and Express Bus	15 - 24	50 – 75 for Work Trips 75 for Work Trips
Commuter Rail[3]	15 - 24	35 - 75

<u>Table Notes:</u>
1. Residential density is measured in dwelling units per acre of land.
2. Employee density is measured in employees per acre.
3. Densities may be significantly lower for commuter rail traffic relying on park and ride commuters.
4. NA – not available.

<u>Sources:</u>
Frank and Pivo (1994)
Parson Brinckerhoff Quade & Douglas
Freilich Leitner & Carlisle and Planning Works (2002)

Mixed Uses

Mixed land and business uses in a station area can diversify the local economy, help build transit ridership, increase density in a pedestrian-oriented environment, and provide a wider range of services for residents and visitors in a walkable area. Mixed use is typically described in two ways: vertical mixed use and horizontal mixed use. Vertical mixed use occurs when mutually supportive land uses are occupied vertically in the same building. Residential or office above retail is a typical form of vertical mixed use. Horizontal mixed use occurs when different uses are located along a storefront of the same building or are close enough that pedestrians can easily walk to the next business. Both types of mixed use development are desirable in a station area because they increase the variety and density of uses and activities in a neighborhood or community. Station areas with mixed use can provide numerous retail and commercial services within walking distance of residential units. Providing opportunities to live close to the services needed for daily living can reduce the need to use the automobile for daily necessities and increase walking trips in pedestrian-oriented areas. Mixed uses in a high density environment can also add to increased transit use when considering employee density close to the transit facility. Frank and Pivo's research (1994) also indicates that employee density per acre at a rate greater than 25 employees per acre can support local bus service. At 50 to 75 employees per acre, frequency of transit service during the typical work week can occur at frequent intervals. A key consideration in any higher intensity mixed use area or employment district is maintaining a safe and attractive pedestrian environment that will attract residents, shoppers, and tourists.

Pedestrian Orientation

In pedestrian friendly mixed use areas and high density transit supportive neighborhoods, the design and mix of land use activities can influence the number of trips made on foot and by car. Land uses can encourage pedestrian travel by creating environments that are finely tuned to scale and proportions of human activity. Downtown Santa Barbara is an excellent example of pedestrian scaled land uses that includes mixed use streetscapes and paseos.. Pedestrian scaled urban design elements are arranged in a unified composition that results in a pleasant and attractive sidewalk environment. Design elements in Downtown Santa Barbara include storefront awnings that reduce the scale of the building façade, street trees, delineated sidewalk paving, and sidewalk furniture. Planters filled with flowers are particularly effective in creating a more human scale because it helps to bring the attention of the pedestrian towards the sidewalk and immediate surroundings. People are naturally drawn to environments that offer intimacy and enclosure. Pedestrian oriented streetscapes and public spaces in a mixed-use neighborhood can help to increase and maintain long-term pedestrian activity. When incorporated with or adjacent to a transit station or transit center, more pedestrian activity can help build transit ridership.

Figure 1: Pedestrian scaled sidewalk environment.

Creating an environment that encourages walking adjacent to a transit facility improves the opportunities for transit use. Increased pedestrian activity as a result of high quality pedestrian design and amenities is key to transit-oriented development. Mixed uses alone will not encourage walking without a well-designed walking environment. “Good” urban design is generally thought to make walking both more possible and attractive for work, shopping, and entertainment activities. On a functional level, dense street networks provide more direct routes for pedestrians and more intersections where traffic must slow down or stop, giving pedestrians more safe opportunities to cross streets. Walking, as a separate mode or to/from transit, becomes a more pleasurable experience when pedestrians can use continuous sidewalks that are adjacent to “interesting” (e.g., retail) land uses, and when amenities such as sidewalk coverings (e.g., awnings), trees, benches and lights are provided. Station area street crossings, free of obstacles and safety hazards such as high speed traffic and dangerous intersections, can increase the overall perception of community safety. Understanding the needs and habits of pedestrians, transit riders, and bicyclists is necessary to create a more transit-oriented area.

Reduced Parking Requirements

Parking is a major land use and should be carefully managed in station areas. By increasing transit accessibility and combining a mixture of land uses, TOD offers opportunities to reduce the number of parking spaces below conventional parking requirements for retail, office and residential land uses.

Several studies find that station areas attract smaller households that own fewer vehicles. In his research on TODs in California, Dr. Robert Cervero (1996) found that TODs had an average of 1.66 people and 1.26 vehicles per household, compared to 2.4 people and 1.64 vehicles for all households located in the same census tracts. Cervero also found that most TOD residents are young professionals, singles, retirees, and childless households. These groups tend to require less housing space than traditional “nuclear families”, and are more likely to live in attached housing units for financial and convenience reasons.

In his analysis of national 2000 census data, John Renne (2005) found that:

- Station area households own an average of 0.9 cars compared to 1.6 cars for the average household.

- Station area households are almost twice as likely to not own a car compared to the average household (18.5% versus 10.7%).
- While about 66% of average households own 2 or more cars, only about 40% of TOD households own as many cars.
- In station areas, about 63% of households own fewer than two cars, compared to 45% for the average household.

In research conducted for Caltrans by Parsons Brinckerhoff (2002), a wide range of parking reductions (from 12% to 60%) were found for commercial parking in TODs. Commercial parking demand, however, is generally more complex than residential parking and is affected by numerous factors, including: employee demographics, retail sales volumes, employee densities, types of adjacent land uses, etc. Therefore, parking needs should still be estimated on a site-by-site basis.

Reduced parking requirements can lower development costs, which in turn can result in improved financial performance of projects, and/or allow more development to be built on sites near transit. In addition, reduced parking can:

- Reinforce transit use and affect long-term travel behavior
- Lessen urban water runoff
- Increase taxable square footage or other community amenities
- Improve urban design and local traffic circulation, and

Tools that can be used to reduce and manage parking include: amending zoning codes to phase out minimum required parking, implementing parking maximums, shared parking, parking districts, residential parking permit programs, satellite parking for major employers, and preferential carpool parking.

Travel Impacts Observed in the Literature

Studies to estimate the travel impacts of land use variables have typically focused on the "3 Ds" - density, diversity (i.e., mixed uses) and design. Recent research cited in the Transit Cooperative Research Program Report 102, 2004: *Transit Oriented Development in the United States: Experiences, Challenges, and Prospects*, has confirmed that "those living in compact, transit-accessible locations tend to own fewer automobiles and log fewer vehicle miles travel per year…A doubling of residential density was found to reduce household automobile ownership and VMT per capita in the 32% to 43% range."

Cervero and Kockelman (1997) found that the elasticities between various measures of the 3 Ds and travel demand (e.g., auto trips, transit ridership) are generally in the .06 to .18 range, expressed in absolute terms. That is, a 10% change in land use changes travel behavior between 0.6% and 1.8%. While several, typically-older, studies have estimated much higher land use impacts, these studies typically did not control for household demographics, transit service levels, and parking characteristics (e.g., prices), all of which exert strong influence on travel behavior[1]. Cervero and Kockelman conclude that the elasticities between land use factors and travel demand are modest to moderate, and that higher densities, diverse land uses, and pedestrian-friendly designs must co-exist if transit ridership benefits are to accrue. In its guidance for air quality conformance testing, FHWA notes that accessibility (i.e., the number of jobs accessible within a certain distance or time, by mode) has a much stronger influence on travel than the 3 Ds, and that unless residential density is above 7-10 dwelling units per acre, it is unlikely that the other Ds will have any effect, even in combination[2].

[1] Readers should refer to Richard Pratt's TCRP Report 95 for a good discussion of the methodological issues of estimating land use impacts, and for additional study findings.

[2] See www.fhwa.dot/gov/environment/conformity/benefits/benefitsd.htm.

Density, or high shares of development within a 10-minute walk of a transit station, has generally been shown to be the strongest determinant of transit riding and walking among the land use variables. Furthermore, employment densities at destinations are more important than population densities at trip origins. Ross and Dunning (1997), for instance, note that large shifts from auto to transit, bicycle and walking occur for work trips from 20-75 jobs/acre to >125 jobs/acre. Frank and Pivo (1994) found that for shopping trips, population density needs to exceed 13 persons per acre before significant shifts occur.

Like density, a rich mixture of land uses brings more activities closer to households, resulting in shorter trips and fewer auto trips where walking and transit are viable alternatives. Evaluating shopping trips only, Handy (1993) analyzed the impacts of local accessibility on trip distance and frequency, where accessibility reflected convenience to nearby supermarkets, drug stores, and dry cleaners nearby in small centers or stand-alone locations. In this case, accessibility was measured as a function of retail, service, and other non-industrial jobs in nearby zones (attractiveness) and off-peak travel times (impedance). The study concluded that high levels of local access are associated with shorter shopping distances, although no relationship was found for trip frequency.

Renne (2005) used census data to examine trends in travel behavior from 1970 to 2000 for households living in 103 TODs compared to averages for the 12 metropolitan regions in which the TODs are located. TODs were defined by using a half-mile radius buffer around selected transit stops. While TOD may not have existed in these locations as far back as 1970 or 1980, today they are recognized as TODs and include a train station and dense housing at a minimum.

Renne's results show that over the past 30 years, transit commuting has increased amongst TOD residents from 15.1% to 16.7% (a gain of 11%) while it has decreased across all regions by 63%. While the regions have become increasingly auto-dependent for work trips, in 2000 more than twice as many TOD residents used transit for commuting compared to the regional average (16.7% versus 7.1%). Renne also found that TODs have about 3.5 times more walking and bicycling than MSAs (11.2% in TODs versus 3.2% in regions).

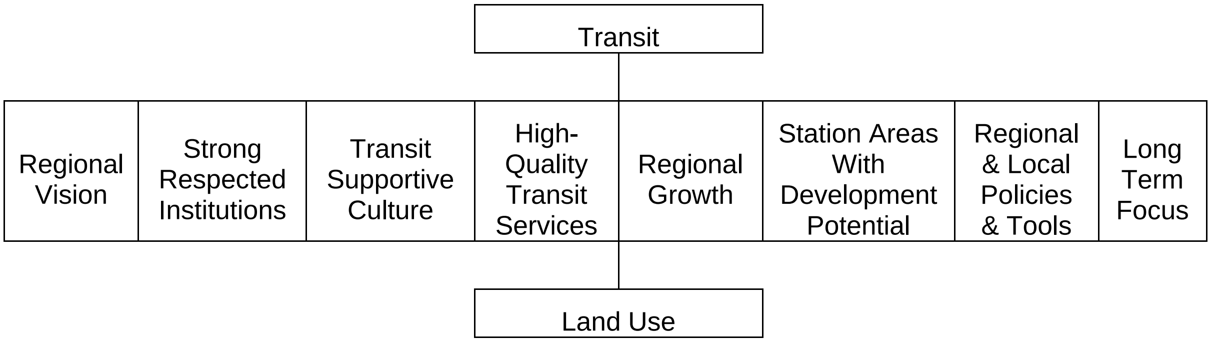
High transit commute mode shares among station-area residents are significantly a product of self-selection. That is, those with a lifestyle preference to ride transit and walk consciously move to neighborhoods well-served by transit and act upon their preferences by riding frequently. A study by Cervero and Duncan (2002) used nested logit analysis to predict transit ridership as a function of residential location choice in the San Francisco Bay Area. Around 40 percent of the choice to rail commute choice was explained by residential sorting. Importantly, however, among those who drove to work when they previously lived away from transit, 52% switched to transit commuting upon moving within ½ mile walking distance of a rail station.

Based on this evidence, the implications for cities and TOD are clear. Having an office or workplace near a transit stop is a strong motivator for many Americans to use transit and reside near transit, and in turn motivates people to buy into high transit-accessible neighborhoods. Thus policies that promote higher densities for a variety of land uses in transit station areas are likely to reduce auto use.

Factors Affecting Land Development

Accessibility alone does not determine changes in land use development, particularly for transit investments. The timing and intensity of development are also influenced by rates of regional growth, local support for transit, local and regional growth management policies and tools, household and business preferences, and land availability and zoning near station areas. Figure 2 shows the different factors that intersect to affect land development.

Figure 2: Mediating influences on the transit-urban form relationship



Source: Parsons Brinckerhoff, Transit and Urban Form, Vol. 1, Part 1, 1996.

Consider the construction of a new commuter rail station. Locations near the station are made more accessible, and some shift in travel patterns occurs. As travelers make more trips to the station area, development pressures intensify, leading to increased land values as competition for sites increases (provided land use policies allow for changes in land use and density). The new development that occurs, in turn, causes additional changes in travel patterns.

The magnitude of land use changes depend upon a number of factors, including how much accessibility is improved, the relative attractiveness of the specific parcels near the station, and the real estate market in the station area. The regional real estate market will mediate the changes further. In a robust fast-growing economy, demand for new housing and commercial activities will be high. Under these conditions, the effects of accessibility changes will be stronger than they are in a weak market.

The likelihood of development near a transportation investment is influenced by both the public and private sectors. Public policy, including zoning and development incentives, may attract or deter development. The size, price and characteristics of specific sites also influence development potential.

For transit in particular, cases studies have shown several factors to influence the type, intensity, and timing of development near stations.[3] Some of these fall within the realm of public policy, such as the quality of the transit service and the variety and quality of the policies and tools available to influence development. Others clearly are exogenous, such as regional growth. Other factors may be affected by citizens' purposeful activity, but may be fixed in the short run. These include the presence or absence of a regional land use vision, and a transit-supportive political culture.

Understanding the relationships between transportation and land use also requires an understanding of the context in which transportation investment decisions are made. It is difficult to predict and coordinate transportation and land use because of differences in the parties making decisions, the types of organizations involved, and the time that it takes for effects to be seen. The public sector is a major provider of transportation infrastructure, but most land use decisions are made by the private sector. Land use policies are largely a responsibility of local governments while federal, state, and local/regional agencies determine transportation policies. Travel responses to land use and transportation system changes are seen much more quickly than land use responses.

[3] For more information on the nature and influence of these factors, see Parsons Brinckerhoff Quade & Douglas, *Transit and Urban Form* TCRP Report 16, Vol. 1, part 1 and Vol. 2, part 2.

To estimate the land use impacts of a transportation investment, one must understand who makes decisions affecting land use, and what factors influence their decisions. These "actors" include households, business firms, developers, and government agencies.

Households seek housing that satisfies their needs and preferences and fits within their budgets. Accessibility is only one of many factors that households consider in making these choices. Since the majority of trips are made for non-work reasons, households consider access to stores, services, friends, and other destinations besides work when choosing housing. Many households are more concerned about affordability than access to jobs, provided they are not too distant from the current jobs or primary destinations of household members. For households who have a large set of affordable choices, other factors such as school quality, neighborhood amenities, and the type of people living in the community can also play a decisive role in their final choices.

Firms seek locations where they can make a profit. Different types of firms place different emphases on access to workers, customers, suppliers, and others. Like households, firms must consider multiple factors including accessibility and affordability in making location decisions. The final site selection may also hinge on other factors such as differences in local tax rates, the cost and availability of services, and the prestige of the location.

Developers balance the needs and preferences of potential customers with the costs of developing in different locations when deciding where and what to build. They consider both the factors that influence household and location choices, such as preferred locations and site characteristics, and the costs and land supply limitations, if any, due to governmental policies.

Government policies influence the supply of land available for development and affect the cost of development. The supply of land available for different types of development is constrained by zoning, environmental regulations, and the provision of water, sewer, and other infrastructure. The cost of development can be lowered with economic development incentives. The cost of development can increase with multiple and ambiguous requirements for obtaining permits, infrastructure standards, or parking or design standards.

These players interact in a market where the price for land acts to sort the type and location of development. Households, businesses, and developers are willing to pay for land up to the amount they anticipate they will receive in future benefits. Some stand to benefit from certain locations more than others and will outbid all others for these desirable sites.

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APPENDIX H

Summary of 101 in Motion - Model Adjustment Factors and Assumptions

Introduction

This appendix provides written document of adjustments made to the SBCAG Regional Travel Demand Forecasting Model for the 101 in Motion project. In addition, this appendix describes the various types of adjustments made for 101 In Motion, including TDM strategies used, number of trips reduced and TAZs where reductions were applied.

During the Round 2 Evaluation (of 6 Alternative Packages), the 101 In Motion Project used the SBCAG Regional Travel Demand Forecasting Model to develop six models each representing a different Alternative recommended by the 101 In Motion Steering Committee. Similar adjustments to those described herein were made for the Final 4 Alternative Packages and to the Adopted Improvement Package. Most differences in project elements between alternatives involved changes in highway or transit network parameters, except for two: travel demand management and commuter rail. These two elements reduce the number of estimated single occupancy vehicle trips. The trip reductions were applied immediately after the trip generation step and prior to the traffic assignment step. An additional adjustment was done post assignment to reflect “induced” HOV trips.

All files were run in Full TransCAD Version 4.8 Build 373.

2010 Land Use File Adjustments

The most recent 2010 model was provided to 101 in Motion in January 2005. However, the structure of the model was subsequently updated and a new form of the model with significant changes was released in May 2005. A new set of files for the 2010 Model was not provided with the May Release. In order to use the old 2010 land use file (TAZdata.bin and TAZdata.dcb), the model required some structural alterations by adding new fields using data from the 2030 files. No changes to actual data were necessary.

Speed Capacity Adjustments

There were no changes made to the speed capacity lookup table in the SBCAG model.

However, in presenting the model results, different capacity values as were decided by the 101 in Motion Technical Advisory Group (TAG) were used in the Volume/Capacity Tables and Flow Map Graphics for Highway 101 to reflect the different characteristics of various segments of the highway. In other words, all changes to link capacity were for post-model run analysis and graphical representation only. The capacity values were calculated per lane based on the following assumptions for lane capacities.

- Pre-widened conditions South of Milpas: 1,900 vehicles per hour per lane (vphpl)

- Remaining general purpose lanes South of Milpas post-widening: 2,150 vphpl
- Existing lanes North of Milpas: 2,150 vphpl.
- HOV lanes: 1,650 vphpl
- Auxiliary lanes: 900 vphpl

Transit Frequency Adjustments

For 2030 simulations, frequencies were significantly increased for transit express and feeder routes serving the Goleta and Downtown Santa Barbara areas. Table 1 presents the headway changes in minutes of routes with increased frequencies. The Route ID is the number assigned to the model's ROUTE_ID field. There were no geographical changes to transit routes.

TABLE 1
Transit Headway Adjustments by Model Route ID in Minutes

Route Information		Existing		Future 2030		Change	
ID	**Name**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**
25	GOLETA EXP W	30	30	15	15	-15	-15
27	WINCHESTER CANYON EXP W	1440		10		-1430	
31	SBCC/UCSB EXP AM W	30	30	10	10	-20	-20
32	SBCC/UCSB EXP AM E	30	30	10	10	-20	-20
33	SBCC/UCSB EXP PM W	30	30	10	10	-20	-20
35	CITY COLLEGE SHUTTLE W	30	30	10	10	-20	-20
37	WESTSIDE/SBCC LINK S	30	30	10	10	-20	-20
38	WESTSIDE/SBCC LINK N	30	30	10	10	-20	-20
50	OLD MISSION S	60	60	10	10	-50	-50
55	ELLWOOD W	60	60	10	10	-50	-50
56	ELLWOOD E	60	60	10	10	-50	-50
57	NORTH FAIRVIEW W		1440		15		-1425
60	UCSB SHUTTLE S	30	30	10	10	-20	-20
115	102 S	30		10		-20	
116	102 N		30		10		-20
118	104 S	30		10		-20	
119	104 N		30		10		-20
167	COUNTY HEALTH EXP E	30	30	10	10	-20	-20
168	GOLETA EXP E	30	40	15	15	-15	-25
169	WINCHESTER CANYON EXP E		1440		10		-1430
171	103 S	30		10		-20	
174	NORTH FAIRVIEW E	1440		15		-1425	
175	SBCC/UCSB EXP PM E	30	30	10	10	-20	-20
177	COUNTY HEALTH EXP W	30	30	10	10	-20	-20
209	OAK PARK W	30	30	20	20	-10	-10
210	STATE-HOLLISTER TRAVL E	30	30	10	10	-20	-20

TABLE 1 Transit Headway Adjustments by Model Route ID in Minutes							
Route Information		Existing		Future 2030		Change	
ID	Name	AM	PM	AM	PM	AM	PM
211	STATE-HOLLISTER TRAVL W	30	30	10	10	-20	-20
214	CATHEDRAL OAKS E	60	60	30	30	-30	-30
215	CATHEDRAL OAKS W	60	60	30	30	-30	-30
216	CITY COLLEGE SHUTTLE E	30	30	10	10	-20	-20
217	CARPINTERIA EXP N	30	30	10	10	-20	-20
219	OLD MISSION N	60	60	30	30	-30	-30
220	WINCHESTER CYN N	60	60	30	30	-30	-30
221	WINCHESTER CYN S	60	60	30	30	-30	-30
222	UCSB EXP W	30	30	10	10	-20	-20
223	UCSB EXP E	30	30	10	10	-20	-20
224	UCSB SHUTTLE N	30	30	10	10	-20	-20
254	101 S	30		10		-20	
255	101 N		30		10		-20
256	103 N		30		10		-20
257	105 S	30		10		-20	
258	105 N		30		10		-20
260	202 N		45		10		-35
261	202 S	45		10		-35	
262	201 S	45		10		-35	
263	201 N		45		10		-35
291	VALLEY EXP HOLL S	1440	1440	30	30	-1410	-1410
292	VALLEY EXP HOLL N	1440	1440	30	30	-1410	-1410
293	VALLEY EXP COTTAGE S	1440	1440	30	30	-1410	-1410
294	VALLEY EXP COTTAGE N	1440	1440	30	30	-1410	-1410
295	VALLEY EXP SB S	1440	1440	30	30	-1410	-1410
296	VALLEY EXP SB N	1440	1440	30	30	-1410	-1410
297	VALLEY EXP UCSB S	1440	1440	30	30	-1410	-1410
298	VALLEY EXP UCSB N	1440	1440	30	30	-1410	-1410
300	CALLE REAL E	30	30	15	15	-15	-15
301	CALLE REAL W	30	30	15	15	-15	-15
302	STOW CANYON/UCSB N	60	60	30	30	-30	-30
303	STOW CANYON/UCSB S	60	60	30	30	-30	-30
306	CARPINTERIA EXP S	30	30	10	10	-20	-20
307	CARPENTERIA LOCAL S	30	30	10	10	-20	-20
308	601 S		1440		10		-1430
309	CARPINTERIA LOCAL N	30	30	10	10	-20	-20
310	MONTECITO E	50	50	20	20	-30	-30
311	MONTECITO W	50	50	20	20	-30	-30
314	203 S	45		10		-35	

TABLE 1 Transit Headway Adjustments by Model Route ID in Minutes							
Route Information		Existing		Future 2030		Change	
ID	Name	AM	PM	AM	PM	AM	PM
315	203 N		45		10		-35
316	DOWNTOWN/UCSB E	30	30	10	10	-20	-20
317	DOWNTOWN/UCSB W	30	30	10	10	-20	-20
318	601 N	1440		10		-1430	

Travel Demand Management Model Adjustments

Each evaluated alternative used a combination of three travel demand management (TDM) strategies. Each strategy was assumed to have a fixed number of possible trip reductions and a fixed geographical area of application. Table 2 presents the number of trips reduced by TDM Strategy.

TABLE 2 Peak Hour Trip Reductions by Strategy	
TDM Strategy	Vehicle Trips Reduced
Ridesharing Incentives	185
Individualized Marketing	150
Flexible Work Schedule	750

Strategy One: Ridesharing Incentives

This strategy reduces trips by offering financial incentives to carpoolers and vanpoolers at major employment centers. The areas identified as major employment centers are Downtown Santa Barbara, beachfront areas, and major employment generators in the City of Goleta and UCSB. It was assumed that this strategy would reduce 185 peak hour vehicle trips entering the major generators in the AM and 185 peak hour trips exiting the major generators in the PM.

Strategy Two: Individualized Marketing

This strategy reduces peak hour trips by developing individualized approaches to eliminating trips, combining trips, converting trips to shared trips or alternative modes, or shifting peak hour trips to off-peak times. Each participant's travel patterns are analyzed and options presented for how peak hour trips could be reduced. Prime targets of this strategy are long distance commuters coming from Ventura County, Carpinteria, and North County and into major employment centers located in Downtown Santa Barbara and Goleta.

It was assumed that this strategy would reduce 150 peak hour vehicle trips commuting into the employment regions in the AM and 150 peak hour trips exiting in the PM.

Strategy Three: Work Schedule Adjustments

This strategy reduces trips by shifting commute trips out of the peak hour region-wide. It was assumed that 10% of the total number of workers in South County in addition to those who already have adjusted their hours would be attracted to using this flexibility. This translated to a reduction of 750 peak hour vehicle trips entering the study area in the AM peak hour and 750 trips exiting in the PM peak hour.

Commuter Rail Model Adjustments

The availability of commuter rail was assumed to attract a certain number of passengers to and from specified destinations. Table 3 presents the number of trips generated and its associated location of origin and destination in the AM Peak Hour based on ridership forecasts developed by Wilbur Smith and Associates for the Adopted Improvement Package. The Adopted Package includes the addition of HOV lanes on US 101 as well as continuation of commuter express bus service in the 101 corridor. The trips shown in Table 3 assume that 67% were former single occupant drivers and 33% were former carpool, Coastal Express, or other transit users. This translates to a final vehicle trip reduction of 385 vehicle trips during each peak hour.

TABLE 3
Projected 2030 Commuter Rail Ridership with HOV Lanes on Highway 101

Station	AM Peak Hour (On)	PM Peak Hour (Off)
Camarillo	59	0
Oxnard	108	0
Ventura	171	0
Carpinteria	32	14
Santa Barbara	15	225
Goleta	0	146
Grand Total	*385*	*385*

Adjustment for Induced HOV Use by SOV Drivers

Studies in California and Texas have shown that between 15 and 25 percent of HOV lane users were former SOV motorists. Based on these studies it was assumed that the final volume of SOVs in the remaining 101 general purpose lanes within the corridor is reduced by 20% of the HOV lane volume in the peak hour. Since this assumption is not incorporated into the HOV model, an adjustment was made in a post-model run processing step.

Regions for Trip Reductions

To permit the application of trip reductions, transportation analysis zones (TAZs) were aggregated into Regions. Table 4 shows the TAZs that were assigned to each Region.

TABLE 4
TAZ Index Regions for Trip Reduction

Index Region	Associated TAZ
CBD (UCSB, Goleta and Downtown Santa Barbara)	71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179
South of CBD	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 401, 402, 403, 404, 405, 406, 407, 408
North of CBD	18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 301, 302, 303

APPENDIX I

TRAFFIC IMPACT ANALYSIS, TRAVEL DELAY ANALYSIS AND PEAK SPREADING METHODOLOGIES

This Appendix presents the traffic impact analysis approach for the 101 In Motion project. Two levels of evaluation were performed. For the 6 Alternative Improvement Packages (two of the 8 packages were dropped before the traffic analysis was performed), a representative traffic impact analysis was conducted; and a somewhat more detailed traffic impact evaluation was performed for the Final set of 4 Improvement Packages. The objective of the representative traffic impact analysis phase was to utilize these locations to compare traffic operations between the 6 screened set of Alternative Improvement Packages. The relative differences between the 6 packages were used as one of several measures of effectiveness (MOEs) in selecting the Final set of 4 Alternative Improvement Packages. Other measures of effectiveness related to transportation performance that were used in the evaluation included representative travel times between major origins and destinations along the corridor, and overall person hours of transportation related delay.

The traffic analyses was conducted using recent available traffic count data as well as some new counts at locations where current counts were not available, forecasts of future traffic from the regional model, and proposed geometric lane configurations for the freeway mainline, ramps, major arterials and critical intersection locations. In general, a planning level analysis was conducted for the freeway mainline, ramps and major arterials using the link volume-to-capacity (v/c) ratios methodology. A level of service (LOS) designation, which depicts roadway operating conditions, was assigned based on the resulting v/c ratio. For intersections, such as the ramp termini, Congestion Management Plan (CMP) and non-CMP intersection locations were selected for evaluation within the study area, and a level of service analysis was performed using the Intersection Capacity Utilization (ICU) methodology for signalized intersections and the 2000 Highway Capacity Manual (HCM) methodology for unsignalized intersections.

In addition, a weave analysis was performed along the freeway mainline at critical locations of interest using the Leisch Method as presented in Chapter 500 of the Caltrans Highway Design Manual. The weave analysis was conducted during the detailed traffic evaluation phase only. In conjunction with the TAG members, (5) critical locations of interest were identified along the freeway mainline where a weave analysis was conducted in the detailed traffic evaluation phase.

For screening purposes a conceptual traffic evaluation was performed and used as one of the measures of effectiveness to assist in evaluating the Alternative Improvement Packages. For the representative traffic analysis phase, an AM peak hour evaluation was performed for the freeway mainline at 8 locations and a PM peak hour evaluation was performed for all study locations, whereas during the detailed traffic analysis phase, the evaluation was performed for both AM and PM peak hours. The traffic analysis methodology outlined above was performed for the following scenarios:

1. Existing Conditions – 2000 Base Case (AM and PM peak hours)
2. Year 2030 No Build Condition – Year 2030 Base Case (AM and PM peak hours)

3. Year 2030 Build Condition – 6 Alternative Improvement Packages were evaluated (AM peak hour for the freeway mainline and PM peak hour for all study locations including the freeway mainline)

4. Year 2030 Build Condition for the Final -4 Alternative Improvement Packages (plus the No Build) (AM and PM peak hours)

5. Year 2010 Interim Condition (AM and PM peak hours) for the final selected package

A model run was performed for each alternative. Results of the travel demand model were post-processed and adjusted to reflect demand management measures, commuter rail usage (which is not estimated by the Regional model), diversion of single-occupant vehicle drivers to HOVs and other adjustments before utilizing the volumes to perform the traffic analysis. Additionally a peak spreading analysis was performed to establish the duration of congestion expected with each of the Final 4 Alternatives. The methodology for model adjustments is presented in the following sections.

Modeling Adjustments and Post-Processing Methodology

Because the SBCAG travel forecasting model produces forecasts of traffic volumes in the AM peak hour, PM peak hour, and total daily traffic, off-model adjustments and post-processing were needed to evaluate the effects of traffic spreading into other hours of the day (the hours before and after the peak hour). In addition, since the model produces estimates of travel time and delay for the AM and PM peak hour but not peak periods, methods were used to estimate travel time, delay, and queuing during peak periods so the effects of peak spreading on travel time and delay could be assessed for the various alternatives. The following section describes the methods and steps used for the adjustments and post-processing.

Peak Period Spreading

Traffic assigned to freeway

1. Review recent Caltrans 24-hour counts on Highway 101 in the corridor at 15-minute increments to determine:
   a. Existing percentage of 24-hour traffic during each 15-minute increment over the entire day by direction of travel
   b. Relationship of AM & PM peak hour traffic volumes to traffic volumes in adjacent hours

2. Establish hourly vehicle capacity of a freeway lane for various segments of Highway 101 based on the Highway Capacity Manual (in passenger car equivalents per lane per hour) and observed conditions

3. Assuming that the distribution of traffic around the peak hour desires to distribute itself proportionally to today, use the model's future forecasted peak hour volume on each segment of the freeway to establish the future year curve at 15-minute increments for each alternative package. Draw a horizontal line that corresponds to the LOS F capacity at that location. Then graphically spread the volumes shown over the freeway capacity

line in each 15-minute increment to the adjacent 15-minute increments until all of the excess volumes have been reflected. Calculate the duration of time that the freeway would be operating at capacity for each alternative package. This is the projected duration of congestion at that location/segment.

Appendix B Figures B-1 to B-20 show the results of the peak spreading analysis. Appendix B Table B-3 summarizes the duration of congestion projected using this methodology for each of the alternatives and the No Build condition.

Average Travel Time And Overall Delay

1. For each study segment of Highway 101, identify the free-flow (uncongested) speed based on the Highway Capacity Manual.

2. Then apply the Bureau of Public Road (BPR) volume-delay function (or other appropriate formula – see section on Speed Estimation Equations in Appendix A of *Planning Applications for the Year 2000 Highway Capacity Manual*) to calculate the congested speed on each freeway segment in each hour of the AM Peak Period and the PM Peak Period.

3. For each freeway segment, multiply the hourly volume by the segment length to obtain vehicle-miles of travel (VMT). Add the VMT on all freeway segments to obtain corridor VMT.

4. For each freeway segment, multiply the hourly volume by the free-flow speed to obtain uncongested vehicle-hours of travel (VHT). Add the uncongested VHT on all segments in all peak hours to obtain uncongested corridor VHT. The VHT is the total hours spent on the freeway by all vehicles. VHT is used to measure how much traveler delay is caused by congestion. The volume/capacity (v/c) analysis indicates the level of congestion.

5. For each freeway segment, multiply the hourly volume by the congested speed to obtain congested vehicle-hours of travel (VHT). Add the congested VHT on all segments in all peak hours to obtain congested corridor VHT.

6. Calculate average corridor travel time in each peak period by dividing the corridor VMT by the congested corridor VHT.

7. Calculate overall delay in each peak period by subtracting the uncongested corridor VHT from the congested corridor VHT.

Travel Times Between Origins And Destinations

Origin-destination (O-D) pairs were selected for the analysis corresponding to major travel markets in the corridor.

1. For each O-D pair, skim trees from the travel demand forecasting model were prepared of the congested speed on the freeway segments between origin and destination to determine travel time. A skim tree is the model's estimate of the fastest travel time

between each pair of traffic analysis zones. Travel times can be calculated for alternative modes during the peak hour and for an average trip during the peak period.

Traffic Analysis Methodology for 6 Alternative Improvement Packages

For the representative traffic analysis phase (6 Alternative Improvement Packages), a level of service analysis was performed at the following roadway segments and intersection locations:

Roadway Segment Locations

1. Highway101 freeway mainline segments between the Ventura County Line and Winchester Canyon Road – for this traffic analysis phase the corridor was divided into a total of 8 segments, some of which correspond to the travel demand model screenline locations. These were identified based on a review of the existing traffic volumes from the Year 2003 Caltrans Traffic Volume Handbook and identifying segments where a noticeable change in the mainline freeway traffic volumes takes place. In addition, the segments were selected such that each jurisdiction along the corridor is adequately covered.

US 101 Freeway Segment	Comments
between Ventura County Line and Casitas Pass Rd	
between Casitas Pass Rd and North Padaro Ln	
between North Padaro Ln and Milpas St	Travel Demand Model Screenline Location
between Milpas St and Carrillo St	
between Carrillo St and Las Positas Rd	
between Las Positas Rd and SR-154 / State St	Travel Demand Model Screenline Location
between SR-154 / State St and Fairview Ave	
between Fairview Ave and Winchester Canyon Rd	Travel Demand Model Screenline Location

2. All northbound and southbound on and off ramps along the US 101 freeway that terminate at a CMP intersection operating at LOS D or worse – a total of 12 locations were analyzed using the link volume-to-capacity (v/c) ratio methodology.

Ramp Segment
US 101 NB Ramps at Garden Street
US 101 SB Ramps at Garden Street
US 101 NB Ramps at Carrillo Street
US 101 SB Ramps at Carrillo Street
US 101 NB Ramps at Mission Street
US 101 SB Ramps at Mission Street

US 101 NB Ramps at Las Positas Road
US 101 SB Ramps at Las Positas Road
US 101 NB Ramps at Patterson Avenue
US 101 SB Ramps at Patterson Avenue
US 101 NB Ramps at Fairview Avenue
US 101 SB Ramps at Fairview Avenue

3. The arterial roadway segments presented in the following table – a total of 15 segments were analyzed using the v/c ratio methodology. For this analysis and in order to maintain consistency, arterial capacities were taken from the SBCAG travel demand forecasting model. These locations were selected to provide a representative sample of arterial roadway segments along the corridor. The selection was based on identifying roadways that parallel the Highway 101 corridor and that have a potential of being impacted during congested freeway corridor conditions when traffic may shift from the freeway to adjacent parallel arterials. This redistribution of traffic volumes was performed along the travel demand model screenline locations to reflect the expected balance between the freeway mainline and arterial streets during congested operating conditions.

Arterial	Roadway Segment
Carpinteria Ave	between SR-150 and US 101 SB Off-Ramps
Via Real	between SR-150 and Bailard Ave
Via Real	between Santa Monica Rd and Toro Canyon Rd
Foothill Rd	between Santa Monica Rd and Casitas Pass Rd
Jameson Ln	between Sheffield Dr and San Ysidro Rd
San Ysidro Rd	north of Jameson Ln
Old Coast Hwy	east of Salinas St
Milpas St	between US 101 Freeway and Montecito St
Cabrillo Blvd	between Milpas St and Garden St
De La Vina St	between Mission St and Haley St
Bath St	between Mission St and Haley St
Calle Real	between Las Positas Rd and La Cumbre Rd
Modoc Rd	between Las Positas Rd and Las Palmas Dr
Calle Real	west of Patterson Ave
Hollister Ave	west of Storke Rd

Intersection Locations

For intersections, a level of service analysis was performed at select CMP and non-CMP intersection locations where the existing LOS is D or worse.

4. The CMP intersections identified for conceptual analysis are presented in the following table – a total of 19 locations. These were selected based on discussions with the TAG and their familiarity of critical intersection locations, as well as identifying CMP intersections that currently operate at LOS D or worse and have a potential of continuing to deteriorate due to shifts in traffic flow as a result of congested freeway corridor conditions.

North-South	East-West
Garden St	US 101 NB
Garden St	US 101 SB
Castillo St	US 101 NB
Carrillo St	US 101 NB
Carrillo St.	US 101 SB
Mission St.	US 101 NB
Las Positas Rd	US 101 NB
Las Positas Rd	US 101 SB
Castillo St	SR-225/Montecito St
Patterson Ave	US 101 NB
Patterson Ave	US 101 SB
Patterson Ave	Hollister Ave
Los Carneros Rd	Hollister Ave
SR 217 SB	Hollister Ave
Storke Rd	Hollister Ave
Calle Real	Fairview Ave
SR 154	Calle Real
SR 154 NB	Foothill Rd
SR 154	Cathedral Oaks

5. The non-CMP intersections evaluated at this phase are presented in the following table – a total of 4 locations. These were selected based on discussions with the TAG and the identification of non-CMP intersections that currently operate at LOS D or worse or that may potentially be impacted due to shifts in traffic flow resulting from congested freeway corridor operating conditions.

North-South	East-West
US 101 NB	Casitas Pass Rd
US 101 SB	Linden Ave
Sheffield Dr	Jameson Ln/Ortega Hill Rd
Las Positas Rd	State St

<u>Traffic Analysis Methodology for Final 4 Alternative Improvement Packages</u>

For the detailed traffic evaluation phase (Final 4 Alternative Improvement Packages), a level of service analysis was performed at the following roadway segments and intersection locations.

Roadway Segment Locations

1. Highway 101 freeway mainline segments between the Ventura County Line and Winchester Canyon Road – for conceptual analysis purposes the corridor was divided into a total of 15 segments. These were identified based on a review of the existing traffic volumes from the Caltrans Traffic Volume Handbook and identifying segments where a noticeable change in traffic volumes takes place. In addition, the segments were selected such that each jurisdiction along the corridor is adequately covered.

US 101 Freeway Segment	Comments
between Ventura County Line and SR-150/Rincon Rd	
between SR-150/Rincon Rd and Casitas Pass Rd	
between Casitas Pass Rd and Santa Monica Rd	
between Santa Monica Rd and North Padaro Ln	
between North Padaro Ln and San Ysidro Rd	
between San Ysidro Rd and Cabrillo/Hot Springs	Travel Demand Model Screenline Location
between Cabrillo/Hot Springs and Garden St	
between Garden St and Carrillo St	
between Carrillo St and Mission St	
between Mission St and Las Positas Rd	
between Las Positas Rd and SR-154 / State St	Travel Demand Model Screenline Location
between SR-154 / State St and SR-217 / Patterson Ave	
between SR-217 / Patterson Ave and Fairview Ave	
between Fairview Ave and Glen Annie Rd / Storke Rd	Travel Demand Model Screenline Location
between Glen Annie Rd / Storke Rd and Winchester Canyon Rd	

2. All northbound and southbound on and off ramps along the US 101 freeway that terminate at a CMP intersection operating at LOS D or worse – a total of 12 locations were analyzed using the link volume-to-capacity (v/c) ratio methodology.

Ramp Segment
US 101 NB Ramps at Garden Street
US 101 SB Ramps at Garden Street

US 101 NB Ramps at Carrillo Street
US 101 SB Ramps at Carrillo Street
US 101 NB Ramps at Mission Street
US 101 SB Ramps at Mission Street
US 101 NB Ramps at Las Positas Road
US 101 SB Ramps at Las Positas Road
US 101 NB Ramps at Patterson Avenue
US 101 SB Ramps at Patterson Avenue
US 101 NB Ramps at Fairview Avenue
US 101 SB Ramps at Fairview Avenue

3. The arterial roadway segments presented in the following table – a total of 16 segments were analyzed using the v/c ratio methodology. For this analysis and in order to maintain consistency, arterial capacities were taken from the SBCAG travel demand forecasting model. These locations were selected to provide a representative sample of arterial roadway segments along the corridor for the detailed traffic evaluation phase. The selection was based on identifying roadway segments that parallel the Highway 101 corridor and that have a potential of being impacted during congested freeway corridor conditions when there is a possibility of traffic shifting from the freeway to adjacent parallel arterials. This redistribution of traffic volumes was performed along the travel demand model screenline locations to reflect the expected balance between the freeway mainline and arterial streets during congested operating conditions.

Arterial	Roadway Segment
Via Real	between SR-150 and Bailard Ave
Via Real	between Santa Monica Rd and Toro Canyon Rd
Foothill Rd	between Santa Monica Rd and Casitas Pass Rd
Jameson Ln	between Sheffield Dr and San Ysidro Rd
San Ysidro Rd	between Jameson Ln and Wyant Rd
Old Coast Hwy	Between Hot Springs Rd and Salinas St
N. Milpas St	between US 101 Freeway and Montecito St
E. Cabrillo Blvd	between Milpas St and Garden St
De La Vina St	between Mission St and Haley St
Bath St	between Mission St and Haley St
Calle Real	between Las Positas Rd and La Cumbre Rd
Modoc Rd	between Las Positas Rd and Las Palmas Dr
Calle Real	between N. San Antonio Rd and Turnpike Rd
Calle Real	between Patterson Ave and N. Kellogg Ave
Hollister Ave	Between Storke Rd and Camino Real Marketplace

Intersection Locations

For intersections, a level of service analysis was performed at select CMP (signalized) and non-CMP (unsignalized) intersection locations.

4. The CMP (signalized) intersections analyzed are presented in the following table – a total of 23 locations. These were selected based on discussions with the TAG and their familiarity of critical intersection locations, as well as the identification of CMP intersections that currently operate at LOS D or worse. These locations were selected because they have a potential of continuing to deteriorate due to shifts in traffic flow as a result of congested freeway corridor conditions.

North-South	East-West
Milpas St	US 101 NB (Roundabout)
Milpas St	US 101 SB Off-Ramp
Milpas St	US 101 SB On-Ramp
Garden St	US 101 NB
Garden St	US 101 SB
Castillo St	US 101 NB
Castillo St	US 101 SB
Carrillo St	US 101 NB
Carrillo St.	US 101 SB
Mission St.	US 101 NB
Mission St	US 101 SB
Las Positas Rd	US 101 NB
Las Positas Rd	US 101 SB
Castillo St	SR-225/Montecito St
Patterson Ave	US 101 NB
Patterson Ave	US 101 SB
Patterson Ave	Hollister Ave
Los Carneros Rd	Hollister Ave
SR 217 SB	Hollister Ave
Fairview Ave	US 101 NB
Fairview Ave	US 101 SB
Storke Rd	Hollister Ave
Calle Real	Fairview Ave

5. The non-CMP (unsignalized) intersections analyzed are presented in the following table – a total of 11 locations. These were selected based on discussions with the TAG and the identification of non-CMP intersections that currently operate at LOS D or worse or that may potentially be impacted due to shifts in the traffic flow as a result of congested freeway corridor operating conditions.

North-South	East-West
US 101 NB Ramps	Casitas Pass Rd
US 101 SB Ramps	Casitas Pass Rd
US 101 NB On-Ramp	Linden Ave
US 101 SB Off-Ramp	Linden Ave
Sheffield Dr	Jameson Ln/Ortega Hill Rd
US 101 NB Ramps	San Ysidro Rd
US 101 SB Ramps	San Ysidro Rd
Las Positas Rd	State St
SR-154 (San Marcos Pass Rd)	Calle Real
SR-154 SB Ramps	Cathedral Oaks Rd
SR-154 NB Ramps	Foothill Rd

Appendix Table K-1
101 in Motion Stakeholders Advisory Committee

John Bowen - Santa Barbara Industrial Association
Emilio Casanueva - SB County Action Network
Steve Engles - Santa Barbara Chamber of Commerce
Bob Ferris - Community Environmental Council
Mary Frink – US Postal Service
David Gonzales and George Pernsteiner - UCSB
Robin Hayhurst - Assemblyman Sam Blakeslee (previously represented Santa Maria Valley Contractor's Association)
Bud Laurent - Coastal Housing Partnership
Jack Overall - Montecito Association
Miguel Ramirez - PUEBLO
Jessica Sheeter and Mark Bradley - COAST
Alan Smith and Jan Evans - Santa Barbara County Taxpayers Association
Dennis Story - Citizens Planning Association/Citizens Planning Foundation
Luis Villegas - Santa Barbara Hispanic Chamber of Commerce
Bob Westwick - Easy Lift
Guy Wysinger and Hamid Bahadori, Auto Club of Southern California
Nancy Hancock - Interfaith Initiative & South Coast Livable Communities

The following representatives also served on the Stakeholders Advisory Committee during the study period:

Tim Bridwell, Fess Parker Doubletree
Lt. Sal Navarro & Lt. Phil Willis, Santa Barbara County Sheriff's Department
Ken Stevens, Santa Barbara Teacher's Association
Corby Gage, Coastal Housing Partnership
Tom Van Metzgar, Hispanic Chamber of Commerce

Appendix Table K-2

101 In Motion Technical Advisory Group

AGENCY	LEAD REPRESENTATIVE	OTHER REPRESENTATIVES
Santa Barbara Air Pollution Control District	Vijaya Jammalamadaka	Ron Tan
Caltrans District 5	Rich Krumholz	Pat Mickelson, Scott Eades, Rob Miller, Dan Herron
City of Carpinteria	Dale Lipp	
City of Goleta	Steve Wagner	Marti Schultz,
City of Lompoc	Larry Bean	
City of Santa Barbara	Rob Dayton	John Ledbetter, Browning Allen
County of Santa Barbara	Bret Stewart	**Matt Dobberteen***, Greg Nielsen, George Amoon
Santa Barbara County Association of Governments	Jim Kemp	Michael Powers, Gregg Hart, Fred Luna, Bill Yim, Jim Damkowich
Santa Barbara Metropolitan Transit District	Steve Maas	Rachel Grossman
City of Santa Maria	Rick Sweet	Bruce Nybo
Ventura County Transportation Commission	Mary Travis	
California Highway Patrol	Jeff Sgobba	Susan May
Caltrans District 7	Linda Taira	

* Matt Dobberteen served as facilitator for the TAG