

Kern County Goods Movement Strategy

FINAL REPORT July 2012

Prepared For:



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LOS ANGELES ONTARIO ORANGE SAN DIEGO SOUTH BAY

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EXECUTIVE SUMMARY

The Kern Council of Governments (Kern COG) commissioned KOA Corporation to create a Goods Movement Strategy for the Kern County area. The objective of the Strategy is to use data from previous corridor truck studies and Kern COG, Caltrans, and other data sources to rank future capital improvements that will assist flows on major truck routes, and also to provide information to the San Joaquin Valley goods movement strategy. The analysis determined the impact of planned transportation projects in the region on goods movement. Information gained from this study will be used by Kern COG to inform project development activities and to inform other future planning efforts in the region.

The data collection effort associated with this project included the compilation of the following studies and data sources:

- Previous truck trip origin/destination studies conducted by KOA Corporation for four sets of roadway corridors:
 - The primary north-south freeways – I-5 and SR-99
 - The primary trucking routes to the east – SR-58 corridor from Bakersfield to Barstow in San Bernardino County
 - Multiple east-west routes – SR-223, SR-166, SR-119, SR-46, and SR-65
 - The eastern north-south route – US-395
- The Kern COG Regional Transportation Plan (RTP)
- The County Transportation Improvement Plan (TIP) and the Regional TIP
- The County Circulation Element of the General Plan
- Caltrans Transportation Concept Reports
- Goods Movement Action Plans
- Kern COG Travel Demand Forecasting Model

Section 1.0 provides a comprehensive description of the compiled previous studies and relevant data provided by those documents.

Project Goals

Freight movements within Kern County are conducted primarily via truck trips. Air freight service is emerging, but is not currently a major influence on freight shipping trends in the Central Valley. Trips linked to California port complexes are primarily served by over the road (OTR) trucks, due to the relatively short hauling distance involved. Freight trips by rail are primarily through the County, rather than within its borders.

The project goals focus on the following elements:

1. Proposing roadway improvement projects that improve goods movement and connectivity (such as truck lanes, and off-ramp improvements)
2. Proposing future truck-related capital improvements through 2035
3. Developing alternative truck routes that may be necessary in the future
4. Provision of overall data and information analysis results that serve to inform a future goods movement strategy for the San Joaquin Valley
5. Determination of impacts on goods movement of transportation projects in the region.

The following is a summary of the key goods movement characteristics of Kern County summarized within this report, and the major findings of the project ranking analysis.

Goods Movement Patterns

SR-99

Outbound trucks typically either follow SR-99 north or south or use east-west state highways to access I-5. Inbound trucks either use SR-99 from the north or south or use one of the east-west routes to access the population centers from I-5.

SR-58

This route is used as a primary route for shipments, usually to the eastern areas such as San Bernardino and Riverside Counties. It is also used as an alternative to I-5 over the Grapevine during storms, and as a preferred alternative to I-10 and I-210 for shipments to eastern Los Angeles County when traffic congestion slows the Los Angeles County east-bound routes.

Between SR-99 and I-15, truck traffic constitutes a relatively large percentage of total traffic. Vehicle classification count results indicate that the truck percentages of total vehicle volumes range between 30% and 40%, depending on the segment. This is likely due to overall lower passenger vehicle volume within this portion of the corridor, but also due to the relatively high volume of freight truck trips between the Central Valley and areas to the east including national destinations/origins.

Truck trips using SR-58 are almost always part of a through trip to or from somewhere else, usually a good distance away. There very few trips that originate or terminate within five miles of SR-58. There are few customer locations on SR-58 itself to pickup or deliver shipments due to the limited population and industrial base.

SR-65

SR-65 serves local freight customers between Bakersfield (and points beyond) and Porterville (but not points beyond). The highest volumes of trucks were located between 7th Standard Road and Lerdo Highway. Any through traffic to/from points north of Porterville would tend to use the parallel route of SR-99.

Other east-west routes (SR-223, 166, 119, 46):

These routes carry through truck traffic, with relatively few on-route customers. They can be used as discretionary alternatives to SR-58, which is the primary east-west route through Bakersfield. The local customers are primarily agricultural in nature.

SR-46 and SR-166 are used to access the coastal region to the west of Kern County. In particular, SR-46 serves Monterey and San Luis Obispo Counties and SR-166 serves portions of San Luis Obispo and Santa Barbara Counties. A larger proportion of the trucks on these routes are refrigerated trucks due to the nature of the commodities that originate in these counties. Many of the refrigerated trucks operate either empty or with dry freight westbound. Many of these trucks will operate on continuous trips through the night and on the weekends due to the distances involved. This pattern also has to do with the urgency associated with refrigerated shipments.

Goods Movement Trends

Projected growth rates for interstate freight flows of 2.8% are somewhat higher than for the intra-regional flows, reflecting state and national demand for goods produced in the region. Similar to data for inbound flows, some outbound commodities flows are expected to decline.

The growth potential for commodities shipments is predominantly very moderate, averaging only 1.8% annually between 2010 and 2040. Somewhat higher growth rates are projected for agricultural outputs and for mixed freight, which would include most consumer goods. Similar to the inbound and outbound flows, certain commodities will decline in related flows.

In recent years, less than truckload (LTL) trucking and truck and air parcel delivery have grown quickly in response to increased on-line shopping by both individuals and businesses. In the long run, the growth of transportation relative to economic activity measured as Gross Domestic Product (GDP) will be moderated by the trend toward smaller and lighter goods by the increased cost of fuel, and by the growth of the services sector relative to farming, construction, resource extraction, and manufacturing.

Going forward, recovery is estimated to be slow and uneven without the sharp extended rebound that has characterized some previous recessions. The growth in intermodal container trade is not expected to experience sizeable increases until the year 2014.

Kern County is currently expected to add jobs at a faster percentage rate than either the State or the nation. CDOF forecasts call for 3.9% near-term annual growth in Kern County jobs versus 3.7% for the State and 2.6% for the nation. After 2012, Kern County is expected to lag the state but still add jobs faster than the U.S. as a whole.

The projections suggest the following:

- A recovery of lost construction jobs by 2015, with slight growth thereafter
- Growing employment in the wholesale and retail trade sector
- Stable employment levels in farming and manufacturing

The range of 2.3% to 3.1% therefore defines a reasonable estimate for likely growth in Kern County truck and overall goods movement activity.

Regional Planned Roadway Improvements

A total of 55 identified projects – on the I-5, SR-46, SR-58, SR-65, SR-99, SR-119, SR-155, SR-178, SR-184, and SR-223 facilities – were identified by segment, based on an inventory of all planned highway and freeway capacity improvement projects.

The Thomas Roads Improvement Program (TRIP) incorporates a multi-stage program that would address the key goods movement issues in the SR-58 corridor. Phase 2 of the Westside Parkway project will create a high-capacity route between the Mohawk Street Extension (which was Phase 1) and Allen Road. The development of the Westside Parkway into an alternative truck route between SR-99 and I-5 will require connections at both ends.

Stakeholder Input

The project team and Kern COG staff met with local trucking fleet managers at the Kern COG offices on May 16, 2012. The focus of the meeting was to achieve an understanding of the major trucking routes used by these fleet operators, share what the team learned from data collection and analysis, and get input on where priority improvements should be implemented. These locations were mapped and documented in a project list provided within this report.

Ranking Results

Planned projects were evaluated using the following criteria:

- Year 2035 Level of Service (LOS) of E or F w/o Improvement
- Year 2035 LOS improved to D or Better with improvement
- Percent truck growth > 20% by 2035
- Within five miles of major new commercial/ industrial
- Desired as priority by stakeholder group

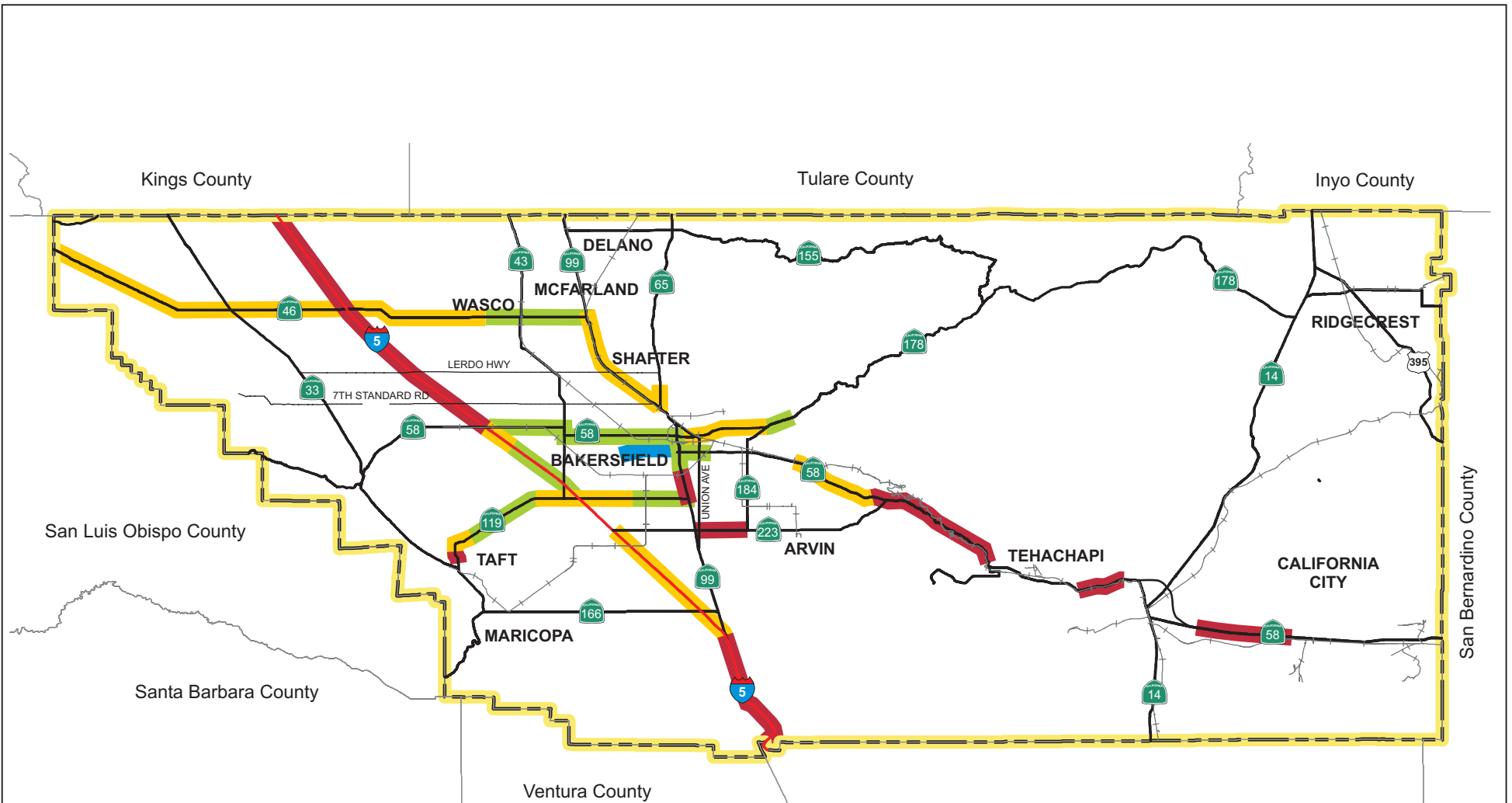
The results indicate the following two projects should be considered for priority implementation, with the high ranking (five points) resulting from the analysis summarized in the matrix.

- SR-58 – From I-5 / SR-58 junction to 0.3 miles west of Allen Road
- SR-58 – From Union Avenue to Cottonwood Road

The following improvements were also provided a ranking of “high”, based on the evaluation matrix, but with an overall value of four points:

- One improvement project on SR-178
- Two other improvement projects on SR-58
- Five improvement projects on SR-119
- One improvement project on I-5
- Two improvement projects on SR-99
- Two improvement projects on SR-184

Figure ES-1 provides a map of the locations of the ranked projects.



LEGEND

- Project Ranking - High
- Project Ranking - Medium
- Project Ranking - Low
- Centennial Corridor

1.0 Introduction

The Kern Council of Governments (Kern COG) commissioned KOA Corporation, in concert with the Tioga Group, to prepare a Goods Movement Strategy that would identify the potential need for future capital improvements, and also identify Information pertinent for inclusion in the San Joaquin Valley goods movement strategy.

In order to identify and evaluate improvements and/or strategies, several tasks were undertaken, which included collecting data and reviewing previously conducted studies, understanding future traffic and development trends, and determining the capital projects that would be most beneficial to goods movement flows.

This chapter provides an overview of the Strategy's purpose and need, analysis methodology, and literature review/background information.

1.1 Purpose and Need

Kern County plays an instrumental role in goods movement on a local and regional level. Because trucking is the most commonly used mode of transporting goods, the freeways/highways and the local road system within the Kern County region are the primary components of the freight infrastructure. The roadways are subjected to higher levels of roadway deterioration due to the high volumes of truck traffic that traverse the various north-south and east-west corridors.

The objective of this Goods Movement Strategy is to gain a general understanding of freight transport in Kern County and identify and evaluate future improvements to the goods movement system, particularly for truck routes, projected to year 2035 utilizing growth in freight demand, traffic volumes, logistics trends, and planned improvement projects. Information gained from this process will be used in the development of future project activities and planning efforts in the region.

1.2 Methodology

This document is the culmination of data collection and review for numerous freeway and highway facilities in the region. The final analysis steps summarized in this document include a ranking of projects deemed beneficial to truck movements within the region and to and from points outside of Kern County. The overall analysis, culminating in that ranking element, was based primarily on the following compiled data source types:

- Total truck volumes by segment
- Truck volumes, as percentages of total vehicle volumes
- Truck trip distribution, based on direct operator and phone-based fleet manager surveys
- Kern COG regional traffic model growth estimates
- Kern COG area land use plan summaries and projections
- Caltrans future level of service calculations, with and without planned projects

The applied data sources, which are based on previous area truck studies, available traffic model data, and collected and summarized Caltrans traffic data and estimates, are not comprehensive. For some previous studies, for example, truck trip distribution patterns were not as clearly defined as in other studies, due to limitations in viable surveying locations on some routes. Data from the SR-58 corridor

study, for example, lacks direct truck driver field surveys due to the physical limitations in conducting such surveys along the route.

The overall review of previous area truck-related studies, plus other related studies, is discussed below.

1.3 Literature Review

The KOA team conducted a review of all goods movement documents and reports completed regionally and throughout the State to collect information that relates to goods movement in Kern County. A total of 25 studies were reviewed for this purpose. In general, the studies provide historical and statistical information that includes goods movement trends, traffic counts, level of service, and planned roadway improvements, which assisted in the understanding of future goods movement trends.

This information was used as part of the process to formulate needed enhancements to freight travel through the region. Additional freight studies were incorporated for their background context as they relate to goods movement, but they do not necessarily have direct geographic relevance to Kern County.

The sub-sections below are organized in the following manner:

- Transportation Planning Studies – This section contains 17 studies.
- Kern County Goods Movement Studies – This section contains four studies.
- General Freight Studies – This section contains two studies.
- Goods Movement Action Plans – This section contains two studies.

1.3.1 Transportation Planning Studies

Draft 2011 Federal Transportation Improvement Program, (Kern COG, 2010).

The Federal Transportation Improvement Program (FTIP) establishes a five-year term for programming capital improvement projects based on a project priority list and a financial plan. These projects are compiled based on the State Transportation Improvement Program (STIP), the State Highway Operations and Protection Program (SHOPP), transit programs, and other federal-aid programs.

Draft Grade Separation Prioritization Report (Kern COG, March 2011).

This report identified and prioritized at-grade roadway-rail crossings in Kern County. The prioritization of these railroad crossings was conducted to focus on projects that would provide the greatest benefit for the County with regard to traffic improvements, freight and passenger movement, and safety. A list of the top 40 crossings were developed with priority levels of high (13 crossings), medium (10 crossings), low (eight crossings), and other (nine crossings).

Draft Metropolitan Bakersfield General Plan Update: Existing Conditions, Constrains, and Opportunities Report – Circulation Element, (Kern County and City of Bakersfield, April, 2009).

This draft report highlights issues, challenges, and recommends changes to the existing General Plan for consideration during the update. There are issues that may pose challenges to area growth and development, while there are challenges that provide opportunities for capitalizing on existing or future conditions or trends. The recommendation within this report will be used to assist in the creation of new or updated goals within the General Plan update. The study findings included potential revisions to existing City truck routes and recommendations for participation in City and County route alignment, travel demand studies and interchange studies in conjunction with Caltrans and Kern COG.

Draft State Route 99 Interchange Feasibility Study, (Kern COG, Caltrans, City of McFarland, and Kern County, October 2011).

The purpose of this study was to evaluate future SR-99 interchange needs within the City of McFarland. Based on the project objective, two master plans were developed for the area which included 23 build alternatives for up to six interchanges. Caltrans has determined one scenario to be favored with four preferred build alternatives. Funding sources, however, have yet to be identified.

Eastern Sierra Corridor Enhancement Program, US-395 & SR-14 Corridors in Kern, Inyo, and Mono Counties, (Kern COG, Inyo County Local Transportation Commission, Mono County Transportation Commission, Caltrans, February 2010).

This corridor management plan provides a vision for aesthetic enhancements to US-395 and SR-14. The plan was a public/private partnership taking into account the relationship of the corridor to the surrounding communities. The US-395 between the community of Johannesburg and the Inyo County border was included as part of the study area within Kern County.

Freight, Rail, and Infrastructure of Kern County, (Kern COG, July 2011).

This study describes current freight, rail, and transportation infrastructure in Kern County and the feasibility of potential transfers of current truck loads to rail cars for long-haul goods movement from California to regions outside of the state. The report describes the potential for the creation of a County policy for a truck to rail transfer framework.

Greater Tehachapi Area Circulation Study, (Kern COG, City of Tehachapi, August 2004).

The purpose of the study was to identify existing and future circulation and transportation issues within the Greater Tehachapi Area. This study summarizes the existing average daily traffic volumes and the projected future traffic volumes for the area. The study recommends future improvements that include signalization of selected intersections and street improvements.

Kern County General Plan - Circulation Element, (Kern County, 2000).

The purpose of this general plan element was to identify existing conditions to be utilized in the development of guiding policies for future implementation of the circulation system. The circulation element focuses on specific areas where staff expects that transportation deficiencies exist or will occur in the future. The study findings related to truck operations included recommendations to start a program to monitor truck traffic operations, monitor truck lane pavement condition, and consideration for adding weigh stations on SR-46 near Keck's Corner and SR-166 near City of Maricopa.

Kern County Rail Study, (Kern COG, February 2011).

The Kern County Rail Study provides comprehensive background information pertaining to railroad operators and their railroad lines. This study includes a discussion on both Class I (large freight railroads) and short lines (small distance railroads); however, the main focus is on the short lines. The information that was collected included: operators, their lines, and line characteristics (ownership, rights-of-way width, train volumes and lengths, operating rights, and train speeds/track classes).

2011 Regional Transportation Plan, (Kern COG, 2010).

The Regional Transportation Plan is a 24-year plan that establishes regional transportation goals, objectives, policies and actions that are utilized as a guide in the development of future multimodal transportation systems in Kern County. The Plan contains a Freight Movement Action Element that discusses existing conditions and future needs. Strategies included better involvement and communication between freight stakeholders, possible public private partnerships, and infrastructure improvements.

Route 99 Corridor Business Plan, (Caltrans District 6 and 10, September 2009).

The Route 99 Business Plan is comprised of three volumes: (1) Route 99 Updated Business Plan; (2) Financial Program; and (3) Appendices. The main goal of the plan is to serve as a guide for decision makers as they develop the corridor by providing background information on Route 99 and the financing of transportation improvements in the region.

Route 99 Corridor Enhancement Master Plan, (Caltrans, 2005).

This master plan is a companion document to the *Route 99 Corridor Business Plan*. This document is intended to promote utility in landscape and structural aesthetics along with capacity and operational needs for both public and private stakeholders along Route 99, from Kern County in the south to Sacramento County in the north.

San Joaquin Valley Growth Response Study, (Caltrans District 6, January 2002).

This study was conducted in three phases to research innovative strategies for the promotion of smart growth principles within the eight counties in the San Joaquin Valley region. Phase I addressed smart growth from a state perspective. This was followed by Phase II which defined the development of the planning toolbox as a guide towards sustainable growth. Phase III documented the demonstration of the planning toolbox in two jurisdictions in the region.

State Route 58/223 Interchange Feasibility Study, (Kern COG and Kern County, August 2011).

The purpose of this study was to evaluate future capacity needs at the SR-58 and SR-223 interchange in central Kern County. This interchange is currently operating with safety deficiencies and is not in line with the route concept designated for this facility. The objective of the study was to determine the feasibility, costs, and project timeframe of replacing the SR-58/SR-223 interchange.

Status of Projects, Central Region, District 6, (Caltrans, November 2011).

This Caltrans District 6 document provides a detailed list of transportation projects and their current status and schedule.

Transportation Concept Reports, (Caltrans, various dates).

Transportation Concept reports are long-range (20 year) system plans that document the current and projected operations and planned roadway improvements for a particular State route studied. The routes within Kern County include: I-5, SR-14, SR-33, SR-43, SR-46, SR-58, SR-65, SR-99, SR-119, SR-155, SR-166, SR-178, SR-184, SR-223, and SR-395.

US-395 Corridor Study I-15 to SR-14, (Caltrans District 6, 8 & 9, FHWA, SCAG, SANBAG & Kern COG, January 2002).

The purposes of the study were to identify a viable strategy for converting US-395 from a conventional highway to an expressway/freeway, identify multi-modal options for improving transportation efficiency, improve goods movement, define right-of-way needs based on an ultimate transportation configuration and identify transportation issues and support from communities located along the route. The findings of the study indicate that US-395 should be upgraded to a freeway/expressway.

[1.3.2 Kern County Goods Movement Studies](#)

Goods Movement Study for US-395 Corridor, (Caltrans District 9, June 2006) – conducted by KOA Corporation.

The purpose of the study was to identify goods movement travel patterns along SR-14, US-395, and US-6, to identify the type of goods and modes of transportation within the corridor, and to develop a better understanding of goods distribution between Southern California and Northern Nevada. The goods movement study included tasks specifically designed to meet the goals and objects of the study: conducting truck classification/axle count surveys, conducting truck driver intercept surveys/interviews, conducting local and regional fleet operator surveys/interviews, and documenting the findings. The findings of the study included goods distribution patterns and truck volume data within the US-395 Corridor.

I-5/SR-99 Origin and Destination Truck Study, (Kern COG and Caltrans, October 2009) – conducted by KOA Corporation.

The purpose of the study was to compile statistical information on the origin and destination of trucks traveling along I-5/SR-99 within Kern County. The study's goal was to provide a better understanding of the directional truck distribution and types of cargo being transported in the region, for utilization in future planning efforts. There were three major data collection tasks involved in the project - vehicle classification counts, truck intercept surveys, and commercial fleet operator surveys.

SR-58 Origin and Destination Truck Study, (SANBAG, Kern COG, and Caltrans District 6, 8, 9, and Headquarters, February 2009) – conducted by KOA Corporation.

The purpose of the study was to gain statistical information on the origin and destination of trucks traveling along SR-58 in San Bernardino and Kern counties. The study provides an understanding of the directional truck distribution and types of cargo transported in the region for use in future planning efforts. The project tasks included literature review, vehicle classification counts, truck intercept surveys, and commercial fleet operator surveys.

SR-223, 166, 119, 46 & 65 Origin and Destination Truck Study, (Kern COG, January 2011) – conducted by KOA Corporation.

The purpose of the study was to gain information on the origin and destination of trucks traveling along SR-223, SR-166, SR-119, SR-46, and SR-65 within Kern County. Although this study was conducted utilizing an alternative methodology, this study, in conjunction with the previous SR-58 and I-5/SR-99 Origin and Destination Studies, was intended to provide an understanding of goods movement within the County for future planning efforts. Major data collection tasks involved in the project included vehicle classification counts, truck video surveillance, and commercial fleet operator surveys.

[1.3.4 General Freight Studies](#)

California Heavy Duty Truck Travel Survey, (Caltrans, December 2001).

The purpose of the study was to collect truck travel data for selected sites in California. The areas of data included: truck type, direction of travel, distance travel, etc. The study's objective was to develop procedures to acquire and conduct truck travel data. This study also focused on identifying relationships between economic activity and truck travel patterns and collection of data for analysis of commodity flow throughout California. The study recommended that further study and data collection be pursued to develop a reliable/accurate truck model.

Southeast Kern County Regional Fee Nexus Study, (Kern COG, July 2004).

The purpose of the study was to establish a connection between new developments that will occur in the southeast portion of Kern County and the need to improve the roadway facilities. The study summarizes the existing average daily traffic volumes and the projected future traffic volumes. The study recommends some future improvements that include widening of SR-202 near Tehachapi and SR-14 from four lanes to six lanes.

[1.3.5 Goods Movement Action Plans](#)**Goods Movement Action Plan, (Caltrans and California EPA, September 2005 and January 2007).**

The State of California has developed a Goods Movement Action Plan for various agencies to implement in their jurisdiction. The publication of the Administration Goods Movement Policy, “Goods Movement in California,” was established in January 2005. The Action Plan states that it is the policy of the Administration to improve and expand California’s good movement industry and infrastructure, in a manner that will:

- Generate jobs
- Increase mobility and relieve traffic congestion
- Improve air quality and protect public health
- Enhance public and port safety
- Improve California’s quality of life

The State Goods Movement Action Plan was developed in two phases. The purpose of Phase I was to gain information on the “why” and “what” of goods movement in California. The specific topics included: (1) goods movement industry and its growth potential; (2) four “port-to-border” transportation corridors - constitute the state’s goods movement backbone - and the associated planned/under construction infrastructure projects; (3) extent of environmental and community impacts and a description of their related mitigation measures; and (4) key aspects related to public safety and homeland security.

Phase II focused on goods movement related to capacity expansion, public health and environmental/community impact mitigation, and security/public safety enhancements. This information was about the “how,” “when,” and “who” required for these efforts.

San Joaquin Valley Regional Goods Movement Action Plan, (Fresno COG, Kern COG, MCAG, StanCOG, TCAG, SJCOG, KCAG, Madera County Transportation Commission and Caltrans, 2007).

This action plan addressed the San Joaquin Valley region and issues related to the goods movement system, commodity flow analysis, air quality, and provided a goods movement strategic action plan for the region. With forecasts showing continued growth in trucking within the San Joaquin Valley Region, infrastructure within the region will need to be upgraded and built to deal with future growth and air quality issues. Strategies included highway improvements along SR-99 and east-west routes, and multi-modal concepts which included short haul rail and short sea shipping.

1.4 Details of the Origin and Destination Studies

The following studies, which were summarized briefly in Section 1.3.2, were produced by KOA for Kern COG, Caltrans, and SANBAG, depending upon the study location. The SR-58 and the SR-99/I-5 Origin and Destination Truck Studies used three main data collection tasks: vehicle classification counts, truck intercept surveys and commercial fleet operator surveys. The U.S. 395 Corridor study conducted driver and operator surveys, but did not complete detailed vehicles classification counts and surveys. For the SR-223, 166, 119, 46 & 65 Study, it was not possible to detour trucks from the roadway. Therefore, the following collection tasks were based on vehicle classification counts, video surveillance, and commercial fleet operator phone surveys.

An overarching objective of the review of these studies was to gain statistical information on the origin and destination of trucks traveling through Kern County, and to better understand the types of cargo being transported by trucks as such data relates to the locations of industries and corridor characteristics.

1.4.1 Key Kern County North-South Corridors

Interstate 5 (I-5) and State Route 99 (SR-99) are the major north-south truck routes in the region. This is due to the north-south orientation of the Central Valley and its geographic location between the major producing and consuming markets of the San Francisco Bay Area and the Southern California Region. These routes were studied in the *I-5/SR-99 Origin and Destination Truck Study*.

In addition to these major truck routes, SR-65 was studied as part of the *SR-223, 166, 119, 46 & 65 Truck Origins and Destinations Study*. This route, which is located to the east of SR-99, provides interregional connectivity.

SR-99/I-5 Origin & Destination Truck Study

This study focused on the I-5/SR-99 corridors, which together link the Los Angeles Basin with the Central Valley. KOA conducted vehicle classification counts, truck intercept surveys, and fleet operator surveys that identified freight movement patterns and truck trip origins/destination. The surveys were conducted for both the fall and spring periods to identify variations due to seasonality.

The SR-99 and I-5 facilities both have high proportions of truck traffic, with truck constituting as much as 40 percent of the total traffic volumes on the I-5 corridor. The I-5 facility is considered to be the backbone of California's highway system, providing the Kern County region with connections to interstate and international transport origins and destinations, as described by the California State Action Plan. In general, I-5 is the favored route for truck movements through the State (e.g. between the Bay Area and Southern California). I-5 is preferred for longer trips over other parallel routes due to faster speeds, less congestion, and greater safety. However, respondents in the 2009 Kern COG study that focused on these corridors mentioned that pavement conditions on I-5 in Kern County were deteriorated.

Although I-5 is generally considered of more importance for goods movement transport in the Central Valley, SR-99 serves a more important role in trade origins and destinations. Almost all the goods movement origins and destinations are located in the population centers along SR-99. SR-99 is therefore the preferred route, and the only practical route, for truck service *within* the Kern COG

region. SR-99 is an older, more congested route with portions of legacy construction. Large portions of SR-99 are limited access, with Caltrans planning initiatives to further convert SR-99 into a full limited-access freeway. For much of its length it is two lanes in each direction, which can cause congestion in the busier Bakersfield metro area and where the three-lane sections narrow. There are also a number of older interchange, on-ramp, and off-ramp locations that are difficult for large modern trucks to negotiate.

As Figure 1 illustrates, the major inbound flows from the south come from Southern California (roughly half), the Central Coast, and from other states (via I-40/SR-58 or I-10/I-5). More than half of the northbound truck trips are destined for points within the San Joaquin Valley. The other major northbound destinations are the SF Bay Area and other states.

Figure 2 illustrates the related southbound flows. Almost 60% come from within the San Joaquin Valley, with the other major sources being the Bay Area and other states. The outbound trips are mostly destined for Southern California, the Central Coast, and other states. The major commodity shipped in the corridors is food/related products, at 21% of total freight flows.

Figure I: Major Northbound Flows on I-5/SR-99

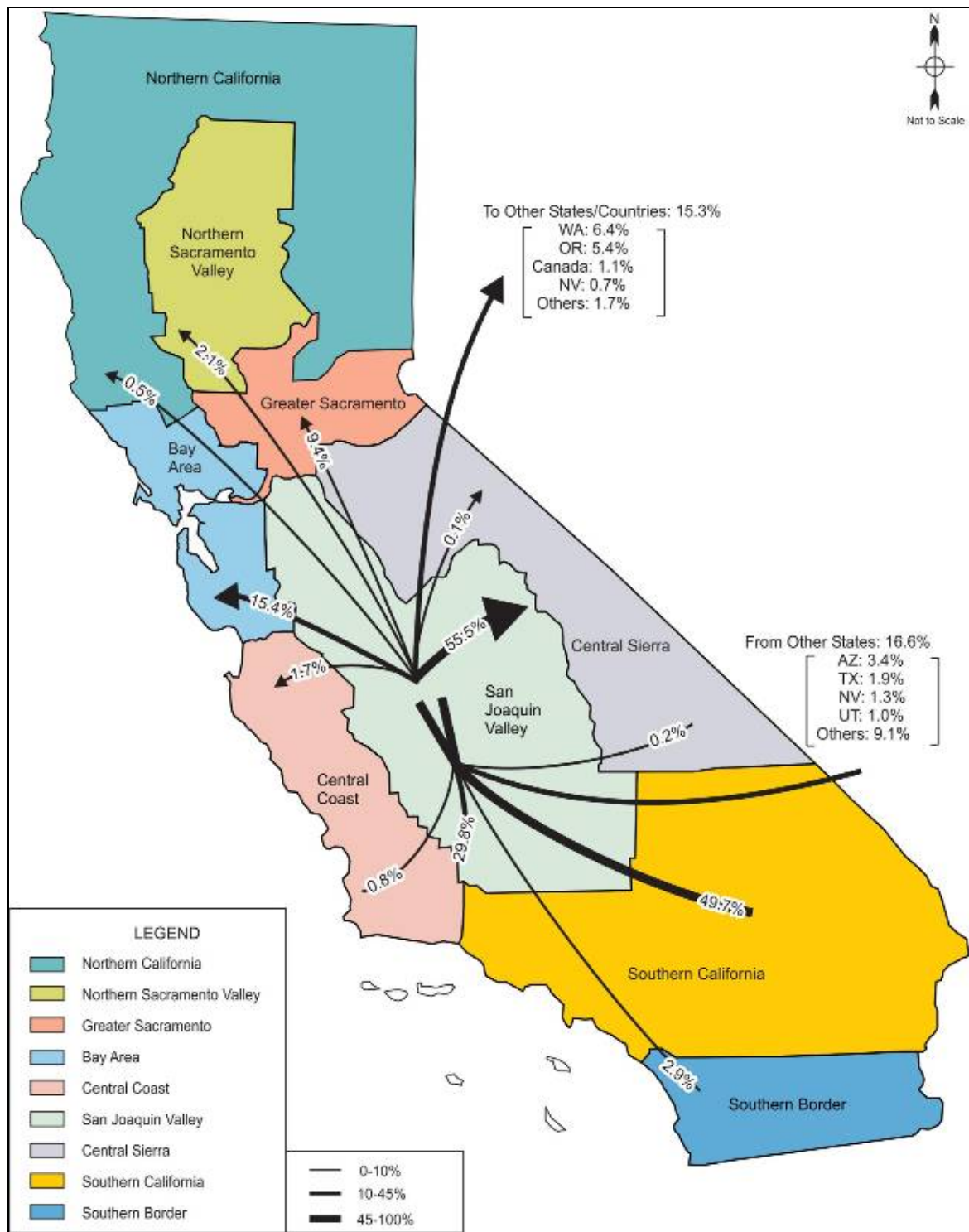
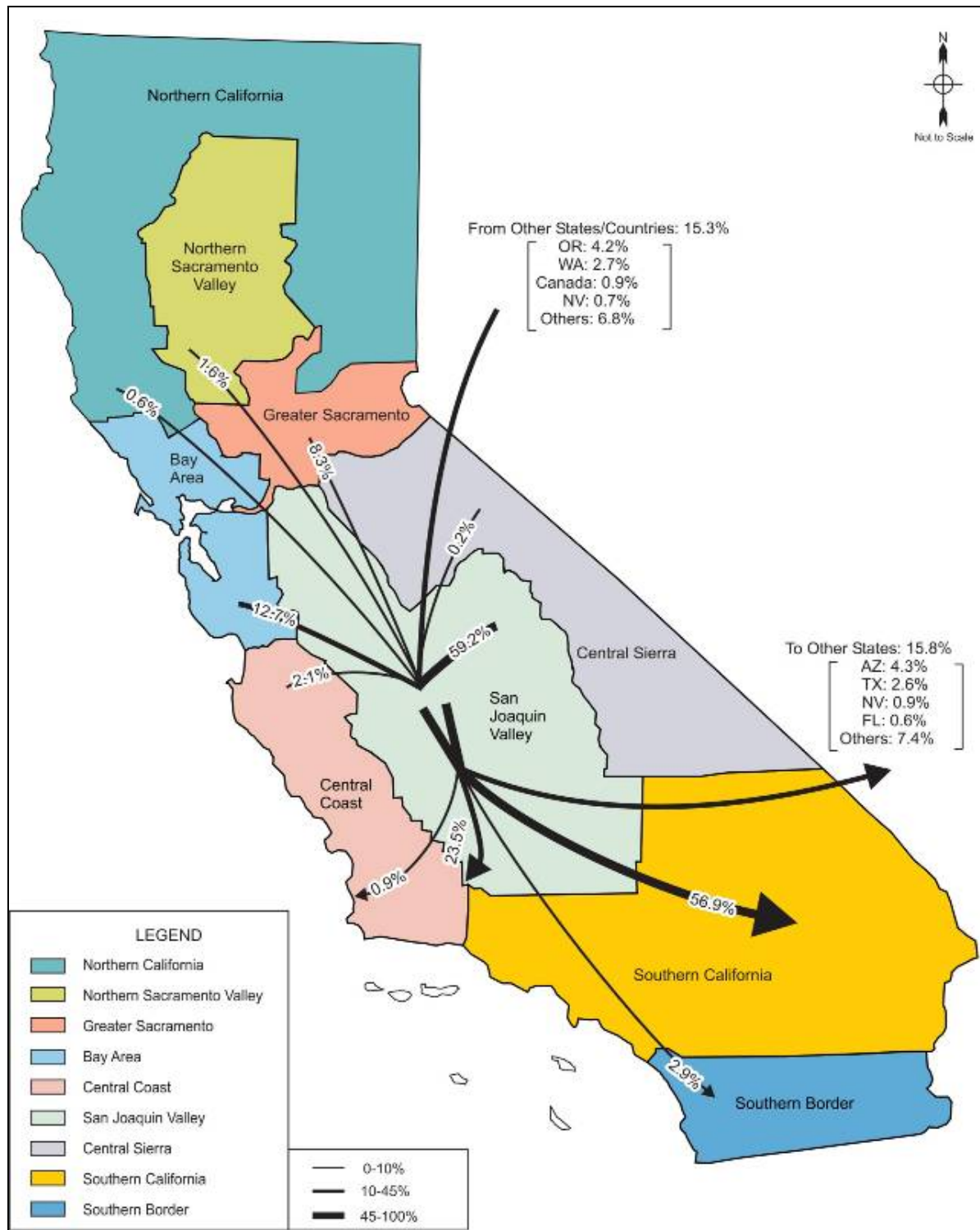


Figure 2: Major Southbound Flows on I-5/SR-99



SR-223, 166, 119, 46 & 65 Origin & Destination Truck Study

The orientation of SR-65 is north-south (SR-65 provides connections from its junction with SR-99 to the north of Bakersfield, to the northern Kern County line). The remaining study corridors included in this study are primarily east-west routes that serve as interregional connectors within the County. Due to the rural locations and geographic conditions, this presented a data collection challenge, as the more traditional truck intercept surveys that were previously applied could not be conducted.

An alternative method of collecting data was used for this study, through the application of video surveillance. Images were collected of all vehicles traveling in both directions at the study locations during daylight hours, and were supplemented by vehicle classification counts. The analysis effort focused on general origin and destination trends dependent on separate interviews that were undertaken with trucking companies observed to be using the study routes or third party shipping and logistics operators.

The primary findings of this study were that that relative to the number of truck trips on I-5 and SR-99, each of the study routes handles much lower truck traffic volumes. SR-223 is the main outlet for products from the Lamont, Arvin and Edison areas. SR-119 has a greater proportion of traffic related to the petroleum industry than any other of the study routes. SR-166 near Maricopa also has some petroleum-related traffic.

SR-46 and, to a lesser extent SR-166, have relatively less local truck traffic and relatively more through truck traffic. SR-65 does not operate as an east-west bypass of the City of Bakersfield, due to its location at the northern end of the metro area. Truckers use SR-65 primarily as a way to get to customers located near that route, rather than as a through route.

Goods Movement Study for US-395 Corridor

This study for this corridor, on US-395 between SR-14 and US-6 in the Eastern Sierra region, was conducted for District 9 of the California Department of Transportation, and included vehicle classification counts for a one-week time period, truck intercept surveys in the City of Bishop, and operator surveys. The project identified goods movement through the corridor including types, routes, frequencies, type of trucks and origin/destination. The study also identified seasonal impacts on truck traffic.

The primary findings of this study were that to the south of Ridgecrest, almost all truck drivers on through routes use US-395. Almost all study survey respondents were commercial carriers, and virtually all reported that October through December is the peak period and January and February the off-peak for travel in this corridor.

1.4.2 Key Kern County East-West Corridors

This section highlights the critical importance of some of the east-west corridors which include SR-223, 166, 119, 58 and 46. These corridors are generally utilized by local/service trucks with the exception of SR-58 which is a major east-west trucking route between San Bernardino County and the Central Valley.

Figure 4: Eastbound Truck Flows on SR-58

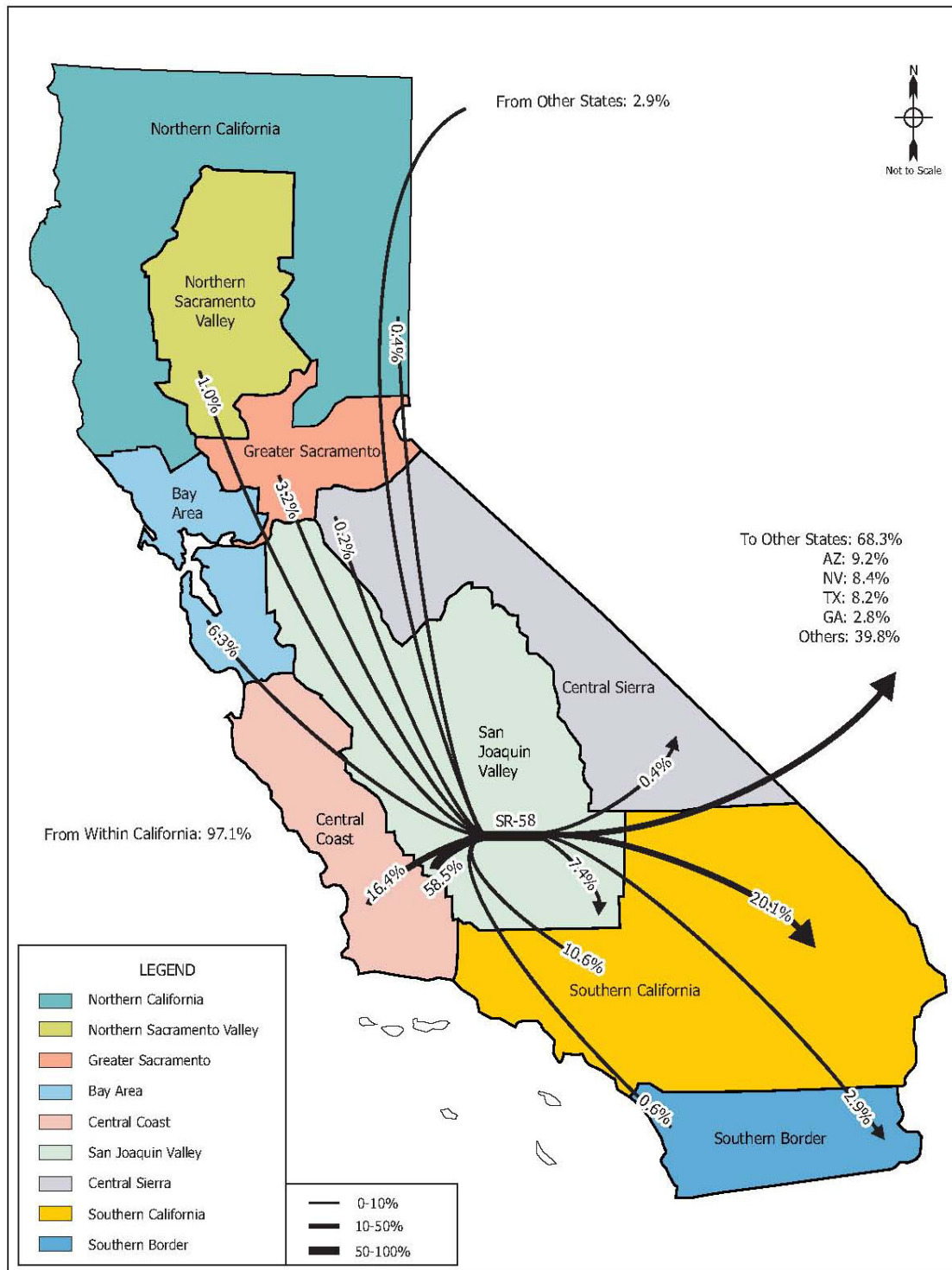
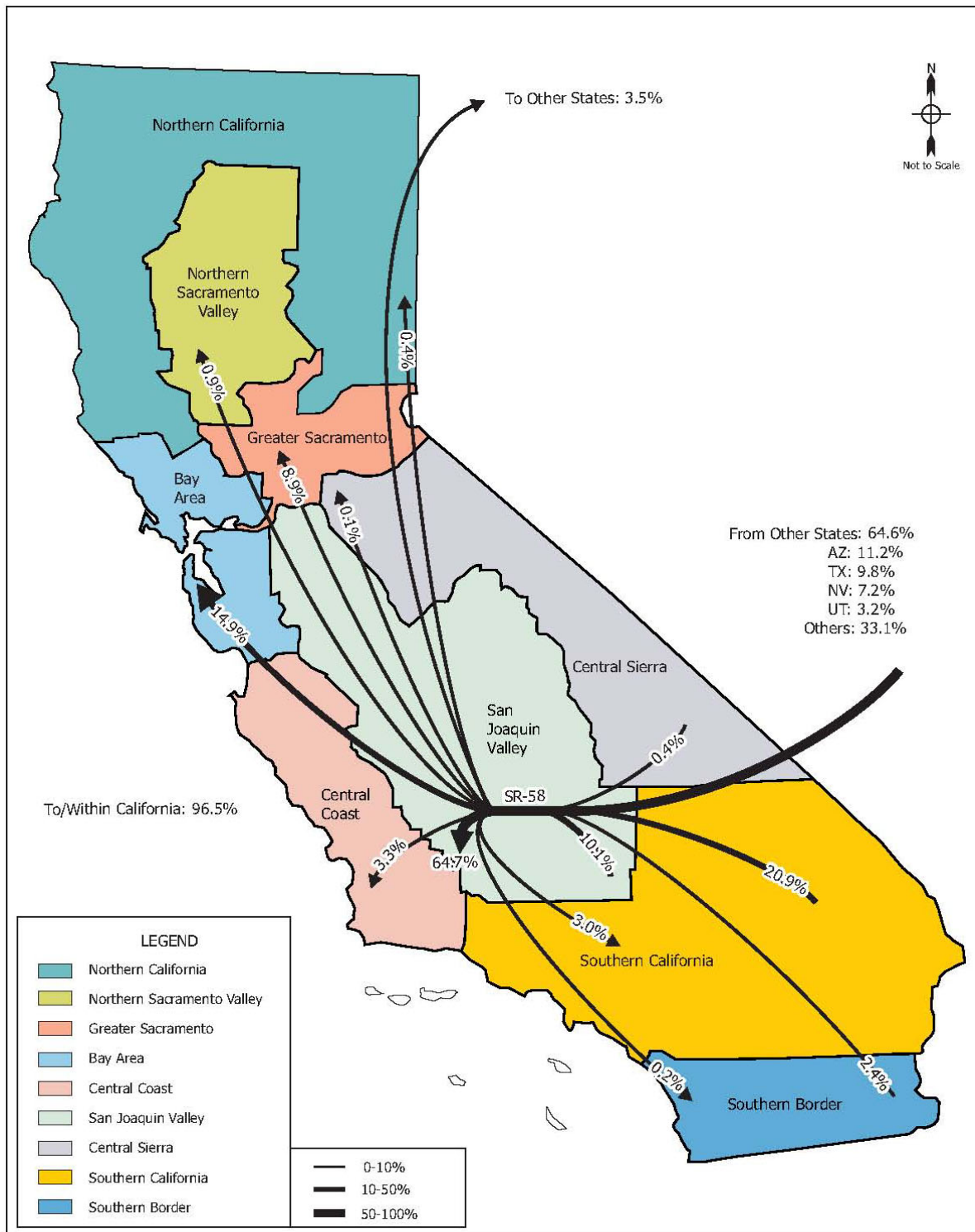


Figure 5: Westbound Truck Flows on SR-58



Within the study area, State Route 58 provides regional east-west mobility between Bakersfield and Barstow and also serves the cities/communities of Boron, Hinkley, Mojave, Tehachapi and the Edwards Air Force Base.

SR-58 has unique cross-sectional characteristics, as compared to other regional highway and freeways in Kern County. The following are the varied characteristics of segments of this facility in Kern County:

- I-5 to SR-99 – two to four-lane conventional highway
- SR-99 to SR-223 – four-lane freeway (a sub-section is six-lane freeway)
- Near SR-223 – four-lane expressway.
- SR-223 to SR-14 – four-lane freeway (a sub-section is four-lane expressway)
- SR-14 to US-395 – four-lane freeway (a sub-section is four-lane expressway)
- Near US-395 – two-lane conventional highway
- East of US-395 – four-lane expressway

2.0 Kern County Regional Truck Network

2.1 Interstate and State Route Characteristics

The highway and local road system is the primary freight infrastructure for the Kern COG region, and trucking is the dominant freight mode. This dominance is particularly important for local and regional freight movements, which are essentially all carried by truck. Rail is a significant mover of goods for interstate shipments and national links to California ports, but for intra-state and local freight movements, a majority is carried by truck.

Regional freeways and state highways in Kern County include the following:

- Interstate 5
- State Route 14
- State Route 33
- State Route 43
- State Route 46
- State Route 58
- State Route 65
- State Route 99
- State Route 119
- State Route 166
- State Route 178
- State Route 223
- United States Highway 395

Figure 6 illustrates the geographic extents of the County of Kern, and the locations of these major roadway facility corridors. The typical number of lanes and facility type is also indicated on the figure.

2.1.1 Interstate 5

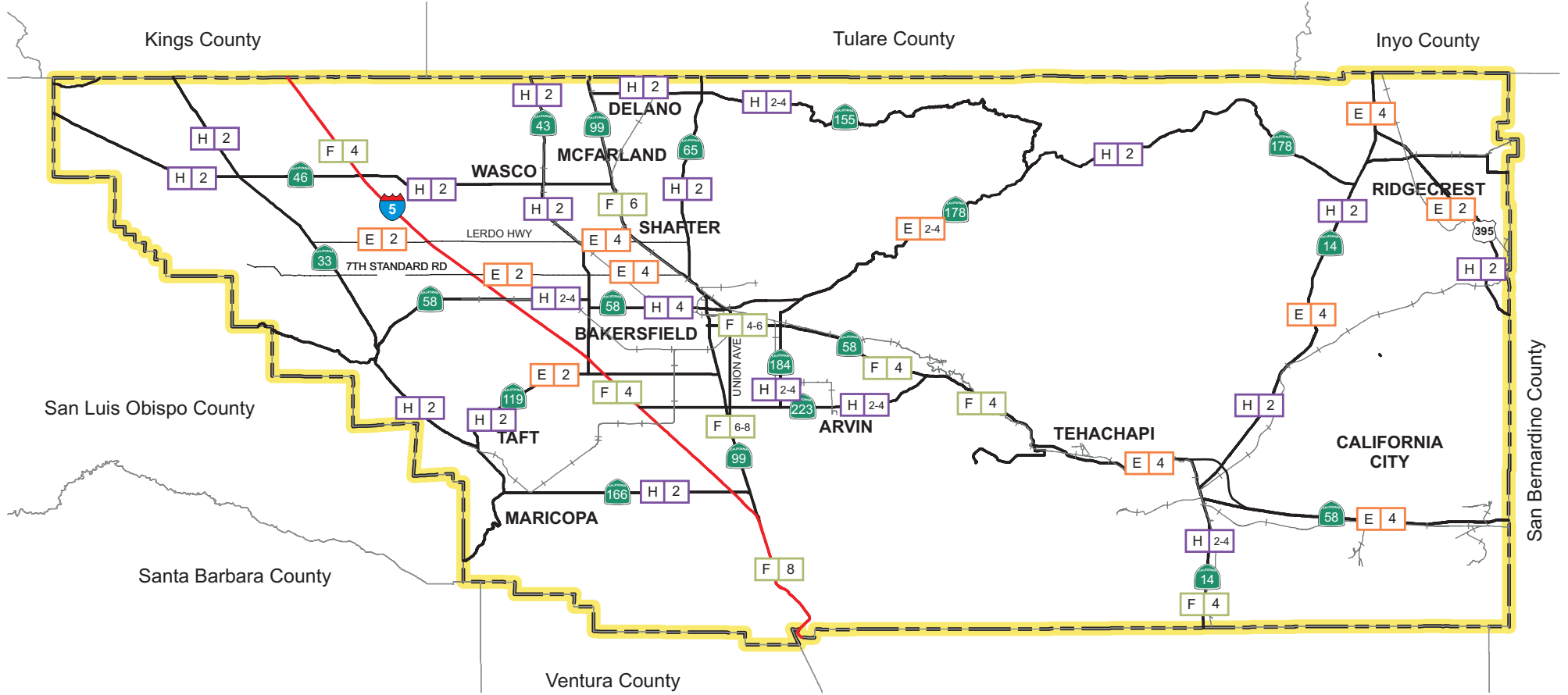
Interstate 5 (I-5, West Side Freeway) is a north-south facility that traverses the west coast of the United States between California and Washington. It traverses Kern County between Lebec on the south and Lost Hills on the north. Within Kern County, the I-5 is generally a four-lane freeway. The truck traffic tends to be long-haul as the facility connects all major east-west routes throughout the state.

2.1.2 State Route 14

California State Route 14 (SR-14 – Midland Trail/Antelope Valley Freeway/Sierra Highway) is a north-south highway that provides access its southern junction with the I-5 near Sylmar in Los Angeles County, to its northern junction with the US-395 near Ridgecrest in Kern County. The route has a length of approximately 120 miles. Within Kern County, the north-south SR-14 is a primarily a four-lane highway. The truck traffic tends to be long-haul, with trips destined for the Owens Valley and beyond.

2.1.3 State Route 33

California State Route 33 (SR-33 – Westside Highway) is a north-south highway that provides access from Ventura and Ojai on the south to Tracy on the north, along approximately 300 miles of road within the counties of Ventura, Kern, Kings, Fresno, Madera, and Merced, with a northern terminus near Tracy in San Joaquin County. Within Kern County, the SR-33 is primarily a two-lane highway. The truck traffic tends to be local as it is serving local customers and other parallel routes are used for long-haul trips.



LEGEND

Freeway, Number of Lanes	F 1
Expressway, Number of Lanes	E 1
Highway, Number of Lanes	H 1

[2.1.4 State Route 43](#)

California State Route 43 (SR-43 – Central Valley Highway) is a north-south highway that provides access from Bakersfield on the south to the towns of Shafter, Wasco, Hanford, and Selma in Fresno County on the north, along approximately 100 miles of roadway. Within Kern County, the SR-43 is primarily a two-lane to four-lane highway.

[2.1.5 State Route 46](#)

California State Route 46 (SR-46 – Paso Robles Highway) is an east-west highway that provides access from the Central Valley to the Central Coast of California (Monterey and San Luis Obispo counties) along 118 miles of roadway. The route has its west terminus at SR-1 (south of Cambria) and its east terminus at SR-99 (in Famoso).

Within Kern County, the east-west oriented SR-46 is approximately 58 miles long and serves the communities of Lost Hills, Wasco, and Famoso. SR-46 is a two-lane highway within the study area. Grade separations are provided at the interchanges with I-5 and SR-99. The route is primarily bordered by oil fields to the west of Lost Hills. To the east of Wasco, the area is primarily agricultural.

[2.1.6 State Route 58](#)

California State Route 58 (SR-58 – Rosedale Highway/Bakersfield Tehachapi Highway/Mojave-Barstow Freeway) is an east-west highway serving the southern San Joaquin Valley Region. It provides connection between US-Route 101 (near Santa Margarita) and I-15 (near Barstow). Prior to 1964, this route was designated as U S Route 466 between Bakersfield and Barstow. Between US-Route 101 and east of State Route 33, SR-58 was designated as State Route 178.

SR-58 is a westerly extension of I-40 Freeway near Barstow. Within the study area, State Route 58 provides regional east-west mobility between Bakersfield and Barstow and also serves the cities/communities of Boron, Hinkley, Mojave, Tehachapi and the Edwards Air Force Base. SR-58 is a two to four-lane conventional highway between I-5 and SR-99. The section between east of SR-99 and SR-223 is classified as a four-lane freeway, within this section, part of SR-58 is a six-lane freeway. Other sections are four-lane expressways (such as near SR-223) or are four-lane freeways (such as between SR-223 and SR-14). The section to the east US-395 is a two-lane conventional highway. Figure I-1 illustrates the SR-58 Corridor and its functional classification.

[2.1.7 State Route 65](#)

California State Route 65 (SR-65 – Porterville Highway) is a north-south highway that provides access from Bakersfield to Exeter along 40 miles of road within the counties of Tulare and Kern. SR-65 has its western terminus at SR-99 (in Bakersfield) and its eastern terminus at SR-198 (in Exeter).

Within Kern County, the north-south SR-65 is a two-lane highway in the study area. The truck traffic tends to be local as it is serving local customers between the Bakersfield area and Porterville.

[2.1.8 State Route 99](#)

California State Route 99 (SR-99 – Golden State Highway) is a north-south highway (with freeway

portions through a majority of the area) that provides access from a junction with I-5 on the south at Wheeler Ridge in Kern County to counties to the north and a northern terminus in Tehama County. This California State Highway was formerly part of the US-99 highway route. The former US-99 route to the south of the current southern terminus of SR-99 has been replaced by the I-5 facility.

Within Kern County, the SR-99 is a four-lane to six-lane facility within Kern County. The truck traffic tends to be local and long-haul, as the facility passes through local cities but also connects to multiple counties from north to south.

[2.1.9 State Route 119](#)

California State Route 119 (SR-119 – Taft Highway) is an east-west highway that is 31 miles long and is located entirely within Kern County. SR-119 has its western terminus at SR-33 (in Taft) and its eastern terminus at SR-99 (in Castle Ranch).

SR-119 is generally a two-lane highway or a two-lane expressway. However, a portion of the highway in Taft is a four-lane expressway. Grade separations are provided at the interchanges with I-5 and SR-99. The land uses that border the route include commercial, residential, agricultural, and oil fields. The largest community located on the route is the City of Taft.

[2.1.10 State Route 166](#)

California State Route 166 (SR-166 – Maricopa Highway) is an east-west highway that traverses rural areas. It provides access from the Central Valley to the Central Coast of California along 96 miles of highway within the counties of Santa Barbara, San Luis Obispo, and Kern. SR-166 has its western terminus at SR-1 (in Guadalupe) and its eastern terminus at SR-99 (in Mettler).

Within Kern County, SR-166 is approximately 34 miles long. It is a two-lane highway with a small segment between I-5 and SR-99 where it is a four-lane highway. Grade separations are provided at the interchanges with I-5 and SR-99. The largest community served by the route is Maricopa which is located at the SR-166 and SR-33 junction. Land use along the route is dedicated to agricultural activities, except in the community of Maricopa which is comprised of residential and commercial uses.

[2.1.11 State Route 223](#)

California State Route 223 (SR-223 – Bear Mountain Road) is an east-west highway that traverses rural areas. It provides 30 miles of highway between I-5 (north of Paloma) and SR-58 (near Caliente). SR-223 is generally a two-lane highway; however, a portion of the highway in Arvin is a four-lane highway. Grade separations are provided at the interchanges with I-5 and SR-99. Land use along the route is dedicated to agricultural activities, except in the Arvin which is comprised of commercial, industrial, and residential uses.

[2.1.12 United States Highway 395](#)

United States Route 395 (US-395) is a north-south highway that provides access within the northeast corner of Kern County, from the Ridgecrest area to the Owens Valley to the north (and Nevada) and San Bernardino County to the south. The overall route of US-395 traverses Southern California and the western states, with a southern terminus in Hesperia at a junction with the I-15 freeway and a northern terminus at the U.S./Canada border in eastern Washington State.

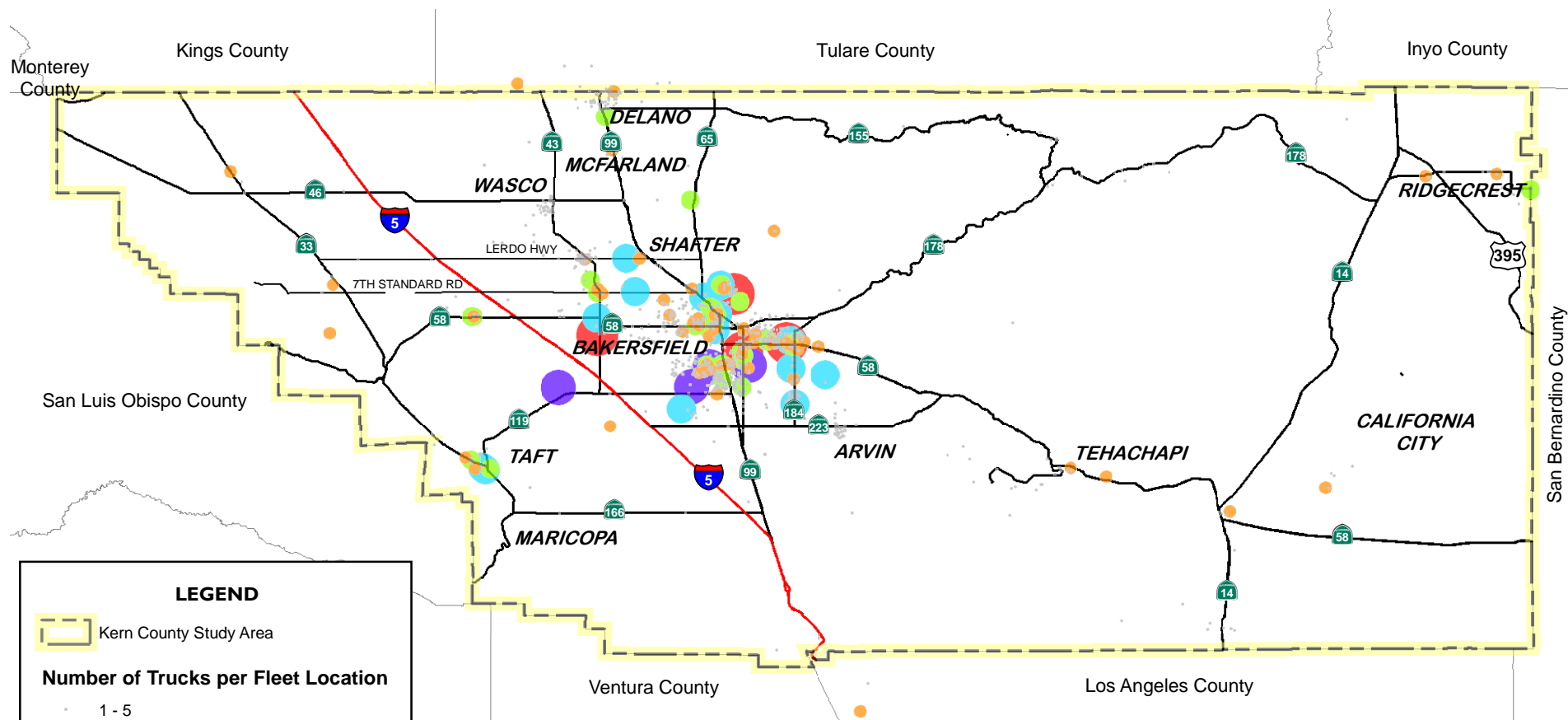
2.2 Trucking Terminals and Fleet Locations

A core component of overall trucking infrastructure network is the fleet operational center, where trucks are parking and maintained. The operational center or “home base” for a truck can be one of the following:

- A for-hire carrier terminal or parking lot.
- A shipping location (e.g. distribution center or DC) for a private fleet.
- A driver’s home (for an owner-operator or contract driver).

For this analysis, data from the CHP Management Information System for Terminals (MISTER) database for Kern County and surrounding regions was obtained. MISTER data is useful for establishing the geographic pattern of trucking locations. The MISTER database lists locations at which trucks are based for the purpose of CHP inspections. The 2010 database lists nearly 1,300 truck “terminals” in Kern County. This database includes service providers (e.g. utilities or tradesmen) and bus operators (e.g. school districts, churches, and retirement homes) as well as for-hire and private fleets engaged in moving freight. The study team filtered the database to remove records for buses or trailers, and split the truck locations into those for small fleets (five or less) and those for larger fleets (more than five). The data indicates that a majority of fleets in the area have five or less trucks.

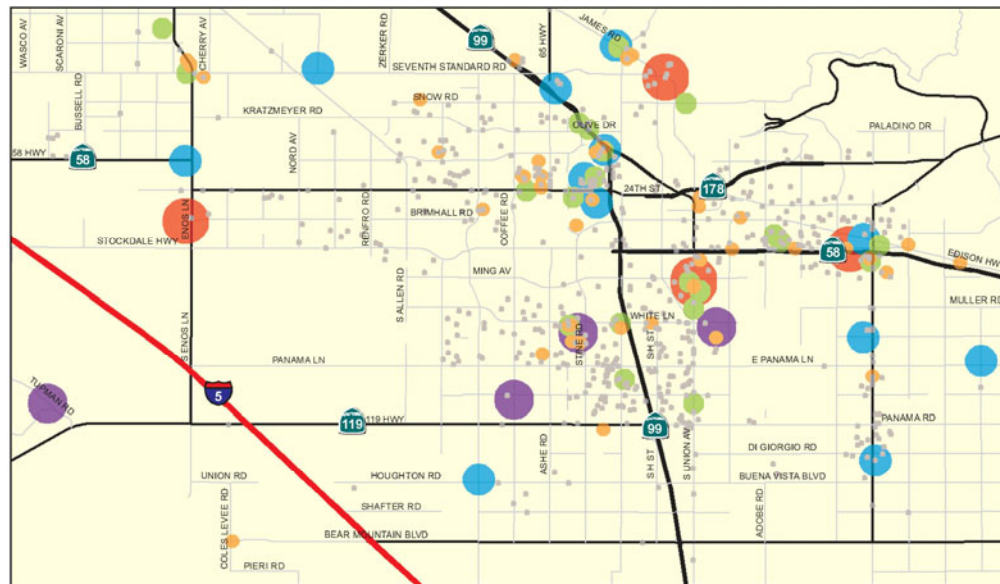
Figure 7 illustrates the locations of small and large truck fleets within Kern County. As is immediately apparent by the distribution within the figure, truck fleets tend to follow population, clustering around cities and towns. The exception tends to be agricultural fleets and those engaged in resource extraction (e.g. quarry or mine fleets). Most truck operators in Kern County are located in and around Bakersfield.



Source: Kern County, Tigoo Group

Figure 8 provides a close-in view of the same data provided in Figure 7, centered on the Bakersfield metro area. The legend for the icons is also the same as Figure 7. Most are small, typically including owner-operators, tradesmen, and local delivery operations. Smaller fleets tend to be scattered throughout the urban and adjacent suburban and rural areas. Owner-operators and tradesmen commonly base a single truck at their residence. The larger fleets, shown as red points, are more commonly located near major arterials, highways, and interchanges, and in commercial or industrial areas.

Figure 8: Bakersfield Area MISTER Truck Fleet Locations



Freight handling within the trucking sector can include sorting, consolidation, deconsolidation, and transfer or transloading. Only a small percentage of the identified trucking facilities actually handle freight. The archetypical “trucking terminals” that split long-haul truckloads for local delivery or combine local pickups into long-haul truckloads are the limited province of less-than-truckload (LTL) and parcel carriers. The vast majority of truckload common carriers do not have freight handling facilities. The vast majority of private fleet freight handling is accomplished at the production and distribution facilities they serve, not at separate truck terminals.

2.3 Less-than-Truckload (LTL) Terminals

LTL sorting and consolidation operations resemble warehouse operations in their trip generation and distribution patterns. Less-than-truckload (LTL) truck terminals look much like warehouses and DCs, but their purpose is materially different.

The primary function of an LTL terminal is to consolidate outbound loads from local pickups and deconsolidate inbound loads for local delivery. LTL terminals do not fulfill orders or reconfigure shipments; instead they consolidate, deconsolidate and sort existing shipments, as described below:

- **Consolidation.** Outbound LTL shipments are collected from local customers using smaller trucks or local tractors pulling single 28-foot semi-trailers. These shipments are

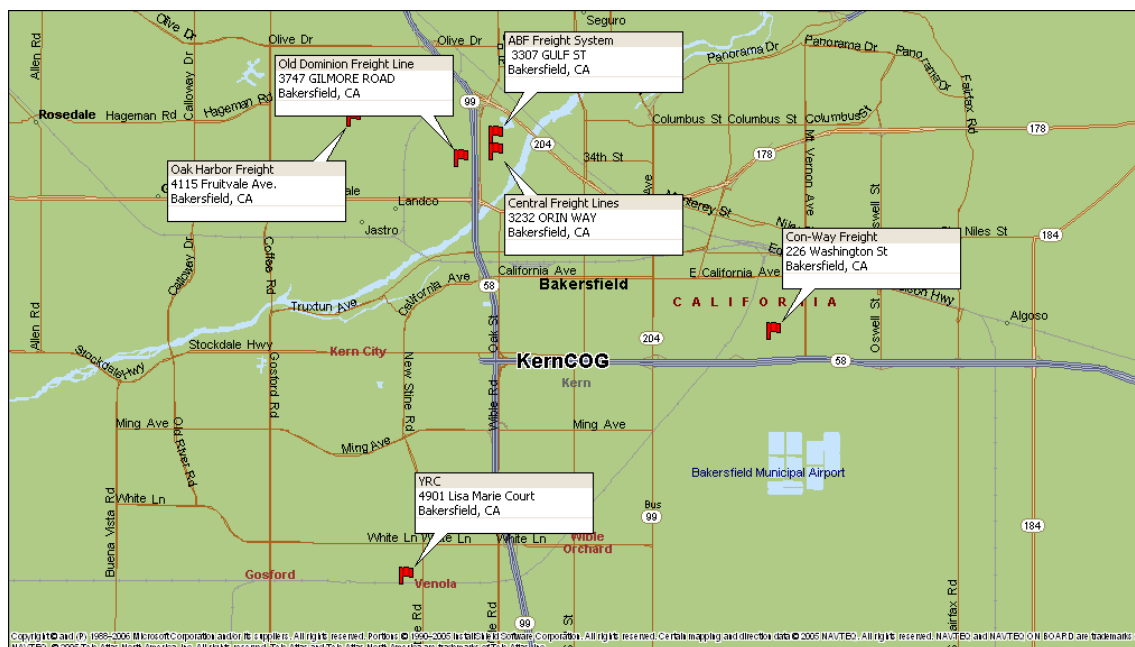
brought to the LTL terminal to be consolidated (combined) into outbound trailers for over-the-road (or sometimes rail intermodal) movement to destination terminals.

- **Deconsolidation.** Inbound over-the-road (OTR) shipments have been combined into trailer loads at origin and are now deconsolidated (split) into individual shipments for local delivery.
- **Sorting.** Outbound shipments are sorted into OTR trailer loads bound for destination terminals. Depending on the operating scheme of the carrier, trailer loads may serve single or multiple destinations. Inbound shipments are sorted into loads for local delivery trucks according to the route or territory system in use.

LTL terminals may also include maintenance facilities and administrative offices.

Figure 9 illustrates the locations of LTL terminals in Kern County. The data used to create this map is constantly changing, as carriers change terminals often and older terminals can be occupied by new carriers. As the distribution of data on the figure indicates, the Kern County examples are clustered near freeways in and around the Bakersfield area.

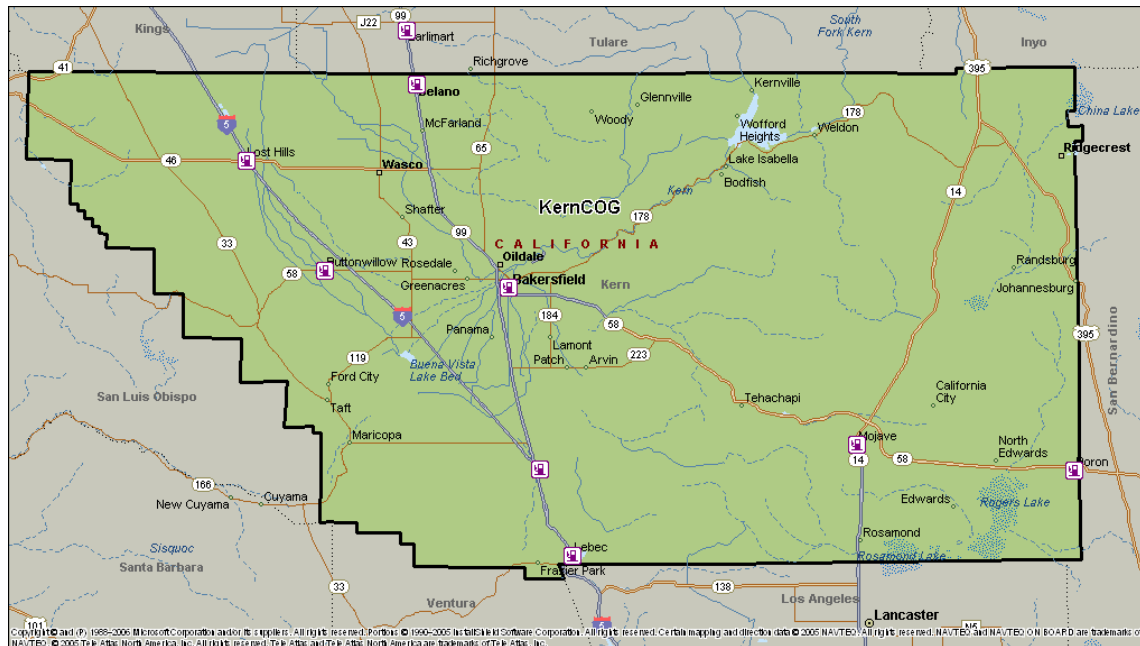
Figure 9: Study Area LTL Terminals



2.4 Truck Stops

Truck stops locations, illustrated on Figure 10, are different from truck terminals in that they are owned and operated by commercial entities but are an integral part of the highway infrastructure, necessary for efficient and safe long-haul trucking.

Figure 10: Study Area Truck Stops



As illustrated by Figure 11, truck stops tend to be clustered at major freeway interchanges.

Figure 11: Truck Stops at SR-58 and Weedpatch Highway



A full-service truck stop usually offers the following:

- Parking for tractors and trailers
- Telephone/fax/computer communications
- Restaurant and convenience store
- Fueling
- Truck and equipment servicing
- Overnight accommodations
- Scales

An example of a truck scales facility is illustrated by Figure 12.

Figure 12: Truck Scale Facility Example



Truck stops are beneficial primarily for OTR truckers that drive multi-day trips and use them for the following functions:

- Routine stops for food, fuel, etc.;
- Tractor and trailer servicing;
- Mandated rest between driving shifts;
- Layovers between loads and trips;
- Drop-lots for trailers;
- Contacts with brokers, insurance agents, etc.; and
- Obtaining trip permits, cash advances, etc.

The real need for a truck stop comes from national and regional OTR truckload carriers and owner-operators based within the local region. Some truckload carriers without nearby terminal facilities use truck stops instead, basing their tractor and trailer fleets there. Local and regional trucking firms with their own terminals typically have little use for a nearby truck stop.

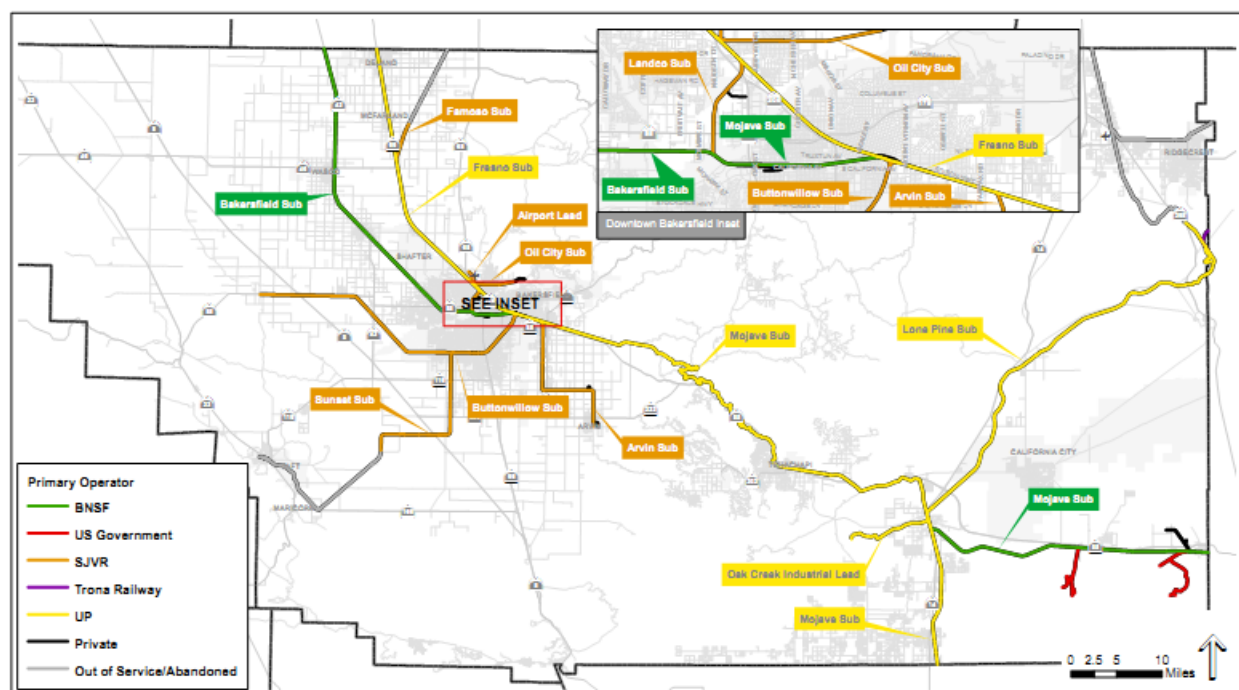
3.0 Freight Rail Networks and Other Modes

3.1 Overall Subregional Rail Network

Rail freight operations and facilities in Kern County are dominated by the Union Pacific Railroad (UP) and the Burlington Northern Santa Fe Railway (BNSF), which both run through the entirety of Kern County, primarily in a north-south oriented corridor. The east-west corridor through the Tehachapi Mountains to Mojave anchors the southern ends of the north-south corridors within Kern County. There are also several short line operations in the area, which are local rail corridors operated by other separate companies. Rail movements are almost exclusively outbound from the region, inland to the region, or through the region. Distances *within* the region, which is common for many local geographic areas, are normally too short for cost-effective rail service.

Figure 13 illustrates the railroad corridors within Kern County, by ownership and by operating subdivision or “sub”.

Figure 13: Railroad Corridors within Kern County



Major rail customers and the short lines that serve them are often co-dependent – one could not survive without the other. As the major railroads began aggressively shedding lightly used branch lines in the 1980s, existing short lines used the opportunity to extend their operations and new operators entered the business. Now, as indicated below, the short lines in the region serve a large number of carload rail customers, typically providing frequent, customized switching service.

Most short lines in Kern County are operated by the San Joaquin Valley Railroad (SJVR), which is a subsidiary of the company Rail America. SJVR's network consists of former branch lines of the major

railroads. The other Kern County short line is the Trona Railway, which is a 30-mile line that carries traffic from the terminus of the UP Lone Pine Branch. The Trona Railway hauls minerals and related commodities.

3.2 BNSF and UP Freight Operations

The active BNSF and UP routes run in a roughly parallel manner, through the population centers on the east side of the San Joaquin Valley. The BNSF and UP lines have an interchange immediately to the south of Bakersfield at Kern Junction. North of Bakersfield they are separate lines, with the UP on the former Southern Pacific line and BNSF on the former Atchison, Topeka, and Santa Fe line. Through the Tehachapi Mountains between Bakersfield and Mojave, BNSF and UP trains share a single set of tracks. That line is owned by UP and BNSF pays for usage via “trackage rights”. The lines then split again further east, at Mojave.

At Mojave, the BNSF line proceeds southward and then eastward to Barstow, where junctions provide connections to the Los Angeles and Arizona main lines, and to other points to the east. BNSF uses the line from Barstow through Kern County to access points in the Central Valley and Northern California.

From Mojave the UP (former SP) line continues south to Palmdale. At Palmdale one line (now primarily used by Metrolink commuter trains) continues into the Los Angeles basin while the other line known as the “Palmdale Cutoff” bypasses Los Angeles and meets transcontinental routes at West Colton in San Bernardino County. UP rail traffic to and from points to the east and south passes through West Colton, Palmdale, and Mojave to access the Central Valley and Northern California. Mojave is also the junction for the “Lone Pine” branch, which connects with the Trona Railway at Searles.

A large number of trains pass through the region without serving local customers. Major examples are listed below:

- Union Pacific trains pass through the area on trips between the Bay Area and points south and east of Bakersfield. An example would be Oakland to Houston.
- UP trains between Oregon/Washington and points south and east of Bakersfield pass through the region. Examples would be Los Angeles to Seattle or Portland to Dallas routes.
- BNSF trains between Northern California and points south and east of Bakersfield pass through the region. Examples include Richmond to Chicago or Oakland to Kansas City routes.
- Rail traffic between Northern and Southern California also passes through the region, although there is relatively little intra-state traffic due to the short (by rail standards) distances. Both railroads, however, do reposition empty freight cars (particularly intermodal cars) between their California facilities.

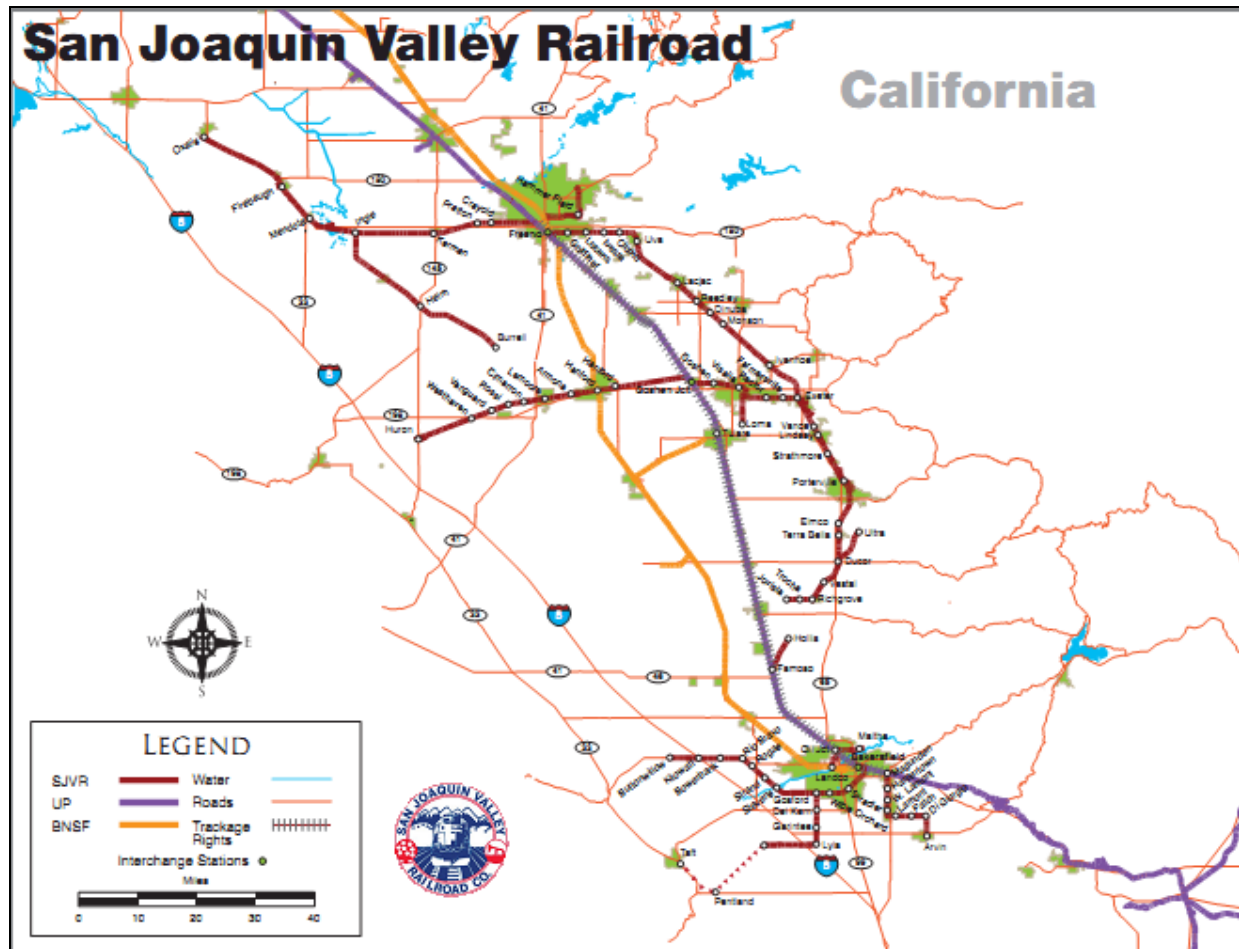
3.3 Short Line Railroad Operations

The SJVR is the largest California short line railroad with about 417 miles of track in operation. The lines are primarily former Southern Pacific routes, including portions of the former West Valley Line. SJVR is part of the Rail America group of short lines. It connects with UP at Fresno, Goshen, and Bakersfield, and with BNSF at Fresno and Bakersfield as well. Major commodities handled include

petroleum products, building materials, and agricultural products.

Figure 14 illustrates the physical extents of the SJVR track corridors within the larger Central Valley area.

Figure 14: San Joaquin Valley Railroad Map



The SJVR lines located to the west of Bakersfield were part of the former Sunset Railway, built to serve the oil fields. The Railway was jointly owned by SP and Santa Fe, with alternating responsibility for operations over five-year periods.

3.4 Rail Services

UP, BNSF, and the short line operators all provide traditional carload service to individual shippers or receivers in the study area. These customers typically have loading/unloading tracks (spurs) serving their facilities. They may ship or receive as little as one carload at a time, but many are larger operations that would ship or receive multiple carloads (up to a full train) at once. Rail carload customers would typically include:

- Grain elevators and feed mills
- Large lumberyards and building material distributors
- Produce packers and canneries
- Cement plants
- Gas, oil, and propane distributors

The railroads also serve “transload centers”, which have the functional purpose of shifting freight between rail cars and trucks. Typical operations include inbound rail loads of building materials or minerals that are either transferred directly to trucks for local delivery or stockpiled on-site and transferred later. These operations combine the long-haul advantages of rail with the pickup and delivery flexibility of trucks.

Rail carload and transload services typically involve bulk commodities or those that can be loaded/unloaded with fork lifts. The outlook for rail carload service in the study area is closely tied to the outlook for production and consumption of bulk freight, consisting of the following in the area:

- Agricultural production and consumption of agricultural chemicals, feeds, and fertilizers
- Construction and consumption of cement aggregates, lumber, steel, stone, etc.

The third type of rail service is intermodal, which involves the movement of international containers, domestic containers, and domestic trailers between major terminals. Trucks bring the loads to origin terminals and deliver them from destination terminals. There are no active intermodal terminals in Kern County. BNSF has active intermodal terminals at Mariposa (south of Stockton), Fresno, and at San Bernardino.

UP operates an intermodal terminal near Lathrop (in French Camp) and a “paper ramp” in Fresno. The UP facility at Lathrop is the subject of a major expansion plan. Business at the UP Fresno “paper ramp” is actually trucked to and from Lathrop. The next closest UP intermodal facility is in East Los Angeles. Short line railroads do not provide intermodal service, as intermodal service is used for long-haul freight shipments.

Rail intermodal service is more likely to involve consumer goods or industrial supplies such as appliances, food products, garments, household goods, beverages, or plumbing supplies. International containers make up a large part of the rail intermodal total. Rail intermodal traffic levels are more closely linked to consumption of consumer goods and overall trade and economic trends.

Modal shifts from truck to rail have the potential to reduce demand for highways, but that potential is limited for the following reasons:

- A shift from long-haul trucking to rail intermodal typically reduces the need for interstate truck moves, but still requires local and regional trucking for pick-up and delivery.

- Conversion of truck moves to rail transloading moves likewise reduces the need for long-haul trucking, but also still requires local or regional truck service.
- Conversion of truck moves to pure rail carload service eliminates the need for any trucking. This option, however, is usually only available to high-volume shippers with direct rail service.

Within the study region, the railroads also have freight classification yards, engine facilities, and maintenance facilities of various types. These facilities, however, serve internal railroad functions and do not serve customers directly.

3.5 Rail Infrastructure Issues

Rail infrastructure issues in the study area have been addressed primarily by the railroads themselves. Caltrans has also participated where Amtrak trains (the San Joaquins operate from Sacramento/Oakland to Bakersfield through the length of the Central Valley) are affected. Generally speaking, line capacity has not been a constraint on rail transportation to, from, or through the study area. There are two specific issues with lines leading to and from the Central Valley:

- The UP route paralleling Interstate 80 over Donner Pass was formerly constrained by tunnel clearances, prohibiting full use of the line for double-stack trains of international and domestic containers. Those clearances have recently been improved, creating full access over the route. This improvement is most important for intermodal movements between the Port of Oakland and points east, which do not involve the study area. Domestic container movements to and from the Lathrop ramp are also affected, however, and such movements do affect SJV customers.
- The UP-owned route over the Tehachapi Mountains between Bakersfield (Kern Junction) and Mojave is also used by BNSF. BNSF trains over the route tend to be more service-sensitive, and BNSF has been concerned over the capacity of the route for future traffic growth. Caltrans has also studied the issue. Improvements on this route are expected to receive support under the Trade Corridor Improvement Fund (TCIF). As of December 2009, the total project cost was shown at \$112.7 million, with \$54 million to be provided by TCIF. At that time construction was expected to start in March 2012. UP ownership of the line complicates the issue, however, as it was BNSF – the tenant – who applied for and obtained TCIF support.

TCIF funds were to be made available for two other rail projects in the study area:

- Stanislaus County applied for funds for the San Joaquin Valley Short Haul Rail/Inland Port Project, which involves development of an intermodal terminal at Crows Landing. As of December 2009 the Crow Landing project was listed as eligible for \$22.5 million against a total project cost of \$57.4 million. That project, however, is not progressing at present and a number of obstacles may have to be overcome for it to proceed.
- The City of Shafter applied for TCIF funds for the Shafter Intermodal Rail Facility. As of December 2009 the Shafter project was listed as eligible for \$15.0 million, with no total project cost listed.

Short line infrastructure issues tend to be line-specific. Carriers such as SJVR, SNR, and CNR that operate former lines of other railroads may encounter deferred maintenance, bridge life issues, and weather-related damage. In some cases the carrier must weigh the cost of repairs against the expected revenue from customers on the segment.

3.6 Air and Sea Links

Air freight service is emerging, but is not currently a major influence on freight shipping trends in the Central Valley.

The Kern County region is primarily served by the Ports of Los Angeles and Long Beach, and freight links to those facilities from the local area are primarily served by OTR trucks, due to the relatively short hauling distance involved to reach either port complex.

4.0 Primary Freight Hauling Patterns

Highway freight movements originate at shipper locations and then, logically, terminate at receiver locations. Shippers are the only true *freight* movement generators, although a number of other loaded or empty truck movements or “trip legs” may be required to complete the entire freight movement, including:

- Empty trips to position the truck for loading.
- Trips to and from intermediate handling points.
- Trips for truck fueling, cleaning, and servicing.
- Trips to and from the driver’s home or company domicile.
- Trips to return merchandise or shipping equipment (such as pallets).

Locations where truck movements begin or end can therefore include:

- Shipping and receiving points.
- Carrier terminals or other freight handling points.
- Truck fueling, cleaning, and servicing locations;
- Rest areas, restaurants, driver homes, etc.

The primary truck hauling patterns within major freeway/highway routes of Kern County are discussed within the sub-sections below.

4.1 The Bakersfield Main Line – The SR-99 Corridor

The SR-99, a limited access freeway, links the Bakersfield Metro area to east-west travel routes to the north and south, and also to its southern terminus and junction with I-5 in Wheeler Ridge.

Outbound trucks typically either follow SR-99 north or south or use east-west state highways to access I-5. Inbound trucks either use SR-99 from the north or south or use one of the east-west routes to access the population centers from I-5.

4.2 The East-West Artery – The SR-58 Corridor

A separate study was conducted specifically for SR-58, with the title of *SR-58 Origin and Destination Truck Study*. This route is used in the following manner for freight movements:

- As a primary route for shipments, usually to the eastern areas such as San Bernardino and Riverside Counties;
- As an alternative to I-5 over the Grapevine during storms; and

- As a preferred alternative to I-10 and I-210 for shipments to eastern Los Angeles County when traffic congestion slows the Los Angeles County east-bound routes.

SR-58 truck survey results indicated that 97 percent of trucks traveling on eastbound SR-58 started their trip from within California, with nearly 60 percent beginning their trip in the SJV. For trucks traveling westbound, 65 percent of trucks started their trip outside California with origins in Arizona, Texas, and Nevada the most pronounced locations. About 65 percent of these trips were bound for the SJV region.

Truck survey results also indicated that the majority of trucks access SR-58 (65 percent) from SR-99. The surveys further described the truck traffic on SR-58 as consisting of a large proportion of farm and other food products (over 40 percent). This is consistent with the economy of the SJV and the findings of surveys on other routes.

Between SR-99 and I-15, truck traffic constitutes a relatively large percentage of total traffic. Vehicle classification count results indicate that the truck percentages of total vehicle volumes range between 30% and 40%, depending on the segment. This is likely due to overall less passenger demand within segment of the corridor, but also due to high demand for freight trips between the Central Valley and areas to the east including national destinations/origins.

Truck trips using SR-58 are almost always part of a through trip to or from somewhere else, usually a good distance away. There very few trips that originate or terminate within five miles of SR-58. There are few customer locations on SR-58 itself to pickup or deliver shipments due to the limited population and industrial base.

SR-58 is mostly open road (few interchanges and no major urban areas) with high speeds, particularly now that the bypass around the town of Mojave near the SR-14/SR-58 junction is open and other sections are being converted to limited-access freeway configurations. Climbing and descending Tehachapi Pass slows traffic but relatively light overall traffic volumes keep route operations from breaking down into major congestion during peak periods within the mountain areas.

The west end of SR-58 jogs north on SR-99 and then west through Greenacres and Rio Bravo to reach I-5, as illustrated by the yellow highlighted segments on Figure 15. Truckers often use Stockdale Highway to the south (highlighted as green segments) instead to bypass Bakersfield, due to this indirect route between the Bakersfield metro area, the I-5 corridor, and points further west. Other bypass routes to this segment of the SR-58 include Lerdo Highway and 7th Standard Road, which are both located to the north.

- They can be used as discretionary alternatives to SR-58, which is the primary east-west route through Bakersfield.
- The local customers are primarily agricultural in nature.

SR-65 serves local freight customers between Bakersfield (and points beyond) and Porterville (but not points beyond). The highest volumes of trucks were located between 7th Standard Road and Lerdo Highway. Any through traffic to/from points north of Porterville would tend to use the parallel route of SR-99.

SR-46 and SR-166 are used to access the coastal region to the west of Kern County. In particular, SR-46 serves Monterey and San Luis Obispo Counties and SR-166 serves portions of San Luis Obispo and Santa Barbara Counties. A larger proportion of the trucks on these routes are refrigerated trucks due to the nature of the commodities that originate in these counties. Many of the refrigerated trucks operate either empty or with dry freight westbound. Many of these trucks will operate at night and on the weekends due to the distances involved.

4.4 The Eastern Connector – US-395 Corridor

Trucks using the US-395 facility area serving local customers with regional trips to and from Southern California or Northern Nevada. Trips may return from an origin or continue through to Reno/Sparks or Southern California depending on the carrier. Long haul trips use the facility, also primarily on trips between Southern California and Northern Nevada. Some trips have destinations as far as eastern Oregon, Washington, and western and northern Idaho.

5.0 Freight Demand and Truck Traffic Growth Estimates

This report section is organized into the following sub-sections:

Kern County Goods Movement Forecast – Relevant freight projections

Kern County Freight Trends – Freight logistics trends

Kern County Land Use Trends – New commercial and industrial development under General Plan implementation

Kern County Traffic and Truck Activity Trends – Auto and truck travel activity trends from the regional traffic model

5.1 Kern County Goods Movement Forecast

Goods movement in the Kern County region is related to land use and economic supply and demand from a local and regional perspective and can be separated into the following freight flows:

- Movements *to (inbound)* the study area, which are driven by the local demands of a growing population; inputs to regional industries; and the inbound flows to regional distribution centers.
- Movements *from (outbound)* the study area, which are driven by outputs of regional industries from demand elsewhere; the byproducts (municipal waste, recyclables) of a growing population; and outbound flows from regional distribution centers.
- Movements *within* the study area, which are driven by local supply and demand of the population, commercial activity, and sub-regional industrial and agricultural flows.
- Movements *through* the study area, which are driven by the region's geographic position between other producing and consuming regions, and by the characteristics of the region's transportation network and connections.

Definitive freight flow data for Kern County are not available, nor are there forecasts available at this level of detail. The study team therefore compiled available information on freight flows in the closest relevant region – the San Joaquin Valley – as well as regional, state, and national freight growth forecasts. The freight growth rates were then compared to relevant population and employment trends within Kern County from which implications for Kern County freight can be derived.

5.1.1 Regional Flow Data

The publicly available regional freight flow data most closely approximating the shipment pattern for Kern County are found in the Federal Highway Administration (FHWA) Freight Analysis Framework Version 3 (FAF3) database. These data were compiled by FHWA from multiple sources in common formats. For California, the FAF3 database has regions: San Francisco, Los Angeles, Sacramento, San Diego, and "Remainder of California".

With the four other major population centers contained within their own regions, the Remainder of California region closely approximates the activity in the Central Valley. While the commodity mix and absolute tonnage volumes will not exactly match actual Kern County figures, the modal shares and growth potential should be reliably applicable based on larger regional trends.

Based on the data available for the Remainder of California region, the regional flow data of major

commodities for inbound, outbound and local freight flow data are described below.

Inbound Regional Freight Flows

Of the inbound commodities, many appear to be similar commodities although their relative importance varies. Gasoline from refineries outside of the region is a major inbound commodity, as are grains, which may include raw materials for animal feed. Table I shows the corresponding inbound freight flows not including direct foreign imports.

**Table I: Inbound Regional FAF3 Freight Flows –
“Remainder of California”**

Commodity	Truck Share	Tons (000)		Share		2010-2040 CAGR
		2010	2040	2010	Cumulative	
Cereal grains	44%	10,461	8,137	10%	10%	-0.8%
Other foodstuffs	84%	10,187	17,917	10%	20%	1.9%
Gasoline	50%	8,773	16,623	8%	28%	2.2%
Natural sands	28%	8,015	9,458	8%	36%	0.6%
Waste/scrap	100%	7,522	14,750	7%	43%	2.3%
Coal-n.e.c.	23%	7,039	6,541	7%	49%	-0.2%
Other ag prods.	98%	5,707	11,878	5%	55%	2.5%
Nonmetal min. prods.	94%	5,421	7,131	5%	60%	0.9%
Crude petroleum	1%	3,755	1,352	4%	64%	-3.3%
Animal feed	50%	3,537	3,198	3%	67%	-0.3%
Milled grain prods.	82%	2,705	6,367	3%	69%	2.9%
Wood prods.	81%	2,682	2,947	3%	72%	0.3%
Mixed freight	97%	2,673	6,475	3%	75%	3.0%
Basic chemicals	55%	2,651	2,076	3%	77%	-0.8%
Gravel	76%	2,559	1,296	2%	79%	-2.2%
Nonmetallic minerals	86%	2,148	3,672	2%	82%	1.8%
Newsprint/paper	50%	1,862	3,296	2%	83%	1.9%
Fertilizers	39%	1,820	2,056	2%	85%	0.4%
Plastics/rubber	78%	1,724	2,808	2%	87%	1.6%
Chemical prods.	88%	1,547	3,934	1%	88%	3.2%
Base metals	72%	1,525	1,517	1%	90%	0.0%
All Other	na	10,976	20,453	10%	100%	2.1%
Grand Total		105,291	153,883	100%	100%	1.3%

The overall projected growth rates are relatively low at 1.3%, and there are some expected declines associated with specific commodities. The highest growth rates shown are for chemical products and mixed freight (e.g. consumer goods).

Outbound Regional Freight Flows

For outbound freight flows, the tonnage is dominated by heavy commodities – crude petroleum, agricultural products, food stuffs, waste/scrap, and grain. Heavy, low-valued commodities such as gravel and minerals are much less prominent, as their value does not justify the cost of long-distance transportation. Truck transportation is still dominant, but there are significant flows of some major commodities via rail and intermodal (linked truck/rail trips) transport.

Table 2 summarizes data from the same source for outbound flows to other regions, including the other major California population centers (not including direct foreign exports).

**Table 2: Outbound Regional FAF3 Freight Flows –
“Remainder of California”**

Commodity	Truck Share	Tons (000)		Share		2010-2040
		2010	2040	2010	Cumulative	CAGR
Crude petroleum	4%	11,376	16,020	11%	11%	1.1%
Other ag prods.	98%	11,324	25,890	11%	22%	2.8%
Other foodstuffs	73%	11,219	37,850	11%	32%	4.1%
Waste/scrap	100%	9,655	9,116	9%	42%	-0.2%
Cereal grains	92%	8,630	29,883	8%	50%	4.2%
Gravel	92%	8,535	27,938	8%	58%	4.0%
Nonmetal min. prods.	89%	7,881	11,807	8%	65%	1.4%
Mixed freight	100%	7,637	21,682	7%	73%	3.5%
Wood prods.	88%	5,706	4,012	5%	78%	-1.2%
Natural sands	100%	4,025	14,046	4%	82%	4.3%
Coal-n.e.c.	43%	2,865	4,568	3%	85%	1.6%
Alcoholic beverages	73%	2,186	5,675	2%	87%	3.2%
Meat/seafood	96%	1,389	2,407	1%	88%	1.8%
Animal feed	100%	1,382	3,773	1%	89%	3.4%
Gasoline	83%	1,211	1,164	1%	91%	-0.1%
All Other	na	9,897	22,490	9%	100%	2.8%
Grand Total		104,918	238,323	100%	100%	2.8%

Projected growth rates of 2.8% are somewhat higher than for the intra-regional flows, reflecting state and national demand for goods produced in the region. Similar to data for inbound flows, some outbound commodities flows are expected to decline.

5.1.2 Local Freight Flow

The major intra-regional commodities by weight are bulks (gravel, minerals, waste/scrap, sand, gasoline) that are rarely transported long distances, and agriculture-related commodities (other agricultural products, grains, animal feed) moving between suppliers, producers, and processors. These movements are almost entirely trucked, the major exception being crude petroleum moving in pipelines.

Table 3 summarizes the FAF3 data for internal flows within the Remainder of California.

**Table 3: Local (Intra-regional) FAF3 Freight Flows –
“Remainder of California”**

Commodity	Truck Share	Tons (000)		Share		2010-2040 CAGR
		2010	2040	2010	Cumulative	
Gravel	90%	28,558	42,751	17%	17%	1.4%
Other ag prods.	100%	23,668	48,192	14%	31%	2.4%
Nonmetal min. prods.	99%	16,486	21,958	10%	40%	1.0%
Cereal grains	100%	13,539	43,776	8%	48%	4.0%
Waste/scrap	100%	9,365	10,440	6%	54%	0.4%
Natural sands	84%	7,564	12,798	4%	58%	1.8%
Gasoline	92%	6,661	3,171	4%	62%	-2.4%
Animal feed	100%	5,907	14,658	3%	66%	3.1%
Logs	100%	5,722	5,423	3%	69%	-0.2%
Other foodstuffs	99%	5,488	11,812	3%	72%	2.6%
Coal-n.e.c.	100%	4,823	6,393	3%	75%	0.9%
Mixed freight	100%	4,595	12,111	3%	78%	3.3%
Wood prods.	98%	4,565	3,440	3%	81%	-0.9%
Fertilizers	95%	4,035	3,456	2%	83%	-0.5%
Fuel oils	99%	3,568	4,129	2%	85%	0.5%
Crude petroleum	3%	3,104	3,060	2%	87%	0.0%
Alcoholic beverages	100%	3,004	5,742	2%	89%	2.2%
Unknown	100%	2,803	5,250	2%	90%	2.1%
All Other	na	16,599	32,851	10%	100%	2.1%
Grand Total		170,055	291,408	100%	100%	1.8%

The growth potential for these commodities is predominantly very moderate, averaging only 1.8% annually between 2010 and 2040. Somewhat higher growth rates are projected for agricultural outputs and for mixed freight, which would include most consumer goods. Similar to the inbound and outbound flows, certain commodities will decline in related flows.

5.2 State Flow Data

The state FAF3 freight data provides modal shares for shipments within, to, and from California. Note that no data are shown for shipments *through* California. One reason for this lack of data is that underlying data sources ordinarily give origins and destinations, but not routes. Moreover, California's geographic position also means that domestic shipments through the state would primarily consist of limited commerce between Oregon/Washington on one hand and Arizona/New Mexico on the other.

The data in Table 4 indicate that most shipments stay within California, and that most of those intrastate shipments are made by truck at a proportion of 82.5%, which is consistent with the local intra-regional freight flow. After the truck category, the next most significant mode is pipeline at 9.6%, which handles crude petroleum, natural gas, and some refined petroleum products.

Table 4: California State FAF3 Freight Flows

Mode	2010							
	Within		From		To		Total	
	Weight	Percent	Weight	Percent	Weight	Percent	Weight	Percent
Truck	1,039,039	82.5%	103,113	68.4%	86,620	37.3%	1,228,771	74.8%
Rail	10,138	0.8%	11,292	7.5%	41,799	18.0%	63,229	3.8%
Water	14,108	1.1%	1,160	0.8%	14,895	6.4%	30,163	1.8%
Air (include truck-air)	1,132	0.1%	660	0.4%	560	0.2%	2,353	0.1%
Multiple modes & mail	25,368	2.0%	24,730	16.4%	35,305	15.2%	85,403	5.2%
Pipeline	120,540	9.6%	6,151	4.1%	50,265	21.7%	176,956	10.8%
Other and unknown	23,084	1.8%	3,684	2.4%	2,563	1.1%	29,332	1.8%
No domestic mode	26,398	2.1%		0.0%		0.0%	26,398	1.6%
Total	1,259,806	100.0%	150,791	100.0%	232,007	100.0%	1,642,605	100.0%

Data from the Freight Analysis Framework Version 3.2

Unit of measure is thousand tons

Isolating the major surface transport modes (truck, rail, and multiple modes and mail) available in Kern County provides a better understanding of the surface mode shares. Table 5 summarizes the surface transport mode data extracted from the overall California mode data in Table 4.

Table 5: California State FAF3 Freight Flows- Surface Modes

Surface Mode	2010							
	Within		From		To		Total	
	Weight	Percent	Weight	Percent	Weight	Percent	Weight	Percent
Truck	1,039,039	96.7%	103,113	74.1%	86,620	52.9%	1,228,771	89.2%
Rail	10,138	0.9%	11,292	8.1%	41,799	25.5%	63,229	4.6%
Multiple modes & mail	25,368	2.4%	24,730	17.8%	35,305	21.6%	85,403	6.2%
Surface Total	1,074,544	100.0%	139,135	100.0%	163,724	100.0%	1,377,404	100.0%

Trucks are the main surface mode of transportation with 96.7% of freight transported via this mode. Non-truck modes hold only a small share of intrastate shipments, even in as large of a state as California.

5.3 National and State Forecasts

Freight transportation demand has a complex and shifting relationship to population, employment, and economic activity, as it is related to the following:

- Freight transportation activity tends to grow faster than the economy as a whole during periods of rapid import growth, as imports typically require more transportation activity per unit than domestic goods.
- In recent years, less than truckload (LTL) trucking and truck and air parcel delivery have grown quickly in response to increased on-line shopping by both individuals and businesses.
- In the long run, the growth of transportation relative to economic activity measured as Gross Domestic Product (GDP) will be moderated by the trend toward smaller and lighter goods by the increased cost of fuel, and by the growth of the services sector relative to farming, construction, resource extraction, and manufacturing.

The American Trucking Association (ATA) trucking forecast and the United States GDP forecast provide important information for the definition of future freight mobility trends. The ATA forecast

provides freight projections to 2020.

A comparison of the two forecasts demonstrates that between 2010 and 2015 trucking as a whole is estimated to grow in sync with GDP, but will grow at a slower and gradual pace thereafter. General freight and bulk movements show distinctly different growth expectations, with general freight (e.g. merchandise, food products, and manufactured goods) growing significantly faster than bulk shipments (e.g. chemicals, fuels, minerals, aggregates, and raw agricultural products). Beyond 2015, growth in trucking activity is expected to slow relative to GDP.

Figure 16 illustrates the projected trucking and GDP growth to the year 2020.

Figure 16: Indexed ATA Freight and GDP Forecasts of SR-58

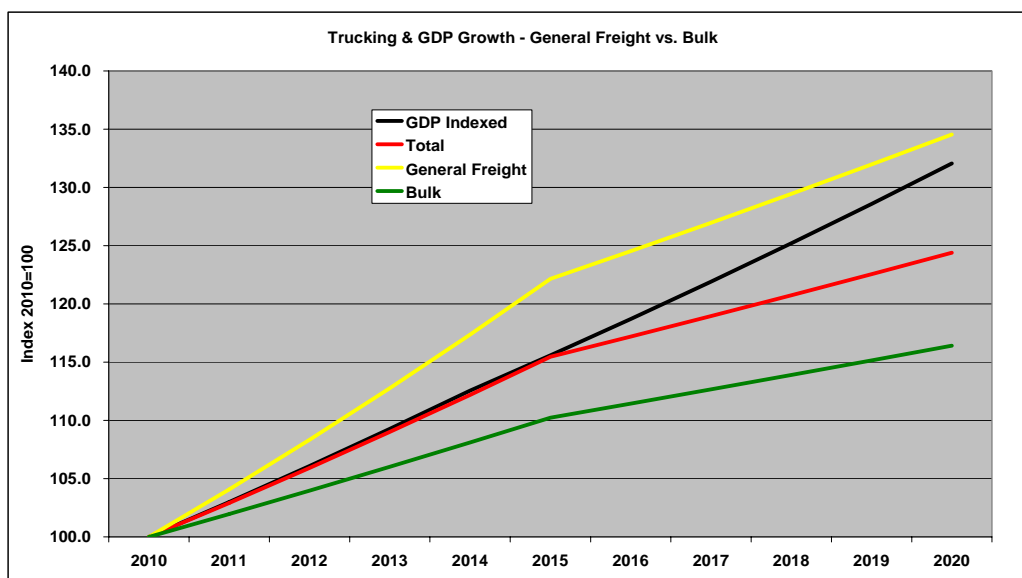
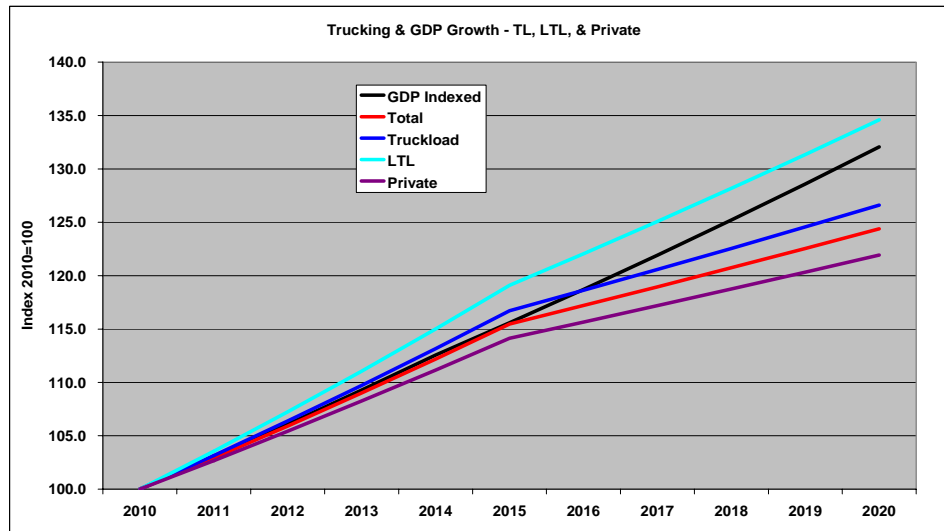


Figure 17 summarizes the trucking data totals in greater detail by separating out the truckload, LTL, and private fleet sectors. As noted above, strong growth in the LTL sector will be propelled by continued growth of small shipments and parcels, while the truckload and private sectors will follow the pattern of the industry as a whole.

Figure 17: Indexed ATA and GDP Forecasts by Trucking Sector



The private fleet tonnage shows the slowest growth, in part because of a small but significant shift of tonnage to the commercial truckload and LTL carriers. As Figure 17 shows, however, truckload and private fleet operations will continue to account for the great majority of the tonnage, despite faster growth in the LTL sector. The actual LTL share of trips is higher, because LTL carriers carry lighter loads and make more one-way truck trips for each shipment.

5.4 Port Forecasts

The recent U.S. recession and world-wide economic downturn have greatly impacted containerized trade. Flat in 2007 and down in 2008, container counts dropped another 22% in the first quarter of 2009 compared to 2008. The recession and international container trade hit a bottom in the overall trend line in late 2009, with modest growth resuming in 2010. Container volumes in 2011 showed uneven, if any, growth over 2010.

Going forward, recovery is estimated to be slow and uneven without the sharp extended rebound that has characterized some previous recessions. Most previous recessions have had specific root causes (e.g. the dot com bust, or the 9/11 terrorist attacks), and ended when some time had expended after such major influential or tragic events. In those cases, pent-up demand resulted in rapid short-term growth, and a quick return to the overall trend lines. The current recession has had multiple causes, and was greatly exacerbated by failure of the supporting financial industry. These multiple causes will be resolved slowly over time, and not necessarily on the same timetable.

There are several ports within California that contribute to freight movement inbound, outbound and through the Kern County region. The main ports include the following:

South

- Port of Los Angeles
- Port of Long Beach

North

- Port of Oakland
- Port of Stockton

5.4.1 Ports of Los Angeles and Long Beach

The Port of Los Angeles and Long Beach are the busiest container ports in the United States, ranking first and second respectively. With the current recession, containerized trade growth has been set back six to seven years, as shown in Figure 18 below for the Ports of Los Angeles and Long Beach (referred to as "San Pedro Bay" for conglomerated data). The growth in container trade is not expected to experience sizeable increases until the year 2014.

**Figure 18: 2009 San Pedro Bay (Los Angeles/Long Beach)
Container Cargo Forecast**

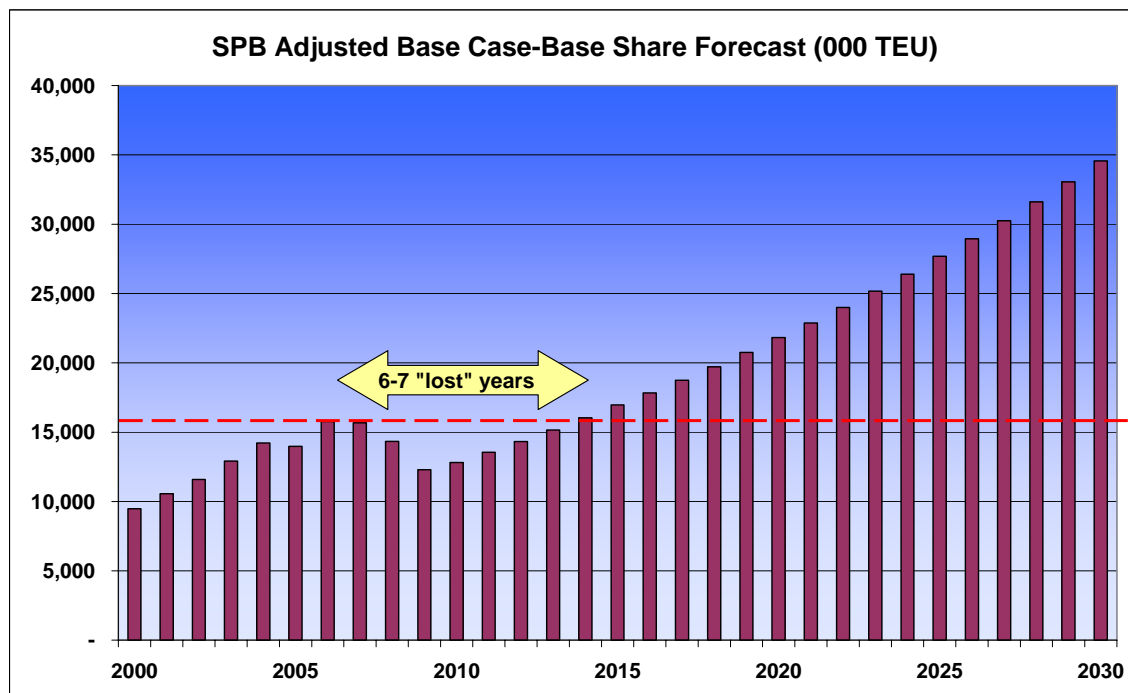


Table 6 summarizes the updated, adjusted twenty-foot equivalent units (TEU) forecast for Los Angeles and Long Beach and compares it with the equivalent December 2007 forecast.

Table 6: 2009 San Pedro Bay Container Cargo Forecast Detail

	TEU (000)						CAGRs		
	2005	2010	2015	2020	2025	2030	05-10	10-20	20-30
Inbound Loads									
2009 Base Case	7,146	6,620	8,780	11,333	14,417	18,039	-1.5%	5.5%	4.8%
Outbound Loads									
2009 Base Case	2,338	3,071	3,768	4,343	4,897	5,415	5.6%	3.5%	2.2%
Empties									
2009 Base Case	4,499	3,123	4,410	6,151	8,377	11,109	-7.0%	7.0%	6.1%
Total TEU									
2009 Base Case	13,983	12,814	16,959	21,827	27,691	34,563	-1.7%	5.5%	4.7%

5.4.2 Port of Oakland

The Port of Oakland is the fifth busiest container port in the United States. The container forecast for this port provided in Figure 19 indicates that there will be trends at these facilities that are comparable to that for San Pedro Bay, with somewhat different growth rates but a similar overall pattern.

Figure 19: 2009 Port of Oakland Container Cargo Forecast

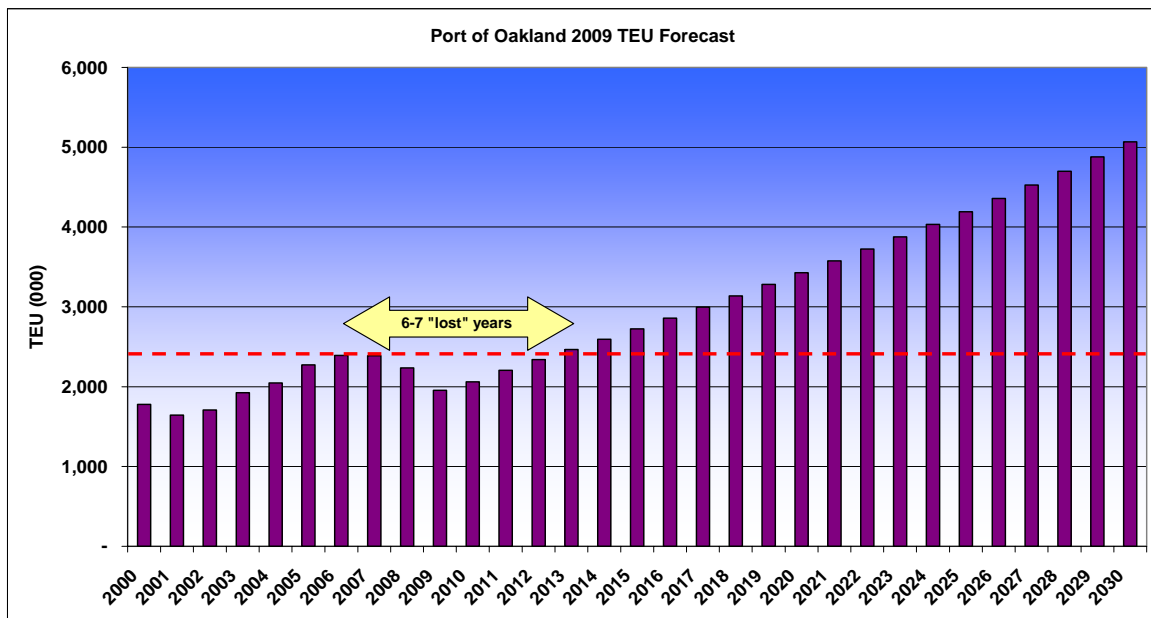


Table 7 summarizes the Port of Oakland container cargo forecast, which shows the much greater role of exports there.

Table 7: 2009 Port of Oakland Container Cargo Forecast Detail

	TEU (000)						CAGRs		
	2005	2010	2015	2020	2025	2030	05-10	10-20	20-30
Inbond Loads									
2009 Base Case	836	734	998	1,314	1,693	2,152	-2.6%	6.0%	5.1%
Outbound Loads									
2009 Base Case	847	827	1,065	1,282	1,484	1,687	-0.5%	4.5%	2.8%
Empties									
2009 Base Case	591	500	660	831	1,017	1,228	-3.3%	5.2%	4.0%
Total TEU									
2009 Base Case	2,274	2,061	2,723	3,427	4,194	5,067	-1.9%	5.2%	4.0%

Based on the data in Table 7, growth through the year 2020 under an economic recovery would be over five percent. Growth past the year 2020 to 2030 is estimated to be four percent.

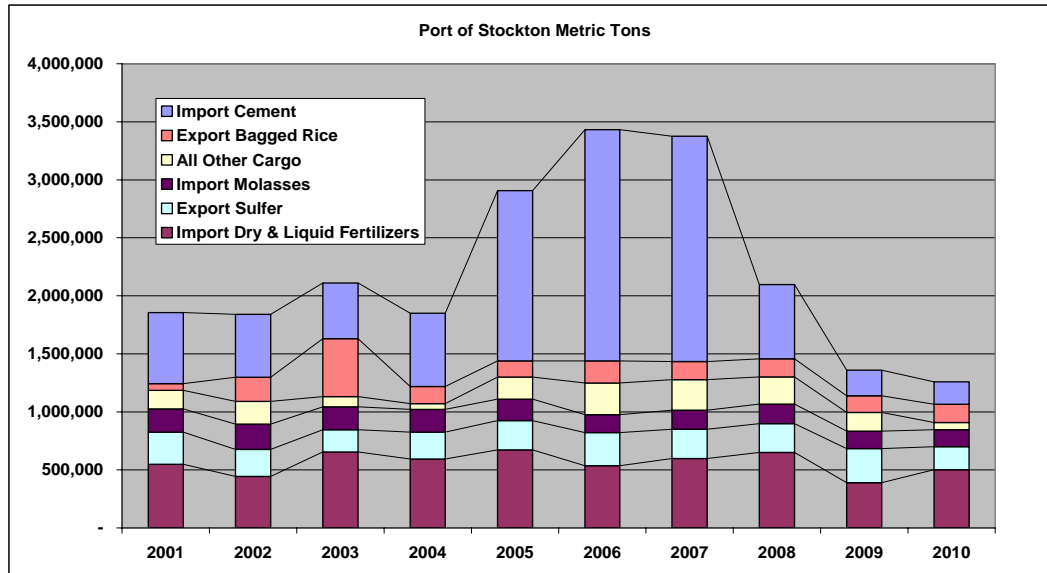
Post-recessionary trade growth will be slower than before the recession, particularly in containerized merchandise and consumer goods. The timing and strength of the trade recovery will depend on rising consumer confidence, the willingness of importers to replenish dwindling inventory, and the ability of the financial industry to support growing trade. These factors depend in turn on the success of government stimulus efforts here and abroad, and on the success of unprecedented government intervention in key business sectors. Elements of the expected final stimulus efforts were considered in the forecasts above, but the actual outcomes are subject to government policy changes, delays, and other uncertainties that are difficult to predict.

[5.4.3 Port of Stockton](#)

The Port of Stockton is a major inland port located in the San Joaquin Valley, approximately 75 miles inland. The Port handles general, dry bulk, and liquid bulk cargos. The major inbound commodities are cement for regional construction, and anhydrous ammonia, liquid fertilizer, and molasses for agriculture and food production. The major exports are sulfur (a byproduct of Northern California refineries) and bagged rice.

As Figure 20 illustrates, these commodities have had very different growth patterns since 2006. Agriculture-related commodities have been fairly stable, as has export sulfur. Bagged rice exports have fluctuated with the world economy, harvests in other nations, and U.S. foreign aid programs.

Figure 20: Port of Stockton Cargo History



In contrast, cement imports climbed rapidly during the construction boom of 2005-2007 and dropped even more rapidly in the 2008-2010 recession. National media labeled the Stockton area as “ground zero” for the housing crisis, but these cement imports actually supplied a much broader market in Northern and Central California. In 2010, cement imports through Stockton are less than a third of what they were in 2001. Cement imports through competing ports (West Sacramento and Redwood City) have dropped to zero.

Pre-recession growth for non-cement cargoes at Stockton was moderate, with a compound average growth rate of 2.3% in 2001-2008. This growth rate is in line with the moderate growth of California agriculture, which drives much of the cargo demand.

Of the major commodities handled at Stockton, the agriculture-related imports (anhydrous ammonia, liquid and dry fertilizers, molasses, nitrates, urea, etc.) are most likely to affect Kern County goods movement flows. These commodities would be trucked either directly to end users (growers, processors) or to regional fertilizer plants and distributors who would subsequently deliver to end users. These movements will likely grow in sync with agricultural production and employment. The cement imports through the Port of Stockton would have minimal impact in Kern County.

As Figure 21 illustrates, much of California's cement production is in or just south of Kern County, so Stockton imports would not ordinarily be competitive in the Kern County market.

Figure 21: Locations of Major Cement Plants in California



The Port of Stockton has two additional sources of growth on the horizon. Container-on-barge service between the Ports of Stockton and Oakland has recently been initiated. This service is expected to divert truck movements of containers over the I-580 freeway (via Altamont Pass), but is not likely to be cost competitive as far south as Kern County. The other new source of cargo is iron ore moved by rail from Utah for export to China. These shipments, although having substantial long-term potential for the Port of Stockton, would not affect Kern County.

5.5 Population and Employment Factors

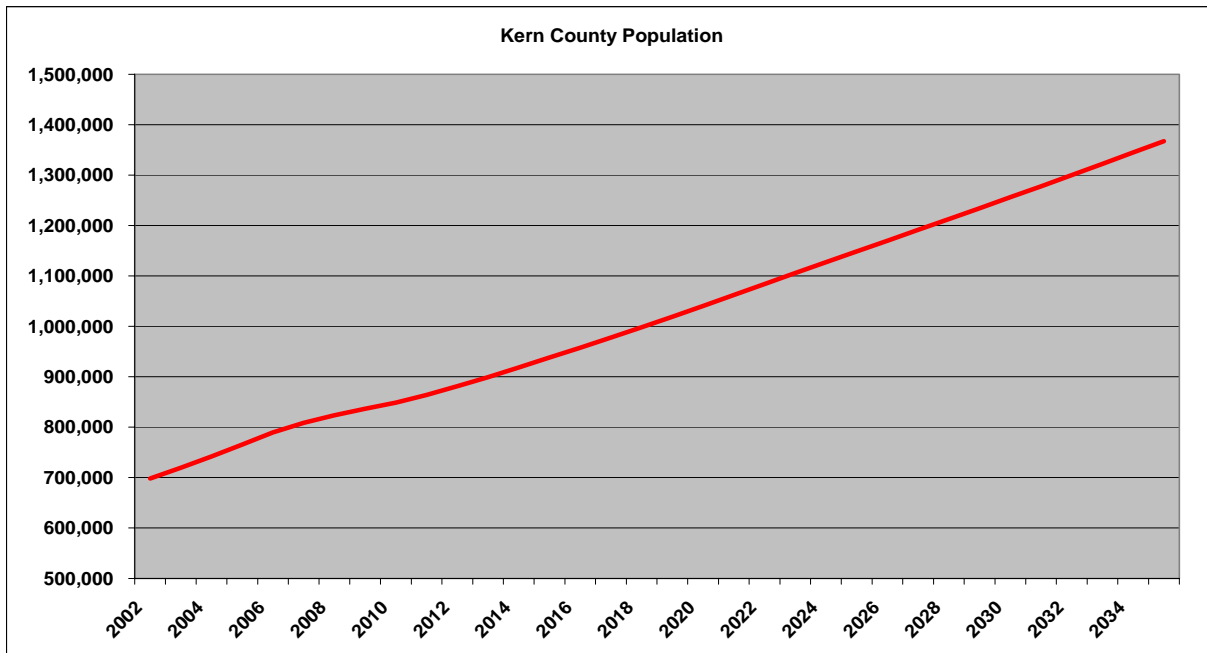
The common drivers for these freight flows are:

- Overall demand for goods in Kern County, driven by population, employment, and economic growth.
- Inbound and outbound shipment needs of specific freight-generating industries within the County.

5.5.1 Population

Figure 22 provides an illustration of the CDOF forecast for Kern County population. Between 2002 and 2010 the population was expected to grow at a compound average rate of 2.3%. That growth rate is expected to decline slightly to 2.1% annually in 2010-2020 and an average of 1.9% annually in 2020-2030.

Figure 22: Kern County Population Forecast



5.5.2 Employment

Employment is a key factor in the outlook for goods movement growth. Figure 23 provides a comparison of near-term employment growth projections between the U.S. as a whole, the State of California, and Kern County (Source: California State Department of Finance, CDOF).

Kern County is currently expected to add jobs at a faster percentage rate than either the State or the nation. CDOF forecasts call for a 3.9% near-term annual growth rate in Kern County jobs versus 3.7% for the State and 2.6% for the nation. Beyond 2012, Kern County is expected to lag the state but still add jobs faster than the U.S. as a whole.

Figure 23: U.S., California, and Kern County Employment Forecasts

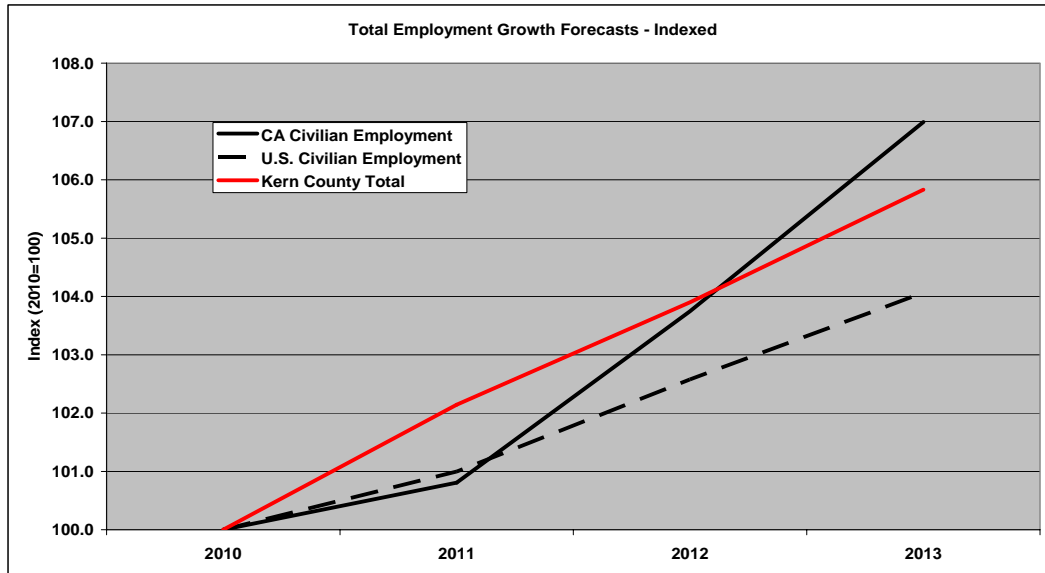
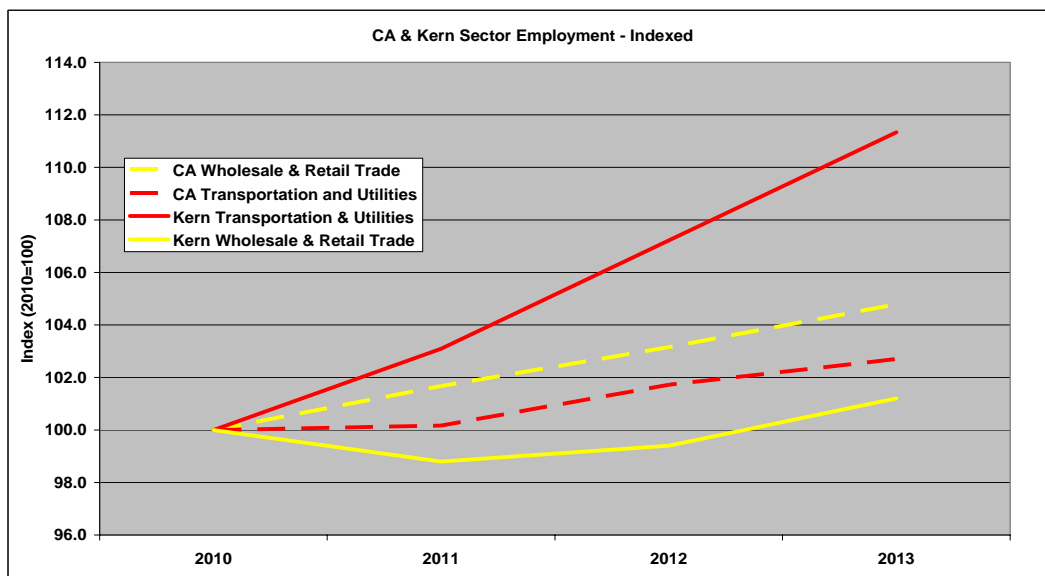


Figure 24 provides a comparison of Kern County and California near-term trends for employment in the key transportation and distribution sectors. These trends reflect new and recovered jobs in the supply chain. Kern County is expected to add transportation and utility jobs faster than the State, but in the near term is expected to lose some jobs specifically within the wholesale and retail sectors, with recovery by 2013. Many of the freight transportation jobs generated by Kern County goods movement are not in the county itself, however.

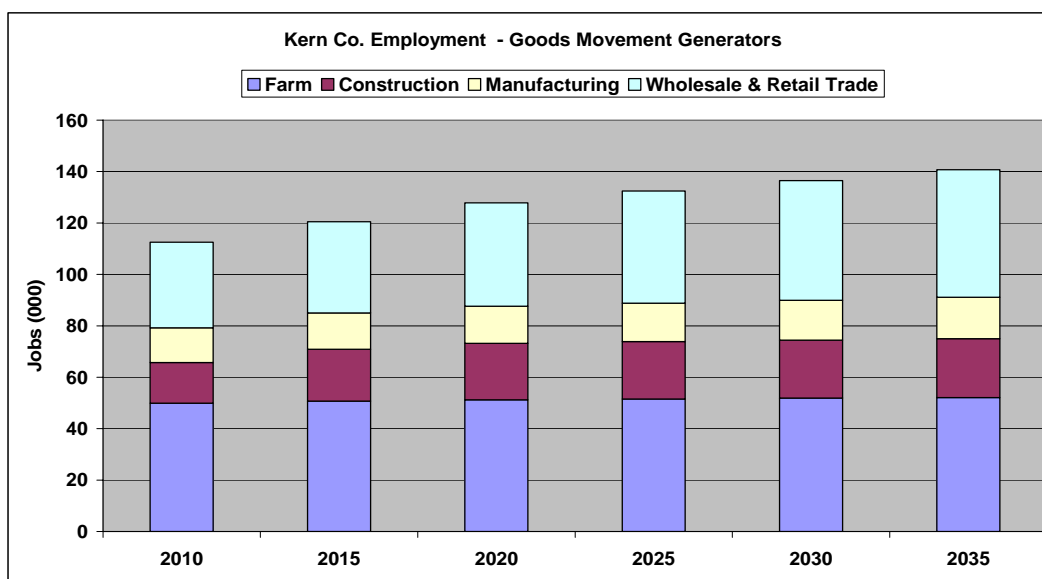
Figure 24: California and Kern County Employment Trends



The sectors likeliest to generate goods movement activity are illustrated on Figure 25. The projections suggest:

- Recovery of lost construction jobs by 2015, with slight growth thereafter
- Growing employment in the wholesale and retail trade sector
- Stable employment levels in farming and manufacturing

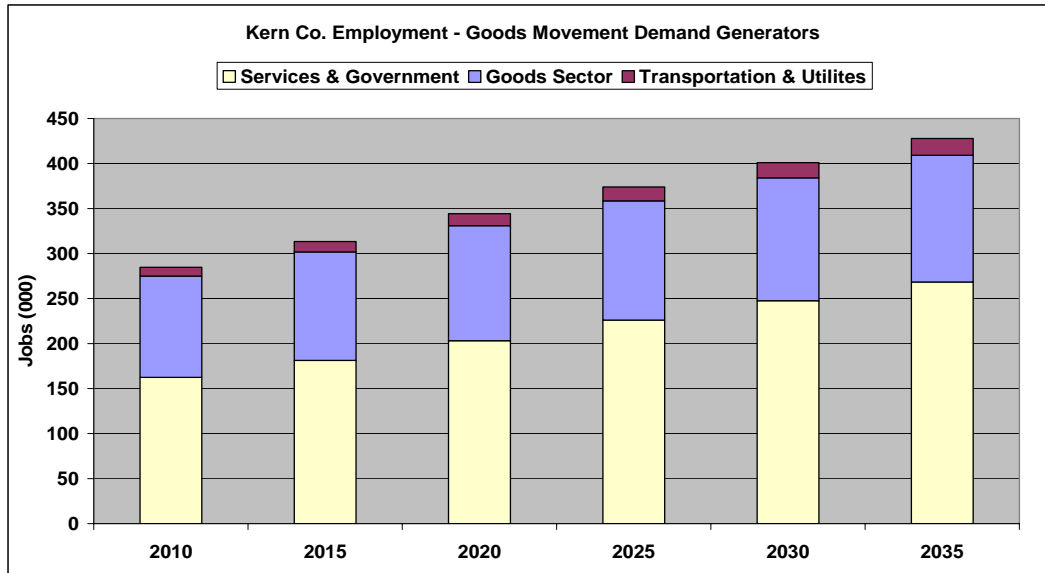
Figure 25: Kern County - Key Sector Employment



These trends imply support for moderate growth in freight transportation activity. Employment trends in farming and manufacturing may understate goods movement growth because those sectors typically show productivity gains that increase physical output faster than employment.

The overall demand for goods movement is driven by population and employment trends as well as by growth in specific freight sectors. Figure 26 provides employment projections for Kern County by major sectors.

Figure 26: Kern County Sector Employment



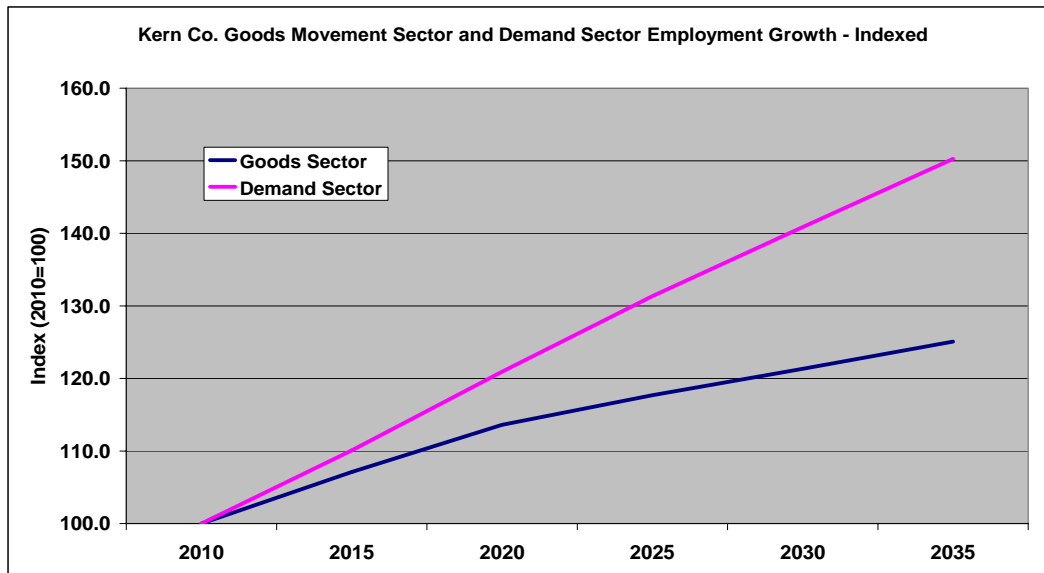
The employment projections data on Figure 26 is divided into three parts.

- Transportation and utilities, which tends to reflect freight activity but is a relatively small part of total employment
- The goods sector (farming, construction, manufacturing, wholesale and retail trade) that directly generates freight movement needs
- The services and government sector (finance, information, professional services, health and education, and government) which directly generates some freight movement but indirectly drives economic growth and supports overall demand for the goods being shipped

Overall, Kern County employment growth is expected to average 1.9% annually from 2010 to 2020, then to gradually slow from 1.7% in 2020-2025 to 1.3% in 2030-2035. Figure 27 indexes and compares goods and demand sector employment growth.

The demand sector is expected to grow faster in-line with national and state trends toward growth in service sector jobs instead of jobs in farming, manufacturing, or construction. This comparison suggests that growth in Kern County goods movement will be driven more by overall job growth and economic development than by production or demand in specific freight generating industries.

Figure 27: Kern County Indexed Sector Employment



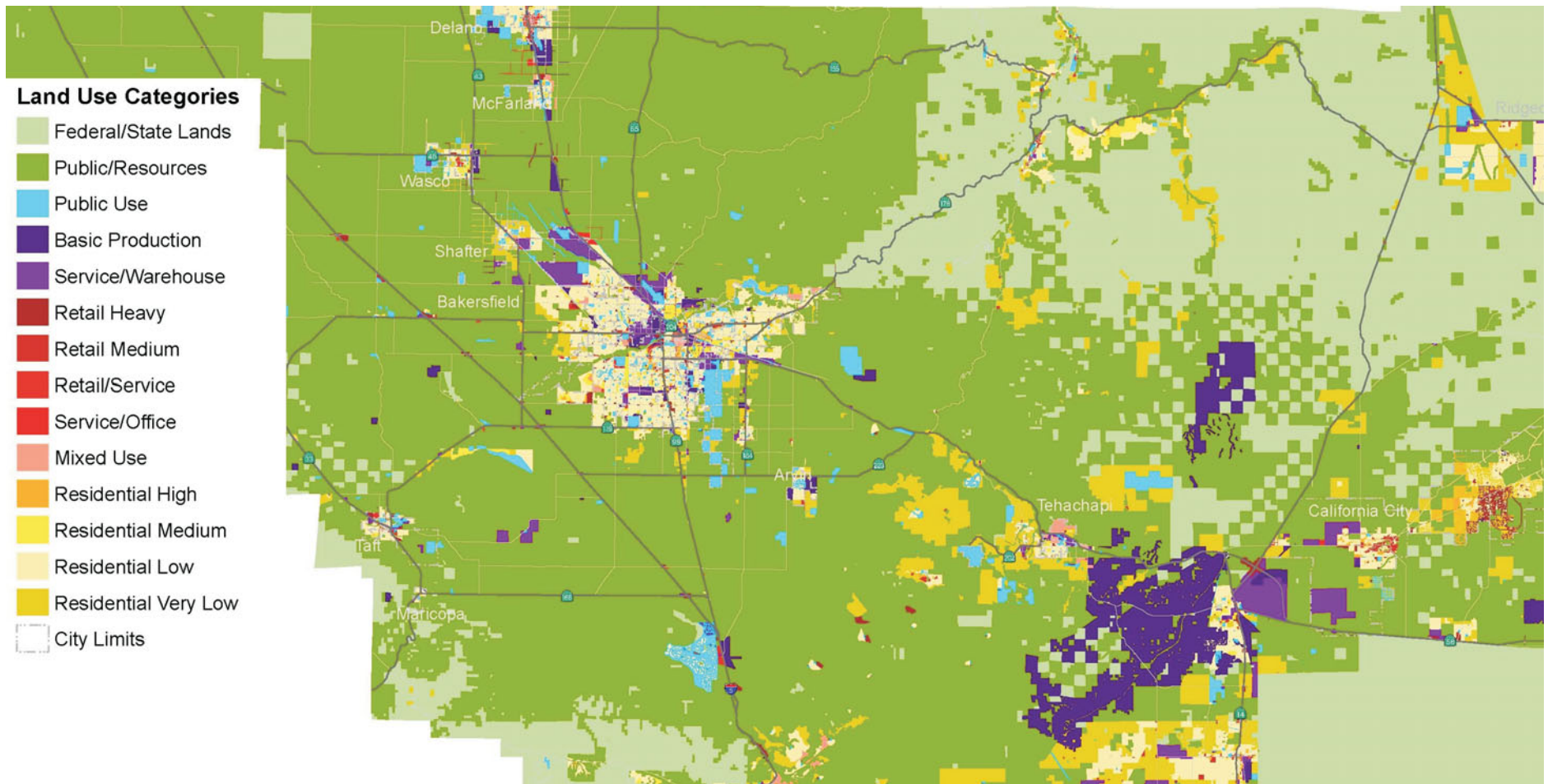
5.6 Kern County Land Use Trends

In order to determine the predominant local origins and destinations of new truck movements to, from, and within Kern County, KOA compared County-wide land use data and existing zoning and general plan information provided by Kern COG and the County of Kern. The difference between the existing zoning patterns and the planned land uses of the General Plan designations provided an illustration of the locations of potential new future development.

Commercial and industrial land uses were highlighted by this exercise. Truck distribution centers are located in industrial areas, and the destinations of cargo distribution are both of these types of land uses.

Figure 28 provides an overview of the current electronic land use map held by Kern COG. The potential major areas of growth, based on the review of this and other data sources, are in the following areas:

- Industrial and commercial development along SR-43 near 7th Standard Road, to the south of Shafter
- Industrial development along SR-99 near Lerdo Highway, to the east of Shafter
- Industrial expansion on SR-99 in Oildale
- Industrial expansion on SR-99 and SR-178 corridors, generally to the west of Bakersfield
- Industrial development to east and west of SR-99, to south of SR-58
- Scattered commercial development, at major intersections within and to west of Bakersfield
- Industrial development to east of Mojave Airport



Source: Kern COG

5.7 Implications for Kern County Goods Movement

These forecasts, each addressing separate aspects of future Kern County goods movement, all point to a relatively narrow range of growth rates.

- The FHWA FAF3 model suggests 2010-2040 growth at 1.8% for intra-regional flows, 2.5% for outbound flows, and 1.3% for inbound flows. The overwhelming majority of those flows is likely to be within the region and handled by truck.
- International container traffic is expected to grow somewhat faster, at 5.5% in 2010-2020 and 4.7% in 2020-2030 for Los Angeles-Long Beach and 5.5% and 4.0% in the same periods at Oakland.
- Kern County population, which is the major driver for inbound and local freight demand, is expected to grow at 2.1% in 2010-2020 and 1.9% in 2020-2030.
- Kern County employment, another major demand driver, is expected to grow at 1.9% in 2010 to 2020, and 1.5% in 2020-2030. The goods movement sector is expected to grow more slowly, at 1.3% and 0.7% respectively.

For the 2010-2030 forecast period these growth rates therefore range from a minimum of 1.7% (Kern County goods movement sector employment) to a maximum of 5.1% (Los Angeles-Long Beach container cargo).

The most directly applicable forecasts are the truck movement growth forecasts from the ATA for 2010-2021 and from FAF3 for 2010-2040, summarized in Table 8.

The ATA forecast growth rate of 2.3% coincides with the Kern County near-term population growth rate. The FAF3 long-term forecast of 3.1% is higher than the Kern County population and employment growth rates, but consistent with recent trends in which goods movement growth out-paces population and employment. The range of 2.3% to 3.1% defined by the first row of Table 8 therefore defines a reasonable range for likely growth in Kern County truck and overall goods movement activity.

Table 8: ATA and FAF3 National Forecasts

Mode	ATA 2010-2021	FAF3 2010-2040
Truck	2.3%	3.1%
Rail	1.2%	3.2%
Water	1.3%	1.7%
Air (include truck-air)	4.2%	6.7%
Multiple modes & mail	5.9%	4.5%
Pipeline	0.5%	1.3%
Other and unknown		2.8%
No domestic mode		3.4%
Total	2.0%	3.0%

5.8 Kern County Freight Trends

Discernable trends in trucking sector and overall growth are discussed within this section.

5.8.1 Export Growth

The current U.S. presidential administration's export growth initiative is intended to double the value of U.S. exports in five years. This initiative complements long-standing state, regional, and industry export growth efforts.

The San Joaquin Valley produces a very large share of California's exports. To the extent that these initiatives succeed in increasing those exports there will be an increasing need to move related shipments to the seaports. Almost all of California waterborne exports are eventually containerized. Containerized goods tend to move out through Oakland or other California ports for at least two reasons:

- The availability of transloaders who can containerize goods delivered to them in bulk (e.g. hay cubes or waste paper); and
- Vessel rotations, which typically call at Oakland or other ports last before crossing the Pacific to Asia or sailing to other markets.

The only significant San Joaquin Valley exports moving in bulk or break-bulk vessels are bagged rice (through Stockton) or scrap metal (through Oakland, Redwood City, or Richmond).

All waterborne exports are trucked at present, as are all imports through California seaports. There are initiatives to create rail intermodal facilities at Crows Landing and Shafter, but progress has been slow and there is no guarantee that either facility would receive competitive rail service to and from the ports. The marine highway service proposed in the California's Green Highway initiative will, if successful, move containers by barge between Stockton/Sacramento and Oakland. If any of these initiatives succeed they would create an opportunity for transloading in the Valley and reduce truck trips to and from the ports.

5.8.2 Time-Definite and Expected Shipments

While true “just in time” logistics chains are rare (and mostly confined to the automotive industry), there has been a broader trend toward “time definite” logistics. This trend involves tight pickup and delivery time windows; on-going information exchange between shipper, carrier, and consignee; and a high degree of transparency through web-enabled or “cloud” information systems. Key manifestations of this trend include:

- Increased emphasis on predictability, and reduced tolerance for incidents and delay;
- Smaller, more frequent shipments; and
- Increased use of medium-duty (Class 4 or 5) trucks.

A related trend is the increased use of expedited TL and LTL services as an alternative to either conventional trucking or air cargo. Expedited services of various types have shifted the competitive frontier between highway and air modes. FedEx, UPS, and other integrated carriers are increasing their use of expedited trucking, especially in smaller markets that have previously been served by feeder aircraft.

5.8.3 Other Trends

Inventory Growth

Wholesale and retail inventories have been growing since their low point during the recession, supported by increased but still fragile consumer confidence. Inventories are expected to grow further, but not to their pre-recession peak.

General versus Bulk Freight Growth

While much local trucking activity involves bulks – cement, animal feed, aggregates, gasoline – overall growth is expected to be greater in the general freight (merchandise) sector. Construction, agriculture, and manufacturing, which drive the bulk freight market, are not expected to grow as fast as consumer and service sectors.

LTL Sector Growth and Competition

The LTL sector has benefited from the growth of on-line retailing, and is expected to do so in the future. Expedited LTL services such as ABF TimeKeeper and Con-Way NOW have gained share from air cargo carriers, and from air cargo divisions within integrated companies such as FedEx and UPS.

TL and LTL Consolidation

The long-term trend toward consolidation of market shares in the TL and LTL sectors has been accelerated as weaker firms folded in the recession. The larger TL and LTL firms have gained share and will likely continue to gain share, although more slowly in the post-recovery period.

Reduced Private Fleet Market Share

By ATA’s estimates, the tonnage share of private fleet operators fell from 52.4% in 1990 to 48.2% by

2006. The private fleet share rose to an estimated 49.8% in 2009 as the owners/customers of “blended” for-hire/private fleets focused the available business in the private portions. In the long run, however, private fleets are expected to lose share as their owners outsource non-core functions and the efficiency gains of for-hire carriers intensifies competition.

Capital Expenditure

Capital expenditures and investments dropped off dramatically during the recession and, like inventory, are gradually returning. Industrial and commercial construction, in particular, remains in a slump and is not expected to regain momentum until 2015-2016. Investment in machinery and other categories directly related to short-term production is expected to be more vigorous.

Rail Intermodal Growth

Rail intermodal traffic volumes include both domestic and international shipments, and both fell off sharply in the recession. Prior to the recession, however, there was a noticeable trend toward greater use of rail intermodal line-hauls by TL and LTL motor carriers. This trend accelerated after a new master contract with Teamster drivers that gave unionized motor carriers greater flexibility to use intermodal services. Use of intermodal is expected to grow again once traffic levels recover and motor carriers are faced with driver shortages and escalating fuel costs.

Domestic Containerization

The growth in domestic use of rail intermodal service has been accompanied by growth in the use of domestic containers rather than moving highway trailers on the rails. While international containers are 20', 40', and sometimes 45' long, domestic containers are almost always 53' long. A tractor pulling a 53' domestic container on chassis is an STAA (size determined by the Surface Transportation Assistance Act) truck, and a “California Legal” truck. Such trucks are restricted to STAA routes, “CA Legal” routes, and Advisory routes by Caltrans. Accommodating this trend will therefore likely require extension of the STAA/CA Legal route system.

Slow Rail Carload Growth

Akin to the growth differential between general freight and bulk freight in the trucking sector, bulk rail carload movements are expected to grow more slowly than rail intermodal volumes. In recent years one exception has been the growth of corn and corn-ethanol shipments for gasoline additives. In California, however, a conversion from domestic corn ethanol to imported sugarcane ethanol is on the horizon due to proposed regulations affecting the life-cycle carbon footprint of ethanol produced from corn. For the Kern COG region, there may be potential rail carload growth in connection with rail/truck transloading. Building materials and agricultural chemicals are prime candidates for transloading.

Marine Highway Potential

While considerable effort has gone into Marine Highway studies and the California's Green Trade Corridor project between Oakland, Stockton, and West Sacramento the recession has set back the process. With sharply reduced trade and excess trucking capacity it will be difficult for a barge or domestic vessel service to have a significant impact in California for the near future. The long-run potential of a marine highway service at the Port of Stockton is still a matter for speculation, as a strong commercial market has yet to emerge.

The long-run regional freight flow impact would consist of up to 250 truck trips each way diverted from the I-580 Altamont Pass corridor between Alameda and San Joaquin counties for each vessel sailing (1-2 per week). For Kern County truck activity, there is unlikely to be a discernable difference. Such shipments would continue to use the I-5 corridor, whether between Kern County and Oakland or Kern County and Stockton /Sacramento.

5.9 Kern County Traffic and Truck Activity Trends

Another data set that was reviewed to qualify the trucking activity growth patterns identified within this document was truck volume patterns estimated in the Kern COG regional traffic model. The growth of both total vehicle/truck traffic and truck traffic only were reviewed, in order to determine where general traffic activity is estimated to increase and where truck travel is also expected to increase. It should be noted that Kern COG has not validated the truck portion of the regional model, so the information reviewed should be considered as purely supplemental information and not a valid cross-check of economic growth estimates provided earlier in this report.

Figure 29 provides a summary of estimated general traffic (autos and trucks) increases between the year 2011 through the model buildout year of 2035. Figure 30 provides the same type of summary for truck volumes only (as noted above, these are a non-validated cohort of the overall model volumes).

The following locations are estimated to realize traffic growth of more than 100%, based on the data illustrated on Figure 29:

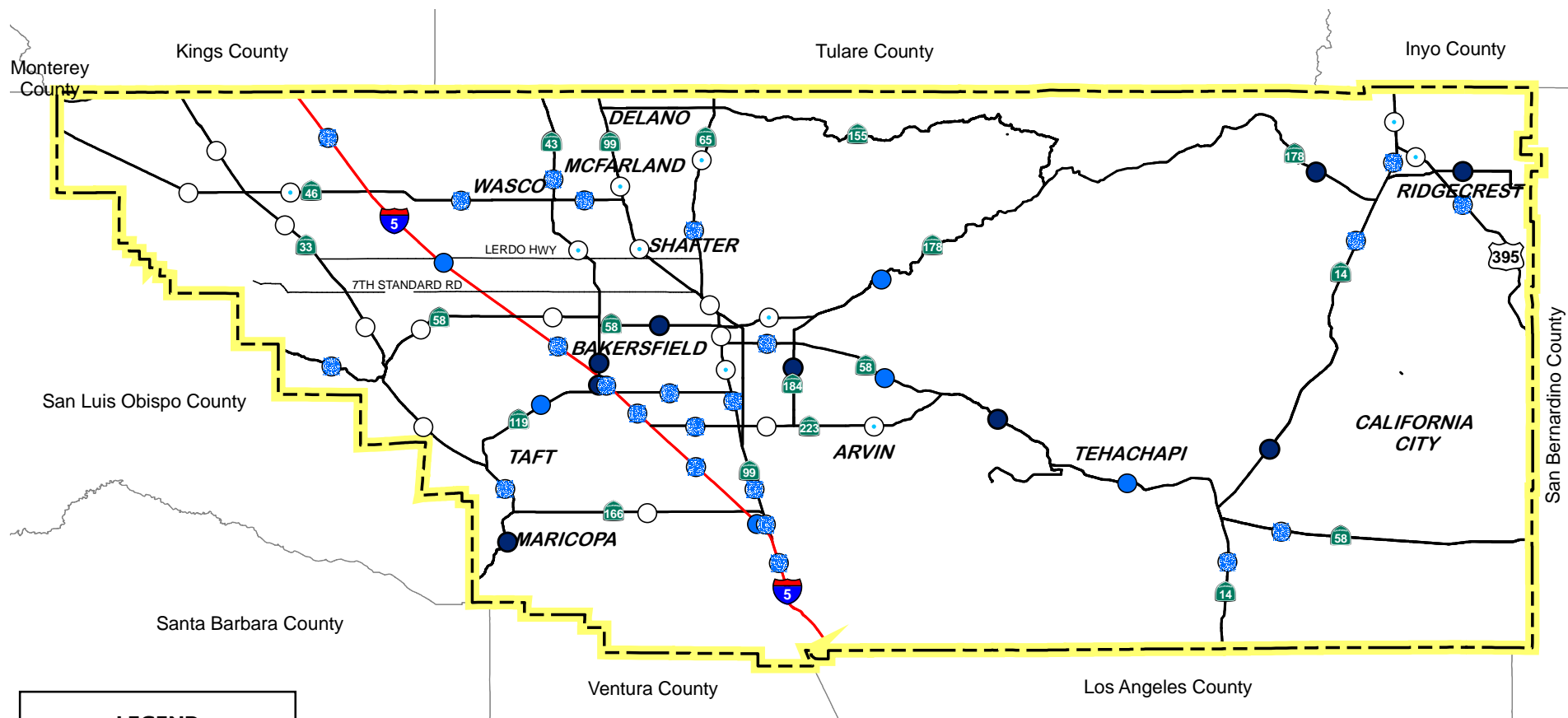
- SR-58 to the west of Bakersfield
- SR-33 to the south of SR-166
- SR-43 in the vicinity of the I-5 interchange
- SR-184 between SR-58 and SR-223
- SR-58 to the west of Tehachapi
- SR-14 to the north of SR-58
- SR-178 to the west of SR-14 and near Ridgecrest

The following locations are estimated to realize truck-only traffic growth of more than 100%, based on the data illustrated on Figure 30:

- SR-33 in vicinity of intersection with SR-166
- SR-43 in the vicinity of the I-5 interchange
- SR-58 to the west of Bakersfield
- SR-99 to the north of the SR-58 interchange
- SR-58 in the vicinity of Tehachapi and to the east of SR-14

The large truck traffic increase on this segment of SR-33 is likely due to increased demand between Ventura County and Kern County, and local agriculture and oil business growth.

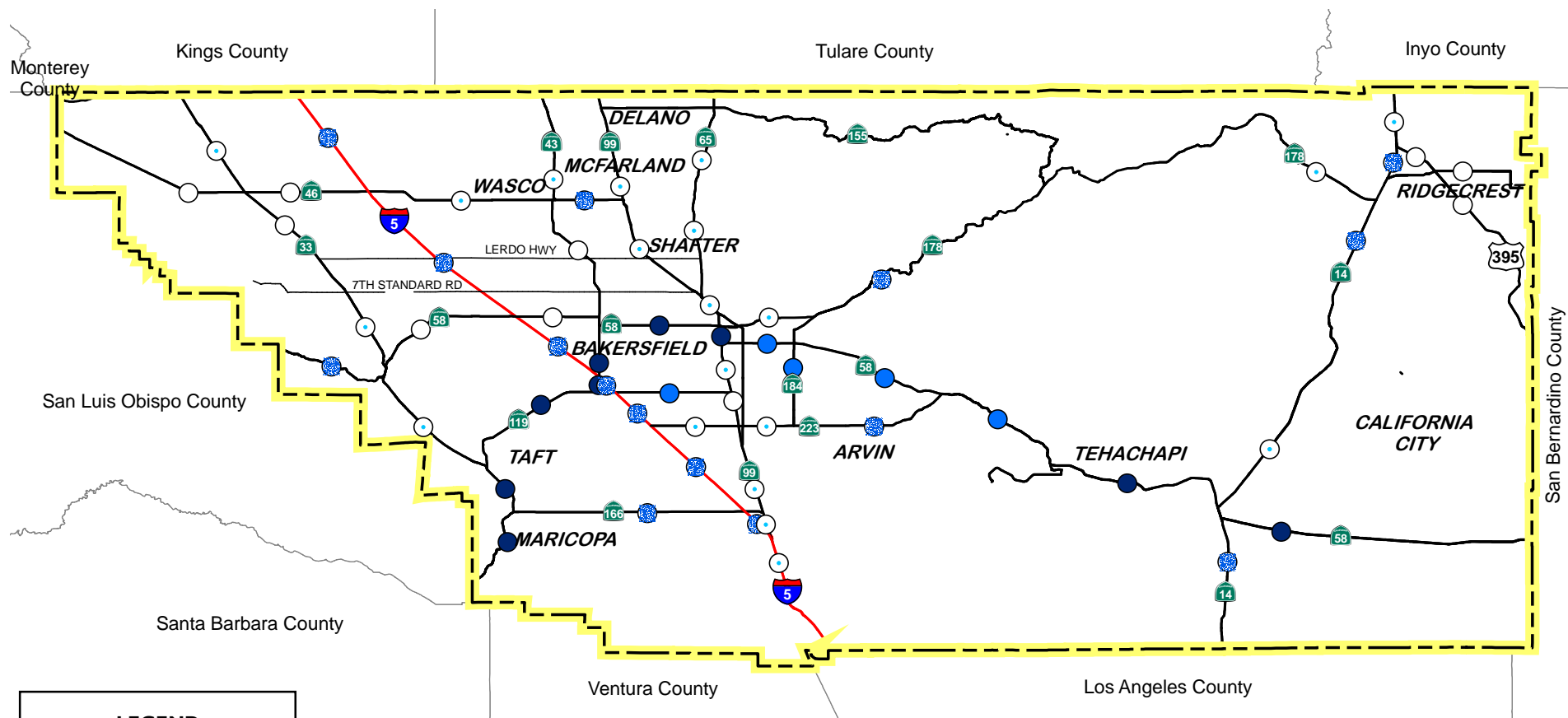
It should be noted that, as described above, the truck-only volumes have not been validated within the Kern COG model and are therefore provided as purely supplemental information.



LEGEND

- Kern County Study Area
- Less than 25%
- 25.1% to 50%
- 50.1% to 75%
- 75.1% to 100%
- More than 100%

Source: U.S. Census Bureau, Kern County, Kern RTP Model



LEGEND

- Kern County Study Area
- Less than 25%
- 25.1% to 50%
- 50.1% to 75%
- 75.1% to 100%
- More than 100%

Source: U.S. Census Bureau, Kern County, Kern RTP Model

6.0 Evaluation of Planned Projects

Evaluations were conducted of the potential impacts on goods movement patterns of near-term and long-term transportation projects within the County. Projects were mapped, and current and future roadway operations and major trucking patterns were considered. The effects on the regional highway network capacity of planned projects were considered in the evaluation, using concepts of both total traffic and truck traffic growth and level of service, with the latter being the primary measure of the quality of roadway operations.

6.1 Overview

The project team's effort under Task 4 was based on the following primary elements:

1. Data collected in Task 2, especially commodity flow and truck count data.
2. Information contained in previous studies identified and reviewed in Task 2.
3. Insights into future goods movement flows, patterns, and practices from Task 3.
4. Team knowledge of trucking industry routing and dispatching practices.
5. An inventory of relevant newly completed, under construction, or planned transportation projects compiled in consultation with Kern COG staff.
6. A stakeholder attended by regional fleet operator representatives.

As was learned in numerous recent truck movement studies for Kern COG and other Southern California planning agencies, truck drivers and their dispatchers make highly pragmatic routing choices based on the following:

- Shipper and receiver locations
- Distance and travel time
- Safety
- Expected congestion
- Specific routing bottlenecks
- The need for other steps, servicing
- Availability of designated truck routes
- Truck weight or size restrictions, if any

These considerations lead truck drivers and dispatchers to use specific routes for specific purposes. For example, SR-58 is used to bypass congestion in central Bakersfield. Drivers also avoid some routes for specific reasons. In other studies conducted by the team, it was learned that trucking companies have prohibited drivers from using specific routes because they were considered too dangerous. It has also been found that some trucks detour on rural roads due to difficulty in negotiating tight right turns at specific freeway exit ramps or interchange

connectors.

The essence of the Task 4 effort was the achievement of an understanding of existing goods movement flow patterns and routing practices, the determination of the rationale behind those patterns and practices, and the creation of projections for how these would change with the completion of current and future transportation projects.

The primary conclusions from this analysis are as follows:

- Many long-haul patterns (I-5 to Los Angeles Basin, SR-58 to points east) will not change with planned improvements.
- The most valuable improvements for trucking companies are connections between the SR-99 and I-5 corridors, with the most viable connection extending westward from the Centennial Corridor and its eventual connection to SR-99.
- Future connections from the southern portion of I-5 within Kern County to the eastern SR-58 corridor (through the community of Arvin or a similar route) would be valuable.
- Some congestions points will not likely be resolved within the timeframe of the current Regional Transportation Plan, such as slow truck speeds on mountain grades with limited lanes and restrictive geography (I-5 at Grapevine).

More details of the related analysis methodology, outcomes, and conclusions are provided in the remainder of this document. Additional limited mapping will be completed for the final project report – including a location map for problem areas identified by stakeholders and a general trucking-related improvement priorities map.

6.2 Traffic and Trucking – Overall Trends

The initial steps in the evaluation of planned area highway network improvements was compilation of planned project lists, mapping of project locations by route and milepost start and end points, and an evaluation of existing and future capacity constraints and known goods movement flow patterns and major trucking routes.

Capacity constraints created during construction, and the benefits of completed projects on trucking routes were considered. Potential impacts to routes preferred by the trucking industry were identified. Capacity enhancements and the associated projected level of service within improved corridors were mapped within the project GIS database. The status of projects, in terms of both timeframe and funding, were mapped as overlays to the compiled data.

The overall review of potential projects, traffic data, and stakeholder input served to distinguish projects likely to change routing practices from those likely to just improve circulation on existing routes.

Goods movement in the Kern County region is related to land use and economic supply and demand from a local and regional perspective and estimates of growth of goods movement in the area were discussed in the Task 3 effort. The freight growth rates were then compared to relevant population and employment trends within Kern County from which implications for Kern County freight can be derived.

These forecasts, each addressing separate aspects of future Kern County goods movement, all point to a relatively narrow range of growth rates.

- The FHWA FAF3 model suggests 2010-2040 growth at 1.8% for intra-regional flows, 2.5% for outbound flows, and 1.3% for inbound flows. The overwhelming majority of those flows is likely to be within the region and handled by truck.
- International container traffic is expected to grow somewhat faster, at 5.5% in 2010-2020 and 4.7% in 2020-2030 for Los Angeles-Long Beach and 5.5% and 4.0% in the same periods at Oakland.
- Kern County population, which is the major driver for inbound and local freight demand, is expected to grow at 2.1% in 2010-2020 and 1.9% in 2020-2030.
- Kern County employment, another major demand driver, is expected to grow at 1.9% in 2010 to 2020, and 1.5% in 2020-2030. The goods movement sector is expected to grow more slowly, at 1.3% and 0.7% respectively.

For the 2010-2030 forecast period these growth rates therefore range from a minimum of 1.7% (Kern County goods movement sector employment) to a maximum of 5.1% (Los Angeles-Long Beach container cargo). The growth rate range of 2.3% to 3.1% therefore provides a reasonable estimate of likely growth in Kern County truck and overall goods movement activity.

Another data set that was reviewed to qualify the trucking activity growth patterns identified within this document was from the Kern COG regional traffic model. The growth of both total vehicle/truck traffic and truck traffic only were reviewed, in order to determine where general traffic activity is estimated to increase and where truck travel is also expected to increase. It should be noted that Kern COG has not validated the truck portion of the regional model, so the information reviewed should be considered as purely supplemental information and not a valid cross-check of economic growth estimates provided earlier in this report.

Under the Task 3 effort, a summary was created of estimated general traffic (autos and trucks) increased from the year 2011 through the model buildout year of 2035. The following locations are estimated to realize traffic growth of more than 100 percent, based on the data illustrated within the Task 3 deliverable:

- SR-58 to the west of Bakersfield
- SR-33 to the south of SR-166
- SR-43 in the vicinity of the I-5 interchange
- SR-184 between SR-58 and SR-223
- SR-58 to the west of Tehachapi
- SR-14 to the north of SR-58
- SR-178 to the west of SR-14 and near Ridgecrest

The following locations are estimated to realize truck-only traffic growth of more than 100 percent:

- SR-33 in vicinity of intersection with SR-166
- SR-43 in the vicinity of the I-5 interchange
- SR-58 to the west of Bakersfield
- SR-99 to the north of the SR-58 interchange
- SR-58 in the vicinity of Tehachapi and to the east of SR-14

It should be noted that, as described above, the truck-only volumes have not been validated within the Kern COG model and are therefore provided as supplemental information. They will be included in the final report to provide illustrations of this discussion.

6.3 Trucking Trends in Major Corridors

Figure 31 provides an illustration of the larger importance of the SR-58 corridor, and connecting facilities within Kern County, in regional freight mobility. The three large national arteries that run east-to-west on the map and have western termini within the southwest area of the United States include (from north to south) the I-15/I-70, the I-40, and the I-10 corridors.

Both the I-15 and I-40 routes link to metropolitan regions, the ocean ports in California, and the north-south arteries of SR-99 and I-5 via the SR-58 corridor in Kern County.

Figure 31: National Truck Route Arteries



Source: *Global Gateways Development Program, State of California*

State-wide truck distribution patterns – from the surveys conducted for the recent I-5/SR-99 and SR-58 corridor studies – are provided in Figure 35 (for northbound/westbound patterns) and Figure 36 (for southbound/eastbound patterns).

These figures illustrate the function of SR-58 as a conveyor of truck trips from other regions into Southern California. The percentage of westbound SR-58 truck trips that come from other states is 64.6 percent. The percentage of eastbound SR-58 truck trips that are destined for other states is 68.3 percent.

[6.3.1 SR-58 Corridor Outlook](#)

The SR-58 facility is the major Kern County east-west connector. The role SR-58 plays was confirmed in the recent study for the SR-58 corridor. The truck trip distribution patterns for this corridor, based on the trucker surveys conducted for the study, are illustrated by Figure 35 (eastbound/outbound trips) and Figure 36 (westbound/inbound trips). These figures denote percentages of the total of long-haul truck trips that use SR-58, allocated to each general origin and destination depicted within the figures.

The strong linkages between westbound SR-58 truck movements, and northbound flows on both the SR-99 and I-5 corridors, and between the opposite movements as well, can be seen on Figure 37 (66 percent of eastbound SR-58 trips originating from SR-99 south and eight percent originating from I-5 south) and Figure 38 (73 percent of westbound trips destined for SR-99 north and 11 percent destined for I-5 north).

Route 58 is identified as a “Priority Global Gateway” east of Interstate 5 for goods movement by the *Global Gateways Development Program* document, published in 2002. The Program was developed by the State of California as a “reflection of stakeholder perspectives on the urgency and options to facilitate the movement of goods in California.”

Figure 32: I-5/SR-99 Northbound and SR-58 Westbound Combined Statewide Origins and Destinations

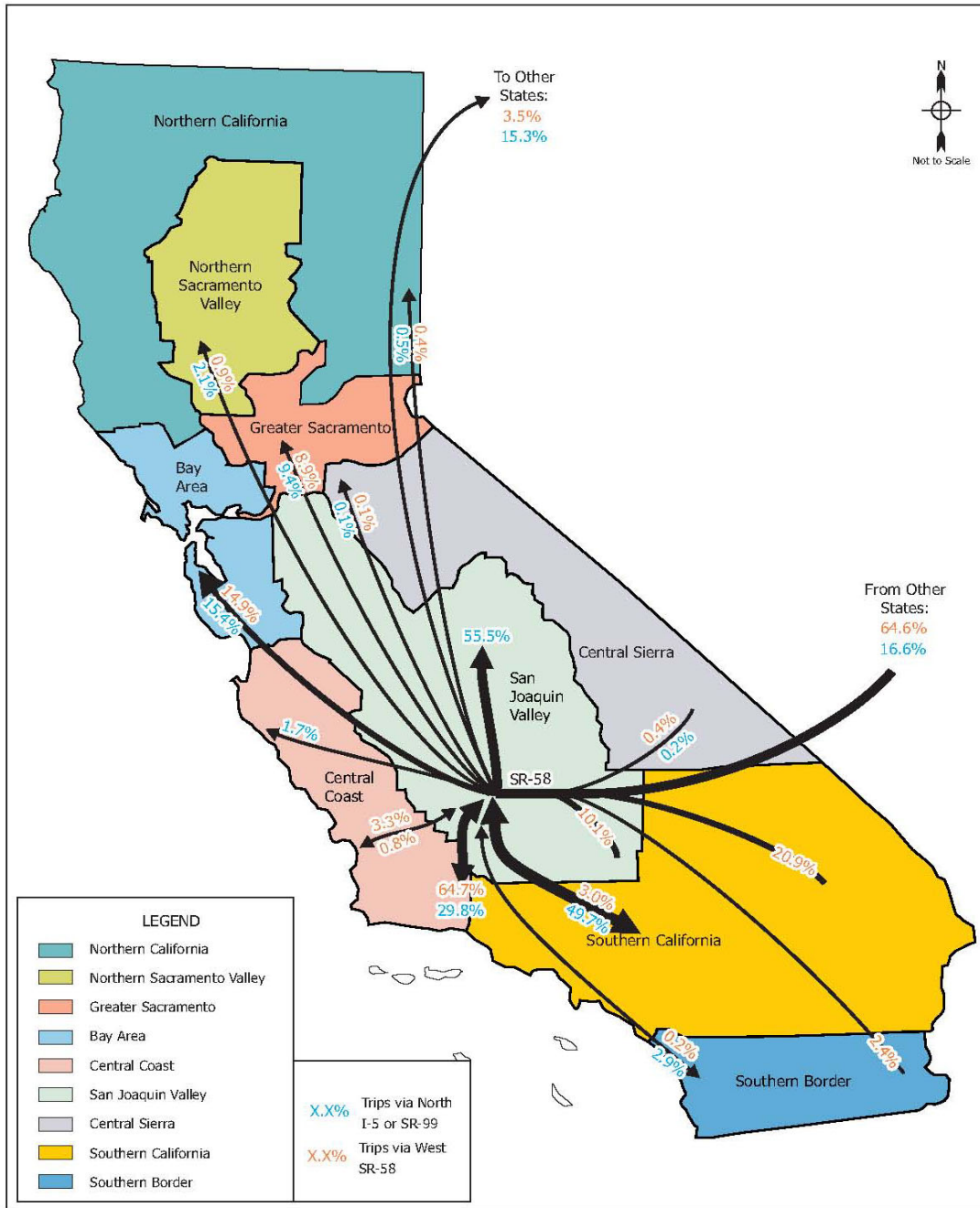


Figure 33: I-5/SR-99 Southbound and SR-58 Eastbound Combined Statewide Origins and Destinations

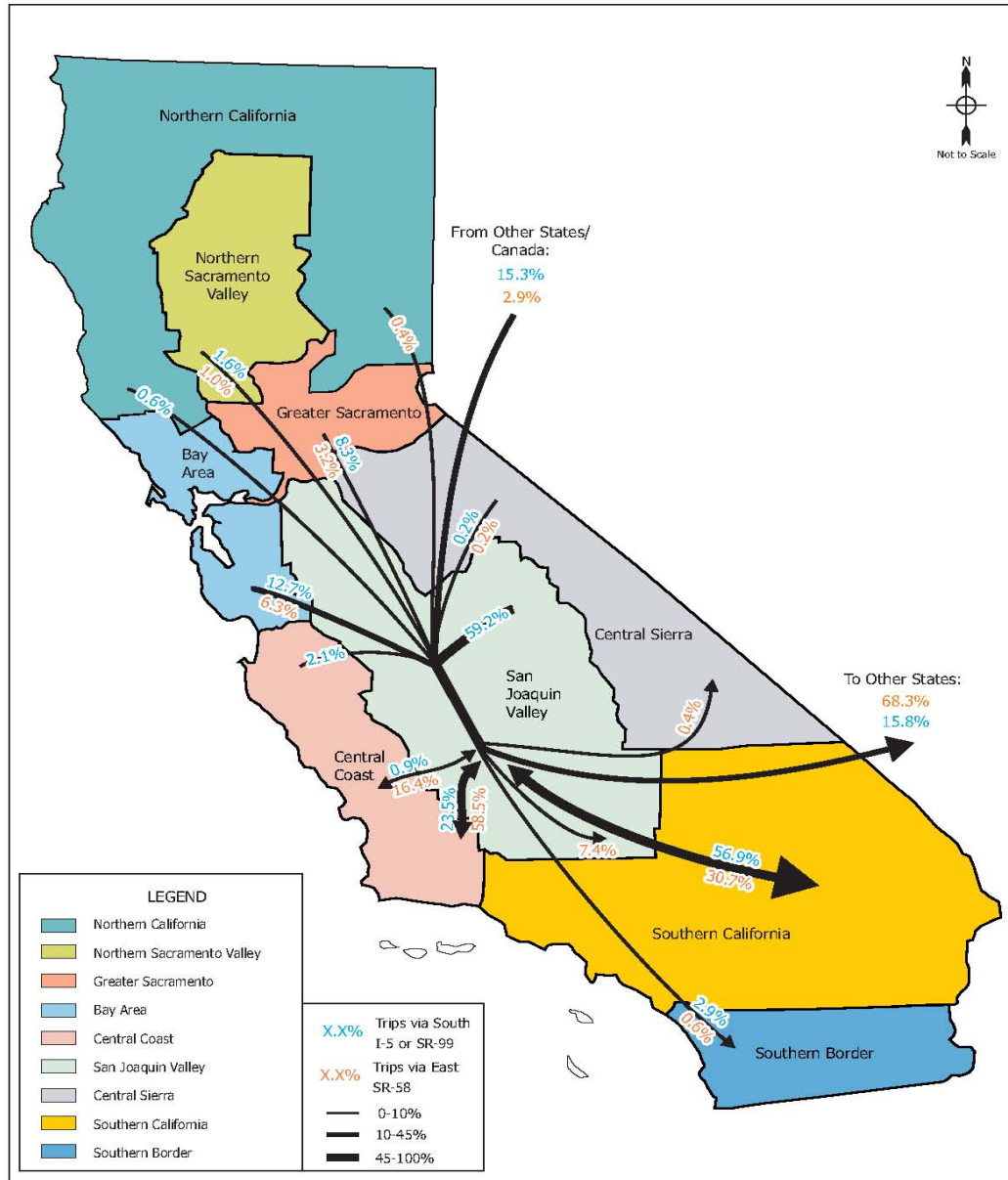


Figure 34: SR-58 Eastbound Long-Haul Truck Movements - Origins and Destinations

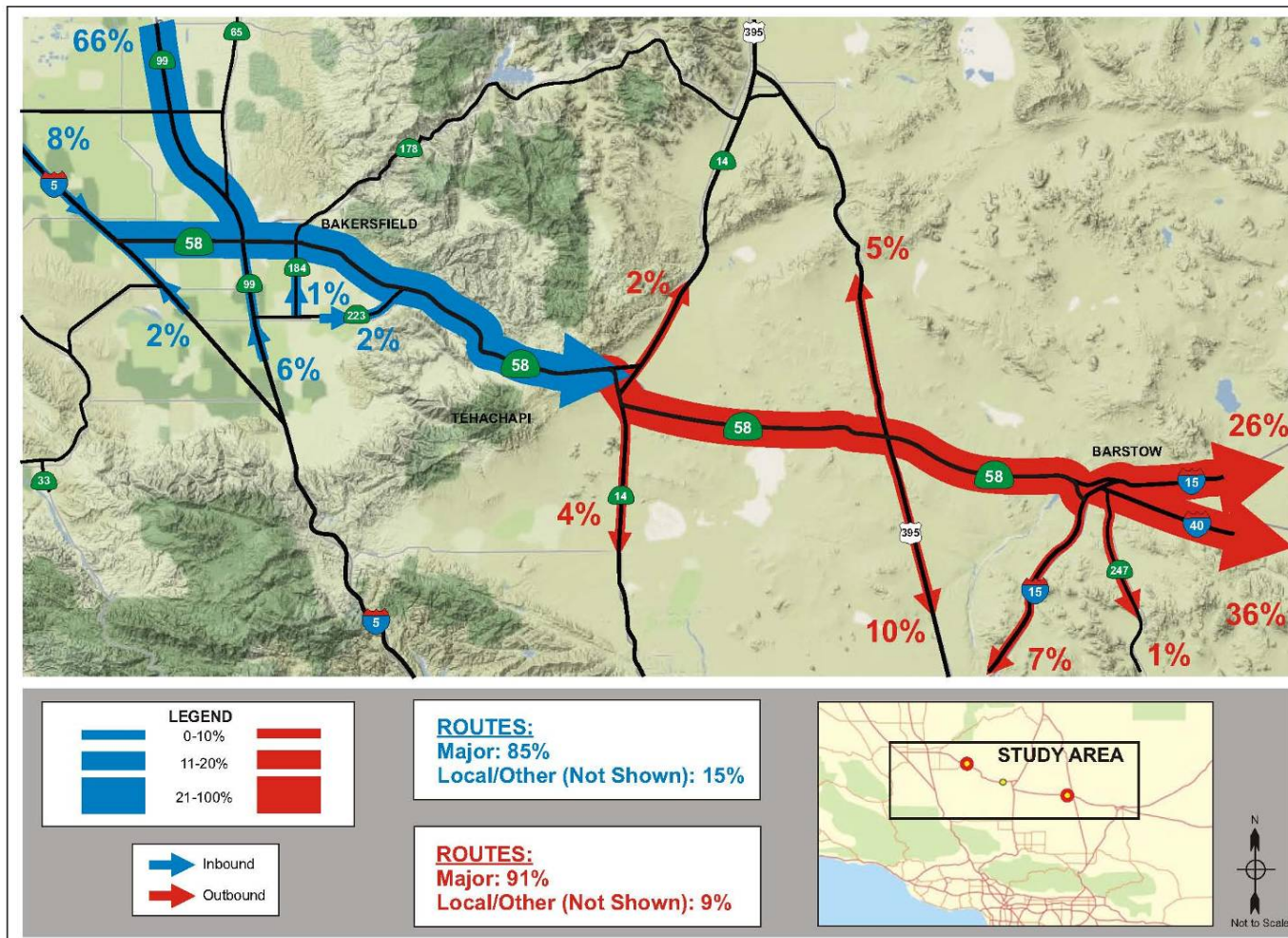
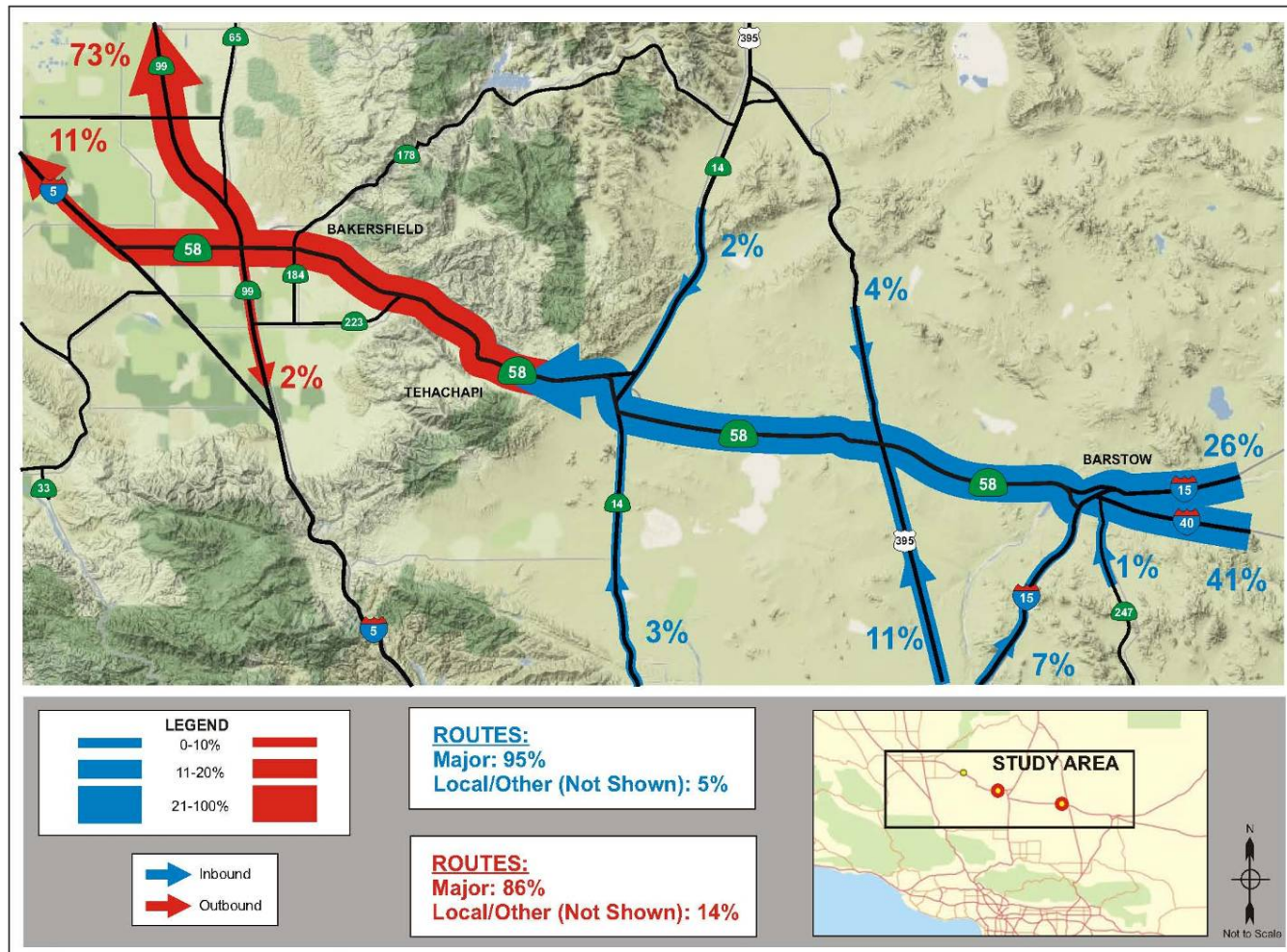


Figure 35: SR-58 Westbound Long-Haul Truck Movements - Origins and Destinations



The ability of the SR-58 facility to accommodate current and future projected truck traffic is affected by three factors:

- **SR-58's inherent capacity.** While most of SR-58 is four lanes, there are two-lane portions (notably east of the I-5 interchange).
- **Adjacent land use and traffic generation.** SR-58 passes through urban Bakersfield adjacent to exclusive industrial and commercial development. Besides generating auto and truck traffic on SR-58, this adjacent development impedes quick, low-cost capacity improvements.
- **The SR-58/SR-99 "jog".** Making the critical connection between I-5 and inter-regional routes to the east (e.g. I-40) requires truckers to use a portion of SR-99 to link the "misaligned" segments of SR-58. The high AADT and peak hour LOS issues on this critical segment of SR-99 create a bottleneck and can lead truckers to use alternate routes that are less desirable from a regional planning perspective.

Projected regional traffic growth would lead to LOS deterioration on vital east-west connections by 2035. Even with planned/programmed improvements, SR-58 to the west of SR-99 would be at LOS F, as would portions of SR-46 and SR-119. Under those circumstances it would be logical to expect increased truck trip diversions to secondary alternatives such as Lerdo Highway, 7th Standard Road, and SR-223.

Planned improvements would minimize the need for diversions and concentrate as much truck traffic as possible on the main routes capable of handling such traffic. As referenced above, the recent SR-58 study found that westbound trips on SR-58 split when they reach Bakersfield, with a majority heading north on SR-99 and a sizeable number heading west on SR-58 to I-5. Improved connections to both north-south arteries would greatly improve travel times between the SR-99 and I-5, and within transitions at interchanges/ramps.

The LOS improvements that would occur with full funding of planned improvements would address most of these route combinations, most importantly the critical SR-99/SR-58 combination for trucks moving to and from points north of Bakersfield. The remaining LOS F segment on SR-58 west of SR-99 would affect about 8% of the eastbound trucks and 11% of the westbound trucks.

The short stretch of highway operating at LOS D/F between SR-99 and SR-184 would be the more significant remaining bottleneck in the SR-58 corridor, but would be short – about three miles from SR-99 to Cottonwood Road. As the summary charts indicate this segment carries one of the highest AADT totals in the region, of which about 18% are trucks.

6.3.2. SR-99 Corridor Outlook

The division of north-south truck traffic between I-5 and SR-99 is a key element in goods movement by highway. Truck fleet operators and drivers prefer to use I-5 for longer trips to, from, or through the Central Valley and to use SR-99 to access shippers, receivers, and service locations within the region. This preference aligns with regional and state planning objectives. Both private and public goals, however, rely on efficient east-west connections.

The proposed improvements would reduce LOS levels along SR-99 north and south of Bakersfield. The

segment between Lerdo Highway and 7th Standard Road near Shafter would still be at LOS level D, as would the segment between SR-58 and SR-119. Both of these segments are heavily used by both cars and trucks, and will inevitably slow goods movement in the region. In the absence of these improvements, however, those segments would reach LOS level F by 2035.

The 15.5-mile segment of I-5 south of the SR-99/I-5 split will remain at LOS levels E/F even with the anticipated improvements. Trucks account for 28% of the AADT, but only 9% of the peak hour count. However, the mountainous nature of the southern end of this segment limits truck speeds under any circumstances.

6.3.3 Other Routes

The remaining segments of LOS level F on SR-178 east of Bakersfield and LOS level E on SR-184 south of SR-58 are less important to goods movement flows. The affected segments of SR-178 carry only about 5% trucks (9% in peak hour). On SR-184 just south of SR-58, trucks constitute 20% of the AADT but only 4% of the peak hour counts.

6.4 Kern County Land Use Trends

In order to determine the predominant local origins and destinations of new truck movements to, from, and within Kern County, KOA mapped County-wide land use data from existing zoning and general plan information provided by Kern COG. The data set is a compilation of City and County land use plan data. The difference between the existing zoning patterns and the planned land uses of the General Plan designations provides an illustration of the locations of potential new future development.

Commercial and industrial land uses were highlighted by this exercise. Truck distribution centers are located in industrial areas, and the destinations of cargo distribution are both of these types of land uses. The potential major areas of identified growth are in the following areas:

- Industrial and commercial development along SR-43 near 7th Standard Road, to the south of Shafter
- Industrial development along SR-99 near Lerdo Highway, to the east of Shafter
- Industrial expansion on SR-99 in Oildale
- Industrial expansion on SR-99 and SR-178 corridors, generally to the west of Bakersfield
- Industrial development to east and west of SR-99, to south of SR-58
- Scattered commercial development, at major intersections within and to west of Bakersfield
- Industrial development to east of Mojave Airport

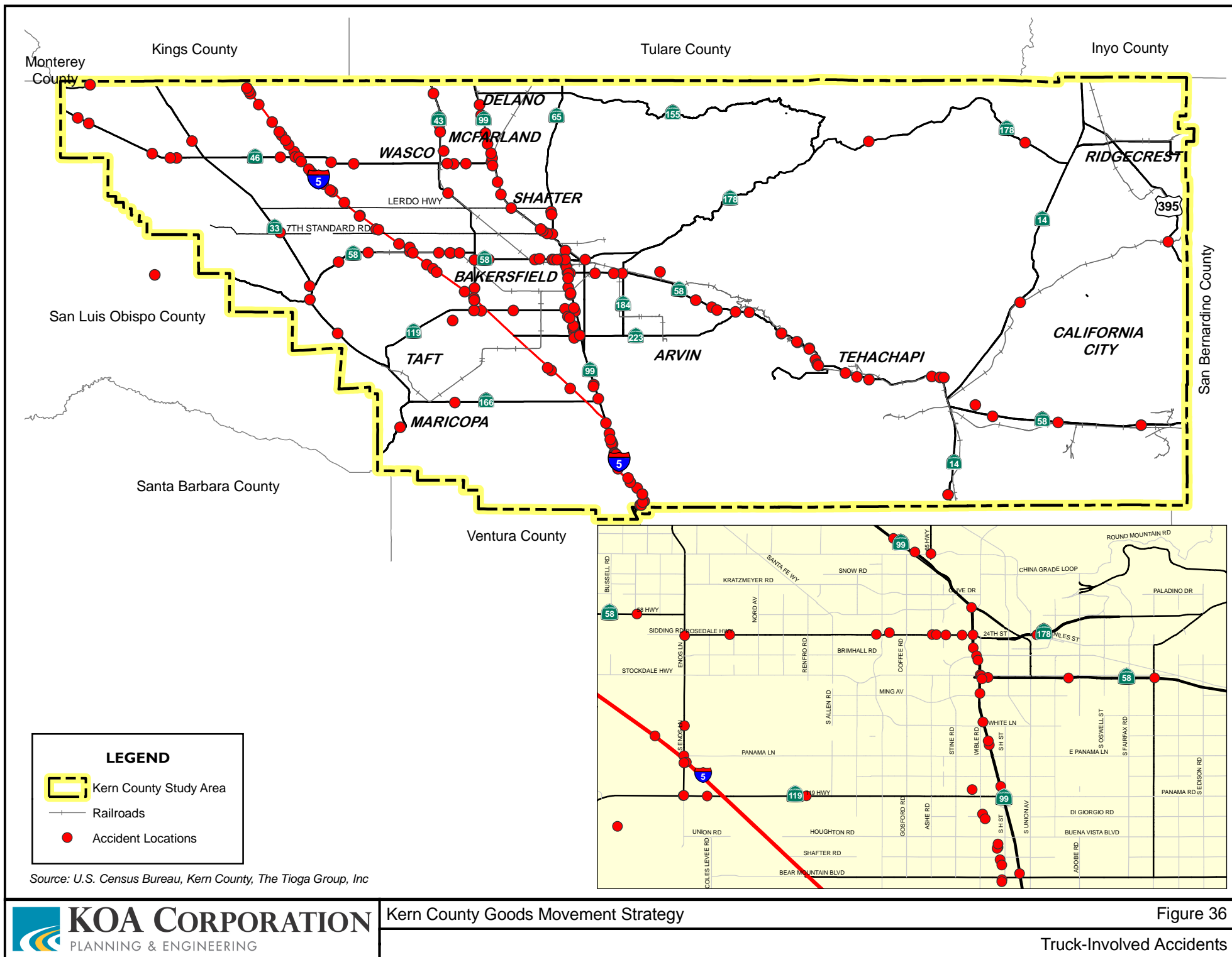
6.5 Truck Accident Patterns

The study team also obtained the 2008 CHP SWITRS accident data for Kern County. These were filtered to isolate accidents involving trucks (regardless of which vehicle was at fault). These data were segregated by severity, in terms of property damage only, other injuries (visible injury or complaining of pain), severe injuries, and fatalities. Most of the documented accidents resulted in only property damage.

Figure 36 illustrates the distribution of truck-involved accidents in Kern County for 2008. The accidents follow the heavily traveled routes, and are most prevalent in the Bakersfield area where both truck and passenger vehicle traffic are the most dense. As the figure indicates, there are also accident clusters on I-5 near Lost Hills and Buttonwillow, in the Delano-Famoso area of SR-99 and north of Lebec.

The inset map within Figure 36 illustrates that in the Bakersfield area the truck-involved accidents tend to be either on SR-99 or SR-58, particularly on the arterial portion of SR-58 to the east of SR-99.

While these accidents are fairly dispersed throughout the County, there are concentrations of such accidents where traffic volumes are high or where there are multiple interchanges. These patterns imply locations where safety studies may need to be pursued in the future, and where opportunities may exist for safety-related improvements. Trucker route choice may be influenced to some extent by these locations, where alternate routes exist.



6.6 Stakeholder Input

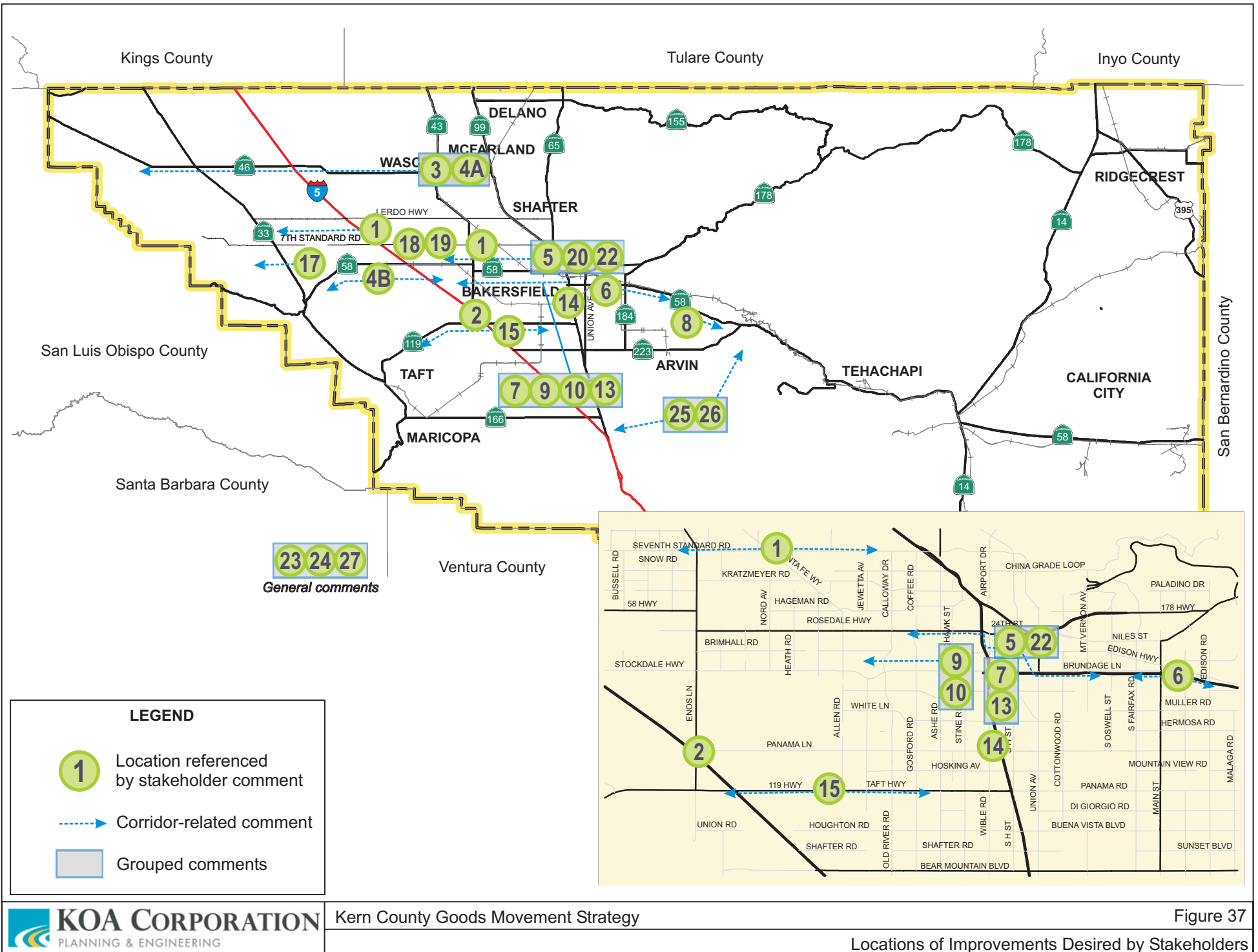
The project team and Kern COG staff met with local trucking fleet managers at the Kern COG offices on May 16, 2012. The focus of the meeting was to achieve an understanding of the major trucking routes used by these fleet operators, share what the team learned from data collection and analysis, and get input on where priority improvements should be implemented.

Table 9 provides a summary of the comments provided by the stakeholders, organized by freeway and State Route number. Figure 37 provides an illustration of the interchange/corridor locations referenced by the stakeholder comments.

Table 9: Stakeholder Comment Summary by Route

Comment #	Related Highway/Freeway Route(s)	Details
1	I-5	7 th Standard Road connections to I-5 needs improvement. Use of that roadway is common to avoid SR-58. Connections slow to SR-33, and between Santa Fe Way and SR-43.
2	I-5	South on Enos Lane/SR-43 – improvement needed to connect to I-5. Separation of Panama Lane from I-5 interchange should be rectified.
3	SR-46, etc	Need better access to coastal routes.
4	SR-46 and Rosedale Highway (SR-58)	These are preferred routes to reach western points.
5	SR-58	Has sporadic congestion – different access route around this congestion is needed.
6	SR-58	Trucks in both travel lanes in each direction, in four-lane segments, inhibiting flow.
7	SR-58	Junction with SR-99 is problematic. Northbound SR-99 to eastbound SR-58 transition is shared with exit ramp onto Wible Road.
8	SR-58	Slow traffic on SR-58 to east of Bakersfield where trucks must begin climb over Tehachapis. The worst is the first grade east of leaving Bakersfield, east of Tower Line Road.
9	SR-58/Centennial Corridor	Centennial linkage from SR-58 West will not be direct. Uninterrupted east-west flow needed (via overall Centennial/Stockdale corridor).
10	SR-58/Centennial Corridor	Desired to be next priority after completion of Centennial corridor – continuation of linkage westward, continuous from SR-58 to I-5.
11	SR-99	From vicinity of White Lane to SR-119 – new funding becoming available for 3-lane to 4-lane capacity per direction [Kern COG comment].

Comment #	Related Highway/Freeway Route(s)	Details
12	SR-99	A bottleneck exists at SR-204/SR-99. Auxiliary lanes will be provided from interchange to Olive Drive, providing improvements to “bookends” of SR-99. [Kern COG comment].
13	SR-99	Complete last connection to SR-99 for Centennial Highway corridor (full SR-58/SR-99 interchange).
14	SR-99	In Wilson area needs improvements.
15	SR-119/ Taft Hwy.	Known as an unsafe route.
16	SR-166	Cuyama grade to SR-33 has particularly low speeds.
17	7 th Standard Road	Frequent use of roadway to get west to Kern County oil patch.
18	Rosedale Highway	Capacity constrained by two-lane segment near SR-99.
19	Rosedale Highway	Bad in terms of operations and speed at older two-lane segment.
20	Stockdale Highway	East-west traffic flow between SR-99 and I-5, via overall Centennial/Stockdale Highway corridor, needs to be as seamless as possible.
21	Truxtun Avenue	Improvements funded to Stockdale Highway [Kern COG comment]
22	Truxtun Avenue	Will continue to have bottleneck (westbound transition from SR-58 via current California interchange), until full Centennial connection between eastern SR-58 segment and SR-99 is provided.
23	General	Trucks need to be allowed in second lane, in some areas, especially where vehicle weaving/merging near access ramps or interchanges is high.
24	General	Truck-only signs could be provided.
25	Future Roadways	South Beltway (parallel to but north of SR-223) could provide relief.
26	Future Roadways	Better I-5 northbound connection is desired, to SR-58 eastbound to Tehachapi and beyond. Connection could be through Arvin as cutoff/bypass to I-5/SR-58 interchange route.
27	Technology	There is interest in CNG fleets for future. Mapping the locations of existing/planned facilities would be valuable.



6.7 Evaluation of Benefits to Goods Movement

The KOA team identified and outlined projected goods movement growth developed from draft 2035 forecast and logistics trends. Elements for consideration included trucking volume trends, trucking industry trends, industrial and commercial development trends, County and City land use plans, and regional and larger economic trends. For logistics trends, relevant related industry trends were identified in Task 3 to determine the implications for transportation planning in the region.

The focus of the regional-level analysis of planned projects was on those capacity upgrades that would improve corridors currently operating, or estimated to operate in the future, at level of service (LOS) E or F (poor conditions, approaching or exceeding design capacity). Special focus was made on routes preferred by the local trucking industry, and additional focus was made on routes that have high truck volumes in general. If all planned improvements are realized over the regional buildout-year timeframe, most segments with poor levels of service will experience improvements in operations. Funding of improvements changes the future outlook to a large extent, and current unfunded projects are discussed at the end of this report section, in order to provide a qualifier to estimated future conditions.

6.7.1 Locally-Initiated Improvements

The Thomas Roads Improvement Program (TRIP) incorporates a multi-stage program that would address the key goods movement issues in the SR-58 corridor. Phase 2 of the Westside Parkway project will create a high-capacity route between the Mohawk Street Extension (which was Phase 1) and Allen Road. This route will be useful for some truck trips to and from the industrial areas south of SR-58 between SR-99 and Coffee Road.

The development of the Westside Parkway into an alternative truck route between SR-99 and I-5 will require connections at both ends.

- On the west end, Segment 2 of the Westside Parkway (the Stockdale/Heath Tie-in) would extend the route to Heath Road.
- The Centennial Corridor/I-5 Connector would extend the route from Heath Road to I-5, completing the west end.
- On the east end, the three alternatives for Segment 1 of the Centennial Corridor would connect the Westside Parkway to the segment of SR-58 east of SR-99. Any of the three alternatives would enable trucks traveling east-west on SR-58 to reach I-5 without using either the north-south portion of the SR-99 or the present SR-58 on Rosedale Highway.
- The SR-58 Gap Closure, part of the TRIP program, would increase capacity and improve the linkage between the Centennial Corridor projects and the legacy section of SR-58 east of Cottonwood Road.

Figure 38 illustrates the location of the Westside Parkway and the larger Centennial Corridor.

Figure 38: Location of Centennial Parkway/Westside Highway



Source: Thomas Roads Improvement Program, www.bakersfieldfreeways.us

The importance of the Westside Parkway to goods movement will thus increase dramatically when it becomes part of the larger Centennial Corridor. The Centennial Corridor, once complete, will likely become the preferred truck route for movements between I-5 on the west and points on or connected to SR-58 on the east.

- As the area accessed by the Westside Parkway itself is primarily residential, there will likely be some auto/truck competition for capacity when the through route is completed.
- Rosedale Highway/SR-58 between SR-99 and I-5 will continue to be used by truck trips to and from local origins and destinations. The heaviest concentration of such use is likely to be in the industrial areas between Coffee Road and SR-99.

The Westside Parkway and Centennial Corridor projects are thus likely to split truck traffic into two components: through trips on the Centennial Corridor, and local trips to and from customers on SR-58.

Approximately 10 percent of SR-58 corridor truck traffic is destined for or originates from the I-5 corridor. This pattern, identified within the recent SR-58 study, is significant and further supports the identified need to connect the I-5 and SR-99 corridors within or near to the SR-58 corridor west of SR-99.

6.7.2 Overall Regional Improvements

The analysis of future roadway operations data demonstrates that the proposed improvements would address key goods movement issues. In effect, the proposed improvements would maintain the relevant highway goods movement network at LOS level C or better except in the urban Bakersfield area and the I-5/SR-99 segment north of the Grapevine. This assumes that all proposed projects will be funded within the analysis timeframe.

The operations of regional highways and freeways are significantly influenced by the mix of traffic (autos, buses, trucks, etc.), the provided capacity (in number of lanes per direction of travel), traffic “weaving” patterns near interchanges or intersections with arterials and other highways/freeways, and other factors. Roadway improvement projects, while often positively affecting weave/merge patterns and traffic flows, have the most significant quantified effect on operations through the provision of additional travel lanes.

The review of pre-project and post-project facility level of service is provided in subsequent subsections of this report. The Centennial Corridor will add additional capacity to the overall regional freeway/highway network, improving the overall operations of all parallel facilities in the process.

6.7.3. Data from Caltrans Concept Reports

The Caltrans Transportation Concept Reports are a valuable tool for understanding planned highway projects and projected operations with and without improvements. Reports available for routes within Kern County include the following: I-5, SR-14, SR-33, SR-43, SR-46, SR-58, SR-65, SR-99, SR-119, SR-155, SR-166, SR-178, SR-184, SR-223, and SR-395. These reports provide overviews of project implementation details, plus estimates of future traffic operations and project effects on those operations. Where increased capacity is provided by a project, the increasing future goods movement needs in the future could be provided a benefit in terms of routing distance or travel times.

The Concept Reports include summary information on facility characteristics before and after planned improvements, including the estimated level of service (LOS). LOS values range from A (good conditions) to F (poor conditions). LOS E conditions are generally considered to represent conditions approaching the designed capacity of a facility, while LOS F is generally considered to represent conditions at or above capacity.

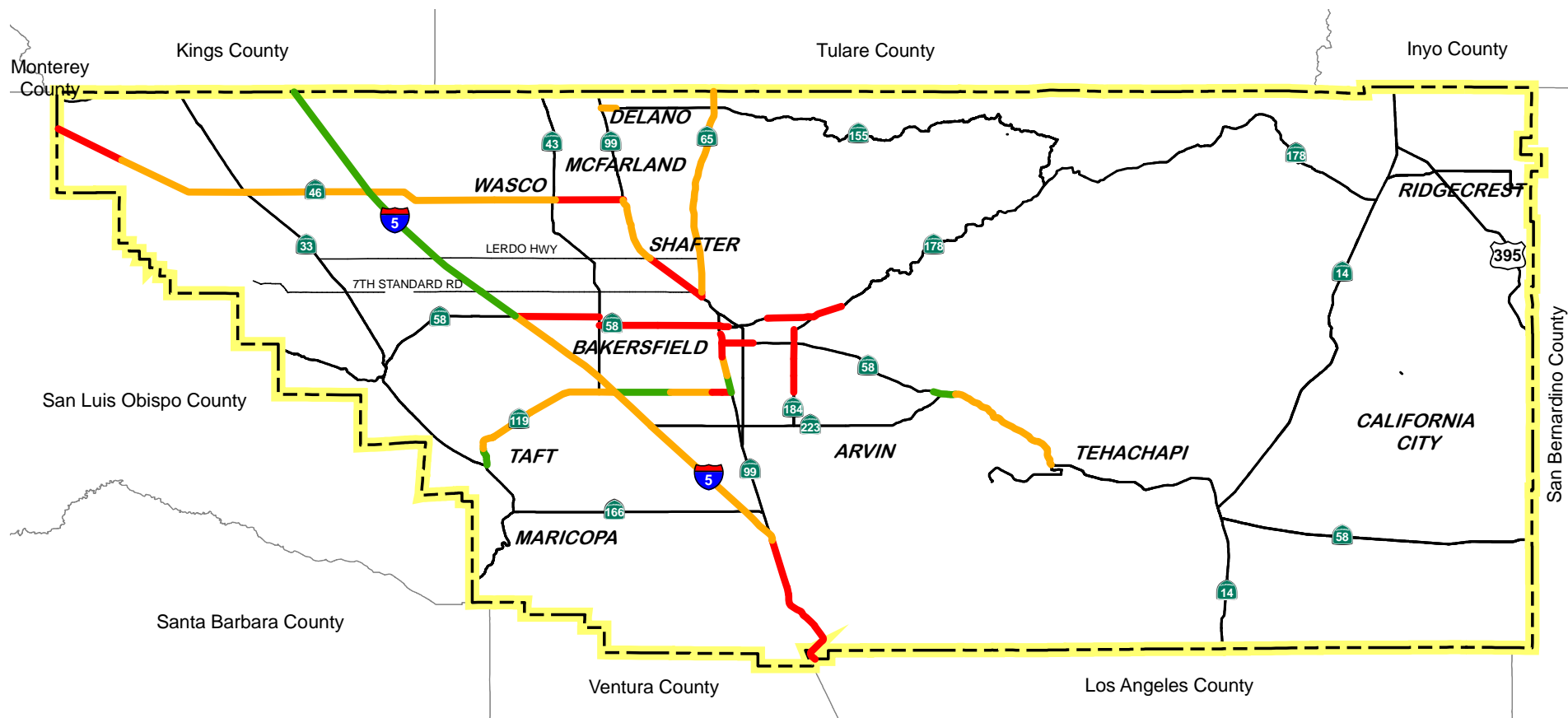
The Caltrans Concept Report tables for Kern County routes were provided as attachments to the Task 4 deliverable under this Strategy effort. Figure 39 summarizes future level of service on all freeway and major highways operated and maintained by Caltrans, without implementation of any planned improvements.

6.7.4. Roadway Operations and Improvement Potential

By 2035, the operations for several Kern County State highways and freeways are expected to improve, if projects proceed forward as planned. The estimated year-2035 (buildout year for the regional model) freeway/highway conditions are illustrated by Figure 40.

Significant operational improvements, as illustrated by the data on overall buildout-year conditions with planned improvements, would occur on I-5, SR-46, SR-65, SR-99, SR-119, and along portions of SR-58 with level of service at LOS C or better.

For segments without planned highway improvements and/or unfunded highway projects, these segments would primarily remain operating with poor LOS. Increasing congestion on these segments translates to increased difficulty by truckers in making on-time shipments, or increasing costs created by increased travel times.



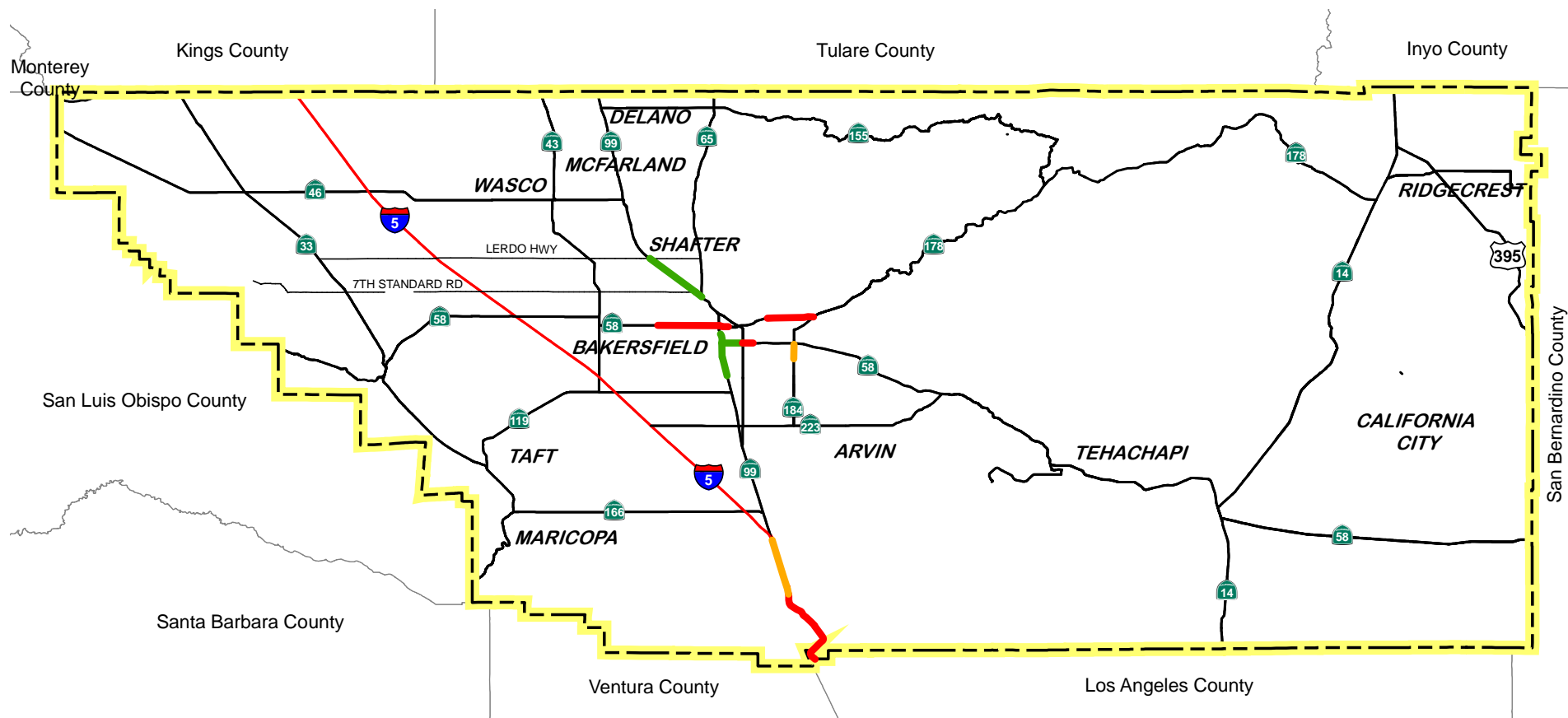
LEGEND

Kern County Study Area

Segment LOS

D
 E
 F

Source: U.S. Census Bureau, Kern County, Caltrans Transportation Concept Report



Source: U.S. Census Bureau, Kern County, Caltrans Transportation Concept Report

The planned regional improvements, in general, are targeted for segments with high concentrations of truck-involved accidents and would be expected to reduce the long-term accident potential. The outlook for greater LOS improvements on SR-58 west of SR-99 and on SR-99 near Shafter is limited by the concentration of industrial land uses and trucking operations adjacent to those segments. This urban area is the Kern County “hot spot” for goods movement by highway.

The proposed LOS improvements on SR-58 can be expected to reduce long-term incentives for detours and diversions to other east-west routes and route combinations. On some segments (e.g. segments 7 and 9 in the summary chart) the proposed improvements would improve LOS over 2009 levels and reduce existing reasons for diversions. In most cases the proposed improvements would reduce or postpone diversion incentives that would otherwise develop. Discouraging diversions should reduce the long-term pressure on secondary routes and reduce the need to upgrade SR-58 alternatives.

6.7.5 Construction-Period Considerations

Large freeway corridor projects can take years to construct, and also involve much phasing of construction work, with moving closures, various lane closures and work area needs, and varying patterns of access and interchange connector closures. The implications of construction periods on goods movement patterns need to be considered as regional improvement plans are updated. Effects on parallel roadways, during major construction where lane closures on major truck routes will take place for extended periods, must be considered as part of construction planning and traffic control plan creation.

References to priority improvements identified in the final report will include potential impacts to parallel highways and local arterial routes.

6.7.7 Unfunded Project Status

The planned improvement projects up to the area model buildout year of 2035 are taken into consideration with regard to the operations of the regional highway system.

Of the funded projects listed in the STIP (State Transportation Improvement Program) and RTP (Regional Transportation Plan), several projects have been placed on hold due to funding issues. The projects include segments on SR-14, SR-46, SR-58, SR-119, SR-184, and U.S. 395. Table 10 summarizes these unfunded projects by facility.

Table 10: Unfunded Projects

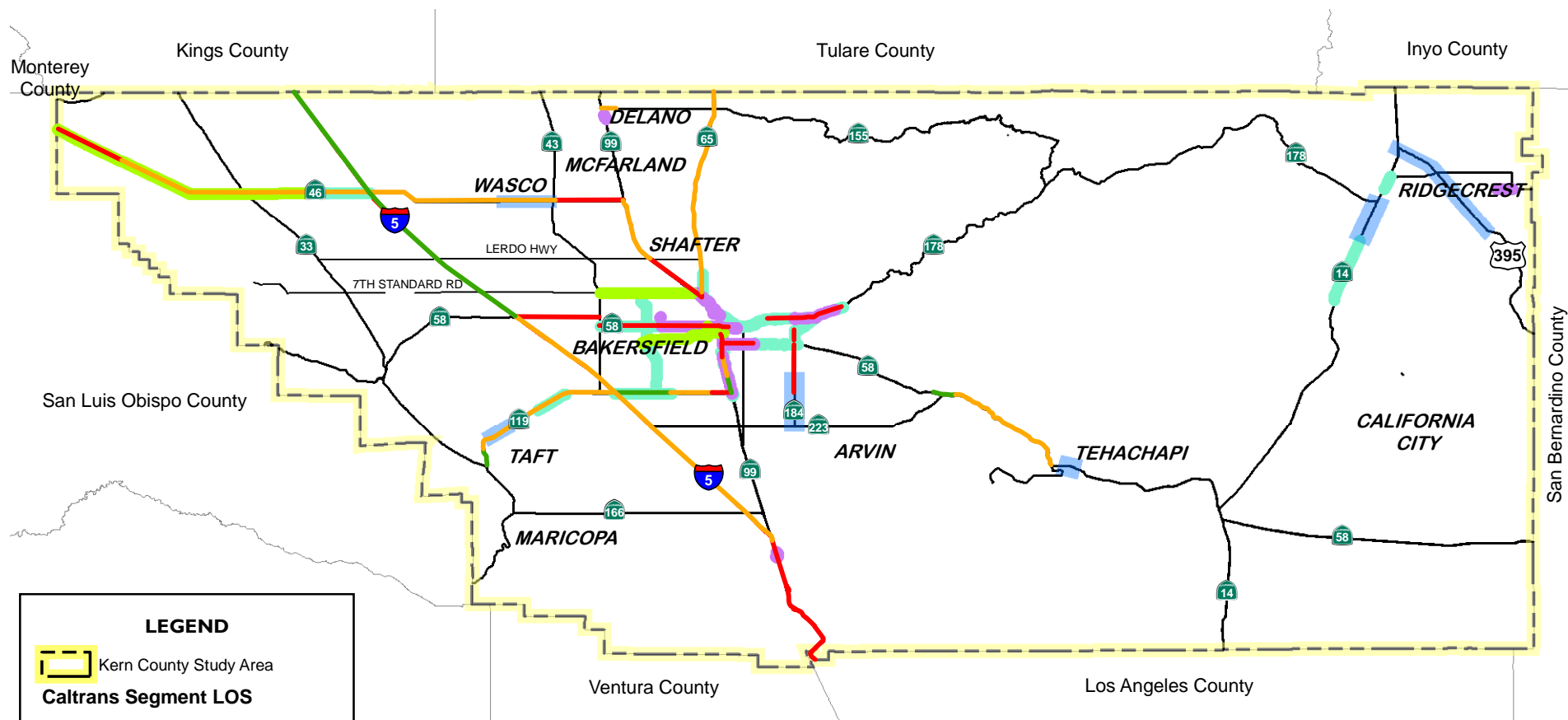
ROUTE	SEGMENT
SR-14	Freeman Gulch Widening Segments 1 and 2
SR-46	Wasco Four Lane Widening
SR-58	Dennison Road Interchange
SR-119	Cherry Ave 4-Lane
SR-184	Weedpatch Widening
U.S. 395	Inyokern 4-Lane

Source: Kern COG, 2012.

The locations of these projects are illustrated on Figure 41, along with an illustration of the phasing of improvements over the next five years (thru 2016), and beyond. It should be noted that the underlying LOS values have not been adjusted for this figure.

Therefore, these segments may continue to operate under poor conditions in the future year of 2035 without planned highway improvements. The remaining regional highway system is expected to operate more efficiently, where improvements will be implemented.

A near-term and long-term set of recommended priorities is provided within the next section of this report.



Source: U.S. Census Bureau, Kern County, Caltrans

7.0 Ranking of Projects Beneficial to Goods Movement

In order to provide concrete conclusions from the numerous inputs of previous studies, previous data analysis, Kern COG and Caltrans data and reports, known planned freeway and highway projects were listed and ranked by measures that would collectively define which projects would be the most beneficial to Kern County goods movement. Collected data was considered as part of the process, as well as trucking route patterns, anticipated future trends, and stakeholder input.

The significance of rail and sea transport of freight has been documented within this study. Rail transport of freight is primarily used to consolidate long-haul trips into and out of California and to and from the Ports of Oakland and Los Angeles/San Pedro. Rail improvement projects in the region are primarily undertaken by the operating railroads. For these reasons, the focus of this ranking is freeway/highway projects.

7.1 Priorities Defined by Stakeholder Group

The most common/overlapping comments provided by the project stakeholders group were as follows:

- Improved connections needed between SR-99 and the east-west SR-58 corridor.
- Improvements related to the Centennial Corridor, and improvements beyond the limits of that project, are needed to improve connections between the Bakersfield metro area and areas to the west.
- New connections will be needed in the future from the southern end of the I-5 corridor to the eastern portions of the SR-58 (linking with route over Tehachapis to/from the east).

These priorities defined by the stakeholder group were incorporated into the overall ranking analysis summarized within the next report sub-section below.

7.2 Evaluation Matrix – Planned State Route and Interstate Projects

A total of 55 project segments, based on an inventory of all planned highway and freeway capacity improvement projects, were evaluated using the following criteria:

- Year 2035 LOS of E or F w/o Improvement – These level of service (LOS) values denote near-capacity or at-capacity operations. Such operations create delays for trucked shipments, and potential conflicts between autos and trucks increase greatly with high-density traffic conditions.
- Year 2035 LOS improved to D or Better with improvement – Planned improvements that would provide LOS D (good) or better LOS would be valuable to truck movements.
- Percent truck growth > 20% by 2035 – Route that are expected to have large increases in truck proportions of total should be given high priority.
- Within five miles of major new commercial/ industrial – When major new industrial and commercial areas open up to development, as anticipated by the County and municipal General Plan documents, the needed capacity for truck movements should be anticipated.
- Desired as priority by stakeholder group – The stakeholders are the operators along many of the primary truck routes in the County. Their desires for improvements should form an integrated

basis for the determination of high priority projects.

Table 11 provides the ranking analysis, based on the methodology described above. Criteria were all weighted equally, and average for each project. The results indicate the following two projects should be considered for priority implementation, with the high ranking (five points) resulting from the analysis summarized in the matrix.

- SR-58 – From I-5 / SR-58 junction to 0.3 miles west of Allen Road
- SR-58 – From Union Avenue to Cottonwood Road

The following improvements were also provided a ranking of “high”, based on the evaluation matrix, but with an overall value of four points:

- One improvement project on SR-178
- Two other improvement projects on SR-58
- Five improvement projects on SR-119
- One improvement project on I-5
- Two improvement projects on SR-99
- Two improvement projects on SR-184

Figure 42 provides an illustration of the locations of these ranked projects. The Centennial Corridor, as discussed below, should be given high priority in implementation and is also mapped on this figure.

7.3 Consideration of Centennial Corridor/Westside Parkway Project

Implementation of the overall Centennial Corridor project, and the complementary and integral Westside Parkway project, will provide much needed capacity from the western terminus of the freeway portion of SR-58 at the SR-99 interchange. This capacity will provide improved general access from this point to the I-5 corridor, points between the I-5 and SR-99, and points west of the I-5 such as the SR-46 corridor to coastal areas.

A majority of the discussion generated during the stakeholders group meeting focused on the need for improvements to traffic capacity in this corridor. The greatest needs defined by the group including better capacity in this corridor, continuing from the SR-99/SR-58 interchange, directly toward areas to the west and the I-5 corridor.

For the capacity improvements provided in an area lacking direct high-speed east-west access and the needs expressed by the stakeholders, the overall Centennial Corridor project should be given top priority for implementation.

Additional needs were defined for new future roadways to the south, providing connections from the southern portion of the I-5, directly to the eastern portions of the SR-58. New corridor projects for this latter area should be considered in future revisions to the Regional Transportation Plan for Kern County.

Table 11: Ranking of Goods Movement Improvement Projects

				RANKING - Values of 0 (not applicable) or 1 (applicable)						
				Year 2035 LOS of E or F w/o Projs	Year 2035 LOS Improved to D or better w Projs	Percent truck growth > xx% by 2035	Within five miles of major new commercial/ industrial	Desired as priority by stakeholder group	Total of All Scores	Overall Ranking
ROUTE	Segment Start	Segment End	Project Focus							
SR-178	N JCT ROUTE 99/58/178	B ST	Add Through Lanes	1	0	1	1	0	3	MED
SR-178	w/o OSWELL ST	SR-184	Add Through Lanes	1	0	1	1	0	3	MED
SR-178	ROUTE 184	RANCHERIA RD	Add Through Lanes	1	1	1	1	0	4	HIGH
SR-223	ROUTE 99	SR-184	Add Through Lanes	0	0	0	0	0	0	LOW
SR-155	ROUTE 99	BROWNING RD	Add Through Lanes	1	1	0	1	0	3	MED
SR-46	SLO CO LINE	KECKS RD	Convert 2-lane roadway to 4-lane	1	1	0	0	1	3	MED
SR-46	KECKS RD	SR-33	Convert 2-lane roadway to 4-lane	1	1	0	0	1	3	MED
SR-46	SR-33	BROWN MATERIAL RD	Convert 2-lane roadway to 4-lane	1	1	0	0	1	3	MED
SR-46	BROWN MATERIAL RD	I-5	Convert 2-lane roadway to 4-lane	1	1	0	0	1	3	MED
SR-46	I-5	JUMPER AVE	Convert 2-lane roadway to 4-lane	1	1	0	0	1	3	MED
SR-46	SR-43	SR-99	Convert 2-lane roadway to 4-lane	1	1	1	0	1	4	HIGH
SR-46	JUMPER AVE	SR-43	Convert 2-lane roadway to 4-lane	1	1	0	1	1	4	HIGH
SR-58	I-5 / SR-58	0.3 MI w/o ALLEN RD	Add Through Lanes	1	1	1	1	1	5	HIGH
SR-58	0.3 MI w/o ALLEN RD	JCT SR-99/58/178	Add Through Lanes	1	0	1	1	1	4	HIGH
SR-58	JCT SR-99/58/178	UNION AVE	Through and Auxiliary Lanes	1	0	1	1	1	4	HIGH
SR-58	UNION AVE	COTTONWOOD RD	Add Through Lanes	1	1	1	1	1	5	HIGH
SR-58	TOWER LINE RD	0.7 MI e/o BENA RD	Through and Auxiliary Lanes	0	0	1	1	1	3	MED
SR-58	0.7 MI e/o BENA RD	CALIENTE RD/ BEALEVILLE RD	Convert existing expressway to freeway	0	0	1	0	1	2	LOW
SR-58	CALIENTE RD/ BEALEVILLE RD	SR-202 / SR-58 SEP	Through and Auxiliary Lanes	1	0	1	0	0	2	LOW
SR-58	2.7 MI e/o CAMERON CYN RD	4 MI w/o N JCT SR-14	Convert existing expressway to freeway	0	0	1	1	0	2	LOW
SR-58	4.2 MI e/o AIRPORT RD	1/4 MI e/o CA CITY BLVD	Convert existing expressway to freeway	0	0	1	1	0	2	LOW
SR-119	KERN ST	0.3 MI n/o HARRISON ST	Add Through Lanes	0	0	1	0	1	2	LOW
SR-119	0.3 MI n/o HARRISON ST	0.6 MI n/o BUTTONWILLOW-ELK	Add Through Lanes	1	0	1	0	1	3	MED
SR-119	0.6 MI n/o BUTTONWILLOW-ELK	GOLF COURSE RD	Convert to expressway	1	1	1	0	1	4	HIGH
SR-119	GOLF COURSE RD	AQUEDUCT SERVICE RD	Add Through Lanes	1	1	1	0	1	4	HIGH
SR-119	AQUEDUCT SERVICE RD	SR-43	Convert to expressway	1	0	1	0	1	3	MED
SR-119	SR-43	SR-119 / I-5 SEP	Convert to expressway	1	0	1	0	1	3	MED
SR-119	SR-119 / I-5 SEP	BUENA VISTA RD	Add Through Lanes	0	1	1	0	1	3	MED
SR-119	BUENA VISTA RD	0.1 MI w/o STINE RD	Add Through Lanes	1	1	1	0	1	4	HIGH
SR-119	0.1 MI w/o STINE RD	WIBLE RD	Add Through Lanes	1	1	1	0	1	4	HIGH
SR-119	WIBLE RD	SR-119/99 SEP	Add Through Lanes	1	1	1	0	1	4	HIGH

Table 11 (continued): Ranking of Goods Movement Improvement Projects

				RANKING - Values of 0 (not applicable) or 1 (applicable)						
				Year 2035 LOS		Within five miles of			Total of All Scores	Overall Ranking
ROUTE	Segment Start	Segment End	Project Focus	Year 2035 LOS of E or F w/o Projs	Improved to D or better w Projs	Percent truck growth > xx% by 2035	major new commercial/ industrial	Desired as priority by stakeholder group		
I-5	LA CO LINE	FT TEJON	Add Through Lanes	1	0	0	1	0	2	LOW
I-5	FT TEJON	GRAPEVINE R D	Add Auxiliary Lanes	1	0	0	1	0	2	LOW
I-5	GRAPEVINE R D	SR-99 / I-5 SEP	Add Through Lanes	1	0	0	1	0	2	LOW
I-5	SR-99 / I-5 SEP	SR-223 / I-5 SEP	Add Through Lanes	1	1	1	0	0	3	MED
I-5	SR-223 / I-5 SEP	STOCKDALE RD	Add Through Lanes	1	1	1	0	1	4	HIGH
I-5	STOCKDALE RD	SR-58 / I-5 SEP	Add Through Lanes	1	1	1	0	0	3	MED
I-5	SR-58 / I-5 SEP	7TH STANDARD RD	Add Through Lanes	0	1	1	0	0	2	LOW
I-5	7TH STANDARD RD	SR-46 / I-5 SEP	Add Through Lanes	0	1	1	0	0	2	LOW
I-5	SR-46 / I-5 SEP	KERN / KINGS CO LINE	Add Through Lanes	0	1	1	0	0	2	LOW
SR-99	0.5 MI s/o SR-119	PANAMA LN	Add Through Lanes	0	0	0	1	0	1	LOW
SR-99	PANAMA LN	WIBLE RD	Add Through and Auxiliary Lanes	1	1	1	1	0	4	HIGH
SR-99	WIBLE RD	CALIFORNIA AVE	Add Auxiliary Lanes	1	1	0	1	1	4	HIGH
SR-99	SR-65/99 SEP	7TH STANDARD RD	Add Through Lanes	1	1	0	1	0	3	MED
SR-99	7TH STANDARD RD	0.3 MI s/o LERDO CANAL	Add Through Lanes	1	1	0	1	0	3	MED
SR-99	0.3 MI s/o LERDO CANAL	SR-46/99 SEP	Add Through Lanes	1	1	0	1	0	3	MED
SR-65	SR-65/99 SEP	1.0 MI n/o 7TH STANDARD RD	Convert 2-lane roadway to 4-lane	1	1	0	1	0	3	MED
SR-65	1.0 MI n/o 7TH STANDARD RD	FAMOSO-WOODY RD	Convert 2-lane roadway to 4-lane	1	1	0	1	0	3	MED
SR-65	FAMOSO-WOODY RD	SR-155	Convert 2-lane roadway to 4-lane	1	1	0	0	0	2	LOW
SR-65	SR-155	TULARE CO LINE	Convert 2-lane roadway to 4-lane	1	1	0	0	0	2	LOW
SR-184	0.2 MI n/o PANAMA RD	PANAMA LN	Add Through Lanes	1	1	1	1	0	4	HIGH
SR-184	PANAMA LN	MULLER RD	Add Through Lanes	1	1	1	0	0	3	MED
SR-184	MULLER RD	0.2 MI s/o SR-58	Add Through Lanes	1	0	1	1	0	3	MED
SR-184	EDISON HWY	NILES ST	Add Through Lanes	1	1	1	1	0	4	HIGH
SR-184	NILES ST	SR-184	Add Through Lanes	0	1	1	0	0	2	LOW

