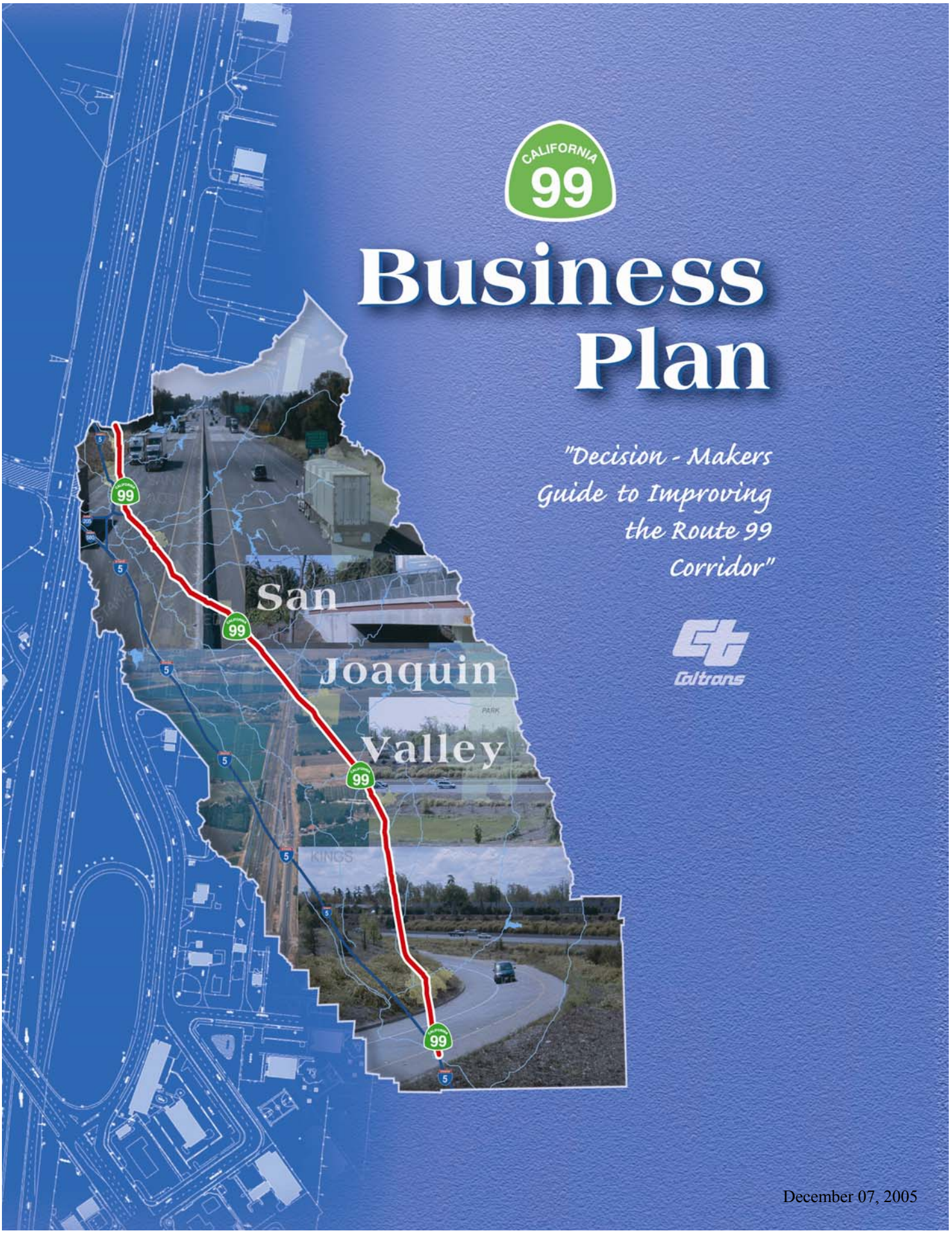
CALIFORNIA
99
Business
Plan
"Decision - Makers
Guide to Improving
the Route 99
Corridor"
Caltrans
San
Joaquin
Valley
December 07, 2005

Executive Summary

Background

Highway 99 is the transportation backbone of the San Joaquin Valley. A high rate of growth in the area is quickly using and exceeding the capacity of this corridor. It is clear that to maintain the corridor's ability to support ongoing development, facilitate efficient goods movement, and improve the quality of life in this fast-growing region, a substantial investment is needed to maintain and improve the corridor.

This Business Plan is a "nuts and bolts" approach to achieving the functional goals for the corridor laid out in the Interregional Transportation Strategic Plan, the Transportation Concept Reports, and the *Route 99 Corridor Enhancement Master Plan*. By clearly identifying Caltrans' long-term goals—and a corresponding list of prioritized projects to achieve those goals—the ability to make funding decisions regarding the corridor as a whole will be much easier. This Business Plan was developed to provide a guide for decision makers as they address the needs of this developing corridor.

Route 99 first became a State highway in 1909, designated as Legislative Route Number 4. It was paved in about 1913–1914 and in the 1920's was redesignated as U.S. 99 and "The Golden State Highway." Some segments of U.S. 99 were widened to 3 lanes in the 1930's and to 4 lanes during the 1930's, 40's, and 50's. Since that time, most areas have been upgraded to freeway by closing at-grade intersections, or replacing them with interchanges. The last stoplight on Route 99 in the San Joaquin Valley was eliminated by the Livingston Bypass project in 1996.

The Annual Daily Traffic (ADT) for Route 99 ranges from a current level of 42,000 vehicles near Interstate 5 in Kern County to over 100,000 vehicles in Bakersfield, Fresno, Modesto, and Stockton. The projected traffic volume in 2025 is from 84,000 to 260,000 vehicles. Truck traffic accounts for anywhere from 19 percent in the Ceres area to nearly 27 percent near Interstate 5. The statewide average for truck volumes is about 9 percent.

Business Plan Goals

The following is a list of the goals for this Business Plan:

- Identify major projects that will improve safety, reduce congestion, and facilitate efficient goods movement along the Route 99 corridor.
- Achieve consensus among Caltrans and the Metropolitan Planning Organizations (MPOs) in the San Joaquin Valley on the priority that will be given to different classifications of projects.

- Identify a comprehensive list of major road projects to be completed along the corridor.
- Develop strategies to improve the long-term success of all projects.
- Discuss Interstate designation for the route.
- Identify strategies for influencing land use decisions along the route.
- Identify current and future potential funding sources and strategies.
- Identify the economic benefits associated with an improved transportation corridor.
- Determine the proper phasing of construction to most efficiently invest funds in a timely manner.

Route 99 Projects

Route 99 faces many challenges now, and in the years ahead. The most significant of these include: increases in ADT and truck traffic, encroaching development, and lack of adequate funding.

While the focus of the projects identified in this Business Plan is to increase capacity or improve operations, safety is still the single most important consideration for Route 99. Caltrans has and continues to make good progress adding median barriers where appropriate to reduce or eliminate cross median accidents. These and other safety projects are typically dealt with through the State Highway Operations and Preservation Program (SHOPP). One of the most critical safety issues on the route, however, is at-grade intersections where traffic can enter, exit, or cross the freeway without the benefit of an interchange. These types of projects are beyond the ability or scope of the SHOPP program to address and must be dealt with through the State Transportation Improvement Program (STIP).

While there are many different types of projects developed by Caltrans, MPOs, Local Tax Measure Authorities, and other local agencies for the Route 99 corridor, this Business Plan will focus on major STIP improvement projects in excess of $8 million. For the purpose of this Business Plan, these projects have been grouped into four Priority Categories. These include:

Priority Category 1—Freeway Conversion

This category consists of projects to convert the existing Route 99 expressway sections to a full 6-lane freeway. Projects in this category will close at-grade intersections and add interchanges where appropriate to maintain local circulation, as well as widen the route to 6 lanes within the projects' limits. These projects serve a dual purpose. Not only will they improve the capacity and operation of the route, they will significantly improve safety as well by eliminating the conflicting movements that result from vehicles attempting to enter, leave, or cross the highway at the at-grade intersections. This category will be completed by the currently programmed projects on Route 99 in Madera and Merced counties. It should be noted that while all of these gap closure projects are programmed, they are not all fully funded.

Priority Category 2—Capacity-Increasing Projects

Priority Category 2 consists of projects that would widen Route 99 to a minimum of 6 lanes throughout the corridor. Projects to widen Route 99 to 8 lanes in some urban areas, where feasible, will also be considered for this category. While the primary goal of these projects is to increase capacity, there are safety benefits as well. Eliminating or reducing the incidences of stop-and-go traffic on the route will reduce the number of congestion-related accidents that currently occur.

Priority Category 3—Major Operational Improvements

This category consists of projects that will improve existing outdated interchanges and construct auxiliary lanes in urban areas. As with Priority Category 2, these projects also have a safety-related benefit.

Priority Category 4—New Interchanges

Priority Category 4 consists of projects that will construct interchanges at new locations on Route 99. These new interchanges are proposed to accommodate growth and development along Route 99.

Caltrans' first priority is to convert all remaining expressway segments to freeway. Freeway conversion projects are thus assigned Priority Category 1. By fully funding all remaining components of the programmed projects, the goal associated with Priority Category 1 would be accomplished.

Priority Category 2's stated goal is to increase capacity and provide a minimum 6-lane roadway. After completion of the three programmed 4- to 6-lane projects, approximately 105 miles of the facility will remain 4 lanes. Fourteen of the 22 capacity-increasing candidate projects propose to convert remaining 4-lane segments to 6 lanes. The remaining eight capacity-increasing projects propose to convert existing 6-lane segments to 8 lanes. Although Caltrans has a defined goal of achieving a minimum 6-lane facility, 4- to 6-lane projects may not always take precedence over 8-lane projects.

Projects that propose improvements to roadway operations are in Priority Category 3. The Priority Category 3 projects included in this Business Plan are auxiliary lane projects and interchange improvement projects. Operational interchange projects will vary in magnitude of scope. A small-scale project might construct additional ramp lanes, signalize ramp intersections, and/or improve ramp geometry. A larger scale project might replace a structure or structures or modify the entire configuration of the interchange. The scope of these projects would be determined based on the project's stated purpose and need.

Projects prompted by a need to improve local road circulation due to ongoing local development are in Priority Category 4. Three of the projects in this category propose new interchanges at new locations and one project proposes lengthening mainline structures to allow widening of a local road.

Within the four Priority Categories there are 67 projects to be prioritized as a part of this Business Plan effort. They include 13 programmed projects and 54 candidate projects. The total cost for these improvements is estimated to be approximately $6 billion in 2005/06 dollars.

Goods Movement

Goods movement in California represents a significant factor in economic growth and job creation. Efficient goods movement in the San Joaquin Valley is essential to the viability of the nation's largest agricultural economy. Goods movement also plays a role in efforts to reduce the region's unemployment rate, which is one of the highest in the country.

Go California specifically identifies the Central Valley as one of four "Port to Border" regional corridors. Route 99 is identified as a "Major International Trade Highway Route" in the California "Goods Movement Action Plan," dated September 2005. A safe and efficient Route 99 transportation corridor is vital to the economic vitality of the San Joaquin Valley. Improved transportation infrastructure will also contribute toward reduced air pollution.

The Route 99 capacity and operational improvements identified in this Business Plan are consistent with the "Goods Movement Action Plan" and represent a key contribution toward improving the efficiency of goods movement. In addition, upgrades of older Route 99 segments and interchanges are essential to meet the truck access standards of the Surface Transportation Assistance Act. This is particularly important as new distribution centers and businesses locate to new or expanding areas.

Just-in-time goods delivery systems and very large regional distribution centers locating in the San Joaquin Valley provide more responsive customer service and reduced inventory storage costs to the business community. However, the result of just-in-time delivery from a roadway perspective has been higher than historical growth in truck volumes on Route 99. Truck volumes on the route vary from 19 to 27 percent, as compared to the statewide average of 9 percent. Truck vehicle miles traveled in the San Joaquin Valley region are projected to increase by 60 percent over the next 20 years. The Business Plan strategies to add capacity, improve operations, use long-life pavement where appropriate, and enlarge and add new Safety Roadside Rest Areas will all contribute to more efficient goods movement.

Interstate Designation

There has been much local interest in the possible benefits of including Route 99 as a part of the Interstate system. Interstate proponents believe that inclusion of the route in the Interstate system

would make the region more attractive to new employers, resulting in more and better jobs for the region. Proponents also believe Interstate designation would increase funding to the route. While Interstate designation would make the corridor eligible for additional funding programs, it would not increase the amount of federal transportation funding available to California.

This Business Plan does not fully analyze the implications of Interstate designation, but it does present a discussion of the high level issues associated with designation. Foremost is the potential cost of upgrading the route to Interstate standards as a condition of designation. Caltrans has estimated that bringing the route up to Interstate standards would cost an additional $14 to 19 billion (2005/06 dollars) over the amount associated with the projects include in this Business Plan.

Funding

The most significant obstacle facing the improvement of the route is the lack of adequate funding. Neither the STIP nor the SHOPP are adequately funded to maintain and improve the route. In order to attempt to address this issue, this Business Plan identifies a number of innovative funding strategies. Unfortunately, most of these are financing methods to advance future revenue streams. While these strategies can **advance** the delivery of improvement projects, most of them do not actually **generate** additional revenues. Both will be necessary to achieve the goals identified in this Business Plan.

This Business Plan lays out a 20-year program to meet the goals. This program is broken down into three phases. The phases generally coincide with the Priority Categories. Phase 1 will complete Priority Category 1, and parts of Priority Categories 2 and 3. Phase 2 will complete Priority Category 2, and Phase 3 will complete Priority Categories 3 and 4. The 20-year schedule provides five years to "ramp up" the delivery effort, and then 15 years of $333 million in projects per year. While it is difficult to determine how much capacity the construction industry can handle each year and how much of the route can practically be under construction simultaneously, $333 million appears to be a reasonable target.

The $333 million per year is in 2005/06 dollars. However, the effect of inflation must also be considered. The Business Plan assumes a five percent inflation rate. When calculated into this equation, each subsequent year demands additional funds, finally topping out at approximately $883 million in year 20.

Other 99 Issues

While the focus of this Business Plan is STIP projects, there are some specific non-STIP issues that are also discussed. These include:

- Median Barriers to improve safety
- Long-Life Pavement strategy

- Intelligent Transportation Systems
- Landscaping and facility appearance
- Safety Roadside Rest Areas
- Land Use strategies
- Environmental strategies

Implementation

This Business Plan proposes a 20-year timeframe for implementing these improvements. In discussion with the MPOs, it is clear that the Region cannot wait 20 years for implementation and there is great pressure within the Region to accelerate this effort. While Caltrans proposes a 20-year implementation schedule in this Business Plan, acceleration of this effort should be aggressively pursued. Accelerating this program may present challenges to Caltrans and the construction industry. Caltrans is willing to accept these challenges.

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Chapter 1 Introduction

1.1 Overview and Mission Statement of Business Plan

Various efforts have been undertaken to develop guidance and planning documents for the improvement of the Route 99 corridor through the San Joaquin Valley. The California Department of Transportation (Caltrans) and the Great Valley Center (GVC) have been key leaders and participants in these efforts. Most recently, Caltrans completed a final draft of the *Route 99 Corridor Enhancement Master Plan* for the 274-mile segment of Route 99 from its junction with Interstate 5 in Kern County, to the northern limits of San Joaquin County. While this Master Plan focused on enhancing the appearance of the corridor and the driving experience for those using it, it also recognized the need for significant improvements to route safety, capacity, operations, and road conditions. The Master Plan was developed in conjunction with the GVC, the eight Metropolitan Planning Organizations (MPOs) in the San Joaquin Valley, and the GVC Highway 99 Task Force. Developing a Route 99 Corridor Business Plan is the next step in these efforts to improve the corridor.

The Business Plan was written with the purpose of providing decision-makers an implementation plan to achieve the goals identified in the various planning documents written for the route. Two of these, the Interregional Transportation Strategic Plan (ITSP) and the Transportation Concept Reports (TCRs), establish the primary goals for the route. These documents are discussed later in Section 3.1 of this report

This Business Plan is a "nuts and bolts" approach to achieving the functional goals laid out in the ITSP, the TCRs, and the Enhancement Master Plan. By clearly identifying Caltrans' long-term goals—and a corresponding list of prioritized projects to achieve those goals—the ability to make funding decisions regarding the corridor as a whole will be much easier. In addition to the extensive list of prioritized projects, this document will recommend strategies that could enhance the continuity of the corridor, while reducing overall costs and time in the project development process.

The focus of this Business Plan is on major facility improvements that would typically be funded through the State Transportation Improvement Program (STIP) or similar programs. While the Business Plan will touch on some projects that could be funded by the State Highway Operations and Protection Program (SHOPP), that is not its focus. In general terms, the STIP provides for capacity-increasing projects while the SHOPP is focused primarily on maintaining and operating the existing State highway system. These programs are both discussed in further detail later in this report.

While the focus of the projects identified in this Business Plan is those that increase capacity or improve operations, safety is still the single most important consideration for Route 99. Safety projects are typically funded and delivered through the SHOPP; however, it should be recognized that capacity-increasing projects and operational improvement projects will typically contain safety elements. These elements may vary from the installation of median barriers, to the closing of at-grade intersections, to the installation of signal lights at ramp intersections. In reality, some of the more serious safety issues on the route, specifically the at-grade intersections, are beyond the ability of the SHOPP to remedy and must be built as a part of the STIP.

1.2 Goals of Business Plan

The overall objective of the Business Plan is to provide a cohesive approach for transportation decision-makers to use when addressing the Route 99 corridor through the San Joaquin Valley.

The following are a list of the goals for this Business Plan:

- Identify major projects that will improve safety, reduce congestion, and facilitate efficient goods movement along the Route 99 corridor.
- Achieve consensus among Caltrans and the MPOs in the San Joaquin Valley on the priority that will be given to different classifications of projects.
- Identify a comprehensive list of major road projects to be completed along the corridor.
- Develop strategies to improve the long-term success of all projects.
- Discuss Interstate designation for the route.
- Identify strategies for influencing land use decisions along the route.
- Identify current and future potential funding sources and strategies.
- Identify the economic benefit associated with an improved transportation corridor.
- Determine the proper phasing of construction to most efficiently invest funds in a timely manner.

1.3 Challenges

Route 99 is an integral part of the State highway system and crosses many diverse areas. The effort to produce a Route 99 Corridor Business Plan will require input and consensus between Caltrans and local partners. At a minimum, Caltrans faces the following challenges:

- Reaching consensus: Caltrans will work together with Valley MPOs to reach agreement on the priority and funding of projects to be constructed.
- Identifying traditional and non-traditional funding sources: The improvements identified in this report are well beyond the ability of existing State Transportation Improvement Program,

or STIP[1], revenues to finance. Alternative funding sources must be identified to implement these improvements in a timely manner.

- Phasing funds to match capacity to deliver: If all funding were provided in a "lump sum," it would far exceed the ability of Caltrans and the construction industry to complete the work. Complex capital improvement projects typically take from 9 to 14 years from inception of studies to completion of construction. It will take Caltrans some time to "ramp up" the delivery effort and it is doubtful that construction contractors will immediately have the ability to absorb all of this work.
- Gaining resource agency approvals in advance of construction: Obtaining approval of the environmental documents, as well as obtaining permits from affected resource agencies, is typically the controlling operation for the first five years of a project's schedule. Because of the potential magnitude of the investment considered in this report, there may be significant opportunity to obtain early consensus from resource agencies through pre-mitigation for groupings of projects. Although this potential exists, it has not yet been successfully accomplished in the State. Advance mitigation for large sections of freeway will require close cooperation with multiple federal and State agencies.

1.4 Local and Regional Cooperation

In an effort to gain the cooperation and consensus necessary to accomplish such a large task, multiple meetings have been held with Caltrans' local partners. The following is a list of the agencies and groups that have been involved in development of this plan:

- Kern Council of Governments
- Kings County Association of Governments
- Tulare County Association of Governments
- Council of Fresno County Governments
- Madera County Transportation Commission
- Merced County Association of Governments
- Stanislaus Council of Governments
- San Joaquin Council of Governments
- Great Valley Center
- Highway 99 Task Force
- Caltrans, Districts 6 (Fresno) and 10 (Stockton)

[1] (The STIP is composed of the Regional Transportation Improvement Program or RTIP, and the Interregional Transportation Improvement Program or ITIP.)

Chapter 2 Existing Facility

2.1 Route 99 Background

Route 99 first became a State highway in 1909, designated as Legislative Route Number 4. It was paved in about 1913-1914 and in the 1920's was redesignated as U.S. 99 and "The Golden State Highway." Some segments of U.S. 99 were widened to 3 lanes in the 1930's. This led to head-on collisions in the middle lane, which was intended for passing and turning. U.S. 99 was gradually widened to a 4-lane expressway during the 1930's, 40's, and 50's. The widening was often done on new alignments, frequently bypassing towns. The last 3-lane section of U.S. 99 became a 4-lane expressway in May 1960.

During the 1960's, the black and white U.S. 99 shields gave way to the familiar green CA-99 signs shaped like miners' spades. Since that time, most areas have been upgraded to freeway by closing at-grade intersections, or replacing them with interchanges. The last stoplight on Route 99 in the San Joaquin Valley was eliminated by the Livingston Bypass project in 1996.[2]

Today, most of the 274-mile segment covered by the Business Plan is a 4- or 6-lane freeway. Only 23 miles in Madera and Merced counties are considered "freeway gaps" and Caltrans currently has four programmed projects which, upon completion, will convert these remaining segments to full access-controlled freeway.

Since the 1910's when Route 99 was first developing as a State highway, agricultural improvements—especially irrigation—have led to significantly greater crop yields. Transporting these valued commodities to market has made Route 99 an even more vital economic link. Changes in "on-time delivery" of goods has led to higher truck volumes on the route. Rapid population growth over several decades has also led to more traffic and a greater dependence on Route 99.

The Annual Daily Traffic (ADT) ranges from a current level of 42,000 vehicles near Interstate 5 in Kern County to over 100,000 vehicles in Bakersfield, Fresno, Modesto, and Stockton. The projected traffic volume in 2025 is from 84,000 to 260,000 vehicles. Truck traffic accounts for anywhere from 19 percent in the Ceres area to nearly 27 percent in southern Kern County near Interstate 5. The statewide average for truck volumes by segment is about 9 percent.

[2] Federal Highway Administration. *Economic Development History of State Route 99 in California.* Accessed 11/02/2005. <http://www.fhwa.dot.gov/planning/econdev/sr99ca.htm> Updated March 1, 2005.

Urbanized versus Rural Areas

Urbanized areas are defined by a population of 50,000 or greater as determined by the U.S. Census Bureau. Currently, nine urbanized areas are located along this stretch of Route 99, including: Bakersfield, Visalia, Fresno, Merced, Turlock, Modesto, Manteca, Stockton, and Lodi. Other cities will likely become urbanized and may be treated as urbanized rather than rural for some projects.

This is an important element to consider because different standards and treatments apply to urban and rural areas. Urban areas may typically have:

- Interchanges spaced closer together.
- More lanes to handle greater traffic volume and auxiliary lanes to help local and regional traffic merge on and off the freeway.
- More enhancements, such as soundwalls, fencing, and irrigated landscaping.
- A depressed or elevated road bed.
- More storage for storm water runoff.
- Greater emphasis on cross street sidewalks and lighting.
- Elements of Intelligent Transportation Systems, such as ramp meters and changeable message signs.

As project features are considered in later sections of this Business Plan, it is important that these distinctions be kept in mind.

2.2 Physical Characteristics and Issues

2.2.1 Highway Safety

Safety is the top priority of Caltrans and local governments and has been a major focus for the route. As an essential part of this effort, median barriers are used on Route 99 to prevent cross median accidents. Caltrans has a number of criteria to determine the appropriate location and type of median barriers. The primary criteria include accident history, median width, and traffic volumes. Much of Route 99 has median barriers in place, but many miles of median do not currently have barriers. A number of projects to install median barriers along the route are in the design or construction phase. These include stand-alone median barrier projects or other projects that include median barriers as one of the project features.

Standard types of median barriers for new installation are concrete safety-shaped barriers and metal thrie-beam barriers. Temporary concrete barriers may be used under certain conditions.

Caltrans attempts to preserve the median oleander shrubs when barriers are installed. When this is not feasible, Caltrans provides mitigation in the form of adjacent landscaping; however, once the facility is upgraded to 6 lanes, preservation of the oleanders generally becomes impractical.

Removing or modifying fixed objects along the sides of the highway has increased safety significantly. This includes removing large metal sign posts, installing lighting and signs on bases that break away when they are hit, and removing other unyielding objects or adding barriers to absorb the energy of a collision. Removing roadside objects creates a clear recovery zone, which gives drivers who run off the road an opportunity to recover. Barriers, guardrails, and yielding roadside features reduce the severity of run-off-the-road accidents.

The principle of full access control is invaluable as a means of preserving the capacity of arterial highways and minimizing accident potential. As traffic volumes on Route 99 increase, at-grade intersections need to be removed in order to improve the safety and operation of the highway. Today, the closure of at-grade intersections or freeway gaps is particularly important because broadside accidents can lead to significant damage to the vehicle passenger compartment. In addition, at-grade intersections can result in acceleration or deceleration in the through lanes contributing to rear-end or sideswipe type accidents. Closing the remaining at-grade intersections has been included in programmed projects. These projects are defined in the fact sheets in Appendix A as Priority Category 1.

The SHOPP is the primary program for funding safety improvement projects. Freeway gap closures are typically funded from the STIP because the SHOPP is not sufficiently capable of funding these larger, more costly projects, and they typically do not meet SHOPP safety criteria.

The accident pattern on Route 99 shows a steady increase in the number of accidents per million vehicle miles for the last 10 years. This trend indicates that not only is the overall number of accidents increasing as ADT increases, the accidents per miles traveled are also increasing. The increase appears to primarily be congested related. This congestion related accident trend is beyond the ability or scope of the SHOPP to address and must be addressed by the STIP.

Safety Roadside Rest Areas

Providing safety roadside rest areas for fatigued drivers is an important part of Caltrans' safety efforts. Tired drivers and unsafe roadside parking are significant problems that can be reduced with adequate rest areas that include parking areas, drinking water, toilets, tables, benches, telephones, and information boards.

Today, there are three rest areas along this segment of Route 99. The Philip S. Raine and Chester H. Warlow rest areas are in Tulare County and the Enoch Christoffersen rest area is in Stanislaus County. According to the Rest Area Program guidelines, there should be no more than 60 miles

between rest areas. With the exception of the distance between the Phillip S. Raine and Chester H. Warlow rest areas, the gap is much greater than this.

Existing rest areas are also severely under capacity, especially for trucks; this means that truck drivers may keep driving or park illegally along highway ramps.

2.2.2 Highway Capacity Needs

Reduced speeds and bottlenecks are indications that the current capacity of Route 99 is not adequate, especially during commute hours in urban areas. Some additional lanes have been added to Route 99, but congestion persists from increases in ADT, increases in traffic merging on and off the freeway, and a large percentage of truck traffic.

Capacity is affected by the number and width of lanes; the location, spacing, and type of interchanges; the presence and width of shoulders; the condition of the pavement; and gaps in the freeway system. Over the next 20 years, there will be a significant need to add lanes to Route 99; however, the ability to widen the route is hampered by available right-of-way and adjacent development.

2.2.3 Operational and Structural Needs

Freeway Gaps

Route 99 has segments that are not freeway. In these areas, there are at-grade intersections where traffic can enter, exit, or cross the highway. The remaining at-grade intersections are one of the most significant safety issues on the route. While there are projects programmed to eliminate these remaining gaps, some of these projects are many years in the future and are not yet fully funded.

Interchanges

Interchanges have a greater effect on the urban corridor than any other feature. An interchange allows high volumes of traffic to enter and exit the highway via ramps, and provides a grade separation between the highway and cross street. Many of the interchanges on Route 99 were built in the 1950's and 60's, and were designed for significantly lower volumes than those encountered today. Inadequate geometrics, as well as limited storage and merge distance all contribute to congestion on the ramps, local roads, and the highway itself. There is a need to modify or replace these interchanges to improve the safety and operation of the route; however, even minor modifications to interchanges on Route 99 may be limited by the State right-of-way and adjacent local development.

Inadequate spacing between interchanges can also affect the flow of traffic, especially during commute hours in urban areas. This leads to insufficient distances for vehicles to safely and efficiently merge on and off the highway, which in turn leads to congestion and increased accidents. Where substandard spacing exists, interchange spacing should be increased or other

operational features, such as auxiliary lanes, constructed to decrease the merging conflicts and improve operations. This may result in closing some interchanges.

Pavement

Much of the pavement on Route 99 is 30 to 50 years old, and has already exceeded its design life, warranting reconstruction. While the statewide average for truck traffic is 9 percent, trucks make up as much as 27 percent of the traffic on Route 99. This extra stress on aged pavement, along with the lack of adequate funding to reconstruct the pavement, is the single most significant factor contributing to the current poor pavement conditions. Complete pavement reconstruction is the best long-term solution; however, the length of time it takes for reconstruction, which causes impacts such as traffic delays, and the high cost make this strategy problematic.

2.2.4 Highway Appearance

The appearance of Route 99 affects the quality of life for Valley residents and the perceptions of travelers, which can have an impact on the local economy. A visually appealing transportation corridor should either blend into or complement the landscape. The companion document to this Business Plan, the *Route 99 Corridor Enhancement Master Plan*, describes this connection between corridor appearance and quality of life in detail, so it will not be repeated here. A few key highlights are worth noting, however.

Highway Structural Themes

Over the years, incremental improvements to Route 99 have resulted in a variety of old and modern bridges, sign panels, landscape types, fences, and lighting fixtures. The lack of unified features has left the corridor with a diminished appearance and no community identity.

Soundwalls have also been added along the corridor to reduce noise, but many of them did not have screening vegetation planted and they have become a magnet for graffiti. Others need to be repaired or replaced.

Outside of Caltrans' right-of-way, abandoned buildings, billboards, junkyards, microwave towers, and trash create unsightly views for travelers. Communities can use tools such as zoning laws and other ordinances to help clean up these eyesores. At the same time, they can preserve old structures such as water towers and barns to create a more picturesque landscape.

Because Route 99 is the gateway to urbanized communities along the corridor, improving the appearance can help reinforce a community's identity and give travelers a good impression of the community, which in turn should improve local economies.

Planting Types

The roadsides along Route 99 include two types of planting—"Functional Planting" and "Highway Planting."

"Functional Planting" is used in the rural segments of Route 99 and is made up mostly of the original planting along the corridor. The original plantings were composed of eucalyptus trees to frame the highway and oleander shrubs planted in the median to block the glare of oncoming headlights. Groundcover, planted as erosion control in rural areas, is mostly non-native grasses.

In recent years, many oleander plants, which came to symbolize Route 99, have been removed to make way for median barriers or additional traffic lanes. Many of the eucalyptus trees were also removed for similar reasons, or due to decay or safety issues.

"Highway Planting" is used in urban areas and goes beyond function to improve aesthetics. Highway planting includes trees, shrubs, and groundcovers watered by automatic irrigation systems. This landscaping also helps control dust, erosion, fire, and weeds. In addition, highway planting can help delineate the route, provide headlight screening, conceal eyesores next to Route 99, or conceal the roadway from the community.

Both of these landscape types suffer from a lack of adequate maintenance. Further, many of the areas with "Highway Planting" are old, antiquated, and difficult to maintain. Maintenance of the roadside is discussed later in this chapter.

2.3 Truck Traffic

Route 99 is a critical artery for goods movement in the State of California and the San Joaquin Valley, and it is important for the overall economic vitality of the State. It is known as a "Priority Global Gateway" for goods movement in the Global Gateways Development Program. Accordingly, truck traffic is playing an increasingly larger role in the transportation fabric of the valley.

Truck volumes on Route 99 in the San Joaquin Valley vary from 19 percent in Stanislaus and San Joaquin counties to 27 percent in Kern County. This is compared to the statewide average of 9 percent. Some examples of truck traffic impacts are:

- Lower capacity of the highway, contributing to congestion.
- Increased conflicts between slower-moving trucks and fast-moving cars.
- Distressed pavement conditions from the extra stress of the truck weight and numbers.
- More parking to accommodate the roadside rest requirements of trucks.
- Interchange upgrades to accommodate modern truck access.

According to a 2001 survey called the "California Heavy Duty Truck Travel Survey," 24 percent of truck trips are regional in nature or may stay in the county area, and 76 percent of truck trips

are interregional or outside the county area. While this was a statewide study, it has direct application to the Route 99 corridor.

2.4 Maintenance of Route 99

Over the last five years, maintenance costs for highway elements including roadsides, pavement, bridges, guardrail, median barrier, signs, and delineation, have increased an average of 4 percent per year, while staffing resources have been reduced by 10 percent for the same time period. Along with an increase in inventory on Route 99 and other State routes, maintaining adequate appearance and condition ratings for the roadway is becoming increasingly difficult. Routine maintenance costs by State forces and highway maintenance contracts on Route 99 are projected to be $116 million over the next 10 years. The 10-year SHOPP indicates contracts expected to total nearly $376 million with the focus of the projects being split between rehabilitation and preventive maintenance projects. This investment is expected to provide highway appearance and condition ratings similar to current conditions, which are less than Caltrans performance targets and desires of the communities.

At a time when the inventory of highway pavement and roadside landscape miles are increasing, maintenance resources are decreasing. Maintenance efforts for safety and preservation items must take priority over maintenance efforts for appearance items. Keeping up the appearance and condition of aging highways and roadside facilities are becoming more difficult.

Roadbed Maintenance

Maintaining the integrity and serviceability of the pavement on Route 99 requires a continuous effort by maintenance forces. As rigid Portland cement concrete slabs become broken from truck traffic, they are patched temporarily until a Major Maintenance or SHOPP project can be designed and contracted to replace them. As flexible asphalt concrete (AC) pavement becomes distressed and deteriorates due to traffic, age, or storm damage; pothole filling, grader blankets, and other strategies are used as interim repairs until repaving or rehabilitation projects can begin.

Structures Maintenance

Bridge maintenance crews respond to a variety of bridge damage incidents on a weekly basis. Over-height loads and accidents on the mainline cause damage, as well as accidents on the bridge decks themselves. In some extreme cases, bridges have been closed and traffic detoured for long periods because of structural damage from accidents or deterioration of reinforced steel and other structural elements. Routine maintenance on bridges includes replacement of expansion joint material, repairing rails and fences, and patching spalled concrete.

Traffic Control Elements

Traffic control elements including lighting, striping, signs, median barriers, guardrail, and fencing are maintained continuously on a routine basis and in response to incidents. Signs, light poles, and median barriers damaged by accidents are repaired as quickly as materials are available and resources allow. Maintenance of these elements requires specialized equipment and expertise.

Storm Maintenance

Route 99 storm-related maintenance activities involve drain cleaning and monitoring, patching quickly forming potholes in the distressed AC pavement sections, and grading shoulders to limit drop-offs between the pavement and the dirt shoulders. Maintenance patrol during storms is a routine practice.

Litter Collection

Roadside litter is a growing problem that significantly detracts from the appearance of the transportation facility. Caltrans uses a number of innovative programs to supplement its litter removal effort including:

- Adopt-A-Highway program, which uses volunteers to clean up litter. The program is in place along Route 99, but there are some gaps.
- Low-risk inmate and probationary crews supervised by law enforcement personnel to assist in litter and weed removal.
- California Conservation Corps crews, hired through intergovernmental contracts, to assist in litter and weed removal.

Graffiti Control

Reducing graffiti takes a quick response by maintenance staff, but in many areas, Caltrans is losing the battle. The only real solution is to provide planting in front of flat surfaces to deter graffiti.

Adopt-A-Soundwall is part of the Adopt-A-Highway program that provides volunteer labor to clean up graffiti. Currently, one soundwall in Stanislaus County has been adopted into this program.

Roadside Vegetation Management (Weed Control)

Vegetation along rural roadsides usually includes grasses and broad-leaved, non-woody plants used for erosion control following road construction. This vegetation is non-irrigated, but must be maintained to improve the appearance of the roadside, reduce fire risk, and maintain sight distances.

Caltrans primarily uses mowing and chemicals to control this vegetation. Since 1992, however, Caltrans has been reducing the use of chemicals. In 2000, a 50 percent reduction was met and by

2012, the goal is to reduce chemical use by 80 percent. Since mowing is much more labor intensive than spraying, it will become increasingly difficult to adequately control weeds in the rural areas.

Maintenance of Highway Planting

Fully planted and irrigated urban landscaping along Route 99 requires ongoing, intensive maintenance. Landscape rehabilitation projects are developed to replace dead and dying landscapes and to make aging roadsides easier to maintain. These projects, however, must compete with pavement, operations, and safety projects, and due to funding limitations are currently not being constructed.

Each Landscape Maintenance worker should not be responsible for maintaining the landscape and controlling litter, weeds, and graffiti for more than 15 to 20 acres. The statewide average responsibility, however, is about 40 acres per worker. The staffing levels for landscape workers assigned to Route 99 are at the statewide average.

Annual Maintenance Costs

Appendix E contains a projection of the 10-year maintenance costs for the Route 99 corridor in Districts 6 and 10. These costs assume a rate of inflation of 3 to 5 percent per year. The tables show maintenance costs are significantly higher on the segments of the route in the urbanized areas. This is due to a number of factors, but the most critical are additional lanes, higher traffic volumes, and more landscaped acres. The projected costs assume that the route remains in its current configuration, that no new lanes or landscaping are added. In reality, as the projects presented in this document are built, these costs will increase. While some of the maintenance categories such as “Roadbed” may actually decrease due to new and rehabilitated pavements, this will be more than offset by increases in the other categories.

2.5 Environmental Resources

The San Joaquin Valley is rich in diverse natural habitats, cultural and historical resources, and fertile farmland. Improving Route 99 must be done in a way that protects these irreplaceable resources, as well as water and air quality. Noise is another environmental concern as urban areas along this route continue to grow and more housing is built close to Route 99.

Biological Resources

The valley grasslands, oak savannas, riverbanks, and freshwater marshes that travelers enjoy along Route 99 also provide habitat for wildlife. To survive, animal species such as the San Joaquin kit fox must be able to travel between these areas to find food, escape predators, and migrate with the seasons. Because of intense development, waterways are now the primary link between habitats. Since Route 99 crosses every major river between Bakersfield and Stockton, as well as many seasonal streams, it is vital that improvements to Route 99 also maintain or re-

establish these links. This can be done by restoring riparian (riverbank) vegetation, stabilizing stream banks, eliminating exotic plants, and restoring stream habitats for aquatic species and migrating birds. Wildlife crossings are another important tool for the recovery of Valley species.

Cultural Resources

Before western settlement of California, the Valley was primarily inhabited by Native Americans known as Yokuts. While agriculture and the damming of rivers have altered the landscape, archaeological remains of Yokut villages may still lie intact near Route 99.

More recently, Route 99 and the history of the San Joaquin Valley parallel the railroad tracks laid through the Valley in the 1870's. The railroad gave Valley farmers an efficient means to transport their goods to Los Angeles, San Francisco, and Sacramento. Cities such as Modesto and Fresno followed the arrival of the railroad, becoming the Valley's major population centers of the railroad era. Smaller towns also sprung up at railroad stops along the line. Today, signs of the area's history are apparent in the aging farmhouses and barns visible from Route 99. Even remnants of advertisements painted on barns during the early 1900's still exist to give us a glimpse into the past.

This historic landscape is threatened by development and advertising that may hide or even remove elements of the Valley's history. Preserving both archaeological and historic sites should be considered when planning any projects to improve Route 99.

Farmland

Fast-flowing water from the Sierra Nevada Mountains deposit mud, sand, and gravel when it reaches the flatter lands of the San Joaquin Valley, providing some of the most productive soil in the world. This fertile soil, along with a long growing season and a complex irrigation system, yields a diversity of crops that include: fruits, nuts, berries, cotton, and vegetables. Cattle, poultry, and dairy products are also produced in significant quantity.

Federally funded projects affecting prime and unique farmland are generally subject to the provisions of the Farmland Protection Policy Act.

Air Quality, Water Quality, and Noise

The San Joaquin Valley Air Basin, which is approximately 250 miles long and averages 35 miles wide, is the second largest air basin in the State. It is defined by the Sierra Nevada to the east, the Coast Ranges to the west, and the Tehachapi Mountains to the south. The bowl shape of the San Joaquin Valley contributes to its air pollution problem.

The main pollutants of concern are carbon monoxide, nitrogen dioxide, ozone, and particulate matter that is 10 microns in diameter or smaller (PM10). If a project is located in an area that has exceeded State or federal standards for these pollutants, additional air quality analysis and

reduction measures for that pollutant are required. This is most frequently done for carbon monoxide and PM10.

Potential impacts to water quality are associated with the discharge of pollutants in storm water runoff from the highway. Pollutants commonly associated with highways are litter, heavy metals, petroleum hydrocarbons, brake materials, oil and grease, sediment, suspended solids, and pesticides and herbicides. Water Quality Assessments identify potential impacts on surface water and groundwater resources resulting from proposed projects and describe project design, procedures, and practices that would minimize these impacts.

Potential noise impacts from transportation projects are identified during the planning and design phase. A noise impact occurs when the projected noise levels, after a project is completed, result in a substantial increase in noise level (defined as a 12-decibel or more increase) or when the projected noise level with the project approaches or exceeds the noise abatement criteria. If it is determined that the project would have noise impacts, then potential abatement measures, such as soundwalls, must be considered.

Chapter 3 Route 99 Projects

3.1 Long-Range Plans for Route 99

Route 99 has been the subject of many planning studies and documents. The most critical ones completed to date include:

- The 1998 Interregional Transportation Strategic Plan
- Transportation Concept Reports for Route 99 (District 6 and District 10)

According to the 1998 Interregional Transportation Strategic Plan (ITSP), the Route 99 vision for the year 2020 ranges from a 4- to 8-lane freeway. This vision applies from south of Bakersfield to the Route 99 junction with Route 70 in Sutter County. The Strategic Plan recognizes the important role of Route 99 and seeks to:

- Clear all remaining freeway gaps south of the Route 99/70 junction.
- Add freeway lane capacity to handle increased interregional travel demand for goods movement and major commute volumes. The objective is to complete a 4- to 8-lane freeway for the entire length.

The Transportation Concept Reports for Route 99 in both Districts 6 and 10 support the ITSP objectives. The Transportation Concept Reports are long-range documents that establish a planning concept for the Route 99 corridor through the year 2030. They define the appropriate level of service (LOS) target, as well as facility roadway types needed to accomplish this target (i.e., 6- to 8-lane freeway). The 2030 facility objective is a minimum 6-lane freeway. In addition, there are proposed improvements to an 8-lane freeway in the urbanized areas of Bakersfield, Fresno, Modesto, and Stockton. The estimated cost to accomplish the 2030 Concept Facility throughout the corridor is about $6 billion in 2005 dollars.

The intention of the Route 99 Corridor Business Plan is to take the information contained in these planning studies and develop a 20-year implementation plan for achieving the route concept, goals, and objectives. By identifying the specific projects and possible funding strategies, Caltrans hopes to take these planning studies from concept to reality in the next 20 years. The table containing a list of these projects and their categorized priorities are found in Section 3.4 of this document.

3.2 Projected Operations on Route 99

The Transportation Concept Reports described in the previous section indicate the appropriate level of service (LOS) target or Concept LOS, and roadway types for the route. LOS describes operating conditions on a roadway. Like a report card, the LOS is defined in

categories ranging from A-F, with A representing the best traffic flow and F representing the worst congestion. As a general rule, the Concept LOS for Route 99 is D in urban areas and C in rural areas. LOS C or D are the targets because they provide the highest traffic throughout with the least traveler disruption.

Figure 3.1 shows the current (2005) LOS along the Route 99 corridor, which ranges from LOS B to LOS F. Current Annual Daily Traffic (ADT) volumes range from 42,000 to over 100,000, but are projected to be 84,000 to over 260,000 by 2030. Without any project improvements, the LOS would deteriorate to predominately LOS E or F by the year 2030. With the project improvements described in this Business Plan, which largely comprise the 2030 Concept Facility, the urban areas along the route will be at LOS E or F, but there will be many segments of Route 99 at LOS D. LOS F in the urban areas will typically result in speeds of 25 miles per hour or less during commute periods. Please refer to Figure 3.2 for the 2030 Concept Facility.

Additional information for each project is listed in Appendix B, Figures B.1 and B.2, which provide Performance Measures data for Route 99 projects. This includes data on 5-axle trucks, peak hour and ADT volumes, level of service, and more.

Figure 3.1 Current Route 99 Levels of Service

Figure 3.2 2030 Concept Facility

3.3 Regional Project Priority Categories

Priority Category 1—Freeway Conversion

This category consists of projects to convert the existing Route 99 expressway sections to a full 6-lane freeway. Projects in this category will close at-grade intersections and add interchanges where appropriate to maintain local circulation, as well as widen the route to 6 lanes within the project limits. As indicated previously in this report, these projects serve a dual purpose. Not only will they improve the capacity and operation of the route, they will significantly improve safety as well by eliminating the conflicting movements that result from vehicles attempting to enter, leave, or cross the highway at the at-grade intersections. This category will be completed by the currently programmed projects on Route 99 in Madera and Merced counties. It should be noted that while all of these gap closure projects are programmed, they are not all fully funded.

Priority Category 2—Capacity-Increasing Projects

Priority Category 2 consists of projects that widen Route 99 to a minimum of 6 lanes throughout the corridor. Projects to widen Route 99 to 8 lanes in some urban areas, where feasible, will also be considered for this category. While the primary goal of these projects is to increase capacity, there are safety benefits as well. Eliminating or reducing the incidences of stop-and-go traffic on the route will reduce the number of congestion-related accidents that currently occur.

Priority Category 3—Major Operational Improvements

This category consists of projects that will improve existing outdated interchanges and construct auxiliary lanes in urban areas. As with Priority Category 2, these projects also have a safety-related benefit.

Priority Category 4—New Interchanges

Priority Category 4 consists of projects that will construct interchanges at new locations on Route 99. These new interchanges are proposed to accommodate growth and development of areas along Route 99.

How the Categories Coincide with Current Programmed and Candidate Projects

Caltrans' first priority is to convert all remaining expressway segments to freeway. Freeway conversion projects are thus assigned Priority Category 1. By fully funding all remaining components of the programmed projects, the goal associated with Priority Category 1 would be accomplished.

Priority Category 2's stated goal is to increase capacity and provide a minimum 6-lane roadway. After completion of the three programmed 4- to 6-lane projects, approximately 105 miles of the facility will remain 4 lanes. Fourteen of the 22 capacity-increasing candidate projects propose to convert remaining 4-lane segments to 6 lanes. The remaining eight capacity-increasing projects propose to convert the existing 6-lane segments to 8 lanes. Although Caltrans has a defined goal of achieving a minimum 6-lane facility, 4- to 6-lane projects may not always take precedence over 8-lane projects. In this Business Plan, all capacity projects fall into the same Priority Category; therefore, additional consideration will be given to such issues as operations and safety in determining final priorities.

Projects that propose improvements to roadway operations are in Priority Category 3. The Priority Category 3 projects included in this Business Plan are auxiliary lane projects and interchange improvement projects. Operational interchange projects will vary in magnitude of scope. A small-scale project might construct additional ramp lanes, signalize ramp intersections, and/or improve ramp geometry. A larger scale project might replace a structure or structures or modify the entire configuration of the interchange. The scope of these projects would be determined based on the project's stated purpose and need.

Projects prompted by a need to improve local road circulation due to ongoing local development are in Priority Category 4. Three of the projects in this category propose new interchanges at new locations and one project proposes lengthening mainline structures to allow widening of a local road.

3.4 Route 99 Programmed and Candidate Projects to be Prioritized

Caltrans Planning has identified 67[3] projects to be prioritized; they include 13 programmed projects (See Keymap Figure 3.3) and 54 candidate projects (See Keymap Figure 3.5). These programmed and candidate projects are consistent with the Regional Transportation Plans. Fact sheets for each project are in Appendix A. The fact sheets will be used as a tool for determining project funding priorities on Route 99. Each fact sheet includes:

- A brief project description based on a previously completed Project Study Reports (PSR) or based on an assumed scope when no PSR has been completed.
- Primary and secondary benefits of the project.
- Programming information, including phase of the project, a rough cost estimate, and estimated time necessary to deliver the project.
- Highway maintenance impacts shown in tabular form.

[3] Projects costing $8 million or more. Smaller projects while not specifically included in the project lists, are included in the program costs.

- Issues related to delivery of the project.
- A table that lists consistency with the 13 controlling Interstate system standards.

The 13 programmed projects include four projects to convert expressway segments to freeway, three projects to add capacity by converting 4-lane segments to 6 lanes, and five projects to make operational improvements to interchanges. The 54 candidate projects include 22 projects that would increase mainline capacity, 28 projects that would improve facility operations, and four interchange projects that would improve local road circulation. Operational projects include projects to construct auxiliary lanes or make interchange improvements. Improvements to interchanges range in scope from ramp modifications to reconstruction of an existing interchange. The interchange projects that propose to improve local road circulation range in scope from lengthening the existing bridge structure to complete construction of a new interchange with a new freeway connection.

3.4.1 Programmed Projects

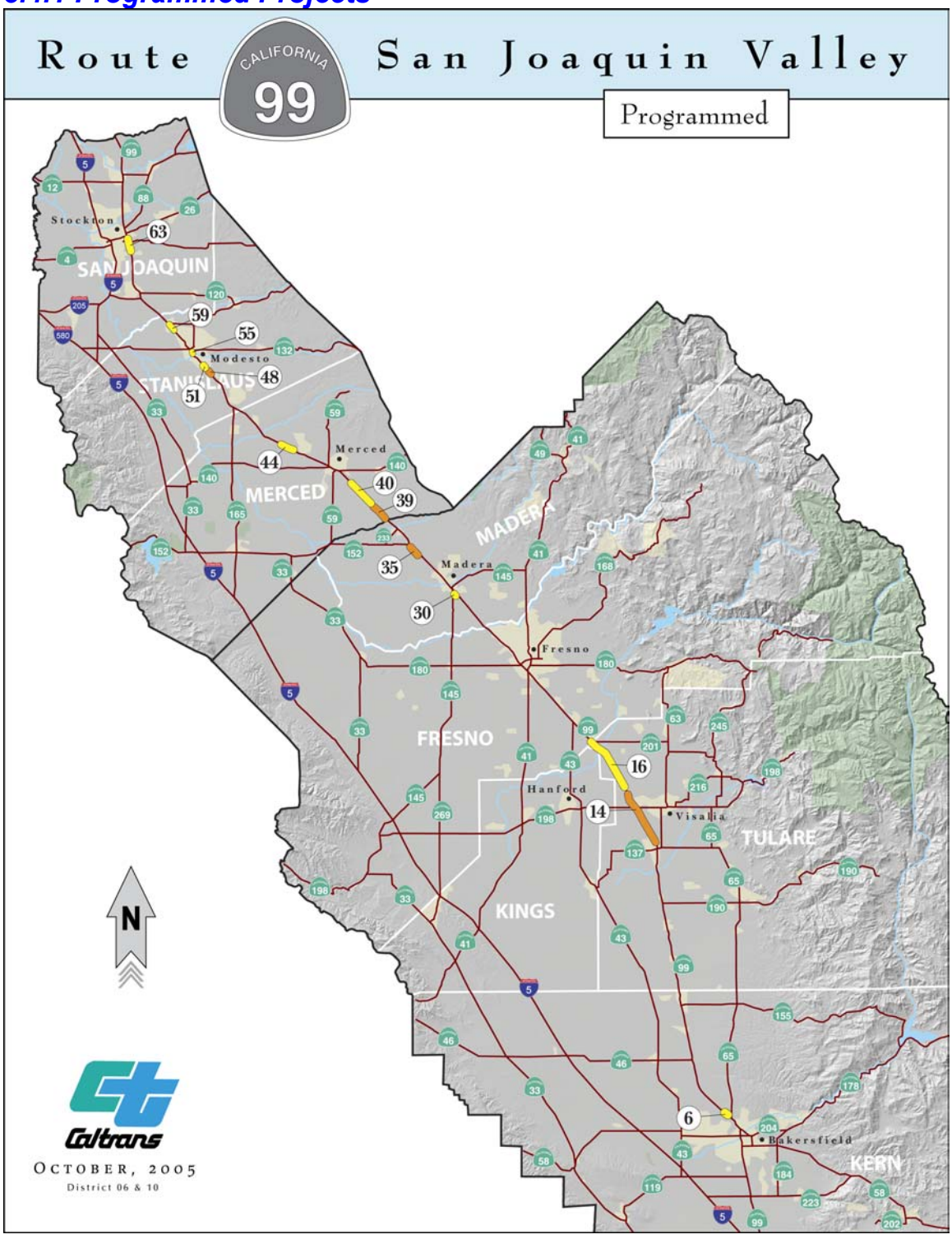


Figure 3.3 Map of Programmed Projects

Figure 3.4 Route 99 Programmed Capacity and Interchange Projects Not Yet Advertised

November 10, 2005

PROJECT NUMBER	COUNTY	ROUTE	POSTMILE	EXPENDITURE AUTHORIZATION	FROM	TO	PROJECT NAME	PROJECT DESCRIPTION	Advertise Schedule	R/W and CONSTRUCTION CAPITAL COSTS (X $1,000)	SUPPORT COSTS SB45 REPORTS (X $1,000)	TOTAL COSTS PER PROJECT (X $1,000)	REGIONAL PRIORITY CATEGORY
6	KER	99	R30.5/R31.1	06-433501	At D20 the7th Standard Rd. Interchange		7Th Standard Road Widening	Modify Interchange	2006	**$14,000**	*$1,290*	$15,000	3
14	TUL	99	30.6/41.3	06-360200	Prosperity Ave.	N. Goshen OH.	Tulare-Goshen 6-Lane	Widen from 4 Lane Freeway to 6 Lane Freeway	2011	**$87,000**	*$16,000*	$103,000	2
16	TUL, FRE	99	41.3/53.9, 0.0/1.0	06-324500	N. of Goshen	N. of Conejo Ave OC.	Goshen / Kingsburg 6-Lane	Widen from 4 Lane Freeway to 6 Lane Freeway	2009	**$139,000**	*$17,000*	$156,000	2
30	MAD	99	9.1/9.8	06-407201	S. Madera OC.	N. of Rte 99/145	Gateway Interchange	Modify Interchange	2005	*$9,000*	*$3,000*	$12,000	3
35	MAD	99	19.6/22.6	06-293301	S. of Ave 21	S. of 99/152 Separation.	Fairmead Freeway	Convert 4 Lane Expressway to 6 Lane Freeway on 8 Lane Freeway R/W Alignment	2006	$43,000	$10,000	$52,000	1
39	MER	99	0/4.6	10-415800	Madera County Line.	Buchanan Hollow Rd.	Plainsburg RD Freeway	Convert 4 Lane Expressway to 6 Lane Freeway on 8 Lane Freeway R/W Alignment	2009	**$87,000**	*$12,000*	$100,000	1
40	MER	99	4.6/10.5	10-415700	Buchanan Hollow Road.	0.5 Km N. of Mchenry Rd.	Arboleda DR FWY	Convert 4 Lane Expressway to 6 Lane Freeway on 8 Lane Freeway R/W Alignment	2009	**$125,000**	*$18,000*	$143,000	1
44	MER	99	23.8/26.5	10-414801	0.4 Km N. of Atwater OH.	0.4 Km S. of Arena Way.	Atwater Freeway	Convert 4 Lane Expressway to 6 Lane Freeway on 8 Lane Freeway R/W Alignment	2006	$45,000	$2,000	$47,000	1
48	STA	99	9.7/10.9	10-1A6900	0.5 Km S.	1.0 Km N. of Mitchell Rd.	Mitchell RD / Service RD Interchange	Reconstruct Interchange	2009	**$54,000**	*$400*	$54,000	3
51	STA	99	R11.9	10-2A7701	City of Ceres at Whitmore Overcrossing		Rte 99 / Whitmore Ave Interchange	Reconstruct Interchange	2007	$20,000	$7,000	$27,000	3
55	STA	99/132	15.6/17.5	10-403500	Rte 132	Kansas Ave	Route 132 Expressway	Interchange Reconstruction	2008	*$35,000*	*$15,000*	*$50,000*	3
59	STA	99	20.8/21.4	10-472100	Deer Creek Br.	0.3 Km South to 0.6 Km North of Pelandale Avenue	Pelandale Interchange	Modify Interchange	2008	**$68,000**	*$7,000*	$75,000	3
63	SJ	99	15.0/18.6	10-3A1000	0.6 Km N.of Arch Rd.	0.2 Km S. of Rte 4 West	South Stockton 6-Lane	Widen to 6 Lanes	2012	**$127,000**	*$3,000*	$130,000	2
											OVERALL COSTS	**$964,000**	

Legend:
Inside a Box = Funded
Italic = Partially Funded
Bold = Not Funded

3.4.2 Candidate Projects

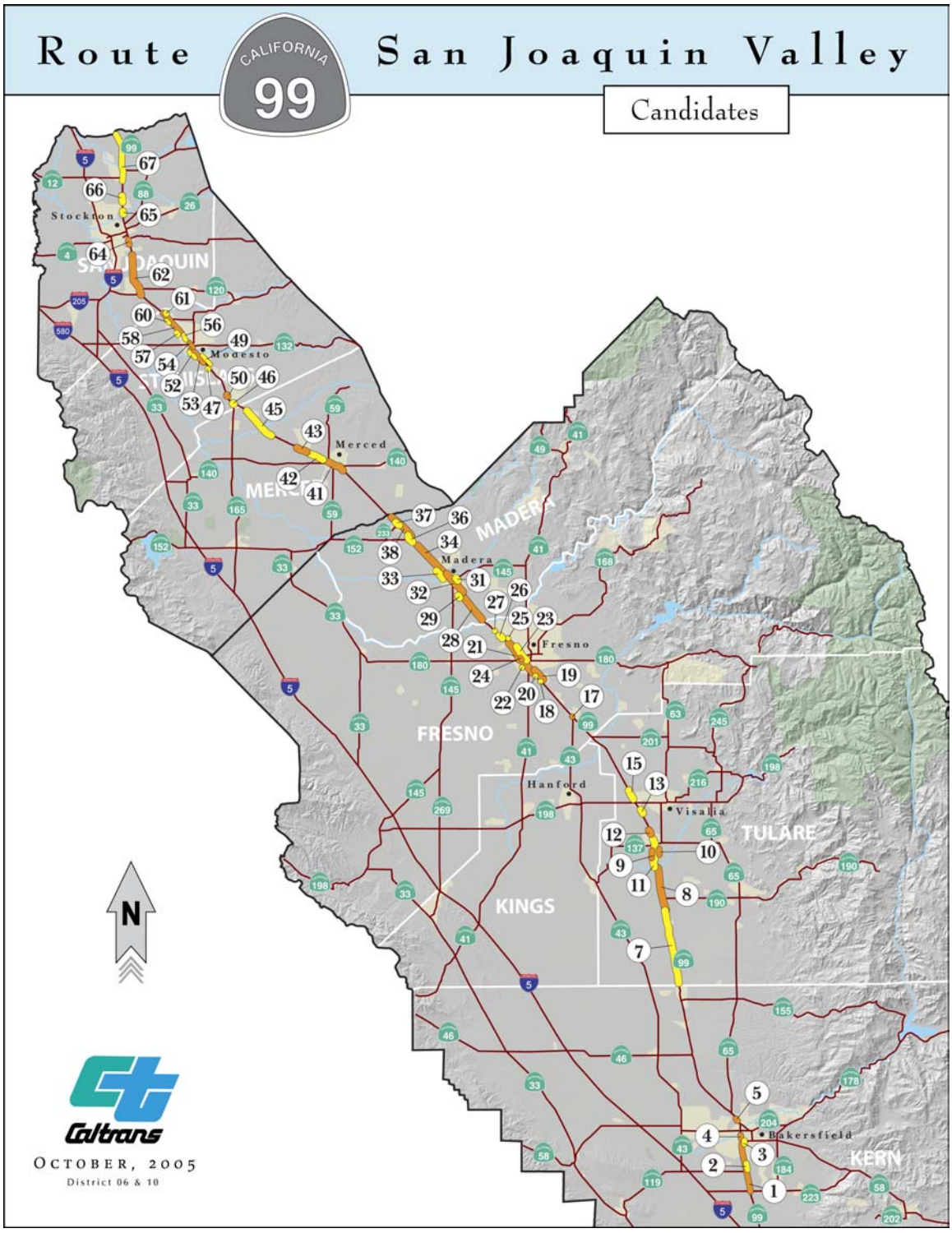


Figure 3.5 Map of Candidate Projects

Figure 3.6 Priority Category 2: Capacity-Increasing Projects

CATEGORY 2 CAPACITY INCREASING PROJECTS												
Key Map Project Number	CO	RTE	PM		EA	FROM	TO	PROJECT DESCRIPTION	Construction and R/W Capital Cost	Support Costs Estimated	Total Costs Per Project	Regional Priority Category
1	KER	99	13.4	22.6		Bear Mountain Blvd		Phased, widen to 8 lanes	40,000	12,000	52,000	2
7	TUL	99	0.0	16.0		Kern Co Line	South of Tipton	Widen From 4F to 6F	100,400	27,000	127,400	2
8	TUL	99	16.0	25.5		South of Tipton	Avenue 200	Widen From 4F to 6F	65,500	20,000	85,500	2
11	TUL	99	25.4	30.5	06-48950K	Avenue 200	Prosperity Ave	Widen from 4F to 6F	85,400	22,000	107,400	2
19	FRE	99	15.8	18.5		Central Ave	Jensen Ave	Widen from 6F to 8F	36,000	11,100	47,100	2
21	FRE	99	18.5	26.6		Jensen Ave	Ashland Ave	Widen from 6F to 8F	165,000	49,500	214,500	2
25	FRE	99	26.6	31.6	06-44260K	Ashlan Ave	Madera Co Line	Widen from 4F to 6F	40,800	12,000	52,800	2
28	MAD	99	0.0	7.5		Fresno Co Line	Avenue12	Widen from 4F to 6F	53,600	10,000	63,600	2
32	MAD	99	7.5	12.8	06-47090K	Avenue 12	Avenue 16	Widen from 4F to 6F	127,000	34,000	161,000	2
34	MAD	99	12.8	20.5		Avenue 16	Avenue 21 1/2	Widen from 4F to 6F	60,600	16,000	76,600	2
38	MAD	99	22.5	29.4		SR 152 Interchange	Merced Co Line	Widen from 4F to 6F	76,600	20,000	96,600	2
41	MER	99	12.6	17.6		S. of Childs Ave.	Black Rascal Creek	Convert 4F to 6F	140,000	28,000	168,000	2
42	MER	99	17.6	21.3		Black Rascal Creek	East Atwater OH	Convert 4F to 6F	105,000	20,000	125,000	2
43	MER	99	21.3	24		East Atwater OH	West Atwater OH	Convert 4F to 6F	54,000	14,000	68,000	2
45	MER	99	28.8	36.2		Hammatt Avenue	South Turlock OC	Convert 4F to 6F	51,000	11,000	62,000	2
49	STA	99	R10.0	R13.2	10-0E560K	Mitchell Road	Hatch Road	Widen 6F to 8F	120,000	27,000	147,000	2
58	STA	99	R18.5	R24.7	10-0E560K	Carpenter Road	San Joaquin County Line	Widen 6F to 8F	50,000	15,000	65,000	2
52	STA	99	R13.2	R15.1	10-0E560K	Hatch Road	Tuolumne Blvd	Widen 6F to 8F	60,000	18,000	78,000	2
54	STA	99	R15.1	R16.8	10-0E560K	Tuolumne Blvd	Kansas Avenue	Widen 6F to 8F	75,000	18,000	93,000	2
56	STA	99	R16.8	R18.5	10-0E560K	Kansas Avenue	Carpenter Road	Widen 6F to 8F	50,000	10,000	60,000	2
62	SJ	99	5.3	15.0	10-0E610K	SR-120 in Manteca	Arch Rd. in S.Stockton	Widen 4F to 6F	203,500	35,000	238,500	2
67	SJ	99	28.3	38.8		Harney Road	Sacramento County Line	Widen 4F to 6F	130,000	38,000	168,000	2
										TOTAL	2,357,000	

Figure 3.7 Priority Category 3: Major Operational Improvement Projects

CATEGORY 3 MAJOR OPERATIONAL IMPROVEMENTS PROJECTS												
Key Map Project Number	CO	RTE	PM		EA	FROM	TO	PROJECT DESCRIPTION	Construction and R/W Capital Cost	Support Costs Estimated	Total Costs Per Project	Regional Priority Category
3	KER	99	22.7	23.2	06-46011K	Ming Ave	SR58	Construct Auxiliary Lane	22,500	1,800	24,300	3
4	KER	99	23.9	24.6	06-46012K	California Ave	SR58	Construct Auxiliary Lane	26,700	2,100	28,800	3
5	KER	99	27.8	28.1	06-49710K	Olive Dr. Interchange		Reconstruct Interchange	13,000	3,900	16,900	3
10	TUL	99	27.6	28.0	06-33990K	Paige Ave Interchange		Reconstruct Interchange	45,500	10,500	56,000	3
12	TUL	99	31.4	32.4	06-33220K	Cartmil Ave Interchange		Reconstruct Interchange	39,000	10,000	49,000	3
13	TUL	99	36.1	36.8	06-48740K	Caldwell Interchange		Reconstruct Interchange	44,000	10,000	54,000	3
15	TUL	99	39.6	41.3	06-47150K	Betty Dr Interchange		Reconstruct Interchange	45,100	10,500	55,600	3
17	FRE	99	6.5			Floral Rd/SR 43 Interchange	Selma	Replace bridge structure and Floral Rd	19,000	5,700	24,700	3
18	FRE	99	15.8			Central Ave/Chestnut Ave Interchange		Interchange Improvements	45,000	10,500	55,500	3
20	FRE	99	16.8	17.3		Cedar Ave/North Ave Interchange		Interchange Improvements	45,000	10,500	55,500	3
22	FRE	99	20.3			Ventura Ave Interchange		Interchange Improvements	45,000	10,500	55,500	3
23	FRE	99	20.7	24.4	06-39210K	Fresno St	Clinton Ave	Add NB and SB auxiliary lanes	157,000	14,800	171,800	3
24	FRE	99	20.5	21.0	N/A	Toulumne St	Stanislaus St	Interchange Improvements	8,000	2,400	10,400	3
26	FRE	99	27.3	28.3	06-442700	Shaw Ave Interchange		Interchange Improvements	33,200	12,000	45,200	3
29	MAD	99	R7.1	R7.9	06-47100K	Avenue 12		Reconstruct Interchange	46,500	10,700	57,200	3
31	MAD	99	9.7	10.7		Route 99/145		Reconstruct Interchange	30,600	7,500	38,100	3
36	MAD	99	21.7	23.7		SR 152 Interchange		Reconstruct Interchange and rail crossing	68,000	17,000	85,000	3
37	MAD	99	26.1	27.2		Route 99/233		Reconstruct Interchange	48,700	12,800	61,500	3
46	STA	99	1.4			SR99 @ SR165 (Lander Ave)		Modify Interchange	35,000	9,000	44,000	3
47	STA	99	R3.2	R4.0	10-0F410K	West Main Street		Reconstruct Interchange	25,000	6,000	31,000	3
50	STA	99	R11.3		10-0E560K	Pine Street		Reconstruct Interchange	75,000	15,000	90,000	3
53	STA	99	14.9	15.6	10-0H770K	SR99 @ SR132	Sr132 East	New Freeway to Freeway Interchange	71,000	20,000	91,000	3
57	STA	99	19.9			SR99 @ Standiford		Modify Interchange	80,000	20,000	100,000	3
60	STA	99	R21.9	R23.2	10-0L330K	Kiernan Avenue/SR219		Reconstruct Interchange	50,000	12,000	62,000	3
61	STA	99	24	24.4	10-0L320K	Hammett Road		Reconstruct Interchange	68,000	20,000	88,000	3
64	SJ	99	16.4	17.5		Mariposa Rd. and Farmington		Reconstruct and combine interchanges (stages 1 & 2)	67,000	14,000	81,000	3
65	SJ	99	23.5	24.5	10-0L140K	Morada Lane in Stockton		Reconstruct Interchange	67,000	10,000	77,000	3
66	SJ	99	25.2	25.4	10-0L130K	Eight Mile Rd. in Stockton		Reconstruct Interchange	59,000	10,500	69,500	3

Figure 3.8 Priority Category 4: New Interchange Projects

CATEGORY 4 NEW INTERCHANGES PROJECTS												
Key Map Project Number	CO	RTE	PM		EA	FROM	TO	PROJECT DESCRIPTION	Construction and R/W Capital Cost	Support Costs Estimated	Total Costs Per Project	Regional Priority Category
2	KER	99	18	19	06-0C930K	Hoskings Road		Construct New Interchange	20,000	0	20,000	4
9	TUL	99	26.3	27.6	06-43040K	at Commercial Avenue	at Agri-Center	Construct New Interchange	38,500	9,500	48,000	4
27	FRE	99	29.4		06-36190K	Grantland Diagonal		Construct Interchange	55,000	13,800	68,800	4
33	MAD	99	12.3	14.3	06-48920K	Ellis Avenue Interchange		Remove existing and Construct a new interchange	88,500	18,500	107,000	4
										TOTAL	243,800	

3.4.3 All Projects Map

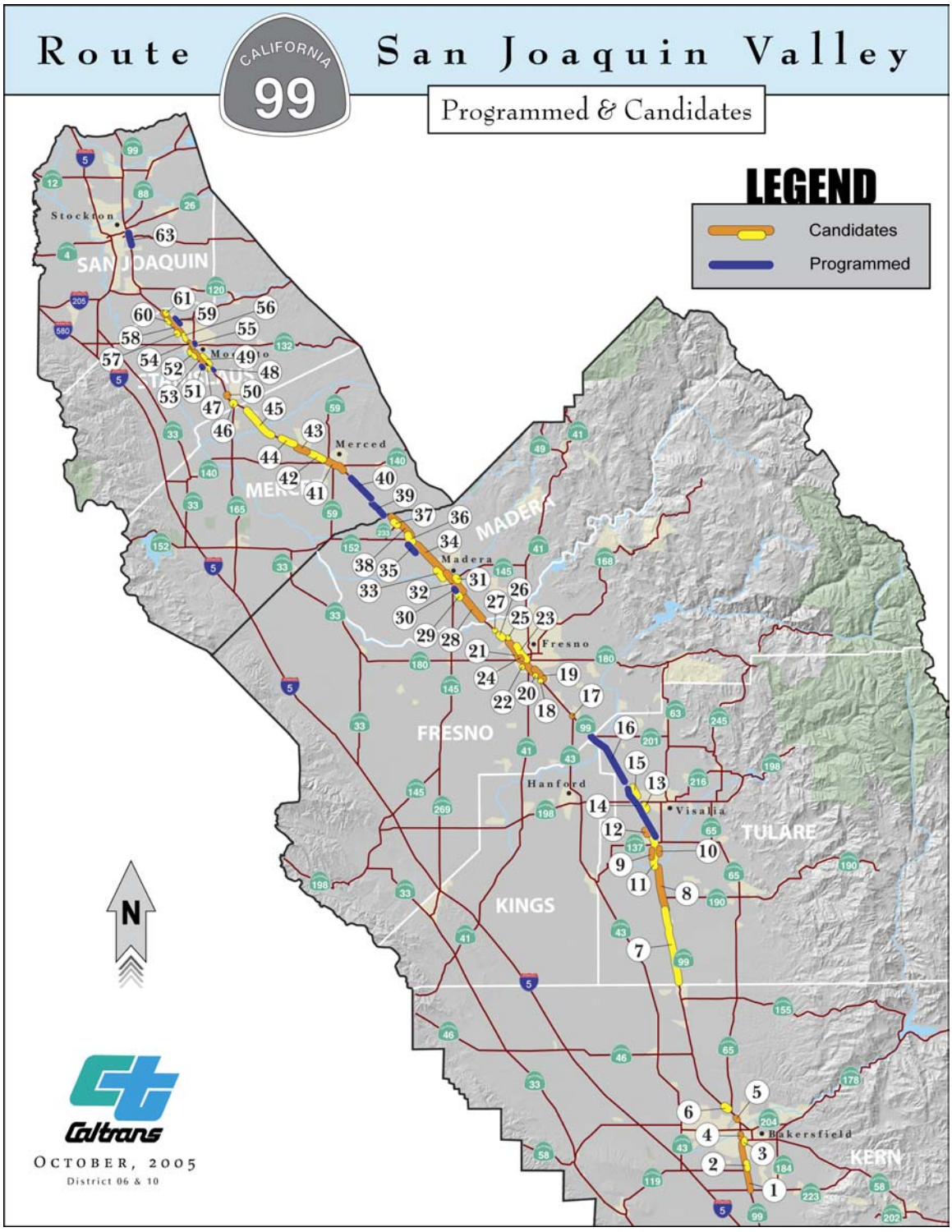


Figure 3.9 Map of All Programmed and Candidate Projects

3.5 Caltrans Design Standards: Background and Application Strategy

The American Association of State Highway and Transportation Officials (AASHTO) continually updates design guidelines for roads through the publication of *A Policy on the Geometric Design of Highway and Streets* (Green Book). These guidelines are created in cooperation with the Federal Highway Administration (FHWA) and State transportation agencies. The FHWA has adopted applicable parts of the Green Book as the national standard for roads on the National Highway System (NHS). NHS roads comprise all the Interstate system and some other primary routes. While not an Interstate, Route 99 is included in the NHS. Although the standards contained in the Green Book apply to the Interstate system, additional guidance applicable to the design of highways on the Interstate system is included in another AASHTO publication, *A Policy on Design Standards – Interstate System.* Caltrans typically adopts the guidelines established by AASHTO and incorporates them into the *Highway Design Manual* (Black Book). The Black Book then serves as the basis for design standards for all State highways in California, Interstate and non-Interstate.

While new standards are periodically adopted, it does not imply that existing standards or highways are unsafe, nor does it mandate the initiation of highway improvement projects to meet these new standards. It is industry practice to compare existing features to the new standards whenever a highway improvement project is proposed. Specific investigations, accident history, and engineering analysis often indicate that existing non-standard features are performing in a satisfactory manner. These findings are documented in a Design Exception Factsheet and retained in the project files. These design exceptions are critical for the defense of tort liability cases filed against the State.

The FHWA has mandated that design exceptions be justified for 13 controlling criteria on State freeways. The authority to approve design exceptions for these 13 criteria has been delegated to Caltrans for non-Interstate freeways; however, FHWA retains approval authority for these 13 criteria on Interstate highways. FHWA's 13 controlling criteria are the following: design speed, lane width, shoulder width, bridge width, horizontal alignment, vertical alignment, grade, stopping sight distance, cross slope, superelevation, horizontal clearance, vertical clearance, and bridge structural capacity. All but bridge structural capacity are geometric design criteria. This Business Plan has considered, at least at a high level, the compatibility of Route 99 with the 13 controlling criteria. Interchange spacing is an additional criteria included in *A Policy on Design Standards – Interstate System* that was not evaluated in detail, but is well known and discussed here briefly.

When considering the projects identified in this Business Plan, it is very difficult to generalize how each non-standard feature would be perpetuated or developed because these issues are

typically part of detailed engineering studies. For the purpose of this report, the following features are major issues that will be encountered along Route 99.

- Interchange spacing: Operational deficiencies in highly developed areas are typically driven by the weaving movements created at interchanges by merging traffic or queues from departing traffic. This is particularly true at freeway-to-freeway interchanges where high traffic volumes negatively interact with adjacent local-street interchange traffic movements. Removing adjacent local road interchanges, as the standard calls for, is complicated, as businesses are dependent on the access from adjacent interchanges. The interchange spacing standard is 1 mile for urban local road interchanges, 2 miles for freeway-to-freeway interchanges, and 2 miles for rural local road interchanges. The FHWA Interstate Freeway System Standard is 3 miles for rural interchange spacing.
- Right and Left Shoulders: Shoulders provide a safe refuge for disabled motorists, emergency personnel, and maintenance workers. The shoulder standard is 10 feet on 6-lane freeways (3 lanes in each direction). This standard is typically not achieved next to bridge supports or in urban areas where right-of-way impacts would be very expensive or disruptive to the community. Caltrans would not typically replace a bridge merely to widen shoulders so long as an unobstructed path for emergency vehicles could be established.
- Vertical Clearance to Bridges: Vertical clearance, the distance between the roadway and the bottom of the bridge, determines the vehicle height that can pass under a bridge. Non-standard vertical clearance is perpetuated when it can be shown that the structure is not a constraint in the movement of oversized loads or does not have a history of being hit by oversized loads. Bridges are rarely replaced for non-standard vertical clearance alone. The trucking industry desires greater oversized load capacity as it builds more plant-site fabricators. The magnitude of this type of improvement, however, is cost prohibitive.
- Horizontal Clearance to Fixed Objects: The distance between the traffic lanes and a fixed object is the horizontal clearance. The most prominent fixed objects are bridge rails, bridge supports, and concrete barriers. The minimum horizontal clearance is equivalent to the shoulder standards, which is 10 feet for a 6-lane freeway. This standard provides for the safe operations of the through lanes, emergency vehicles, and maintenance work.
- Lane Width: Although 12-foot lanes are standard, in some stringent existing conditions, 11-foot lanes may be justifiable. In this case, the inside (median) lane would be narrower. The wider lane on the outside provides more space for large vehicles that usually occupy that lane.
- Sight Distance (Caltrans and FHWA): Sight distance is the continuous length of highway visible ahead to the driver and is directly dependent on the design speed of the roadway. Two types of sight distance are considered on freeways: stopping and decision. Non-standard sight distance is common on older roadways and is caused by a number of factors. Vertical and horizontal curves, bridge abutments, and other objects can reduce sight distance. Non-standard sight distance may be perpetuated if there is no history of traffic collisions directly

attributed to the non-standard feature. It is foreseeable that the addition of lanes in the median and a concrete median barrier may obstruct sight distance and create a new non-standard condition. Each instance must be evaluated separately to determine an appropriate solution.

- Design Speed: Design speed is a speed selected to establish specific minimum geometric design elements such as horizontal and vertical alignments, and sight distance. It is very difficult to correct these features because it usually involves reconstruction and realignment of the freeway. These features are studied and typically perpetuated unless accident history analysis warrants otherwise. Design speed on a freeway facility like Route 99 is 70 to 80 miles per hour. The majority of Route 99 meets this standard.
- Horizontal and Vertical Alignment: These two alignments provide for the safe and continuous operation at a uniform design speed. These alignments are co-dependent on design speed and sight distance. Modification of these design elements typically requires major reconstruction, such as of the pavement, bridges, and alignment. Most, but not all, of Route 99 meets the current design standards.
- Grade: The Central San Joaquin Valley is flat and as such provides for compliance with the grade standards, which are maximum slope or roadway profile. Highway undercrossings (the local road going under the freeway) is the location where grade is typically not met, leading to the need to comply with the more significant standards of design speed and sight distance. If it can be shown that an accident history is not associated with non-standard sight distance, the grade is not typically corrected.
- Pavement Cross Slope: The pavement cross slope standard is a minimum standard for the purpose of storm water drainage. The cross slope standard is met in the existing facility at 1.5 percent and would be improved upon reconstruction to the current standard of 2 percent.
- Superelevation: Superelevation (roadway banking) is the pavement cross slope through a horizontal curve that improves safety and drivability. This design feature would be corrected with pavement reconstruction or as part of maintenance overlays. Much of the existing facility is standard or only slightly below standard.
- Bridge Width: The bridge width should be equal to the standard width of the lanes and shoulders (roadway), with no reduction between the bridge and the approach or departing roadway width. This is not true for many undercrossing bridges on Route 99. Narrow shoulders across bridges are common. Bridge width would be corrected with any lane addition project.

The above non-standard features will probably be commonplace along the entire route until major reconstruction or realignment occurs. In the absence of complete reconstruction, it is likely that most of these non-standard features will be perpetuated. Many new non-standard features will be created as lane addition projects attempt to fit within the existing roadway prism. Every reasonable effort should be made to not create non-standard features and to correct existing non-standard features when possible.

3.6 Interstate Designation Proposal

By act of recent legislation (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, or SAFETEA-LU, August 10, 2005 – Appendix C), Route 99 was designated a future part of the Interstate system. Under this condition, Route 99 shall become a part of the Interstate system at such time as the Secretary of the United States Department of Transportation determines that the segment: (1) meets the Interstate system design standards approved by the Secretary under section 109(b) of title 23, United States Code; and (2) connects to an existing Interstate system segment. As a result of this legislation and if the State of California decides to pursue the Interstate designation, Caltrans would be required to substantially complete construction of Route 99 to Interstate system standards within 25 years, or the designation of future Interstate system route could be removed.

If Route 99 were incorporated into the Interstate system, FHWA would become the agency with "Full Oversight" according to the stewardship agreement reached between Caltrans and FHWA. This means, for highway projects greater than one million dollars (not including resurfacing, rehabilitation, and restoration), FHWA would retain all federal approvals related to design and construction. Since Route 99 is a part of the National Highway System, Caltrans currently has been delegated authority for most engineering approvals during design and construction.

The FHWA has determined that the standards Caltrans has adopted in the *Highway Design Manual* substantially conform to the standards and policies set forth in publications from the American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Streets*, *A Policy on Design Standards-Interstate System*, and the *Roadside Design Guide*. When constructing new freeway segments, very few non-standard features are created, making any new facility predominately compliant with the Interstate system standards. Projects that modify the existing alignment will typically have many non-standard features.

It is important to note that given current funding constraints, Caltrans would continue to improve Route 99 without major reconstruction of existing features. Only existing features that are central to a specific project's need and purpose would be corrected, leaving many existing non-standard features remaining in place. The engineering studies needed to determine that an existing feature is performing satisfactorily are common to both Caltrans and FHWA. If the route were designated as an Interstate, FHWA would assume authority of the Design Exception process. FHWA oversight would result in another level of review and it is expected that the approval process would make each project more costly and less timely.

At this time, it is unclear how the existing non-standard features on Route 99 would be treated if it were to be added to the Interstate system. Clearly, if that change occurred, FHWA would

assume approval authority for any future non-standard features. What is not as clear is what would become of the existing non-standard features on the route. It appears existing regulations give FHWA little latitude, in that they indicate any additions to the Interstate system must be brought up to standard before inclusion. The regulations do make a "provisional" Interstate designation available, provided the facility is brought up to Interstate standards within 25 years. Caltrans is continuing to negotiate this issue with FHWA to determine what, if any, latitude they have for allowing the route into the Interstate system without it being upgraded to full standards. If full standards are required by FHWA to include Route 99 in the Interstate system, Caltrans estimates the cost would be an additional $14 to 19 billion over the $6 billion identified to achieve the goals in this plan. These cost estimates assume that FHWA cannot or will not grant waivers to these standards.

3.7 State Highway Operations Preservation Plan Strategy

The safety, mobility, and preservation needs of Route 99 are addressed by the State Highway Operations and Protection Program (SHOPP). Projects from the SHOPP would be based on the priority needs of the State Highway, and would be coordinated with the State Transportation Improvement Program (STIP).

SHOPP projects on Route 99 would maintain or improve the condition, safety, and operation of the highway, and protect the investment that has been made on the facility. The SHOPP program includes six types of projects that would affect Route 99:

- Collision Reduction
- Roadway Preservation
- Bridge Preservation
- Roadside Preservation
- Mobility Improvements
- Mandates (storm water requirements and emergency type projects)

In each of these categories, the projects would compete for available dollars with other projects statewide. As an example, roadway preservation projects would be prioritized on a statewide basis by pavement condition, volumes of traffic, type of facility (freeway, expressway, highway), and amount of truck traffic, and then be funded based on this prioritization.

Safety improvements that meet a certain threshold of benefit-cost criteria are funded off the top of the SHOPP before other needs are addressed. They do not need to compete for funding on a statewide basis.

This Business Plan is built on the assumption that the SHOPP is adequately funded to meet the needs described previously. However, this is not an accurate assumption. Statewide, the SHOPP

needs are estimated to be in excess of $30 billion for the next 10 years, while the revenues projected for that same period are approximately $20 billion. It is estimated that the 10-year SHOPP needs for this segment of Route 99 are $376 million. While beyond the scope of this Business Plan, adequate SHOPP funding is necessary to ensure that the route is adequately maintained and operated.

3.8 Long-Life Pavement Strategy

Pavement service life is the period of time that pavement is intended to last before requiring major rehabilitation or reconstruction. Long-life pavement has an intended service life of not less than 40 years. This is double the original design life of the concrete pavements on Route 99, which was the standard until just a few years ago.

The single most important criterion for the use of long-life pavement is the projected truck traffic expected to occur during the pavement service life. Passenger cars, pickups, and two-axle trucks are considered to have a negligible affect on pavement life.

In June 2003, with the 5th edition of the *Highway Design Manual*, Caltrans established the provisions for the use of long-life pavement on new construction and reconstruction projects. Long-life pavements are subject to a life cycle cost analysis, where the economic viability of long-life pavement is financially determined. Long-life pavement should be used when either of the following criteria is met:

- The projected or future Annual Average Daily Traffic (AADT) 20 years after completion of construction equals or exceeds 150,000.
- The projected or future Annual Average Daily Truck Traffic (AADTT) will equal or exceed 15,000 trucks 20 years after completion of construction.

The AADT and AADTT on Route 99 are provided in Figure 3.10 for each county. The traffic volumes are presented in broad ranges as traffic volumes vary within county limits.

Figure 3.10 Annual Average Daily Traffic and Truck Traffic

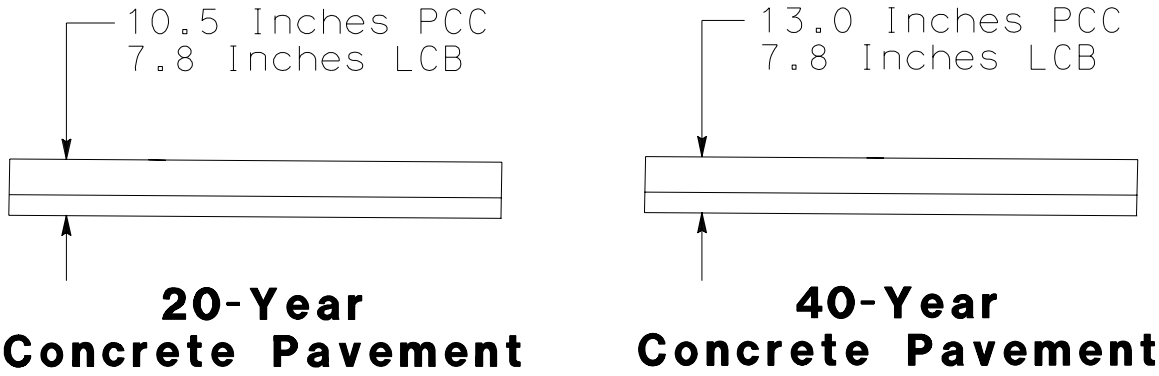
County	2005 AADTT	2025 AADTT	2005 AADT	2025 AADT
Kern	26,000	**57,000**	80,000 to 100,000	**175,000 to 220,000**
Tulare	13,000	**24,000**	45,000 to 50,000	84,000 to 94,000
Fresno	17,600	**36,000**	70,000 to 90,000	**144,000 to 185,000**
Madera	12,000	**36,000**	45,000 to 50,000	133,000 to 148,000
Merced	11,000	**20,000**	42,000 to 58,000	80,000 to 100,000
Stanislaus	15,000	**32,000**	70,000 to 125,000	**200,000 to 260,000**
San Joaquin	12,000	**28,000**	80,000 to 110,000	**170,000 to 260,000**

Source: Caltrans, District 6 and 10 Transportation Planning Branch data. Bold type indicates traffic volumes that would qualify for long-life pavement.

As the above table shows, every county qualifies for long-life pavement. When the qualifying element is truck traffic (AADTT), then only truck lanes warrant the long-life pavement. When the AADT is greater than 150,000, as it will be in most counties, the non-truck lanes also qualify for long-life pavement.

The above guidelines are relatively simple to implement on new construction or full reconstruction. When adding lanes to an existing facility, however, a whole host of issues determines the feasibility of following the above guidelines. By way of example, one issue of concern is the remaining service life of the adjacent pavement and whether the existing concrete pavement has been overlaid with asphalt. This report cannot address this issue or the myriad of other issues that arise when considering long-life pavement on widening projects.

The cost for long-life pavement can at times be not much more than regular 20-year life concrete pavement. The cross sections below depict a long-life pavement and a 20-year concrete pavement. The Portland cement concrete (PCC) and lean concrete base (LCB) depths would be unique for each project and are presented for comparative purposes only.



The cost difference for the concrete pavement is approximately $25 per lineal foot of lane—considering structural elements only.

At this time, Caltrans has not had sufficient funding to fully implement long-life pavement strategies. While the focus of this Business Plan is on the safety, capacity, and operations of Route 99, implementation of a long-life pavement strategy for the route is a necessary element to ensure long-term performance of the route. For new construction, this strategy will be relatively easy in that new pavements will be built to long-life standards. The problem of how to deal with the existing pavements on reconstruction projects, especially with how to fund them, remains. District 6 and District 10 will be working with Headquarters to develop a comprehensive long-life pavement strategy for the route.

3.9 Median Barrier Strategy

Median barriers are used on divided highways to reduce the risk of an out-of-control vehicle crossing the median and colliding with opposing traffic. The standard types of median barriers for new installation are concrete safety-shaped barriers and metal thrie-beam barriers. Temporary barriers (Type K) may be used under certain conditions. These three types of median barriers are capable of preventing nearly all cross-median accidents.

Caltrans devotes great attention to median barriers and is continually reviewing the criteria and aggressively developing projects for placement and replacement of these barriers. Within the limits of this Business Plan, Caltrans has identified 59 miles of locations where median barriers may be needed. Of these 59 miles, 22 miles of median barriers will be constructed by currently programmed projects (STIP and SHOPP). Roughly $40 million will need to be programmed in future years to construct median barriers for the remaining 37 miles.

3.10 Intelligent Transportation System Strategies

Caltrans and its regional and local partners recognize that addressing congestion requires a multi-pronged approach that includes: adding new capacity, maintaining infrastructure, investing in and encouraging the use of alternate modes such as transit and rail, and using transportation management systems (TMS) and strategies.

Intelligent Transportation Systems (ITS) is a recognized strategy for improving the operation and efficiency of the transportation system. When integrated into the transportation system infrastructure, and in vehicles themselves, these technologies help monitor and manage traffic flow, reduce congestion, provide alternate routes to travelers, enhance productivity, and save lives, time, and money.

Intelligent transportation systems provide the tools for skilled transportation professionals to collect, analyze, and archive data about the performance of the system during the hours of peak use. Having this data enhances traffic operators' ability to respond to incidents, adverse weather, or other capacity-constricting events.

Traffic accidents and congestion take a heavy toll in lives, lost productivity, and wasted energy. ITS enables people and goods to move more safely and efficiently through a state-of-the-art, intermodal transportation system. The primary goal of the Traffic Management Centers (TMC) in Fresno and Stockton are to continually monitor traffic flow on the State Highway/Freeway system to facilitate a timely and appropriate response to unusual conditions that could adversely affect traffic or create a potentially hazardous situation. By using ITS and TMS strategies, Caltrans is better able to:

- Expedite the removal of major incidents to prevent secondary incidents and reduce delay.
- Control traffic demand and optimize the balanced usage of the regional transportation system.
- Facilitate the dissemination of transportation and traffic information to the traveling public.
- Provide a central hub for special event and emergency operations.
- Facilitate coordinated district communication services.
- Monitor and facilitate the coordination of planned lane closures.

The following table outlines the ITS elements planned for Route 99.

Proposed Investment Along Route 99			
	#	Each	Total
Closed Circuit TV	141	$ 60,000	$ 8,460,000
Changeable Message Sign	63	$ 135,000	$ 8,505,000
Ramp Metering System	40	$ 50,000	$ 2,000,000
Traffic Monitoring System	128	$ 30,000	$ 3,840,000
Highway Advisory Radio	10	$ 30,000	$ 300,000
Weather Information Systems	31	$ 50,000	$ 1,550,000
Fiber Optic Systems in miles	139	$ 200,000	$ 27,800,000
Central Control System	1	$ 500,000	$ 500,000
Total Proposed Investment			$ 52,955,000

ITS elements have historically been funded from the SHOPP; however, as SHOPP funding is inadequate to meet its many needs, it is important to consider funding these elements from the STIP or other funding sources. The SHOPP will continue to play a role, but by partnering with other funding sources, incorporation of these elements into the corridor becomes more achievable.

3.11 Land Use Strategy

Land use decisions along the Route 99 corridor directly affect existing and future operation of the route as well as the local road circulation system. Route 99 is recognized as the primary north-south travel artery to access the population centers of the San Joaquin Valley. It is essential that the safety and operation of Route 99 be considered when General Plans and Circulation Elements are updated and more specifically, when individual land use decisions are made by local agencies. San Joaquin Valley MPO staff members recognize the importance of land use decisions and have noted the need for a stronger coordination of local land use decisions with the needs on Route 99.

Coordination with local agency General Plan and Specific Plan updates to incorporate elements of this Business Plan and the Route 99 Corridor Enhancement Master Plan are essential so their mission and objectives become part of community goals and objectives when land use decisions are being considered. This provides input during the initial planning and review of these critical

documents, which in most cases make up the direction of anticipated growth and concentrated development along Route 99.

The land use strategy for the Route 99 corridor includes several elements, which will become more effective with stronger collaboration. Descriptions of these strategy elements are shown below:

- Collaboration: First, establish interagency collaboration procedures between Caltrans, local agencies, and MPOs when development projects are initially proposed and continue them as projects proceed through the local approval process. Local agencies should bring Caltrans into the land use and development proposal process at the earliest point possible for consultation and review. Caltrans should work cooperatively with local agencies as land uses and development proposals are initiated adjacent to Route 99. The adoption of updated general plans/specific plans is the most critical point for protecting State facilities, but an ongoing project-by-project collaborative effort is also needed.

- Corridor preservation: Caltrans and local agencies should work together to establish plan lines and interchange "footprints" so local agencies can apply their land-use authority toward preserving the necessary right-of-way for the corridor. Working with local jurisdictions, Caltrans should seek to have plan lines adopted into General Plan circulation elements. Caltrans and local agencies could work together to update the local circulation elements as they pertain to Route 99. The goal is to use local agency land-use authority in the preservation of the corridor and to accelerate the necessary environmental clearances. Caltrans and local agencies will work together to develop appropriate mainline and interchange footprints.

- Development Funding: There is recognition that the development community has a role toward funding a fair share of impacts to Route 99. Caltrans and local agencies should work together toward agreement on policies that address appropriate developer funding responsibility. The development community has a role in participating in the funding of mainline improvement needs as well as interchange needs of Route 99. This would be a fair share based upon analysis of direct impacts attributable to each new development. As an example, this could take the form of direct financial contribution, right-of-way dedication, or participation in a local or regional development fee program. These are details that will need to be refined on a local agency-by-agency basis.

- Enhance Corridor Appearance: Improve the appearance of the Route 99 corridor through local agency acceptance of the *Route 99 Corridor Enhancement Master Plan*. Local planning documents can be enhanced by applying the goals and strategies of the Master Plan, which support enhancing the appearance of roadway elements and the surrounding view. Local

agency acceptance and application of these strategies is important to improving Route 99's appearance.

3.12 Landscaping Strategy

As discussed in Section 2.2.4, two types of planting have occurred along the route—"Functional Planting" and "Highway Planting." The roadsides along the Route 99 corridor are a mix of these two planting types.

Functional Planting

"Functional Planting" is visible between communities along the rural segments of the Route 99 corridor. As the name indicates, "Functional Planting" is utilitarian and made up most of the original planting along the length of the corridor. These original plantings were comprised of mostly eucalyptus trees used to help delineate the route and identify structures or curves, and oleander shrubs used to provide a median headlight or glare screen. The purpose of the screen was to shield the driver's eyes at night from the tiring effect of the headlights of oncoming cars. The median oleander planting has come to symbolize Route 99. The trees also help to give some change and variety to the scene in the long stretches of rural freeway. Ground cover vegetation along the rural segments is comprised predominantly of non-native grasses, planted as erosion control during the roadway construction process.

Time and roadway construction have taken a toll on the original "Functional Planting" along the corridor. The once consistent pattern of tree groupings has been removed in areas by numerous construction projects along the corridor. Many trees have been removed as the roadway encroaches further into the right-of-way, leaving the trees too close for safety. In addition, the trees are reaching the end of their life span and have been affected by environmental conditions, disease, drought, and freeze. Some have died and been removed, and many others are no longer healthy and thriving.

The median oleander planting has experienced a similar fate. In recent years, many miles of this signature element have been removed by roadway construction projects. Many more miles have been identified for removal, to make way for additional lanes of traffic and concrete median barriers.

When existing planting is removed for roadway construction projects, "Replacement Planting" is identified and funded by these projects. This replacement planting has most often been installed closer to the urban areas, extending the existing "Highway Planting" area. The medians and rural roadsides are not replanted. The rural areas are quickly losing these signature landscape elements.

Highway Planting

Throughout the corridor, "Highway Planting" signifies the roadsides in the urban areas. "Highway Planting" goes beyond pure function. It improves aesthetics and makes the roadway more compatible with the surrounding urban environment of neighborhoods and businesses. Highway planting includes trees, shrubs, and groundcovers with automatic irrigation systems. This landscaping helps to blend the right-of-way into the adjacent community. Although aesthetic in nature, this landscape also serves many functional purposes, such as controlling dust and erosion, providing fire and weed control, delineating the route, and providing headlight screening. Planting is also used to screen objectionable views of adjacent properties, as well as to screen the roadway from the community.

A variety of ornamental and California native plants are used in the landscape. The plants used on the Central Valley roadsides must satisfy very difficult requirements. The plant material must be drought tolerant, adaptable to difficult and varying soil conditions, able to take heat and exhaust fumes, and must require minimal maintenance.

The portions of the route that have "Highway Planting" areas are designated as "Landscaped Freeway." This designation is given to a section of freeway as a means to help regulate the installation of outdoor advertising displays, or "Billboards" (as defined in Chapter 6, Title 4, of the California Code of Regulations).

Highway Planting Strategy

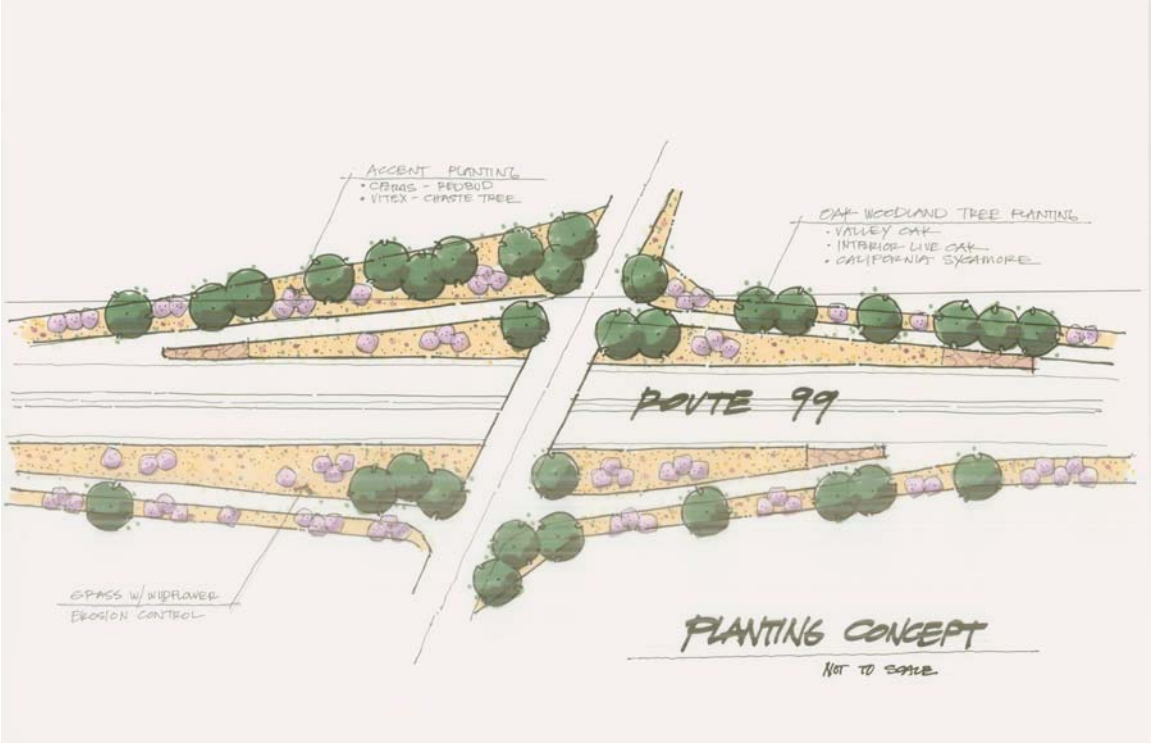


Figure 3.11 Artwork of Highway Planting Concept

There are current and future plans to rehabilitate existing "Highway Planting" areas along the corridor. These areas are beyond their intended life span and have fallen into disrepair, creating voids in the landscape. Projects have been identified to rehabilitate these areas; many of these projects have been programmed and some have been completed. With these rehabilitation projects, the aged irrigation systems will be replaced or updated, and the landscapes will be rejuvenated.

With new construction projects, native oaks, the corridor theme tree, are being incorporated into the landscape. See Figure 3.11. This will help tie the rural and urban landscapes together. Like the eucalyptus trees of old, the oak theme is designed to create the corridor feeling for the entire stretch of freeway.

3.13 Safety Roadside Rest Areas

In 2000, a "Caltrans Safety Roadside Rest Area System Master Plan" was approved. Caltrans placed a priority on identifying new rest area sites that best address the trucking industry needs for safe stopping and rest. This Master Plan identified five new sites for the Route 99 corridor (see Figure 3.12). If completed, this would help to alleviate the current shortage.

The existing Safety Roadside Rest Areas (SRRA) are in need of major renovation and upgrading to sustain the high levels of use and to comply with requirements of the Americans with Disabilities Act (ADA). The renovation of Enoch Christofferson is complete and the C. H. Warlow facility will be ready for construction in early 2006. The rehabilitation of Phillip S. Raine is a candidate for the 2006 SHOPP.

The development of new SRRA's is to be achieved through solicitation of a joint-development, privatized effort. It is hoped that through this process, public funding can be leveraged to maximize the availability and quality of safe roadside stopping opportunities. Caltrans' provision for rest stops promotes traffic safety and serves Caltrans goal to promote efficient goods movement for California's economic vitality.

Figure 3.12 Route 99 Safety Roadside Rest Areas

3.13.1 Driving toward a Sustainable Future; A GreenStop for California's Central Valley

The Great Valley Center (GVC) is in the process of conducting a design competition to develop a prototype rest area on Route 99. The design site being used is the Phillip S. Raine SRRA near Tipton in Tulare County. The purpose of the competition is to design a self-sustainable and solar-powered roadside "GreenStop." The GVC has garnered support from Caltrans and other private organizations as partners in this effort. The sponsors view this as a unique opportunity to create a "green" rest area that is regionally relevant for the San Joaquin Valley, and that provides an image and identity reflecting this region of California's Central Valley.

While this competition is site specific, the goal of this competition will be to serve as a pilot project, creating a new model that could be replicated elsewhere in the State. The competition will address the redevelopment of the existing rest area, and will include interpretive elements that provide opportunities for visitors to better understand the unique qualities and products of the region.

The objective of the project is to set a standard of excellence for roadside rest areas. Goals include the following:

- Develop innovative and creative design solutions that demonstrate a greenstop—a rest area that is truly sustainable in terms of wastewater uses, recycling, and other operations to ensure a "zero footprint" on the environment.
- Create designs that are "off the power grid" and meet the higher Leadership in Energy and Environmental Design (LEED) levels of Silver, Gold, or Platinum.
- Reflect the context of the region and include opportunities that highlight regional features.
- Establish a theme that reflects the Route 99 corridor.
- Develop plans that provide "escapes" from the freeway environment.
- Provide safe and secure environments for all users.
- Appropriately accommodate the needs of multiple users.
- Address 24/7 uses.
- Follow CALTRANS and FHWA guidelines; be ADA and Cal OSHA compliant.
- Address the cost effectiveness and benefits of the design.
- Provide traditional rest area facilities (e.g. rest rooms, picnic areas, etc.).
- Ensure a maintenance friendly facility.
- Serve as a site-specific pilot project that can be replicated in other areas.

The competition will be conducted from early January through mid-April 2006.

3.13.2 Route 99 Roadside Rest Area Wireless Internet and Information Kiosks

Caltrans is joining the Great Valley Center and its private partner, Coach Connect Corporation, in a public/nonprofit partnership to build a pilot project at two Route 99 rest areas. The pilot project will install value-added telecommunications and traveler-related public information kiosks at both the Philip S. Raine SRRA and Enoch Christoffersen SRRA on Route 99 in Tulare and Stanislaus counties, respectively.

Value-added communications are wireless Internet connections (Wi-Fi hotspots) via satellite or copper wire. Access points and antennae distribute the Internet signal across a specific radius. These signals are received by hardware installed in laptop computers, personal data assistants, and cell phones within the specific radius. Travelers are becoming accustomed to and requesting Internet access whenever and wherever they stop. There is an increase in the number of business travelers driving California highways, thereby increasing the demand for Wi-Fi hotspots on their trips. The pilot project will install Wi-Fi hotspots at both rest areas.

The project will also install information kiosks at both rest areas. The purpose of these kiosks is to provide Internet based traveler-related information to the public. The traveler information will include current transportation information such as road conditions, closures, etc. Other travel information (destinations, parks, museums, etc.) which promotes local area tourism, natural resources, cultural resources, and historic resources will also be available to the public on these information kiosks. This same traveler information will also be available through the wireless Internet Wi-Fi hotspot system.

The pilot project is currently in the development phase. Installation is expected to be completed in early 2006. The project is planned to be a prototype two-year project that will be evaluated for potential continuation and expansion to other rest areas in California.

3.14 Environmental Strategies

Route 99 is the transportation backbone of the San Joaquin Valley, as well as many of the Valley communities it passes through. As projects are developed, the typical process for public involvement is on a project-by-project basis with public information meetings being held where the public or interest groups are invited to attend and provide comments on the project. An innovative way to improve communication and public participation with local partners along Route 99 would be to develop a systematic regional approach to public participation. This would include holding public information meetings early in the process in various locations along the route, which would benefit the public and streamline the process in several ways:

- Identify and involve stakeholders early in the process.
- Identify issues.
- Provide the opportunity for conflict resolution.
- Improve communication and partnerships efforts.
- Expedite the environmental review process.

Route 99 bisects a variety of habitats such as grasslands, vernal pool complexes, riparian corridors, wetlands, and agricultural lands. These areas provide potential habitat for many state and federal protected species including, but not limited to, San Joaquin kit fox, California tiger salamander, vernal pool fairy shrimp, Swainson's hawk, and valley elderberry longhorn beetle.

When viewing the entire Route 99 corridor, the opportunity presents itself to make some advances in mitigation strategy and implementation. From the perspective of strategy, the benefits could be immediate and have the potential to decrease project costs and expedite project delivery. From the perspective of implementation, the possibility exists to significantly improve the environment along the corridor. Through some relatively minor alterations to project scope, the ecological payoff could be great over a long period of time.

3.14.1 "Pooled" Mitigation Funds

Each of the projects in the Business Plan will likely require species mitigation. Typical mitigation for these projects would occur on a project-by-project basis including acquiring a multitude of separate mitigation sites, which is usually expensive. An innovative approach early in the project delivery process focused on regional efforts to preserve and maintain large tracts of habitat with multi-species values would enhance and expedite the environmental process. By establishing a Memorandum of Understanding with federal and State agencies, the U.S. Fish and Wildlife Service, Federal Highway Administration, U.S. Army Corps of Engineers, Environmental Protection Agency, and Caltrans would allow the opportunity for early negotiation and agreements to be reached on mitigation for the Route 99 corridor. Mitigation ratios for plant and animal species, including habitat, could be established and location of replacement habitat could be determined early. It would be possible to set up a few large mitigation sites logically dispersed along Route 99. These mitigation sites would be established based on specific anticipated needs for species mitigation in that particular geographic area.

For example, a multiple project mitigation site could be set up in Madera County to mitigate for projects in Fresno, Madera, and Merced counties. At a minimum, 3 to 5 mitigation sites could be set up between the cities of Bakersfield and Stockton to address effects to special-status species. This effort could benefit the corridor in several ways:

- Increase quality of mitigation sites and provide better species protection.
- Reduce mitigation costs.

- Reduce acquisition efforts.
- Reduce agency consultation timelines.
- Expedite project delivery.

3.14.2 Enhancement by Design

Another opportunity to address possible environmental concerns lies in the design of the projects themselves. Major roads and associated features may restrict animal movements and consequently reduce genetic diversity, dispersal, and the resilience of animal populations. This has been a focus in recent years and many examples can be identified, including those found in current documents filed with the United States Fish and Wildlife Service and the California Department of Fish and Game. Maintaining habitat connectivity is identified as a primary recovery action for San Joaquin kit fox in the "Recovery Plan for Upland Species of the San Joaquin Valley, California." When feasible, wildlife crossings should be considered early during the project development phase. Examples of elements that could be included in the project design to improve habitat connectivity are:

- Methods to eliminate aquatic passage barriers
- Wildlife crossings via properly placed large box culverts
- Wide riparian corridors (i.e. longer bridges)

3.15 Performance Measures

In order to better analyze proposed projects quantitatively, Caltrans has developed the Transportation System Performance Measures. They should be used to monitor existing performance, forecast future performance, build consensus decision-making information, provide and share modal-neutral customer information, and improve accountability. Working toward this end, Caltrans identified six Performance Measures to categorize the data collected under various scenarios for the District 6 and District 10 project lists. The Performance Measures categories are:

- Safety
- Mobility
- Reliability
- Productivity
- System Performance
- Return on Investment-Life Cycle Cost

The scores for each project are shown in Appendix B under the respective Performance Measure tables in Figures B.1 and B.3 (for District 6) and Figures B.2 and B.4 (for District 10). For example, data collected such as the "Annual Daily Vehicle Trips" or "Level of Service" is used to measure Productivity. The categories are also broken down to provide before and after

construction analysis. Performance Improvement Indicators are assigned for each criterion, which illustrate the degree of improvement for the facility after construction. For the Productivity performance measurement the score assigned is either Yes or No (Yes, the proposed facility will meet the LOS target, or No, it will not). For the criteria: Safety, Mobility, Reliability, and System Performance, scores of High, Medium, and Low are assigned. As an example, each project's safety score is determined as follows:

- LOW – Accident rate lower or equal to the expected rate
- MEDIUM – Accident rate less than one and one-half times the expected rate
- HIGH – Accident rate more than one and one-half the expected rate

Accident information for the Safety measure post-construction was not obtainable. Certain specific information for interchange improvement projects was not obtainable and is therefore shown as "Not Applicable" or N/A. In addition, the "Benefit-Cost Ratio" data under "Return on Investment/Life Cycle Cost" will be derived soon, but is not currently available.

3.16 Funding for Route 99 Projects

SAFETEA-LU is the Federal transportation act that will fund $286.4[4] billion of transportation investments. Within this amount, $18.4 million has been allocated for Route 99 projects. A list of projects with earmark funding is in Appendix D. These earmarks only provide partial funding for the projects listed leaving the remaining balance to be funded from other sources.

In California, most State Highway System improvements are programmed through two documents, the State Transportation Improvement Program (STIP) or the State Highway Operation and Protection Program (SHOPP). State and federal fuel taxes generate most of the funds used to pay for these improvements. Funds expected to be available for transportation improvements are identified through a Fund Estimate prepared by Caltrans and adopted by the California Transportation Commission (CTC). These funds, along with other fund sources, are deposited in the State Highway Account to be programmed and allocated to specific project improvements in both the STIP and SHOPP by the CTC.

The STIP is built from Regional Transportation Improvement Programs (RTIPs) proposed by Regional Transportation Planning Agencies (RTPAs/MPOs) throughout California and the Interregional Transportation Improvement Program (ITIP) proposed by Caltrans. Of the funds made available by the CTC for the STIP, 25 percent is made available for Caltrans to propose expansion and capacity-enhancing improvements on the statutorily designated Interregional Road

[4] Total funding in SAFETEA-LU is $286.4 billion. However, only five years remain in this six-year bill. The funding for the remaining five years is $244.1 billion.

System. Seventy-five percent of the funds are made available to RTPAs/MPOs to propose all types of improvements on all other State Highway System roads, other non-State highway roads eligible to use federal funds, and on the Interregional Road System.

The SHOPP programs safety, rehabilitation, traffic management and operational improvements, and roadside rehabilitation (appearance) projects on the State Highway System. Caltrans, in cooperation with RTPAs/MPOs, identifies projects directed at responding to safety needs and protecting the multi-billion dollar investment in the existing highway system.

Transportation funds generally come from the following sources:

- State fuel taxes
- Federal fuel taxes
- Sales taxes on fuel
- Truck weight fees
- Roadway and bridge tolls
- User fares
- Local sales tax measures
- Development mitigation fees
- Bonds
- State and local general funds

Most of these funds are targeted for specific transportation purposes and are made available based on specific use or criteria through designated programs. Appendix C contains a chart that lists the most common programs that fund Route 99 highway improvements.

Typical categorical funding programs used for Route 99 are:

- National Highway System: Federal funding program for major interregional highways of national significance. This is the primary federal funding program for Route 99 route expansion and rehabilitation.
- Bridge Replacement/Rehabilitation Program (HBRR): Under this program, bridges are nominated by local agencies and selected from the Division of Structures Eligible Bridge List.
- Transportation Enhancement (TE) Program: This is a competitive grant program to fund environmental and alternative transportation projects that enhance the transportation system. There are target fund levels for RTPAs/MPOs and Caltrans to propose projects.
- Hazard Elimination and Safety Program (HES): For Route 99, this would fund highway safety improvement projects on the federal-aid system.
- Traffic Congestion Relief Program: This is a State funded program generated from the sales tax on fuel, which can be used for any type of transportation improvement. Existing projects

were created by State legislation. At this time, it is unknown whether new projects will be selected by legislation or through the STIP process.

- Local Sales Tax Measure: This is a local sales tax for transportation purposes that must be voted on by local voters. Examples of this in the San Joaquin Valley include Fresno, Madera, and San Joaquin County Local Sales Tax Measures.
- Developer Impact Fees: This is a local source levied on development within a specific jurisdiction that may be used for transportation purposes.

If Route 99 is designated as an Interstate in the future, it will be eligible for Interstate maintenance funding. No additional funding would come to California, however, because if the Interstate maintenance mileage increases, the National Highway System mileage would be reduced by an equivalent amount.

3.16.1 Innovative Financing

Go California, recently introduced by the Business, Transportation and Housing Agency, announced California's transportation program targeted to improve mobility and accessibility throughout the State. Included in *Go California* is the use of innovative financing mechanisms that can help fund and advance important transportation system improvements.

Federal Highway Administration publications define innovative finance as:

> *"Innovative Finance for transportation is a broadly defined term that encompasses a combination of specially designed techniques that supplement traditional highway financing methods. While many of these techniques may not be new to other sectors, their application to transportation is innovative."*

Innovative finance techniques essentially fall into one of two categories; accessing new non-traditional resources, or some form of managed financing of fund resources. These innovative finance techniques fall into four classifications:

- Innovative management of Federal funds
- Debt financing
- Credit assistance
- Highway tolls

Innovative Management of Federal Funds: This strategy consists of several specific programs including Advance Construction, Tapered Non-federal Match, Flexible Match, and Toll Credits.

Advance Construction allows a state to initiate a project using non-federal funds while preserving eligibility for future use of federal funds. This would allow California to move projects on Route 99 forward even if the annual federal obligation authority is insufficient to begin the project.

Tapered Non-federal Match allows the match to be varied across the several project phases over the life of the project. This is allowable as long as the total federal contribution does not exceed the specified federal participation limit. On a typical 80 percent federal, 20 percent non-federal project, the preliminary engineering through design could be 100 percent federal and 0 percent non-federal match. At the construction phase, the required dollar amount of non-federal match for the total project would then be committed, but typically this would be several years after the project is initiated. When non-federal funds are in short supply this would avoid a delay to project initiation.

Flexible Match allows a project sponsor to use non-federal match sources other than traditional cash. The source of the match could be public donations of cash, right-of-way, or materials and services.

Toll Credits is a provision in federal law applicable to toll roads. This could be applicable to Route 99 if it were to become a toll road. Through this technique, the State could request that tolls collected on a State highway be used as the non-federal match for projects.

Debt Financing: Provisions of this program allow bond financing if there is a source of ongoing funding to retire the bonds. California has used this technique through GARVEE bonds. Use of GARVEE funding would allow projects to move to construction sooner than the traditional pay-as-you-go approach. It would require a long-term, up to 15 years, multi-year annual commitment to retire the debt. This is a technique that could be used to finance projects on Route 99.

Credit Assistance: This program allows the use of federal funds for a public or private project sponsor to better access credit for transportation projects. Federal credit assistance can take one of two forms; loans, where a project sponsor borrows federal highway funds directly from a state or the federal government; and credit enhancement, where a state or the federal government makes federal funds available on a contingent (or standby) basis. Credit enhancement helps reduce risk to investors and thus allows the project sponsor to borrow at lower interest rates. Loans can provide the capital necessary to proceed with a project or reduce the amount of capital borrowed from other sources. Credit Assistance consists of three primary techniques; Section 129 of Title 23 Loans, State Infrastructure Banks, and the Transportation Infrastructure Finance and Innovation Act (TIFIA).

Section 129 loans allow California to use regular federal-aid highway revenues to fund direct loans to projects with dedicated revenue streams such as toll facilities. The State Infrastructure Bank allows the use of regular federal-aid highway and State funds to offer loans or credit enhancement to both public and private project sponsors. TIFIA provides for direct loans, loan guarantees for project sponsors seeking other capital sources, or lines of credit for project sponsors.

Highway Tolls: The use of tolls for highway transportation financing is common nationwide; however in California, it would take special legislation to allow its use on State highways such as Route 99. There are only a few State highway toll roads that have been authorized through legislative action. Through appropriate California legislation, tolls could become a significant non-federal source of funds for Route 99 improvement projects. Federal law provides the authority to levy tolls on federal-aid highways, and under recent federal law, tolls on federal-aid highways can be used as the non-federal match requirement for most programs.

These programs or techniques represent opportunities that might be explored to help finance and advance Route 99 improvements. Most would need to be evaluated for applicability on a project-by-project basis. Some could be applied on a corridor basis. Decisions on whether to proceed would also need significant discussion with stakeholders and MPOs along the corridor, as well as with the CTC.

3.17 Economic Benefits

The benefit of capital investments in transportation projects can be felt far more than simply through improved levels of service or aesthetic improvements. One of the most profound effects transportation projects have is the economic benefit they provide to the people within the project area. There are three types of economic benefits that occur when a transportation project is built in a regional economy:

- Direct Benefits – The number of jobs created by the amount of dollars invested
- Indirect Benefits – The number of jobs created as a result of inputs (goods and services) needed to support the transportation project construction
- Induced Benefits – The total of the consumption by employees in both the direct and indirect categories benefit industries

The Direct Benefit is very easy to measure. It is simply the number of employees hired to construct a project. The Indirect Benefit is a little more complicated and must be calculated using an input-output model. This model takes into account the inter-related nature of an economy and how the inputs of one industry are the outputs of another, and visa versa. The input-output model used for this report is the IMPLAN model developed at the University of Minnesota. This model is widely used to calculate the regional effect of economic activity in various regions across California.

The final benefit is the Induced Benefit, which is the total amount of consumption attributed to both the Direct and Indirect employees. This type of consumption varies from groceries to doctors' services. These three economic benefits combine to quantify the total economic benefit

produced by a transportation project in a specific region. Using the IMPLAN model, the following effects have been calculated:

- For every one billion dollars of transportation spending in California, approximately 18,000 jobs are created.
- For every construction job created, an additional .76 jobs are created in the region for a total multiplier effect of 1.76.
- For every dollar spent on transportation projects in California, an additional 97 cents are created via indirect and induced spending in the State's economy.

A 2004 report published by the Sacramento Regional Research Institute used the IMPLAN model to calculate the regional benefits per one billion dollars invested in transportation projects. The following table is extrapolated from their findings. The definition of the phased approach to implementing the Route 99 Corridor Business Plan shown in the following table can be found in Section 4.3 of this document.

Figure 3.13 Total Economic Benefit

Dollars in Billions

	Phase 1	Phase 2	Phase 3	Total
Transportation Dollars Spent	$1	$1	$4	**$6**
Effect on Economy (Multiplier = 1.97)	$1.97	$1.97	$7.88	**$11.82**
Effect on Jobs (Multiplier = 1.76)	17,866	17,866	71,464	**107,196**

Source: SRRI Economic Impact of Funding California's Transportation Infrastructure

Route 99 improvements can also spur economic benefits in terms of business growth and industry diversification, including tourism and higher value-added industries and clusters, as well as rising property values. While it is not possible to identify a specific dollar value for such a tremendous investment, the following areas will experience benefit:

- Quality and quantity of jobs
- Community safety and health
- Public revenues
- Parks
- Infrastructure

Chapter 4 Implementing the Plan

4.1 Project Development Process

The project development process usually begins after a transportation need has been identified. The project initiation document (PID) starts the process leading to the programming of funds. The process ends upon completion of the construction project. Figure 4.1 delineates the project development process.

The project development process is tied to the legal requirements of environmental laws and regulations, and it melds engineering requirements with local and regional plans.

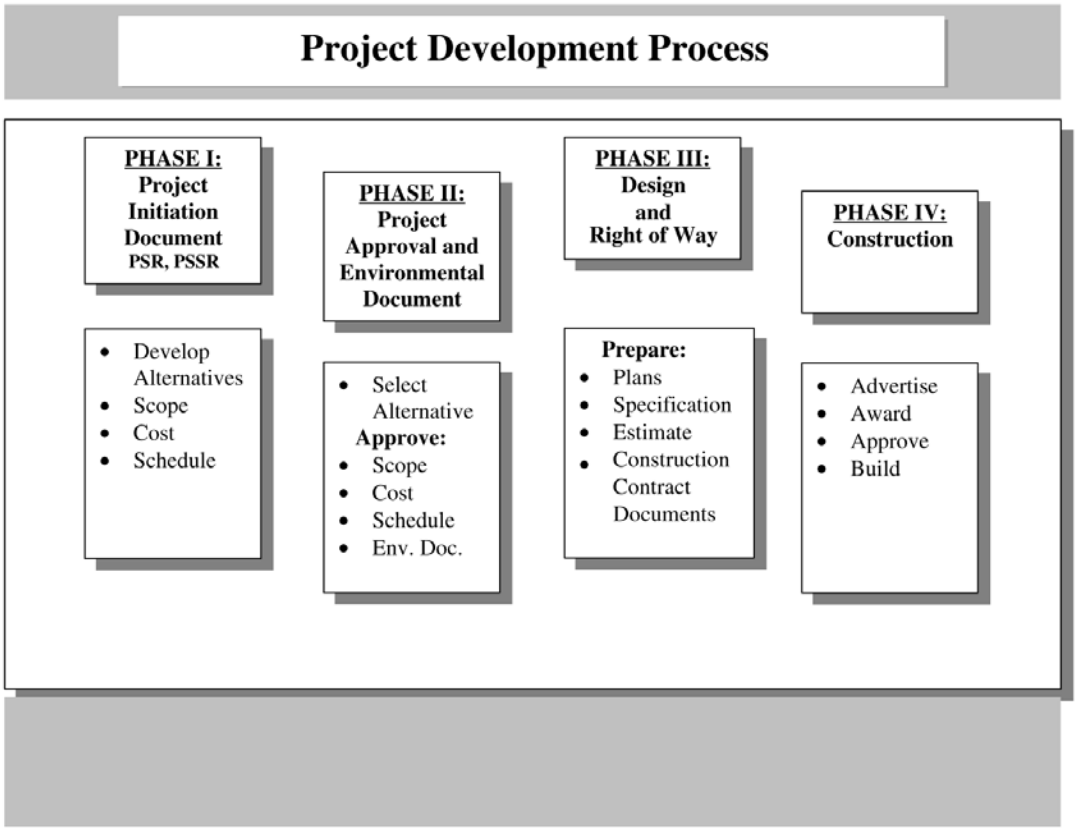


Figure 4.1 Project Development Process

Project Initiation

The Project Initiation Document (PID) will either be a Project Study Report (PSR) for added travel capacity projects, or a Project Scope Summary Report (PSSR) for roadway rehabilitation and operational projects. The PIDs provide the purpose and need for an improvement, identify alternatives, and set the schedule and estimated cost of the project. Once the document has been approved, the project can be submitted for programming of funds.

To properly identify aesthetic elements of interest to a community, a community corridor beautification plan should be developed so it can be referenced by the *Route 99 Corridor Enhancement Master Plan*. The *Route 99 Corridor Enhancement Master Plan* will track existing plans and add new plans as they are completed. It will also aid roadway designers in preparation of a PID.

Project Approval and Environmental Document

Preliminary engineering studies and an environmental document are prepared to assure that a project complies with State and federal environmental laws. All project activities such as the development of project alternatives, public input, and selection of the Preferred Alternative are discussed in the Final Environmental Document (FED).

Selection of the Preferred Alternative occurs only after specific effects and reasonable mitigation measures have been identified for each alternative. The selection is made after comments are received from circulation of the Draft Environmental Document (DED) for public comment and from the public hearing process. These comments and the rationale for selecting the alternative are detailed in the Final Environmental Document and summarized in the Project Report (PR).

Selection of the Preferred Alternative authorizes final design to begin. The PR documents Caltrans' approval for most types of State highway projects. This includes new facilities, as well as improvements, modifications, or repairs to existing facilities—whether done by Caltrans or by others under a Caltrans encroachment permit. "Project Approval" means approval by Caltrans, and where required, approval by the Federal Highways Administration and the California Transportation Commission. A Record of Decision provides the final approval of the project's Environmental Document.

It is very difficult to change the scope of the project once the PR has been approved. Changes to the project may cause a re-evaluation of the environmental document and require additional funds. Such changes may result in the demise of the project. Items such as aesthetic features would likely not be added after this phase if it meant that the project would be delayed, canceled, or the cost increased.

Design and Right-of-Way

The design and right-of-way phase involves the preparation of Plans, Specifications, and Estimates (PS&E) for the construction of a transportation improvement project, and the acquisition of the right-of-way necessary to build the project. Because the development of estimates and final design alternatives is required for project approval, a significant portion of the project design is often completed before the formal initiation of the design phase. These activities are known as preliminary engineering.

The responsibilities during this phase of the project development process include the following:

- Prepare quality plans that meet Caltrans standards, practices, and policies.
- Prepare project cost estimates and monitor costs to keep the project within budget.
- Purchase right-of-way and relocate utilities if needed.
- Monitor the project scope to ensure consistency with previous approvals.
- Prepare final construction contract documents.

Construction

Advertising the construction contract is the first step in the construction phase. The contract is awarded to the lowest qualified bidder, provided that all procedures and legal requirements have been fulfilled. The contract is then approved, the contractor is notified, and the start of actual construction soon follows. Once the contract has been approved, there will be limited changes to the project. Upon completion of construction, the Resident Engineer recommends acceptance of the contract. With the exception of enhanced planting, gateway monuments, community identifiers, and highway art, maintenance of the facility typically reverts back to Caltrans following contract acceptance.

Local agency officials are continuously involved in the process, particularly for those projects financed or constructed by the local agencies. Acceptance rests with the State, however, for the portion of the project that is within the State right-of-way. When the contract includes work on local agency facilities, the local agency officials must be involved in the acceptance reviews.

4.2 Sample Project Timelines

There are two different classifications of projects that are being proposed in this Business Plan. Their approximate timelines, in relation to each other, appear in Figure 4.2:

- Negative Declaration (ND)/Finding of No Significant Impact (FONSI): This is the shorter of the two timelines because it is a less complex environmental document that requires less time to complete and usually is not subject to the same level of public scrutiny as a higher level document would be. Therefore, the total project time for an ND/FONSI is four to nine years.

- Environmental Impact Report (EIR) / Environmental Impact Statement (EIS): This is the more complex and therefore longer of the two project types. It usually addresses projects that have a greater effect on the environment and therefore receives a great amount of public input. The average timeframe for this project is nine to 14 years.

There is a third classification of transportation improvement project. Categorical exclusion/exemption (CE) projects typically have a simple scope and have limited environmental impacts which are excluded or exempt from consideration by law, and they can be delivered in a much shorter timeframe than an ND or EIR. While there are CE projects on the Route 99 corridor, they are typically SHOPP projects and not the type of project covered in this Business Plan.

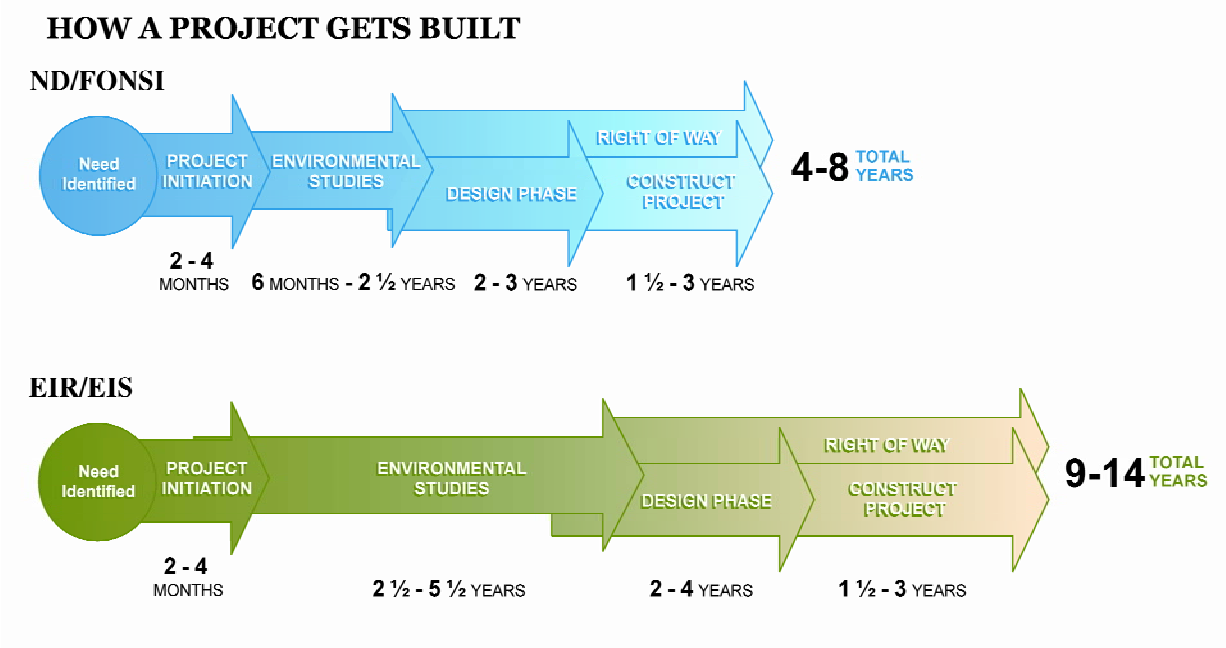


Figure 4.2 Project Development Timeline

4.3 Phasing of Projects

A consideration of phasing of the projects is critical to the successful completion of work on the Route 99 corridor. If all six billion dollars were allocated at one time, it would be impossible for Caltrans to complete the projects any faster than if they were allocated over a 20-year period. This section will discuss what Caltrans thinks would be the most successful and efficient way to allocate and expend all of the funding necessary to construct these projects.

Until this point, all dollars discussed have been in 2005 dollars. With the discussion of phasing, the issue of inflation must also be addressed. While a range of three to seven percent was discussed as possible rates of inflation, a more reasonable five percent was decided upon to illustrate what the overall cost of projects, by year, might look like over a 20-year period. As illustrated in Figure 4.3, Caltrans estimates it will take approximately 5 years to "ramp up" in order to accommodate the increased amount of workload planned for all phases. Starting in year five, the constant allocation of dollars would be approximately $333 million per year for the life of the plan (in 2005 dollars). When inflation is calculated into this equation, each subsequent year demands additional funds, finally topping out at approximately $884 million in year 20.

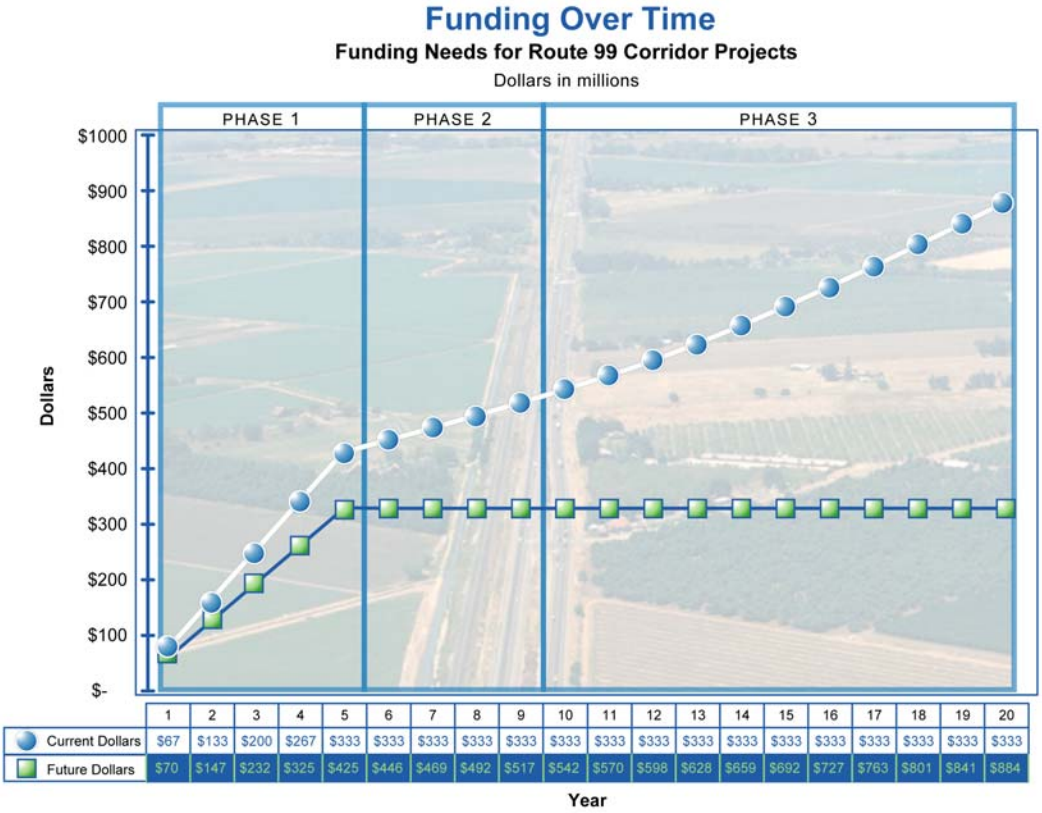


Figure 4.3 Route 99 Funding Needs

Figure 4.3 not only identifies the effect time has on the cost of projects, it also asks the question, "Can Caltrans and the construction industry reach and sustain an annual construction program on the route of $330 million per year for 15 years?" This year (fiscal year 2005/2006), Caltrans will have about $200 million in STIP projects under construction. This has occurred during a fiscally constrained period. It seems reasonable to assume that without fiscal constraint, a $330 million program is achievable.

Sustaining this level of delivery could present challenges to Caltrans and the construction industry. Further, since most of these projects will take two or more years to build, this would result in approximately $700 million of ongoing construction on the route every year. This could create traffic control–traffic management issues

Implementation of this plan has been broken down into three phases; Phase 1, the first billion dollars; Phase 2, the next two billion dollars; and Phase 3, the last three billion dollars. Figure 4.4 shows the route as exists today. Figures 4.5, 4.6, and 4.7 show the route upon completion of each additional phase.

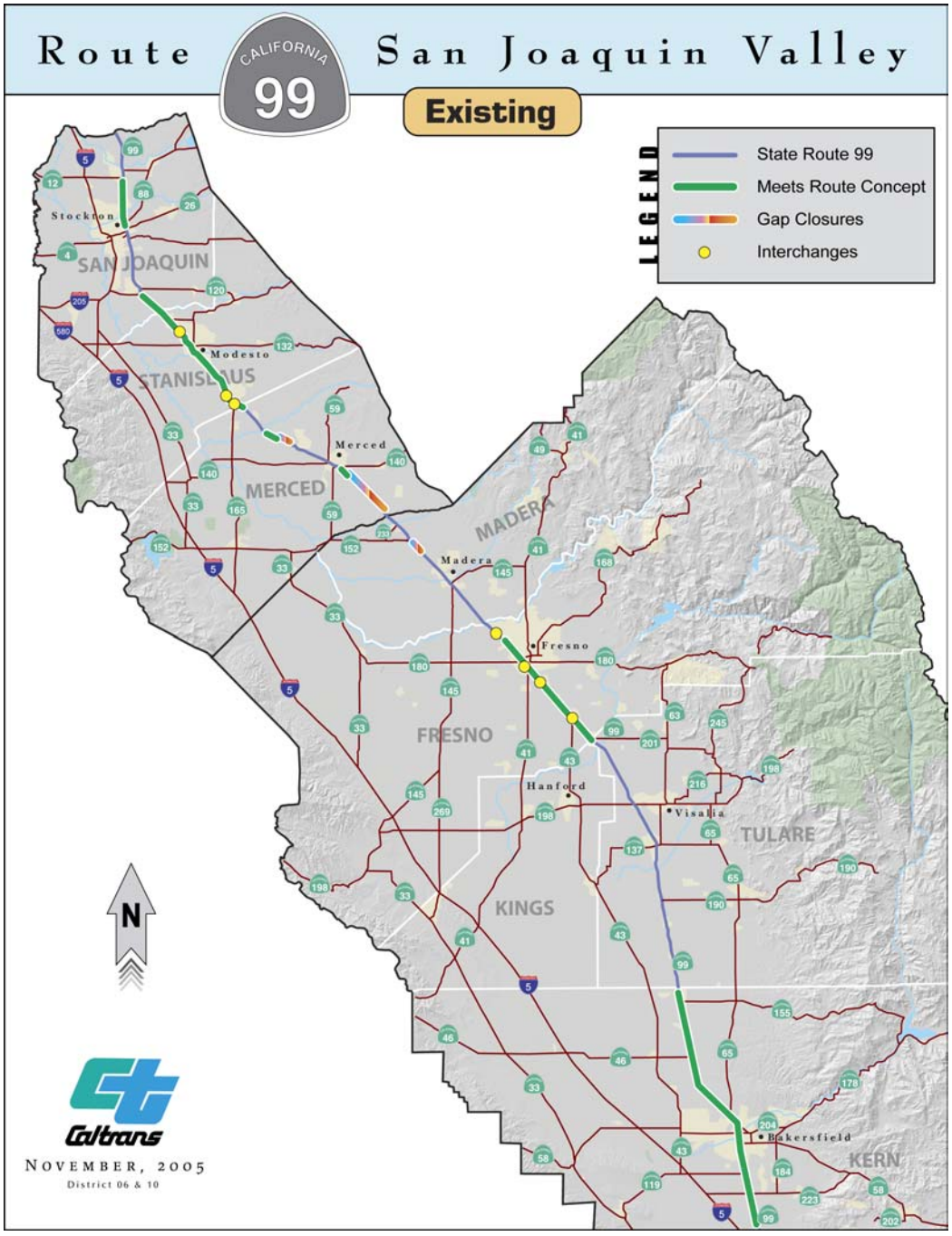


Figure 4.4 Existing Route Concept Compliance Map

4.3.1 –Phase 1

Phase 1 consists of the first billion dollars of funding, and coincides with the list of programmed projects contained in Figure 3.4. Approximately 20 percent of this first billion dollars is currently funded.

Phase 1 is made up of elements of Priority Category 1, Freeway Conversion; Priority Category 2, Capacity-Increasing Projects; and Priority Category 3, Major Operational Improvements. Phase 1 will complete all of Priority Category 1, three Priority Category 2 projects, and six Priority Category 3 projects. While Phase 1 does not complete projects in priority category order, it is prudent to complete the projects that are already in the delivery pipeline. However, as many of the Phase 1 projects are not yet fully funded, opportunity remains to add additional funding to these projects based on the priorities contained in this Business Plan.

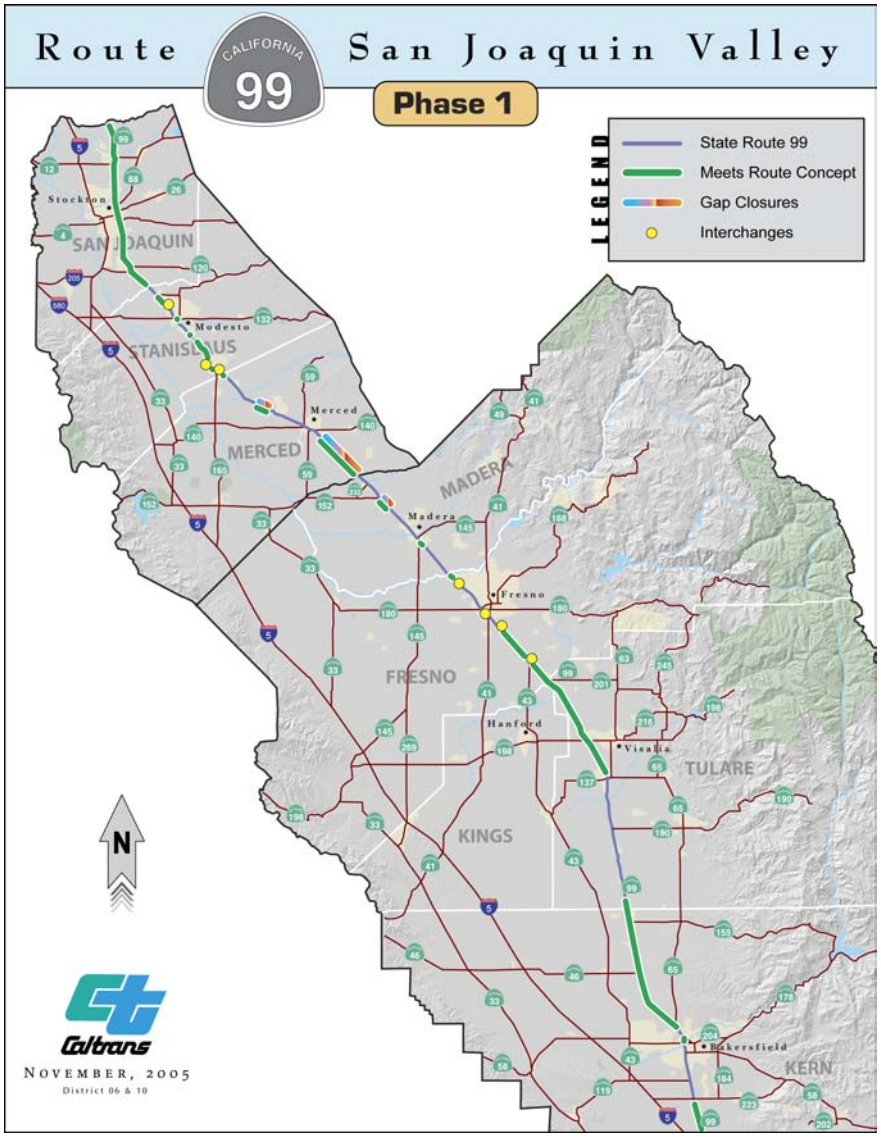


Figure 4.5 Post Phase 1 Route Concept Compliance Map

4.3.2 – Phase 2

Phase 2 allocates $2 billion dollars (current year dollars). With this second allocation, Caltrans would be able to complete the remaining 22 projects listed as Priority Category 2. See Figure 4.6. While it is possible to determine which categories will be fully or partially funded, this document is not intended to prioritize the individual list of projects. It will require extensive negotiations with all of the MPOs to arrive at a final prioritized list of the order in which projects will be funded. This document only seeks to give priority to categories of projects that will allow the decision-makers to arrive at their conclusions with the best available information. By the time Phase 3 begins, Caltrans should be adequately staffed and have the appropriate amount of contracting capacity available to handle this workload. It also seems reasonable to assume the contracting industry would, by this time, have adequate capacity to accomplish this work.

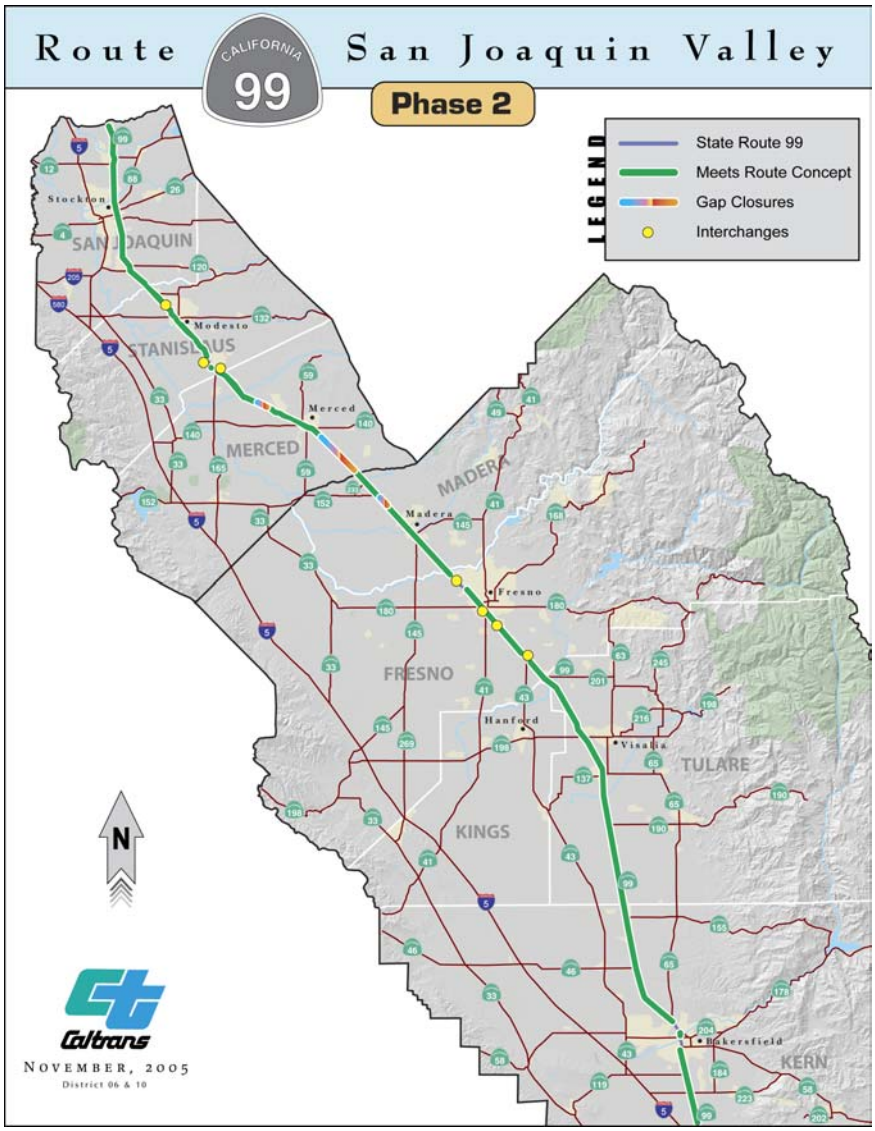


Figure 4.6 Post Phase 2 Route Concept Compliance Map

4.3.3 – Phase 3

The final phase of the Business Plan will be the complete funding of the remaining projects with an allocation of $3 billion. This would fund the remaining 27 projects in Priority Category 3 and all five projects in Priority Category 4. See Figure 4.7. With this last amount of funding, all of the prioritized projects will be fully funded and all identified goals will be met for the Route 99 corridor.

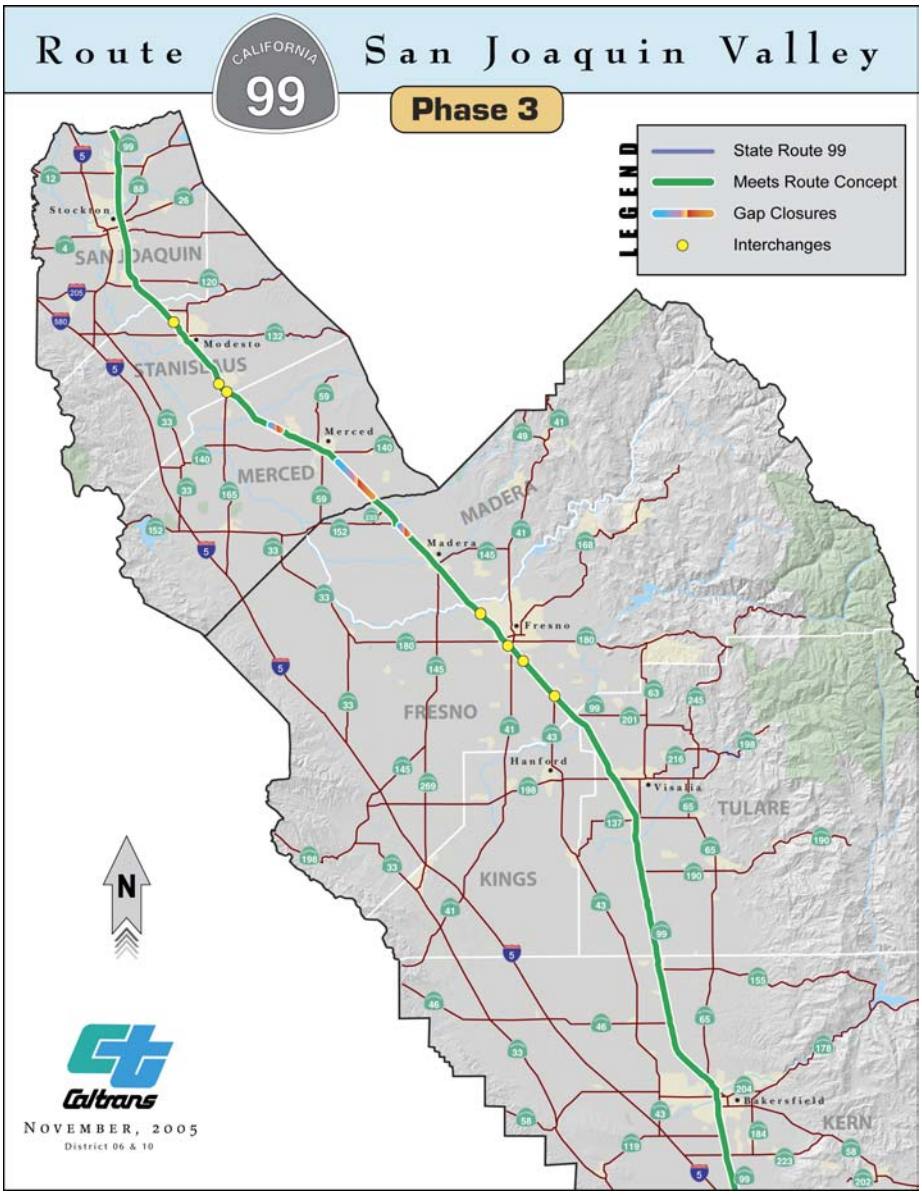


Figure 4.7 Post Phase 3 Route Concept Compliance Map

4.4 - Implementation

As discussed in this chapter, actual implementation of this plan will be influenced by many factors including funding, deliverability, and the ability of Caltrans and the construction industry to "ramp up" to deliver this magnitude of work. In the real world of today's transportation funding, however, it is funding availability that will very likely drive the implementation of this plan.

Phase 1 consists of projects that are either locally funded or programmed in the STIP. While this phase consists of approximately $1 billion in projects, it is only about 20 percent funded, leaving a shortfall of $800 million. The current 2006 STIP Fund Estimate, which is built on the assumption that Proposition 42 funds will be available every year from the current year (2005/06) out, indicates there will not be any significant amount of new funding for ITIP projects. There may be limited capacity to add funds to RTIP projects; however, the 99 corridor is heavily ITIP dependant, especially for Phase 1 and Phase 2. Based on the current funding scenario, and assuming there will be programming capacity in the out years of the 2008 STIP, Phase 1 will not be completed until sometime around 2015.

Again, using the 2006 STIP Fund Estimate, there will be little if any capacity to add new starts to the STIP until at least the 2011/12 fiscal year if ITIP funds are used. It is difficult to predict when Phase 2 might be completed, but clearly if the first Phase 2 project does not begin until 2012, it will not be completed until 2021-2026.

With this much uncertainty in Phase 1 and 2, it is impossible to predict when Phase 3 could even begin. Clearly Caltrans cannot accomplish the goals of this Business Plan without alternative funding sources.

Increasing the RTIP funding on the Route 99 corridor is one way to expedite completion of the plan. While this would improve the current funding situation, it would not improve it substantially. Further, the Valley MPOs typically view mainline improvements as primarily the State's responsibility, while they view improvements to interchanges on the route as primarily a local responsibility. This view of funding responsibilities is not necessarily consistent with the priorities established in this Business Plan nor is it always consistent with the rules governing the use of ITIP funds in urban areas. However, even combined, the ITIP and RTIP are woefully inadequate to address the needs on the route as well as the other State routes in this eight-county area.

There has been a local proposal to collect truck tolls on the route to finance these types of improvements. While that proposal is enticing, it does not seem practical. Truck tolls could

possibly be used to build dedicated truck facilities, but those are beyond the scope of the improvements identified in this Business Plan.

Section 3.16.1 describes a number of innovative financing strategies that could assist in expediting the funding of projects on Route 99. However, these strategies deal primarily with advancing future revenues; they do not actually generate additional revenues. Both are required in order to achieve the goals of this Business Plan.

In discussions with the MPOs, it is clear that the region cannot wait 20 years for implementation of this plan. Caltrans agrees that an accelerated program would be prudent and beneficial to the route and the region. Accelerating this effort would compound the issues identified in Section 4.3, but the benefits of an accelerated program far outweigh the risks and should be considered if funding could be made available.

While an accelerated program would challenge Caltrans and the construction industry, Caltrans is willing to accept that challenge. Ongoing efforts to bring the construction industry back to California should help enhance their ability to meet this challenge. Further, strategic scheduling of projects could help minimize the traffic control–traffic management issues associated with a large construction program on the route.

Chapter 5 List of Abbreviated Terms

AADT	Annual Average Daily Traffic
AADTT	Annual Average Daily Truck Traffic
AASHTO	American Association of State Highway and Transportation Officials
AC	Asphalt concrete
ADA	Americans with Disabilities Act
ADT	Annual Daily Traffic
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CTC	California Transportation Commission
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
GVC	Great Valley Center
HDM	Highway Design Manual
ITIP	Interregional Transportation Improvement Program
ITSP	Interregional Transportation Strategic Plan
LCB	Lean concrete base
LOS	Level of Service
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
ND	Negative Declaration
NHS	National Highway System
PA&ED	Project Approval and Environmental Documentation
PCC	Portland cement concrete
PID	Project Initiation Document
PM	post mile
PR	Project Report
PSR	Project Study Report
PS&E	Plans, Specifications, and Estimates
RTIP	Regional Transportation Improvement Program
RTPA	Regional Transportation Planning Agency
R/W	Right-of-way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SHOPP	State Highway Operation and Protection Program
SRRA	Safety Roadside Rest Area
STIP	State Transportation Improvement Program
TCR	Transportation Concept Report