



StratoLaunch System by Scaled Composites, Mojave Air & Space Port



**Kern Council  
of Governments**

# DRAFT 2018 Regional Transportation Plan and Sustainable Communities Strategy



Pedestrian Overpass, McFarland



Bike Rodeo, Bike Bakersfield



Amtrak, Bakersfield Station



Native American Petroglyph Monument Median Art, Ridgecrest



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# **EXECUTIVE SUMMARY**





### INTRODUCTION

The 2018 Regional Transportation Plan (RTP) is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It has been developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state and federal agencies. Included in the 2018 RTP is the Sustainable Communities Strategy (SCS) required by California's Sustainable Communities and Climate Protection Act, of Senate Bill (SB) 375. The California Air Resources Board (CARB) set Kern greenhouse gas (GHG) emissions reductions from passenger vehicles and light-duty trucks at 5 percent per capita by 2020 and 10 percent per capita by 2035 as compared to 2005. In addition, SB 375 provides for closer integration of the RTP/SCS with the Regional Housing needs Allocation (RHNA) ensuring consistency between low income housing need and transportation planning. Kern COG engaged in the RHNA process concurrently with the development of the 2014 RTP. This process required Kern COG to work with its member agencies to identify areas within the region that can provide sufficient housing for all economic segments of the population and ensure that the state's housing goals are met.

Kern COG is a federally designated Metropolitan Planning Organization (MPO) and a state designated Regional Transportation Planning Agency (RTPA). These designations formally establish Kern COG's role in transportation planning. Preparing an RTP is one of Kern COG's primary statutory responsibilities under federal and state law.

Kern COG prepared a Program Environmental Impact Report (Program EIR), pursuant to the California Environmental Quality Act (CEQA), for the RTP. Individual transportation projects are preliminarily identified in the 2018 RTP; however, the Program EIR analyzes potential environmental impacts from a regional perspective, providing opportunities for streamlining the analysis required in project specific environmental documents. In addition the companion RTP conformity document demonstrates that the Plan will not delay attainment of federal air quality standards in the State Implementation Plans for air quality.

### PUBLIC PARTICIPATION: Listening to the Citizens and Stakeholders

Public participation is encouraged at every stage of the planning process and all meetings are open to the public. Community engagement and outreach are fundamental to the development of the 2018 RTP/SCS. By nature, this plan represents the region's mutual vision for its future and was developed using a grassroots, bottom-up approach, garnering input from over 6,000 residents at over 20 meetings and events across the region. Kern COG's comprehensive community engagement process, *Directions to 2050*, was designed to solicit input from stakeholders and community members on priorities for the region's long-term future. The name "*Directions to 2050*" was meant to encourage participants to think long-term. The community engagement process extended from December 2015 through February 2018. The program provided various opportunities for community members, stakeholders, and local agencies and jurisdictions to participate. The program provided numerous public workshops, community events and interactive and educational booths at festivals and fairs, an interactive project website, three statistically valid phone surveys and presentations to various clubs and community groups.

The vast majority of people want to maintain, fix and finish what we have. A discussion of Kern COG's public participation activities is provided in Chapter 4 of the RTP and a Summary of Findings is documented in Appendix C of the RTP.



## Executive Summary

### OUR VISION: Fix and Finish What We Have

Through the RTP process Kern COG has placed an emphasis on sustainability and integrated planning. The intent of the SCS is to achieve the state's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment, and safer quality of life for community members in Kern County.

The RTP SCS seeks to: improve economic vitality, improve air quality, improve the health of communities, improve transportation and public safety, promote the conservation of natural resources and undeveloped land, increase regional access to community services, increase regional and local energy independence and increase opportunities to help shape our community's future.

Kern County is unlike any other region in California. Kern's large size and diverse valley, desert and mountain environs are dominated by agriculture, oil production, renewable energy, aerospace, military, recreation, transportation linkages and other activities that warrant unique and different approaches to address the SCS goals. These economic pursuits are the basis for dispersed rural centers and strategic locations for developments within the county that are unlike other areas of the state. Accordingly, unique strategies are needed to support Kern's economic, transportation and other needs. This uniqueness is reflected in the General Plans and programs of Kern County's local governments.

The 2018 RTP/SCS supports an improved quality of life for our residents by providing more choices for where they will live, work, and play, and how they will move around. The safe, secure and efficient transportation systems will provide improved access to opportunities, such as jobs, education and healthcare. The emphasis on transit and active transportation will allow our residents to lead a healthier, more active lifestyle.

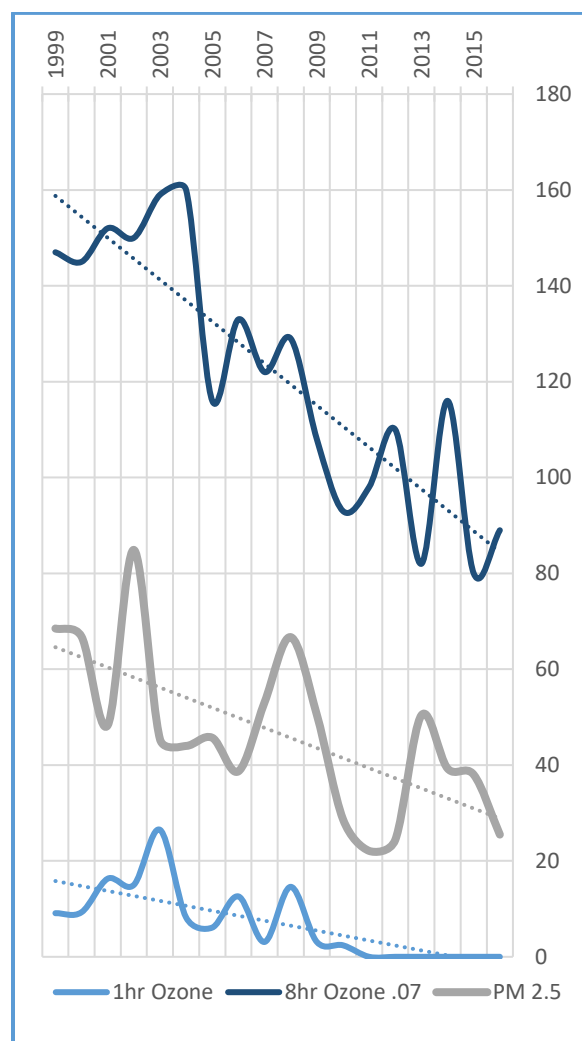
### CHALLENGES

#### Solutions for the Economy and Air Quality

Even though Kern County has already recovered all the jobs lost during the great recession, Kern continues to suffer from double-digit unemployment. The Federal Highway Administration estimates that every \$1 billion spent on transportation infrastructure creates 10,870

job years of which up to 4,000 can persist long after construction, generated by increased labor from better mobility and more efficient goods movement. This 24-year investment plan is projected to add over 80,000 job years (3,100 24-year jobs) from construction, maintenance and better mobility, a 40% jump over the 2011 RTP. The plan could ultimately add 28,000 permanent jobs to the region increasing Kern's economic base, adding capacity to re-invest in an ever more efficient/cleaner transportation system, triggering an upward economic spiral for future generations.

**Figure ES-1: Number of Days Exceeding Federal Air Standards in Kern County 1999-2016**



*Note: In this air quality graph, lower ozone and PM 2.5 numbers are equivalent to better air quality. Source: CARB iADAM data.*

Since the 1990s, the Kern region has achieved consistent improvements in the number of days exceeding federal standards for ozone and particulate matter, generally defined as “fine dust”. In 2012, Kern demonstrated attainment of the 1-hour ozone standard, and has made significant progress on the new 8-hour ozone and PM<sub>2.5</sub> standards (Figure ES-1). However the air quality modeling forecast for this RTP showed that by 2042, if things didn’t change and population and travel continue to grow, the NO<sub>x</sub> precursor component to PM<sub>2.5</sub> begins to creep back up. To combat this effect the plan focuses new efforts to achieve and maintain the federal air quality standards, and in doing so also makes significant progress toward the new state climate change goals. These strategies such as improving transit, bike, walk, and housing options are included in the SCS in Chapter 4.

### Financial Challenges

Of all the challenges facing us today, there is none more critical than funding. With the projected growth in population, employment and demand for travel, the costs of our multimodal transportation system needs surpass projected revenues available from our historic transportation funding source – the gas tax. Maintaining the local transportation infrastructure is of critical importance for the entire region, and was ranked as the highest priority based on public outreach. Funding from the federal gas tax has traditionally been used to support the maintenance of these facilities. Over time; however, gas tax revenues have failed to keep up with inflation. The increase in the number of electric and hybrid vehicles that pay significantly less gas tax per mile traveled only exacerbates the problem.

As a result of years of underinvestment, a significant number of our roadways and bridges have fallen into a state of disrepair. It is imperative that this situation be addressed. The rate of deterioration will only accelerate with continued deferral, significantly increasing the cost of bringing our transportation assets back into a state of good repair. Furthermore, with recent declines in transit funding, the region’s transit operators continue to face major obstacles to providing frequent and convenient transit services.

The region must consider ways to stabilize existing revenue sources and supplement them with reasonably available new sources. This region needs a long-term, sustainable funding plan that ensures the

region receives its fair share of funding, supports an efficient and effective transportation system that grows the economy, provides mobility choices, and improves our quality of life.

### PLANNING FOR OUR POPULATION

#### Population, Housing and Employment Forecasts

Population in the 8,200 square mile County of Kern was estimated to be just under 905,801 in 2018. The forecast projects that the population growth will average about 21,400 people per year from 2015 to 2035 and about 21,900 people per year over the entire forecast time frame from 2015 to 2042. Kern County has had a trend of increasing average household size, growing to 3.03 from 2000 to 2010, to 3.2 in 2015, and 3.27 in 2035. It is anticipated that the average household size will slow to 3.11 by 2042. The Kern region is California’s eleventh most populated of 58 counties ahead of San Francisco, but behind Fresno County in the Central Valley. The Kern region is forecasted to grow by nearly one-half million persons to 1,458,000 in the forecast year 2042.

According to the California Employment Development Department (EDD) Kern County gained 74,000 jobs since 2000 and experienced an increase in per capita income. According to the Employment Development Department, the unemployment rate for January 2018 in Kern County was 9.2 percent, up from a revised 8.4 percent in December 2017, and below the year-ago estimate of 10.0 percent. This compares with an unadjusted unemployment rate of 4.6 percent for California and 4.5 percent for the nation during the same period. In 2010 there were 1.08 jobs per household, but estimates for 2014 indicate the ratio has increased to 1.22. The forecast indicates that Kern County will experience a slight reduction in the number of jobs per household to 1.13 in 2035 and 1.06 by 2042.



## Executive Summary

This decline is generally in proportion to the decline in labor force participation expected nationally.

Over the past decade, growth has concentrated in Metropolitan Bakersfield and the communities of Delano, Wasco, Ridgecrest, California City, Arvin, Shafter, Tehachapi, McFarland and the unincorporated communities around Tehachapi, Rosamond, and Frazier Park.

Much of Kern employment is dispersed, consequently, the Metropolitan Bakersfield area experiences a “reverse commute” whereby a segment of workers commute to outlying areas such as agricultural fields, food processing facilities, warehousing, wind farms, oil fields, prisons, power plants, and government installations.

### Development

Land use is one of the most important elements of effective transportation planning. Kern COG does not have jurisdiction over land use planning, but the agency does advise and encourage dialogue among those involved in the decision making process. The RTP/SCS was developed in consultation with local jurisdictions and is consistent with existing adopted General Plans and Zoning. Kern COG will continue to use the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) to communicate with Kern cities and the county on issues of land use, transportation and air quality, to ensure that land use projects are environmentally sound.

At the core of the 2018 RTP are seven goals:

1. **Mobility** – Improve the mobility of people and freight;
2. **Accessibility** – Improve accessibility to major employment and other regional activity centers;
3. **Reliability** – Improve the reliability and safety of the transportation system;
4. **Efficiency** – Maximize the efficiency of the existing and future transportation system;
5. **Livability** – Promote livable communities;
6. **Sustainability** – Minimize effects on the environment; and
7. **Equity** – Ensure an equitable distribution of the benefits among various demographic and user groups.



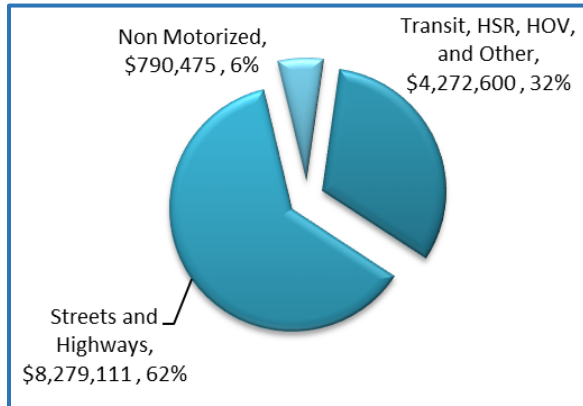
### STRATEGIC INVESTMENTS

The 2018 RTP/SCS financial plan identifies how much money is available to support the region's transportation investments. The plan includes a core revenue forecast of existing local state and federal sources along with funding sources that are considered to be reasonably available over the time horizon of the RTP/SCS. These new sources include adjustments to state and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission), leveraging of local sales tax measures, local transportation impact fees, potential national freight program/freight fees, future state bonding programs and mileage-based user fees.

The 2018 RTP promotes a more efficient transportation system that calls for fully funding alternative transportation modes, while emphasizing transportation demand and transportation system management approaches for new highway capacity. The Constrained Program of Projects includes projects that move the region toward a financially constrained and balanced system. Constrained projects have undergone air quality conformity analysis to ensure that they contribute to the Kern region's compliance with state and federal air quality rules.



### Investments by Mode 2018–2042 (\$ x 1,000)



The RTP fulfills several requirements with one document:

- Congestion Management Program
- Sustainable Communities Strategy & Rural Urban Connectivity Strategy
- Regional Housing Need Allocation
- Safety-Security Action Element
- Environmental Justice & Performance Measure Analysis

As the Congestion Management Agency, Kern COG has responsibility to ensure that all cities and the county are following the Congestion Management Program (CMP). Kern COG completes a coordinated and comprehensive review of current traffic data during each RTP update. Through the Kern Regional Traffic Count Program, the cities, county and Caltrans undertake annual traffic counts on their roads. Use of current peak-hour traffic counts to monitor congestion ensures that the review is based on observed traffic conditions and includes an innovative multi-model level of service analysis policy. The SCS includes a Rural Urban Connectivity Strategy analysis designed to ensure that the economic development of rural areas for agriculture, energy, tourism, military and other activities are not left out of efforts to provide for a more efficient transportation system.

To ensure consistency requirements with the SCS, Kern COG engaged in the RHNA process concurrently with the development of the 2014 RTP. The RHNA is

an 8-year document that provides low income housing goals for each community in the region.

The Safety/Security Action Element fulfills a federal requirement for homeland security planning in the RTP as well as forwards the region's safety and emergency planning efforts.

Recognized as a national best practice, the Kern RTP includes an innovative analysis with the Integrated Performance Measures Analysis for System Level, Smart Mobility Framework, Health Equity, Environmental Justice and Title VI. The analysis advises our decision makers on the progress we are making toward our goals, while ensuring disadvantaged communities are not left behind.

### MONITORING PROGRESS

Transportation planning for the Kern region requires continually improved information on the condition and use of the transportation system. The Highway Performance Monitoring system is a federally mandated program designed by the Federal Highway Administration to assess the performance of the nation's highway system. Chapter 8 discusses an array of monitoring efforts.

# SUMMARY OF BENEFITS

## 2018 Regional Transportation Plan

The region represented by the Kern Council of Governments is projected to grow by more than 50% by 2042. To protect the quality of life for future generations, the 2018 RTP is presented as an economic development strategy as well as a transportation, infrastructure and sustainability investment.

### MOBILITY BENEFITS

- ✓ The plan improves overall mobility and provides needed congestion relief by maintaining, fixing and finishing what we have.
- ✓ This plan fully funds maintenance of the transportation system while increasing funding for bike, pedestrian, and transit facilities.
- ✓ Implementation of the plan will nearly double the number of homes within walking distance to quality transit. By integrating land use and transportation, 72% of homes will be near quality transit compared to 57% under the prior plans.

### ECONOMIC BENEFITS

- ✓ The Federal Highway Administration estimates that every \$1 billion spent on transportation infrastructure creates 10,870 job years of which up to 4,000 can persist long after construction, generated by increased labor from better mobility and more efficient goods movement.
- ✓ This 24-year investment plan is projected to add over 75,000 job years (3,100 26-year jobs) from construction, maintenance, and better mobility, and saves an additional 21,000 existing jobs that would have been lost because of poor road conditions.
- ✓ The plan could ultimately add 26,000 permanent non-transportation sector jobs to the region, increasing Kern's economic base, adding capacity to re-invest in an ever more efficient transportation system, triggering an upward economic spiral for future generations.

### HEALTH BENEFITS

- ✓ Improve air quality and public health by reducing all criteria pollutants, emissions and their precursors to meet national standards – oxides of nitrogen (NOx), reactive organic gasses (ROG), particulate matter (PM<sub>10</sub>), fine particulate matter (PM<sub>2.5</sub>) and carbon monoxide (CO).
- ✓ 5% or more reduction in health expenditures because of improved air quality.
- ✓ Promotes more active transportation by fully funding the Kern Active Transportation Plan and increasing funding for bike and pedestrian facilities 700% over Pre-SCS RTPs.

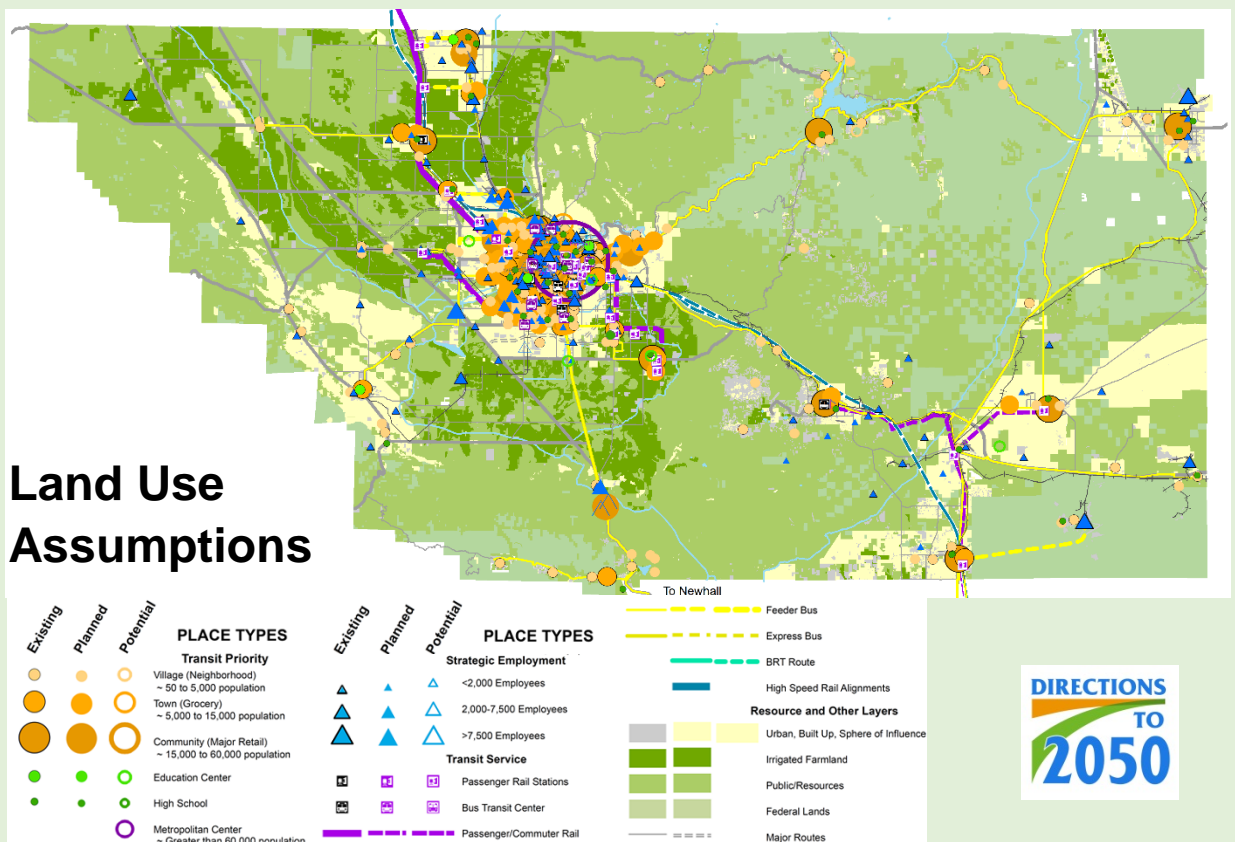
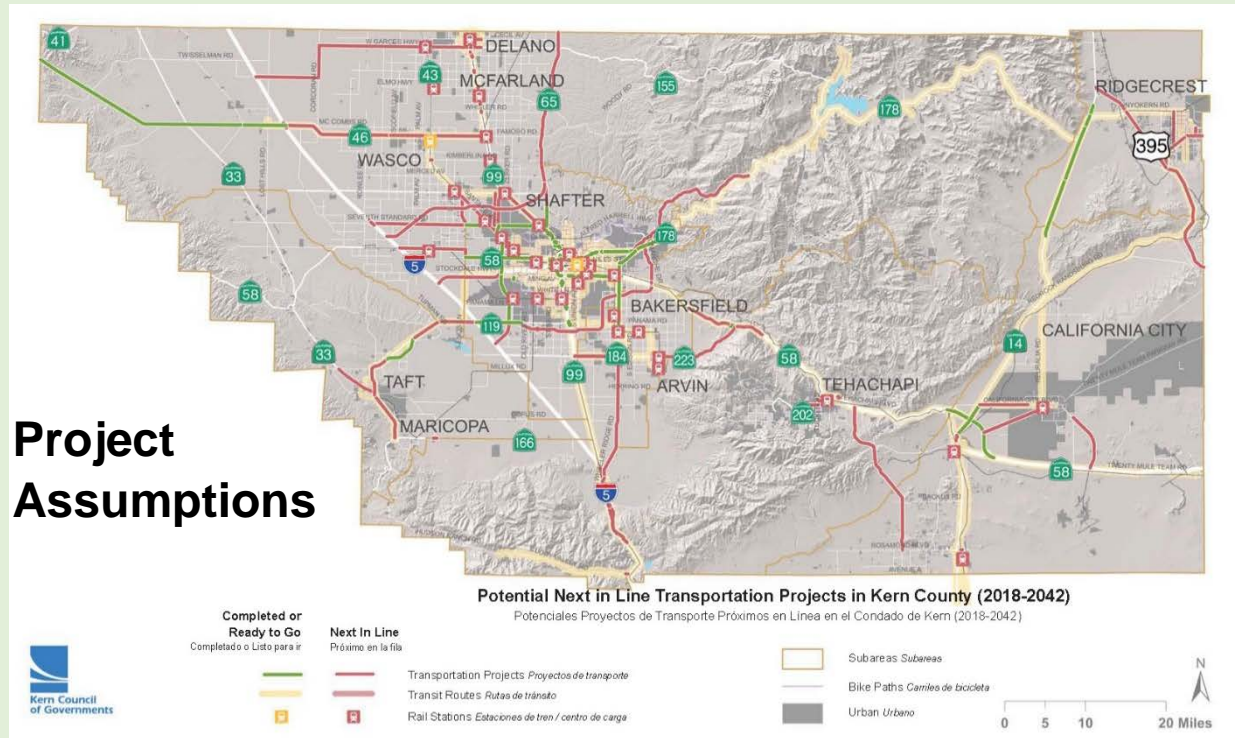
### SUSTAINABILITY BENEFITS

- ✓ 12% or more reduction in household water use by providing a full range housing choices.
- ✓ 12% or more reduction in infrastructure costs by revitalizing existing communities.
- ✓ 90% reduction in farmland conversion to urban uses outside city spheres of influence



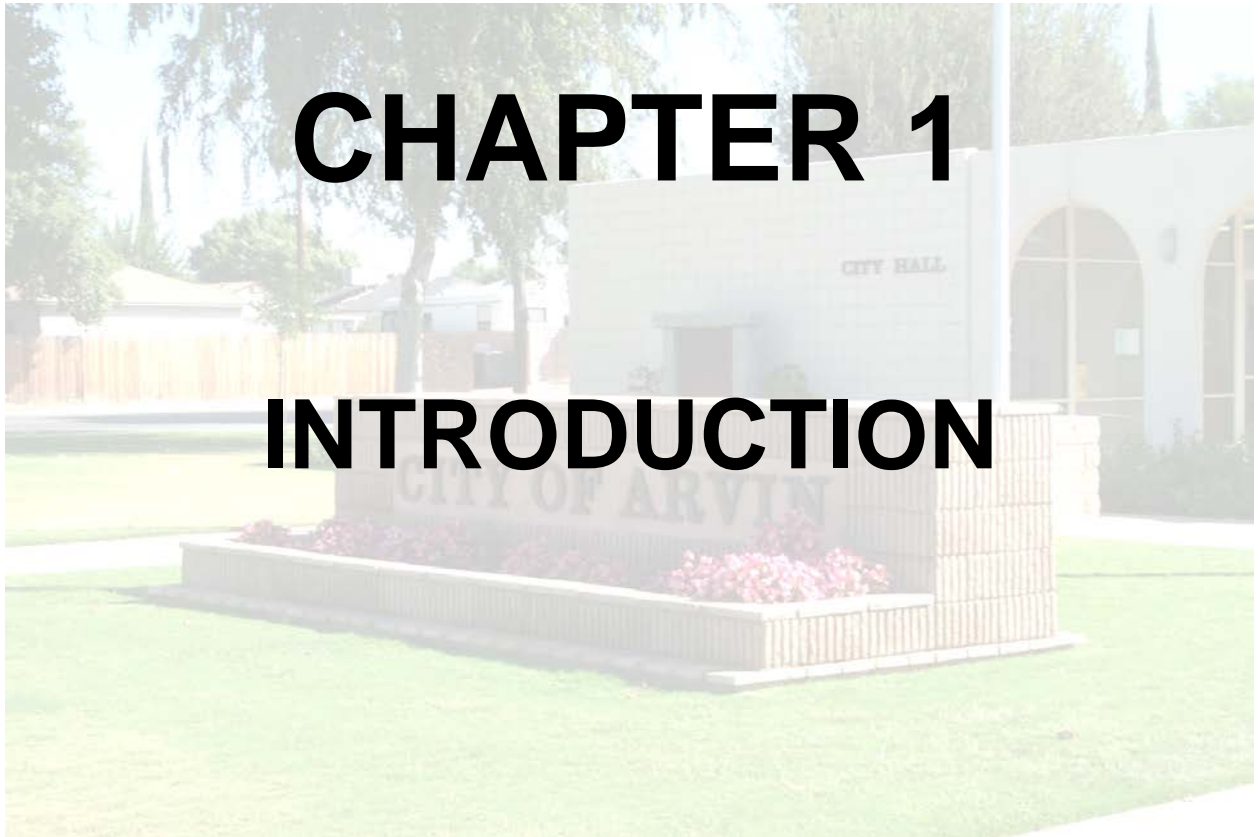
## 2018 Regional Transportation Plan

Reflecting diverse public input, the plan assumes projects that reflect a more efficient transportation system that will benefit the mobility, economy, health and sustainability of the region. Consistent with the prior plan, funding from traditional sources continue at historic rates as well as a slight increase in additional funding from potential new sources. Funding assumptions are updated every four years. Land use assumptions are based on local general plans with input from the public and the regional planning advisory committee.



# **CHAPTER 1**

## **INTRODUCTION**







### CHAPTER 1 INTRODUCTION

The 2018 Regional Transportation Plan (RTP) is a 24-year blueprint that establishes a set of regional transportation goals, policies, and actions intended to guide development of the planned multimodal transportation systems in Kern County. It has been developed through a continuing, comprehensive, and cooperative planning process, and provides for effective coordination between local, regional, state, and federal agencies. The Congestion Management Program (CMP) is designed to ensure that a balanced transportation system is developed relating population and traffic growth, land use decisions, performance standards, and air quality improvements. California's Sustainable Communities and Climate Protection Act, or Senate Bill (SB) 375, calls for the Kern County RTP to include a Sustainable Communities Strategy (SCS) that reduces greenhouse gas (GHG) emissions from passenger vehicles and light-duty trucks. Executive Order B-30-15 signed by Governor Brown in April 2015, and SB 32 approved in September 2016, established a statewide GHG reduction goal of 40 percent below 1990 levels by 2030 from all sources. This is the most aggressive benchmark enacted by any government in North America to reduce carbon emissions. The California Air Resources Board (ARB) sets the emissions reduction target for each region. Targets are reflective of conditions in each area of the state and are tailored to address conditions in each area. As will be discussed in more detail below, SB 375 will help meet the state goals included in Assembly Bill 32, the Global Warming Solutions Act of 2006. Meeting these targets will point the County toward overall sustainability and will provide benefits beyond reducing carbon emissions.

Adopted in June 2016, the California Transportation Plan (CTP) 2040 vision states the following:

California's transportation system is safe, sustainable, and globally competitive. It provides reliable and efficient mobility and accessibility for people, goods, and services while meeting our GHG emission reduction goals and preserving community character. This integrated, connected, and resilient multimodal system supports a prosperous economy, human and environmental health, and social equity.

Senate Bill 391:

Senate Bill 391 (SB 391, 2009), requires the California Department of Transportation (Caltrans) to update the CTP every five years while showing how the state will achieve the statewide GHG reductions to meet the goals of AB 32 and Executive Order S-3-05. It directs Caltrans to consider "the use of fuels; new vehicle technology; tailpipe emissions reductions; and expansion of public transit, commuter rail, intercity rail, bicycling and walking." It also requires the CTP to identify the statewide, integrated multimodal transportation system needed to achieve these results.

This system must reduce GHG emissions to 1990 levels from current levels by 2020, and 80 percent below the 1990 levels by 2050 as described by AB 32 and Executive Order S-03-05. Additionally, Executive Order B-30-15 and SB 32 requires GHG emissions 40 percent below 1990 levels by 2030.

### REGIONAL PLANNING PROCESS

The Kern Council of Governments (Kern COG) is a federally designated Metropolitan Planning Organization (MPO) and a state-designated Regional Transportation Planning Agency (RTPA). These designations formally establish Kern COG's role in transportation planning. Kern COG's Board of Directors comprises elected representatives from the eleven incorporated cities within Kern County and two members of the County Board of Supervisors.

A Memorandum of Understanding between Kern COG and California Department of Transportation (Caltrans) District 6 also provides for a Transportation Planning Policy Committee, which is the existing

## CHAPTER 1 INTRODUCTION

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Board plus ex officio members from Caltrans, Kern County's military bases, and the Golden Empire Transit District. The Transportation Technical Advisory Committee, comprising technical staff from member agencies, the Consolidated Transportation Services Agency, Caltrans, the Kern County Air Pollution Control District, and the San Joaquin Valley Air Pollution Control District provides support to the Board of Directors. In addition, the Social Services Transportation Advisory Committee also provides support to the Board by focusing on the needs of transit-dependent and transit disadvantaged persons, including the elderly, disabled, and persons of limited means. The Regional Planning Advisory Committee comprises representatives from local jurisdictions, the public transit agency (Golden Empire Transit), Caltrans, Local Agency Formation Commission, Kern Economic Development Corporation, and community members. Kern COG worked with the Regional Planning Advisory Committee to develop a broad structure of SB 375 implementation as well as the *Directions to 2050* community engagement process.

As a regional transportation planning agency, Kern COG is mandated by California Government Code Section 65080 to prepare and periodically update the RTP. Indeed, regional transportation planning is a dynamic process requiring periodic refinement, monitoring, and amendment. The planning program for the next four-year period will continue with extensive evaluation of the RTP and the elements required by the federal surface transportation act, Fixing America's Surface Transportation (FAST) Act signed into law December 4, 2015. Each component will be studied and modified consistent with RTP priorities as Kern County moves toward a more efficient, integrated and multimodal transportation system.

Public participation is encouraged at every stage of the planning process, and all meetings are open to the public. Kern COG performed extensive public outreach, and a discussion of Kern COG's public participation activities is provided in Chapter 4, while the Community Engagement Strategy for the 2018 RTP and summary of findings is documented in Appendix C.

The adopted RTP establishes a basis on which funding applications are evaluated. Use of any state or federal transportation funds by local governments must conform to the RTP, the State Implementation Plan (SIP) for air quality improvements, and the Federal Transportation Improvement Program (FTIP).

State transportation planning laws (Cal. Gov't Code § 65080 *et seq.*) also specify that actions by transportation agencies, such as Caltrans and Golden Empire Transit District, must be consistent with the RTP. Land use decisions should consider and accommodate transportation facilities and programs specified in the RTP whenever possible but are not required to be consistent with the RTP. The facilities listed in the RTP should be incorporated into city and county General Plans. Local transportation projects must be consistent with the RTP in order to obtain state or federal funding.

Kern COG has prepared this RTP to include the SCS within Chapter 4 and the Congestion Management Program and Transportation Security Plan within Chapter 5, Strategic Investments. Kern COG prepared an environmental document, pursuant to the California Environmental Quality Act (CEQA), for the 2018 RTP. The environmental document serves as an informational document to inform decision-makers and the public of the potential environmental consequences of approving the proposed plan. Because Kern COG has no land use authority, it cannot mandate changes to city or county land use policies and regulations, including general plans. The SCS was developed in consultation with local jurisdictions and is consistent with existing adopted General Plans and Zoning.

Based on the 2018 RTP, multimodal facilities will be constructed, and transportation services implemented, on a level consistent with projected funding. Funding projections are based on the assumption that current levels and sources of funding will continue throughout the planning time frame.

Using projected funding levels, each jurisdiction within Kern County, as well as Caltrans, the Kern County Air Pollution Control District, and the San Joaquin Valley Air Pollution Control District (the Air Districts), and other agencies, will implement transportation projects or transportation demand management strategies consistent with the goals and policies set forth in the 2018 RTP. The RTP supports maintaining the existing

multimodal transportation system, improving the safety of the system, and increasing the system's efficiency as appropriate.

The Constrained Program of Projects, a complete list of planned improvements by mode, is provided in Table 5-1 and is consistent with those projects that have been evaluated according to Air Quality Conformity guidelines and have been found to improve air quality in Kern County. Table 5-2 provides the Unconstrained Program of Projects; these projects are important to the development of Kern County's transportation system but funding is not identified or available, and they are not included in the Air Quality Conformity model.

## FEDERAL SURFACE TRANSPORTATION ACT - FIXING AMERICA'S SURFACE TRANSPORTATION ACT

On December 4, 2015, President Obama signed into law the Fixing America's Surface Transportation Act (FAST Act). It is the first law enacted in over ten years that provides long-term funding certainty for surface transportation, meaning states and local governments can move forward with critical transportation projects, like new highways and transit lines, with the confidence that they will have a federal partner over the long term.

Overall, the FAST Act largely maintains current program structures and funding shares between highways and transit. It is a down-payment for building a 21<sup>st</sup> century transportation system. The law makes changes and reforms to many federal transportation programs, including leveraging increased investment by state, local, and private partners, promoting improved project performance and accountability, and providing project sponsors maximum flexibility to propose innovative solutions to address specific, local needs. The law provides support for national or regional economic vitality, leveraging of federal funding, potential for innovation, and performance and accountability.

The RTP must also comply with Section 176 of the federal Clean Air Act which requires that no MPO may give its approval to any project, program, or plan which does not conform to the applicable State Implementation Plan (SIP) for air quality. See 42 U.S.C. § 7506(c).

## OVERVIEW OF STATE REQUIREMENTS

MPOs and Regional Transportation Planning Agencies are required to adopt and submit an updated RTP to the California Transportation Commission (Commission) and Caltrans every four or five years depending on air quality attainment within the region. The State of California has adopted extensive RTP guidelines that largely mirror federal requirements. The recently adopted 2017 Regional Transportation Plan guidelines, under the auspices of the California Transportation Commission, have been used to prepare this document.

In 2005, Governor Schwarzenegger's signed Executive Order S-3-05 which established a goal to reduce statewide GHG emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

In 2006, California became the first state in the country to adopt statewide GHG emissions reduction targets through AB 32. This law codifies the Executive Order S-3-05 requirement goal to reduce statewide emissions to 1990 levels by 2020. In 2006, Assembly Bill 32 (AB 32) was signed into law. AB 32 codifies the Executive Order S-3-05 goal to reduce statewide GHG emissions to 1990 levels by 2020. AB 32 resulted in CARB's 2008 adoption of a Climate Change Scoping Plan (Scoping Plan), outlining the state's plan to achieve emissions reductions through a combination of direct regulations, alternative compliance

## CHAPTER 1 INTRODUCTION

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mechanisms, various incentives, voluntary actions, market-based mechanisms, and funding. The Scoping Plan identifies local governments as “essential partners” in the state’s efforts to reduce emissions.<sup>1</sup>

Passed in 2008, SB 375 supports the implementation of AB 32 and revises the planning requirements of the RTP. SB 375 targets regional emissions reductions from passenger vehicles and light-duty trucks through changes in land use and transportation development patterns. As a result, MPOs, in partnership with local governments, are now required to develop a SCS to identify land use and transportation measures that will be used to meet regional emissions reduction targets established by the California Air Resources Board (ARB).

Executive Order B-30-15 signed by Governor Brown in April 2015, and SB 32 approved in September 2016, establishes a California GHG target of 40 percent below 1990 levels by 2030 – the most aggressive benchmark enacted by any government in North America to reduce carbon emissions over the next decade and a half. The bill also requires a life-cycle accounting, including climate change considerations, in infrastructure investments made by the state.

The RTP must be an “internally consistent” document, meaning that the contents of the Policy, Action, and Financial elements must be consistent with one another. As a result, transportation investments and the forecast development pattern in the SCS should be complementary. The Regional Transportation Plan Checklist, included in the 2017 RTP Guidelines, was used to ensure internal consistency in this 2018 RTP (refer to Appendix A).

SB 375 has also increased the minimum level of public participation required in the regional transportation planning process, requiring collaboration between regional partners during development of the SCS. SB 375 also offers California Environmental Quality Act (CEQA) incentives to encourage projects that are consistent with a regional plan which achieves emissions reductions and coordinates the regional housing needs allocation (RHNA) process with the regional transportation process.

In addition to SB 375, transportation plans must comply with CEQA, and the 2018 RTP meets this requirement. The first four years of plans must be consistent with the four-year State Transportation Improvement Program (STIP), which includes the Kern COG Regional Transportation Improvement Program (RTIP).<sup>2</sup> State guidelines call for program-level performance measures that include objective criteria to reflect the RTP’s goals and policies. State guidelines also require regional plans to contain three specific chapters: a policy element (Chapter 2, Transportation Planning Policies), an action element (Chapter 5, Strategic Investments), and a financial element (Chapter 6, Financing Transportation).

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<sup>1</sup> Because the Scoping Plan time horizon is limited to 2020, analysis of the Scoping Plan is presented for the year 2020 only, not for 2035 or 2050. While Executive Order S-3-05 sets a goal that statewide GHG emissions be reduced to 80 percent below 1990 levels by 2050, the Executive Order does not constitute a “plan” for GHG reduction, and no state plan has been adopted to achieve the 2050 goal.

<sup>2</sup> The RTIP is the formal presentation of projects to the state that local agencies wish to implement within the next four years. Once projects are approved and presented in the STIP, the projects are then incorporated into the Federal Transportation Improvement Program (FTIP).

## Public Outreach

As the MPO, Kern COG is required to implement a public involvement process to provide complete information, timely public notice, and full public access to key decisions and to support early and continuing public involvement in developing its regional plans.

Kern COG formally adopted a Public Participation Program in May 2001, then updated it in 2005, 2007, 2010, 2011, and 2015 (refer to Appendix B for the complete Public Participation Plan). This program, Title VI of the Civil Rights Act of 1964, and associated regulations and policies, including President Clinton's 1994 Executive Order 12898 on Environmental Justice, seeks to assure that minority, senior, and low-income populations are involved in the planning process. Kern COG's Public Participation Program seeks to encourage active participation of a broad range of stakeholder groups in the RTP process.

Kern COG has used a combination of methods to stimulate public involvement. Although the planning horizon year for the 2018 RTP is 2042, the community engagement process was titled, *Directions to 2050*, in an effort to encourage long term brainstorming by participants and build on the Kern Regional Blueprint branding by the same name. The *Directions to 2050* community engagement program was designed to provide an opportunity for community members to learn about the RTP project and identify priorities for the region's future.

The community engagement strategy used a multifaceted approach to target all sectors of the community within the Kern region, including traditionally underrepresented groups. The following public outreach methods were used:

- RTP-specific presentations to community-based organizations.
- Four RTP-specific stakeholder roundtable meetings with representatives from the business, industry, environmental justice advocacy, social services communities, and the Regional Planning Advisory Committee.
- Seventeen RTP-specific community workshops throughout the Kern region.
- Eight RTP-specific community events throughout the Kern region including the Tehachapi Mountain Festival, Wasco Rose Festival, Delano Street Fair, McFarland Independence Day Festival, Taft Rails to Trails Festival, and Ridgecrest Desert Empire Fair and the Great Kern County Fair (2015 and 2016). These events provided the most successful level of broad public participation.
- Kern COG hosted booths at seven Farmer's Markets to engage the public about planning transportation projects.
- Kern COG conducted eight community workshops and nine walk audits to enhance walking, bicycling and transit access throughout Kern County.
- Kern COG staff attended the monthly meeting of the Greater Lamont Chamber of Commerce on November 14, 2017, when the Tejon Indian Tribe made a presentation about the history of the Tribe including the current goals. Following the Tribal presentation, Kern COG staff made a presentation regarding development of the 2018 RTP/SCS, key land use and planning assumptions and public outreach. Kern COG provided a draft government-to-government agreement to the Tejon Indian Tribe to better facilitate the interaction between the two government organizations.
- RTP-specific interactive project website, which included online activities and a survey, community workshop public meeting notices, and the latest written information on the RTP.



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- Social media was used to advertise the online activities, websites and events.
- Posting of all public outreach events on the Kern COG *Directions to 2050* project website ([www.directionsto2050.com](http://www.directionsto2050.com)) and Kern COG Facebook page.
- Direct outreach to limited-English-proficiency, minority, senior, and low-income populations.
- Written materials (in both English and Spanish), and visual materials to communicate the status and content of the RTP, including fact sheets and presentations. A public comment form was used throughout the outreach program at public meetings as well as online.
- Kern COG's website, featuring a section dedicated to the 2018 RTP.
- Outreach to media, including press releases and interviews.
- Kern COG staff was available to respond to comments via telephone and/or by e-mail.

In addition to these targeted outreach efforts, all regular and special meetings of the Regional Planning Advisory Committee, Transportation Technical Advisory Committee, Congestion Management Agency Technical Advisory Committee, and Social Services Transportation Advisory Committee, as well as the Kern Transportation Planning and Policy Committee and Board of Directors, are publicly noticed and opportunities for public comment are provided. Kern COG coordinated with ARB and the California Department of Housing and Community Development (HCD) in the development of this RTP.

Input provided by elected officials, stakeholders, and community, agency, commission, committee and state agency members was recorded and informed development of the 2018 RTP (See Appendix C for a summary of the *Directions to 2050* community engagement process and results).

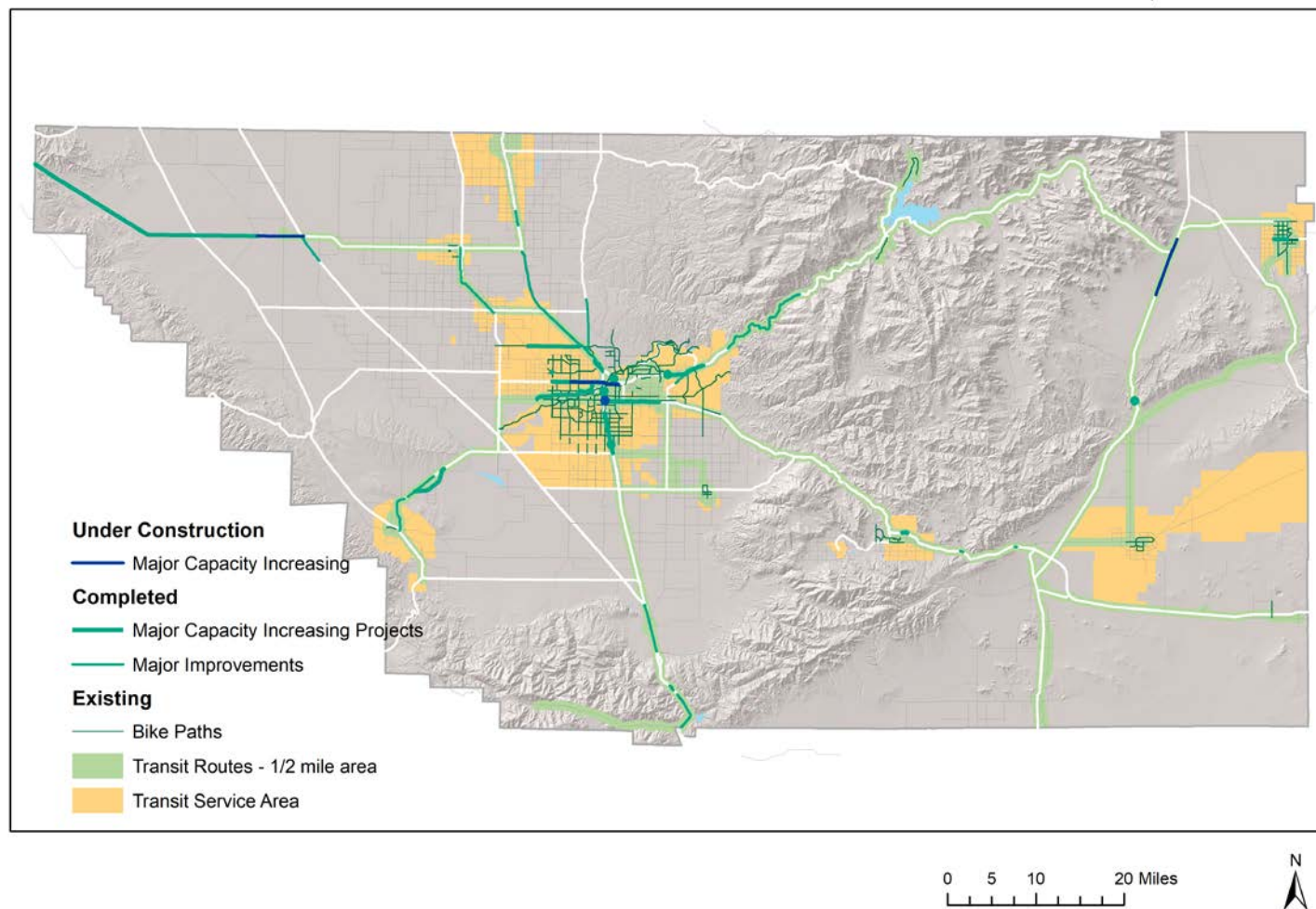
### Transportation Planning in the Kern Region

Kern COG is responsible for developing, coordinating, monitoring, and updating the RTP for Kern County. Kern COG develops the RTP in coordination with the eleven cities of Kern County and the County of Kern, transit operators, tribes, and other transportation stakeholders. This section has summarized the planning environment and discussed how Kern COG integrates the planning activities of each of the cities and the County of Kern to ensure a balanced, multimodal plan that meets regional and county-specific goals, as well as emissions reduction targets.

Over the past decade, Kern COG and its member agencies programed projects to benefit the traveling public throughout Kern County. Figure 1-1 and 1-2 portray projects that are currently under construction, completed or already existing. Projects ranged from transit projects, bike paths and performance increasing projects that mitigate congestion and enhance public safety.

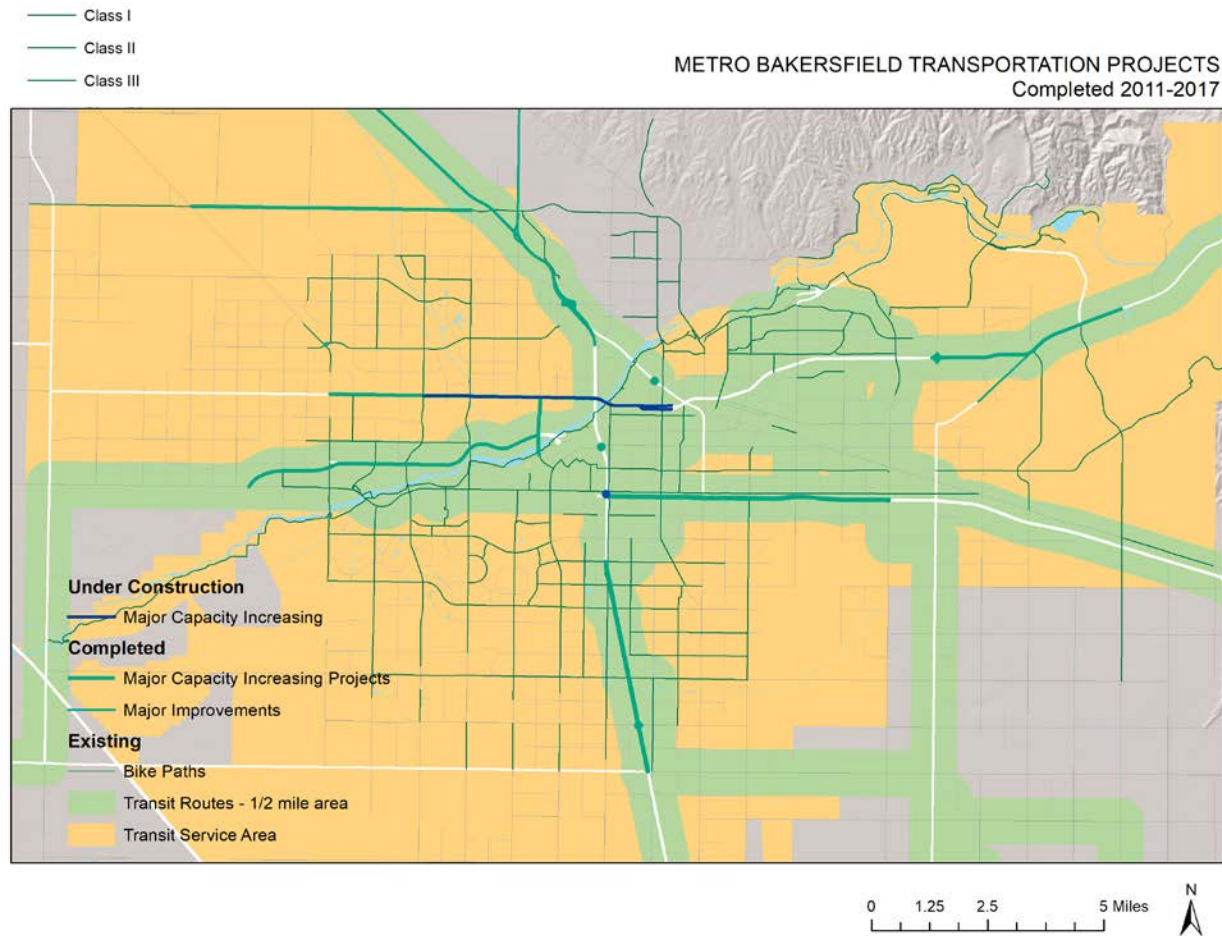
**Figure 1-1: Kern County Transportation Projects**

**KERN COUNTY TRANSPORTATION PROJECTS**  
Completed 2011-2017



## CHAPTER 1 INTRODUCTION

**Figure 1-2: Metro Bakersfield Transportation  
Projects Completed Underway Projects**



The Kern region comprises two air basins and four air quality nonattainment or maintenance areas. Federal law requires that transportation and air quality planning are coordinated in these nonattainment and maintenance areas. In addition, the Kern region is part of Caltrans Districts 6 and 9.

The Kern region is unique in that it not only contains the San Joaquin Valley, but mountain and desert sub-regions. The region's large area and dispersed centers support agriculture, oil and gas production, renewable energy, military, aerospace, recreation and other activities where abundant lands, unique geographic features and transportation linkages are important in supporting and enhancing the region's economic pursuits.

Given the challenges faced by our region, this RTP recognizes that our approach must be balanced, systematic, multimodal and at the same time focused to yield the best performance outcomes possible.

### CONTENT OF THE 2018 RTP

The substantive portions of the 2018 RTP are structured as follows:

- Chapter 1: Introduction
- Chapter 2: Policy Element
- Chapter 3: Planning Assumptions
- Chapter 4: Sustainable Communities Strategy
- Chapter 5: Strategic Investment
- Chapter 6: Financial Element
- Chapter 7: Future Links
- Chapter 8: Monitoring Progress
- Chapter 9: Glossary & Acronyms
- Appendices

### Policy Element

In Chapter 2, the Policy Element addresses legislative, planning, financial, and institutional issues and requirements, as well as areas of regional consensus (e.g., forecasted development patterns). This element provides guidance to decision-makers regarding the implications, impacts, opportunities, and forecasted options that will result from implementation of the RTP. In addition, the Policy Element is a resource that provides input and promotes consistency of actions taken by state, regional, and local agencies, such as transit agencies, congestion management agencies, and the California Highway Patrol.

### Planning Assumptions

Chapter 3 describes the planning assumptions applied in developing the 2018 RTP. In 2001 the Kern COG Board adopted a policy to revisit the regional growth forecast every 3-5 years. The Board has adopted forecasts four times since that policy was implemented. As in all parts of California, housing affordability is linked to job growth and Kern is noted for being the most affordable housing market in the state<sup>3</sup> making Bakersfield a destination for household migration from more expensive markets, like Southern California, that are experiencing a major housing shortage/affordability crisis. State policies for expanding the renewable energy portfolio continues to provide jobs in this industry and a new streamlined, environmentally protective permit system for oil and gas supports continued permit activity.

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<sup>3</sup> Smart Asset, <https://smartasset.com/mortgage/quicken-loans-review#california/most-affordable>, 2017

## CHAPTER 1 INTRODUCTION

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In addition, the growth assumptions include a planned High Speed Rail station for Bakersfield that would provide 55 minute passenger rail service between Kern and L.A. Union Station. This potential connection could eventually bring greater job diversity and housing to Kern County beyond historic growth trends. The question is not if, but when we will see the forecasted growth in Kern. Forecast trends will be adjusted again during the next RTP update in the next four years.

### **Sustainable Communities Strategy**

As discussed earlier, the 2018 RTP includes a SCS – Chapter 4. The SCS includes land use planning strategies and policies to reduce air emissions from passenger vehicle and light duty truck travel by better coordinating transportation expenditures with forecasted development patterns in order to meet the GHG emissions reduction targets for the region.

### **Strategic Investment**

Chapter 5, Strategic Investment sets forth plans of action for the region to pursue and meet identified transportation needs and issues. Planned investments are consistent with the goals and policies of the plan, the SCS element and must be financially constrained. These projects are listed in the Constrained Program of Projects (Table 5-1) and are modeled in the Air Quality Conformity Analysis.

### **Financial Element**

RTPs must include a Financial Element – Chapter 6, that identifies monetary resources to implement the plan (23 USC 134(h)(2)(B)). This Chapter serves as the Financial Element to fulfill the federal requirement that the 2018 RTP be financially constrained (i.e., budgeted) and provides a cost analysis for implementing the program of projects included in the Strategic Investments (Action Element). It describes the anticipated financial situation that will exist between FY 2018 and FY 2042, the implementation period for this 2018 RTP.

### **Future Links**

Chapter 7 – Future Links, addresses key future trends that may affect the RTP in future cycles. Forecasting for more than 5 years can be challenging; as such, forecasts should be updated regularly. The Future Links Chapter discusses some major game changers that need to be watched closely with each update of the RTP including corridor preservation, needed unfunded projects and financial mechanisms, adaptive cruise control/autonomous vehicle technology, high speed rail, air quality contingencies, and the San Joaquin Valley Regional Overview chapter.

### **Monitoring Progress**

Chapter 8 deals with monitoring the progress of the transportation system. As the designated MPO for the Kern region, Kern COG monitors transportation plans, projects, and programs for consistency with regional plans. Kern COG also monitors the performance of the transportation system. This performance monitoring is especially important to inform the planning process for future RTPs. Regional transportation problems cannot be solved until they are identified and measured.

### **Glossary & Acronyms**

A list of special terms and abbreviations used in the RTP with accompanying definitions.



## Appendices

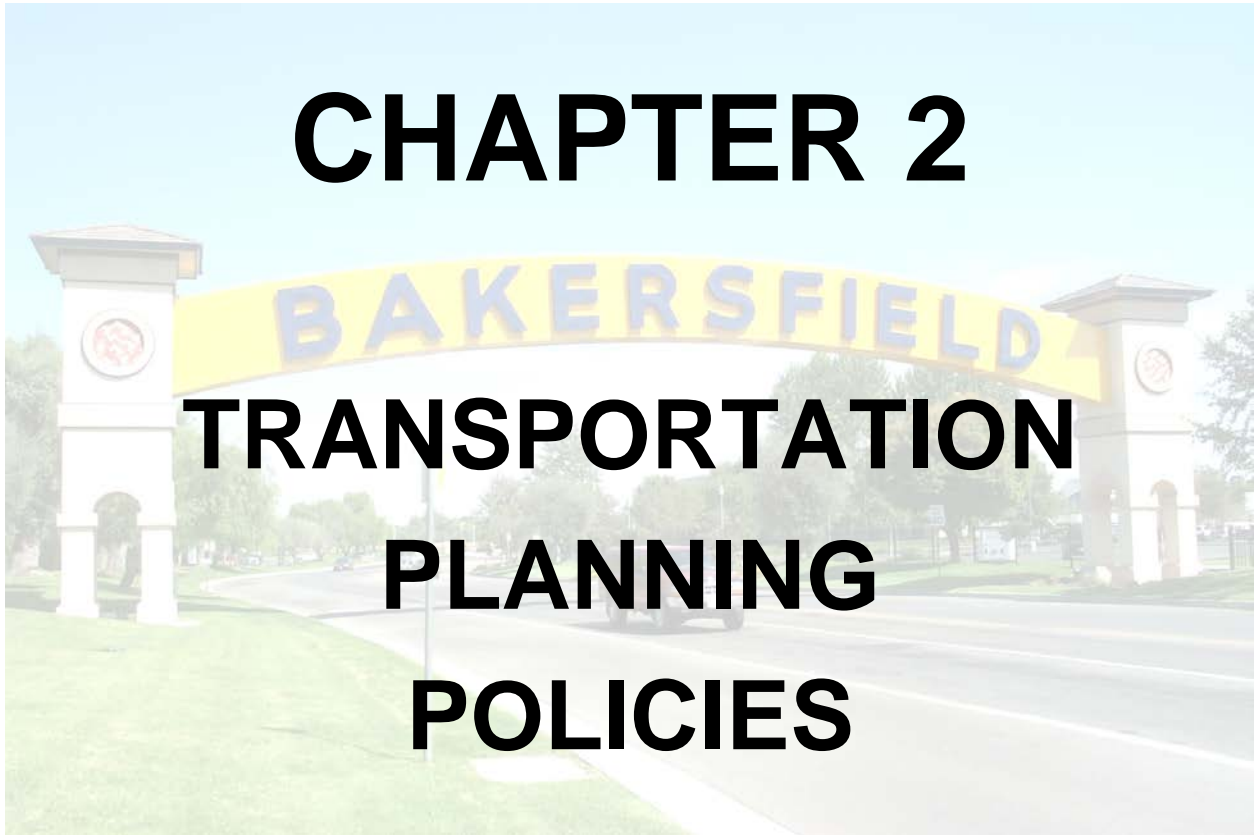
The following Appendices are included with the 2018 Regional Transportation Plan:

Appendix A	Regional Transportation Plan Checklist
Appendix B	Public Information Policies and Procedures
Appendix C	Outreach Results
Appendix D	Integrated Performance Measures Analysis
Appendix E	A Great Start: Sustainable Community Success Stories
Appendix F	San Joaquin Valley Regional Overview
Appendix G	2018 Regional Transportation Plan Capital Improvement Program/Expenditure Plan by Sub Areas Using Existing Funding Sources (Ready-To-Go Major Projects) Together With Potential New Funding Sources (Next-In-Line Major Projects)
Appendix H	Response to Comments (To Be Included with Final RTP)



# **CHAPTER 2**

## **TRANSPORTATION PLANNING POLICIES**







## CHAPTER 2 TRANSPORTATION PLANNING POLICIES

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### CHAPTER 2 TRANSPORTATION PLANNING POLICIES

#### INTRODUCTION

The 2018 Regional Transportation Plan is Kern County's comprehensive area-wide transportation program to address the mobility challenges created by the region's growth. The Policy Element is one of 4 required elements for a Regional Transportation Plan as required by the adopted California Transportation Commission guidelines. This Policy Element contains an integrated set of goals, policies, actions and performance measures that are consistent with publicly vetted principles to guide and monitor the improvements to Kern's transportation system through 2042.

The Policy Element addresses legislative, planning, financial, and institutional issues and requirements, as well as areas of regional consensus (e.g., land use policies). This element provides guidance to decision-makers regarding the implications, impacts, opportunities, and forecasted options that will result from implementation of the RTP. In addition, the Policy Element is a resource that provides input and promotes consistency of actions taken by state, regional, and local agencies, such as transit agencies, congestion management agencies, and the California Highway Patrol.

***This policy element contains an integrated set of goals, policies, actions and performance measures that are consistent with publicly vetted principles to guide and monitor the improvements to Kern's transportation system through 2042.***

The policies and actions of the RTP are listed by goal and Strategic Investments (see Chapter 5) and are provided in Table 2-1. This table is supported by a Performance Monitoring section containing a system-wide set of measures to monitor progress toward these goals as well as an Integrated Environmental Justice (EJ)/Title VI analysis (see Appendix D). A description of the issues, needs, and actions is included in Chapter 5, Strategic Investments, for each transportation mode.

Transportation planning policies discuss multiple plans including but not limited to transit plans, active transportation plans. The scope of goals, policies and actions within this document apply to all jurisdictions including unincorporated areas and disadvantaged communities.

Goals, policies, actions, and performance measures are defined as follows:

A “**goal**” is the end toward which effort is directed; it is general in application and timeless.

A “**policy**” is a direction statement that guides present and future decisions on specific actions. Policies support the attainment of goals. In this document, policies have been merged with objectives to streamline the policy element.

An “**action**” is a specific activity in support of the policy. Actions are detailed in Chapter 5, Strategic Investments (Action Element).

A “**performance measure**” is a quantitative system-level indicator of how actions in the plan support the goals and are included in Appendix D.

In accordance with Government Code 65080(b)(1), all policies are relevant for both the near term (6 years) and long term (20+ years). Short- and long-range actions implementing these policies are identified in Chapter 5.

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The following 2018 RTP goals and policies were derived from other Kern COG transportation plans and studies. This 2018 RTP stands on its own, and revisions to these other plans will not affect the content of this document.

### GOALS/POLICIES

At the core of the 2018 RTP are seven goals:

- 1) **Mobility** – Improve the mobility of people and freight.
- 2) **Accessibility** – Improve accessibility to, and the economic wellbeing of, major employment and other regional activity centers.
- 3) **Reliability** – Improve the reliability and safety of the transportation system.
- 4) **Efficiency** – Maximize the efficiency and cost effectiveness of the existing and future transportation system.
- 5) **Livability** – Promote livable communities and satisfaction of consumers with the transportation system.
- 6) **Sustainability** – Provide for the enhancement and expansion of the system while minimizing effects on the environment.
- 7) **Equity** – Ensure an equitable distribution of the benefits among various demographic and user groups.

While all goals are considered interrelated and important, mobility is considered the plan's highest goal. Identified in Table 2-1 are policy objectives for Kern COG and its member agencies categorized by the goals they help to advance. The table also references the strategic investment category in Chapter 5, Strategic Investments.

<b>Policy – Action No.</b>	<b>Goal(s)</b>	<b>Policy/Action</b>	<b>Strategic Action Element (Ch. 5)</b>
1	Mobility, Accessibility	Enhance connectivity to Meadows Field and Inyokern Airport to accommodate future regional growth	Aviation
1.1		Work with Meadows Field and Inyokern Airport to obtain funding from the state and federal governments for their respective development programs.	Aviation
1.2		Work with local and regional transit providers to increase alternative mode ground access options at Meadows Field.	Aviation
1.3		Assist Meadows Field with planning related to high-speed rail connections.	Aviation
2	Mobility, Accessibility	Assist Kern County airports in expanding facilities to meet growing general aviation demands.	Aviation
2.1		Participate in master plan updates for various Kern County airports.	Aviation

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2.2		Implement the Action Plan of the Central California Aviation System.	Aviation
2.3		Work with public airports to increase their access to federal and state funding.	Aviation
3	Mobility, Accessibility	Work with privately owned airports and local jurisdictions to support their operations and to maintain compatible uses within the airport area of influence.	Aviation
3.1		Work with the JLUS committee to implement planning activities listed in the JLUS for R-2508 airspace (China Lake Naval Air Weapons Station and Edwards Air Force Base).	Aviation
3.2		Implement planning actions and strategies listed in the JLUS for R-2508.	
4	Mobility, Accessibility, Sustainability	Enhance and connect existing and future bikeways and pedestrian walkways in the Kern region.	Active Transport (AT), Air Emission
4.1		Seek and assist member agencies to apply for funding for bicycle and pedestrian projects from local, state, and federal sources.	AT
4.2		Seek and assist member agencies to apply for funding to maintain existing bikeways and pedestrian walkways.	AT
4.3		Encourage allocating sufficient flexible funding sources to fully fund priority pedestrian/bicycle projects identified in local and/or regional plans.	
5	Mobility, Accessibility	Encourage and assist Kern COG member jurisdictions to implement their adopted local bicycle plans and to incorporate bicycle facilities into local transportation projects.	AT, Air Emissions
5.1		Fund updated bicycle plans for incorporated cities and unincorporated communities.	AT
5.2		In communities countywide and using appropriate funding sources create and fully fund pedestrian/bicycle facilities identified in local and/or regional plans.	AT
6	Mobility, Accessibility	Using appropriate funding sources, update and fund regional and local plans that promote bicycle/pedestrian travel.	AT, Air Emissions
6.1		Fund a Pedestrian Facilities Plan for the County of Kern as well as incorporated cities.	AT
6.2		Periodically update the Kern Regional Bicycle Plan.	AT
7	Livability	Encourage using appropriate funding sources to promote and fund sustainable community design that supports transit use and increases active transportation (AT) while still meeting the mobility needs of residents and employees in all communities and particularly in disadvantaged communities.	AT, Public Transit, Air Emissions
7.1		Purchase and construct bicycle racks and lockers for Kern County multimodal stations.	AT
7.2		Purchase and construct bike tie-downs and racks on commuter trains and buses.	AT
7.3		Implement bus improvements including enhanced transit service (rapid bus, Bus Rapid Transit) in long range transit plans that promote service throughout the county especially for disadvantaged communities.	Transit
7.4		Introduce Express bus service along SR 178/24th Street/Rosedale Highway and SR 99.	Transit

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7.5		Consider Bus Rapid Transit (BRT) in exclusive lanes with traffic signal priority.	Transit
7.6		Using appropriate funding sources, study additional express/inter-city bus service throughout the county.	Transit
7.7		Consider ramp metering.	Transit
7.8		Consider peak period only HOV lanes.	Transit
7.9		Consider converting BRT corridors to light rail transit.	Transit
7.10		Consider additional peak period HOV lanes.	Transit
8	Mobility, Accessibility	Identify additions and alternatives that would improve the overall quality of transit service in Kern County.	Transit, Air Emissions
8.1		Identify additions and alternatives that would improve the overall quality of transit service throughout the county, especially for disadvantaged communities.	Transit
8.2		Consider a new GET Transit Center at CSU Bakersfield.	Transit
8.3		Increase GET services to CSU Bakersfield and Bakersfield College.	Transit
8.4		Consider introducing “full” GET BRT.	Transit
8.5		Implement traffic flow improvements/railroad grade separations.	Air Emissions
8.6		Promote park and ride lots.	Air Emissions
8.7		Consider High Occupancy Vehicle (HOV) lane additions: Centennial Corridor provides room to accommodate HOV.	Air Emissions
8.8		Encourage transit providers to consider lower transit fares or transit subsidies for low income, disabled and elderly populations.	Air Emissions
8.9		Implement flextime program.	Air Emissions
9	Mobility, Accessibility	Identify, explore and assist jurisdictions to apply for funding alternatives to traditional transit that address Kern Transit’s (KT) rural mobility needs.	Transit, Air Emissions
9.1		Assist KT in refining KT scheduling practices.	
9.2		Consider KT route reconfiguration within Downtown Bakersfield.	
9.3		Assist KT in analyzing stop placements.	Transit
9.4		Continue discussions with the Southern California Regional Rail Authority regarding the extension of Metrolink from Lancaster to Rosamond.	Transit
9.5		Create and promote ridesharing and voluntary employer-based incentives.	Air Emissions
10	Mobility, Accessibility	Develop coordination alternatives that would realize improvements over current Golden Empire Transit (GET) and other transit operations.	Transit, Air Emissions
10.1		GET may consider decreasing emphasis on timed connections at transit centers.	Transit
10.2		GET may consider faster crosstown trips: <ul style="list-style-type: none"> <li>• New Express routes</li> <li>• New “Rapid” routes</li> <li>• More direct routes</li> </ul>	Transit

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Policy – Action No.	Goal(s)	Policy/Action	Strategic Action Element (Ch. 5)
10.3		GET may consider faster crosstown service connecting one side of Bakersfield to the other.	Transit
10.4		GET may consider circular services within neighborhoods or around outlying areas of Bakersfield.	Transit
10.5		Continuation of GET express routes.	Transit
11	Mobility, Accessibility	Review, identify, and discuss alternative administrative and oversight models for transit services in Kern County. Support transit operators' replacement of fossil fueled vehicles to zero emission vehicles.	Transit, Air Emissions
12	Mobility, Accessibility	Create strategies to increase the visibility and importance of transit in Kern County.	Transit, Air Emissions
12.1		Monitor advancement of the California High-Speed Rail (HSR) project.	Transit
12.2		Introduce GET hybrid Circulator/Express service.	Transit
13	Mobility, Accessibility	Create partnerships between transit and social services agencies in addressing Kern County's transit needs.	Transit, Air Emissions
14	Mobility, Accessibility	Improve intercity connections and provide new services to expand the transportation alternatives in the Eastern Sierra region.	Transit, Air Emissions
14.1		Continue discussions with the Southern California Regional Rail Authority regarding the extension of Metrolink from Lancaster to Rosamond.	Transit
14.2		Initiate discussions with the San Joaquin Valley Joint Powers Authority regarding adding stops to Amtrak San Joaquin service between Bakersfield and Wasco.	Transit
14.3		Create ridesharing and voluntary employer-based incentives.	Air Emissions
14.4		Reassess feasibility of commuter rail in various corridors.	Transit
14.5		As HSR proceeds to construction: <ul style="list-style-type: none"> <li>Identify preferred corridor to connect Bakersfield and Delano with commuter rail/HSR feeder service</li> <li>Identify potential funding for commuter rail operations</li> <li>Work with local transit providers to connect riders to commuter rail/HSR</li> </ul>	Transit
15	Mobility, Sustainability	Investigate new federal, state, and local funding opportunities to maintain the current transportation system and promote future transportation development.	Highways
15.1		Pursue ground access improvements for Meadows Field.	Highways
15.2		Upgrade the present highway maintenance system whenever feasible.	Highways
15.3		Maintain and enhance existing roadway infrastructure and vehicles with emerging technology to provide for more efficient use.	Highways, Air Emissions
16	Mobility, Accessibility, Sustainability	Work with Caltrans, COG member agencies, and other interested parties to prepare environmental studies and design engineering plans.	Highways
16.1		Widen State Route 119 near Taft	Highways
16.2		Widen State Route 14 near Freeman Gulch/Inyokern.	Highways
17	Mobility, Accessibility, Sustainability	Provide input to neighboring counties conducting corridor studies for routes significant to the Kern region.	Highways



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Policy – Action No.	Goal(s)	Policy/Action	Strategic Action Element (Ch. 5)
17.1		Participate in San Bernardino County’s study for the US Highway 395 corridor.	Highways
17.2		Review and analyze available rest areas, layover lots, and truck stops to determine needs for additional parking related to long-distance travel.	Highways
17.3		Implement the recommendations from completed transportation planning studies when appropriate and feasible.	Highways
18	Mobility, Accessibility, Efficiency	Review countywide transportation impact fees and encourage member agencies to invest in active transportation, public transit and maintenance of local streets and roads.	Highways
18.1		Encourage local governments to consider pursuing alternative funding sources such as regional TIFs where justified as a necessary means to address transportation needs.	Highways
19	Livability	Delay the need for future increases in highway capacity and congestion through the implementation of measures that reduce transportation related air emissions.	Highways, Air Emissions
19.1		Pursuant to Transportation Development Act Statutes, encourage member agencies to improve and explore funding opportunities for public transit in all communities especially for disadvantaged communities.	Air Emissions
19.2		Create ridesharing and voluntary employer-based incentives.	Air Emissions
19.3		Facilitate traffic flow improvements/railroad grade separation.	Air Emissions
19.4		Consider High Occupancy Vehicle (HOV) lane additions: Centennial Corridor provides room to accommodate HOV.	Air Emissions
19.5		Consider implementing flextime programs.	Air Emissions
20	Mobility, Accessibility	Prepare a systems-level planning analysis of various transportation system alternatives using multimodal performance measures.	Highways, Air Emissions
20.1		Maintain Regional Traffic Models to aid in traffic and air quality analyses.	Air Emissions
21	Mobility, Accessibility, Efficiency, Livability	Coordinate planning efforts to ensure efficient, economical, and environmentally sound movement of goods.	Highways, Freight
21.1		Prioritize and program the freight related capital improvements for highways, regional roads, and interchanges for the RTP planning period, consistent with adopted goals and policies and the project eligibility requirements for each funding program.	Highways
21.2		Support higher safety level requirements for hazardous material transport on interstates, state highways, and local roads.	Highways
21.3		Encourage coordination and consultation between the public and private sectors to explore innovative and efficient goods movement strategies.	Freight
21.4		Identify opportunities for truck-to-rail and truck-to-intermodal mode shifts, and evaluate the contributions of truck traffic on regional air quality.	Freight
21.5		Encourage the use of rail and air for goods movement to reduce impacts to state and inter-county routes and lessen air quality impacts.	Freight
21.6		Oppose higher axle load limits for the trucking industry on general purpose roadways without adequate reinforcement and maintenance.	Freight

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22	Mobility, Accessibility, Efficiency	Advocate programs and projects for the intermodal linkage of all freight transportation.	Highways, Freight
22.1		Consider constructing truck climbing lanes on eastbound SR 58 from General Beale Road to the Bena Road overcrossing.	Freight, Highways
22.2		Program infrastructure improvements such as widening of Seventh Standard Road in response to proposed freight movement activities in the area.	Freight
22.3		Widen State Route 184 to four lanes to respond to increasing agriculture trucking activity.	Highways, Freight
22.4		Widen Wheeler Ridge Road to four lanes as a gap-closure measure to tie I-5 to SR 58 via SR184.	Highways, Freight
23	Mobility, Efficiency	Develop an annual freight movement stakeholders group for coordination and expansion efforts.	Freight
23.1		Encourage communication between short-line rail operators, shippers, and economic development agencies.	Freight
23.2		Explore options for potential uses of the southern portion of Arvin Subdivision as identifies in the Kern County Rail Study Phase 2.	Freight
24	Mobility, Reliability, Efficiency	Explore rail intermodal, transfer facility, and alternative transfer options for the region.	Freight
24.1		Continue development and expansion of the Shafter Rail Terminal for intermodal freight transfer and container load matching.	Freight
24.2		Continue development of the Delano Union Pacific Cold Connect Facility for intermodal freight shipping across the United States.	Freight
24.3		Expand rail service to existing distribution centers throughout Kern County when feasible.	Freight
25	Mobility, Accessibility, Equity	Maintain liaison with Southern California Association of Governments and all San Joaquin Valley Councils of Government for efficient coordination of freight movement between regions and counties.	Freight
25.1		Work with other agencies to create an effective Central Valley-wide truck model to track regional commodity flows and to identify critical economic trends that will drive truck flows on regionally significant truck routes.	Freight
26	Mobility, Reliability, Accessibility, Equity	Provide heavy truck access planning guidance, including a review of the current surface transportation act route system, review of geometric issues, and signaling for all routes identified as major local access routes, as well as the development of performance standards.	Freight, Air Emissions
26.1		Add “missing links” (streets) to roadway network that reduce out of direction travel: Centennial Corridor will provide a major free flow traffic connector that will improve air quality by reducing stop and go truck travel on local arterials. The Hageman Flyover Project will provide another east/west connection over SR 99 to downtown Bakersfield central business district; Mohawk Street Extension provides an extension from Rosedale Highway south that connects to Truxtun Avenue accessing downtown Bakersfield.	Freight, Air Emissions
27	Accessibility, Reliability, Livability, Sustainability	As planning funds are available, continue the technical and planning assistance grant program to assist and allow local jurisdictions to receive funding for coordinated land use, air quality and transportation planning.	Land Use, Air Emissions

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27.1		Facilitate the Shafter Intermodal Rail Facility by programming infrastructure to service rail and truck traffic that may be generated by the facility.	Land Use, Air Emissions
27.2		Use the California Environmental Quality Act (CEQA) review process to inform stakeholders and decision makers on the impacts of sensitive land use developments near vital transportation infrastructure necessary to handle increasing air traffic and international cargo, as well as increasing inland port activity.	Land Use, Air Emissions
27.3		Work with the Kern County Department of Airports and local planning departments to preserve existing airports from encroachment by sensitive land uses to strategic global gateways.	Land Use
27.4		Use the CEQA review process to inform stakeholders and decision makers on the impacts of sensitive land use developments near vital transportation infrastructure necessary to handle increasing local, intercity, and interregional transit use.	Land Use, Air Emissions
27.5		Implement the RTP in partnership with member agencies to preserve near- and long-term transportation infrastructure, thus promoting the gradual intensification of transit use.	Land Use, Air Emissions
27.6		Allow reduced parking requirements near transit centers that have alternative modes of access such as walking and bike paths, circulator buses, etc.	Land Use, Air Emissions
27.7		Monitor progress and allocate funding toward implementing principles developed by the <i>Directions to 2050</i> outreach process pursuant to the Project Delivery Policies and Procedures adopted November 17, 2016, and updated as needed.	Land Use, Air Emissions
27.8		Encourage cities and the county to provide parking requirements (and parking provisions) compatible with compact, pedestrian, and transit-supportive design and development. Requirements should account for mixed uses, transit access, and the linking of trips that reduce reliance on automobiles and total parking demand.	Land Use, Air Emissions
27.9		Promote land use along freight corridors that are compatible with goods movement traffic.	Land Use
28	Accessibility, Efficiency, Livability, Sustainability	Encourage land use planning by Kern COG local government member agencies that recognizes Kern's large area, dispersed centers and unique geographic features of the region.	Land Use, Air Emissions
28.1		Implement the <i>Directions to 2050</i> Growth Principles vision for economic vitality by planning and programming infrastructure to provide connectivity to air traffic and international cargo facilities.	Land Use
28.2		Monitor progress and as funds are available, allocate funding toward implementing regional principles developed by the <i>Directions to 2050</i> visioning process consistent with local general plans and provide funding to support that vision through the technical and planning assistance grant program.	Land Use
29	Accessibility, Efficiency, Livability, Sustainability	Promote land use patterns that support current and future investments in public transit and active transportation in all communities particularly in disadvantaged communities.	Land Use, Air Emissions
29.1		Encourage the adoption of general plan circulation elements that address transit, bike, and pedestrian modes. Consider specific plan lines and form-based codes where appropriate to implement transit improvements along designated transit corridors that connect transit-priority place types and centers and other transit ready areas.	Land Use, Air Emissions

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Policy – Action No.	Goal(s)	Policy/Action	Strategic Action Element (Ch. 5)
29.2		Work with GET, KT, other local transit providers, and local land use planners to preserve existing and future transit opportunities from the encroachment of low-density land uses within transit-priority place types and centers and other transit ready areas.	Land Use, Air Emissions
29.3		Encourage the expansion of transportation choices and transit usage by providing housing choices that include more compact and mixed land uses within walking distance to transit priority place types and centers and other transit ready areas in all communities including disadvantaged communities.	Land Use, Air Emissions
29.4		Identify and space transit oriented village, town, and suburban/ community centers a minimum of 1 to 4 miles apart.	Land Use, Air Emissions
29.5		Provide convenient and safe walking and bike paths to a fixed transit hub at each transit priority place type and other transit ready areas.	Land Use, Air Emissions
29.6		Promote more compact and mixed-use centers along transit corridors, where appropriate, to support more intense transit options such as BRT, light rail and active transportation as areas become revitalized and in other transit ready areas.	Land Use, Air Emissions
29.7		Land uses should be mixed both horizontally and vertically where appropriate. Vertical mixed use, with ground-floor retail in developed areas and activity centers as identified through local land use plans, can increase the vitality of the street and provide people with the choice of walking to desired services. More important for Bakersfield, mixing uses horizontally can prevent desolate, single-use areas and encourage increased pedestrian activity; scale of use and distance between uses are important to successful horizontal mixed-use development.	Land Use, Air Emissions
29.8		Support and enhance transit priority and strategic employment place types. These areas have a strong impact on transportation patterns as the major destinations. To make these places more transit-supportive, they should be enhanced by land use decisions that locate new and affordable housing and appropriately scaled retail and employment uses to diversify the mix, creating an environment that maximizes transportation choice in both Metro and outlying communities. Enhancement of these place types in outlying areas to create vibrant communities provides opportunities for employees to live closer to where they work, reducing overall travel.	Land Use, Air Emissions
29.9		Encourage cities and the county to provide land use intensities where appropriate at levels that will promote use of transit and support pedestrian and bicycle activity. A general threshold for transit-supportive residential uses is 10 to 15 units per acre within ½ mile of a high-frequency transit stop (15 min. headways or less). This density can be lower, however, if the urban environment supports easy pedestrian/bike access to transit. Nonresidential uses with a floor area ratio (FAR) of 0.5 provide a baseline that can support viable transit ridership levels. Local land use plans should provide flexibility to maximize the intensity of development in transit priority place types to be more responsive to changing market conditions.	Land Use, Air Emissions
29.10		Encourage the adoption of general plan circulation elements with specific plan lines as appropriate to preserve goods movement corridors and high frequency transit corridors.	Land Use, Air Emissions
29.11		The transportation and circulation framework should define compact districts and corridors that are characterized by high connectivity of streets to not overly concentrate traffic on major streets and to provide more direct routes for pedestrians, good access to transit, and streets that are designed for pedestrians and bicycles, as well as for vehicles.	Land Use, Air Emissions

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Policy – Action No.	Goal(s)	Policy/Action	Strategic Action Element (Ch. 5)
29.12		New residential developments should include streets that provide connectivity. New development and revitalized areas should include streets that provide connectivity for pedestrian/bicycle access and public transit.	Land Use, Air Emissions
29.13		Streets should be designed to support use by multiple modes, including transit, bicycles, and pedestrians, through proper scaling and provision of lighting, landscaping, and amenities. Amenities must be designed to provide comfortable walking environments.	Land Use, Air Emissions
29.14		Buildings should be human scaled, with a positive relationship to the street (e.g. entries and windows facing onto public streets, and appropriate articulation and signage).	Land Use, Air Emissions
29.15		The impact of parking on the public realm should be minimized by siting parking lots behind buildings or screening elements (walls or landscaping). Buildings should be close to the road so parking can be located on the side or in the rear.	Land Use, Air Emissions
29.16		Encourage shared mobility, van pools and medically funded vans. Encourage pilot projects such as autonomous electric vehicles in rural communities where applicable to access larger transit operators. Promote partnerships and grant strategies that allow access to grant programs. This is an extension of Policy 9.	Land Use, Air Emissions
30	Accessibility, Efficiency, Livability, Sustainability	Promote increased communication with neighboring jurisdictions on interregional land use issues, including the coordination of land use decisions and transportation systems.	Land Use, Air Emissions
30.1		Coordinate with the County of Kern, City of Bakersfield, and City of Shafter on the proposed expansion of Meadows Field in the County of Kern Airport Master Plan.	Land Use
30.2		Coordinate with the Southern California Association of Governments, the Metropolitan Transportation Commission, and the ports to minimize impacts of port activity through Kern County.	Land Use, Air Emissions
30.3		Coordinate with the Kern County Department of Airports, municipalities and airport districts to establish intermodal connectivity for rail, trucking, transit, and passenger vehicles.	Land Use, Air Emissions
30.4		Coordinate with GET, KT, and the Kern County Department of Airports to improve intermodal connectivity between transit systems and Meadows Field.	Land Use, Air Emissions
30.5		Continue to use the CEQA review process to inform stakeholders and decision-makers on the impacts of sensitive land use developments near vital transportation infrastructure.	Land Use, Air Emissions
30.6		Work with member agencies to preserve existing and future road and highway rights-of-way from the encroachment of sensitive land uses.	Land Use, Air Emissions
30.7		Implement the long-range 2018 RTP in partnership with member agencies to preserve near- and long-term transportation infrastructure that promote the preservation of goods movement routes and facilities.	Land Use, Air Emissions
30.8		Transit improvement projects should be targeted in transit priority/strategic employment place types and other transit ready areas with transit-supportive land uses (existing and planned) in and around key destinations and projects that can increase pedestrian activity and safety.	Land Use, Air Emissions
30.9		Relax roadway level of service (LOS) standards in high-priority transit corridors. In high-demand, high-capacity transit corridors.	Land Use, Air Emissions

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31	Mobility, Reliability, Efficiency	Support more efficient use of the transportation system through the implementation of Intelligent Transportation Systems (ITS) technology	ITS, Air Emissions
31.1		Build upon the momentum and stakeholder coalition generated through the San Joaquin Valley Goods Movement Study to pursue ITS commercial vehicle projects.	ITS, Air Emissions
31.2		Investigate how ITS can support efforts to improve travel between the inland areas and coastal communities.	ITS
31.3		Build upon ITS planning efforts in the San Joaquin Valley in conjunction with federal rules (ITS architecture and standards conformity and statewide and metropolitan planning) to expand ITS actions.	ITS
31.4		Build upon the existing Caltrans District 6 Traffic Management Systems to fill gaps and complete coverage on major facilities, including expansion of their highway closures and restrictions database, to include other agencies.	ITS, Air Emissions
31.5		Capitalize on the extensive ITS technology testing and standards development conducted by Caltrans by using, where appropriate, Caltrans approaches for local traffic management systems.	ITS, Air Emissions
31.6		Build upon best practices from past and current transit ITS deployment experiences in the State of California.	ITS, Air Emissions
31.7		Build upon Caltrans District 6 experience with sharing facilities, equipment, and information between traffic management and California Highway Patrol staff.	ITS, Air Emissions
31.8		Provide traveler information for commercial vehicle operators at truck rest stops.	ITS, Air Emissions
31.9		Improve visibility and access to existing Caltrans valley-wide alternate route plans.	ITS, Air Emissions
31.10		Coordinate the Bakersfield area Transportation Operations Center with Caltrans District 6 Transportation Management Center via satellite.	ITS, Air Emissions
31.11		Integrate the ITS capabilities being implemented at GET with Bakersfield's traffic management system, including sharing information between the two centers during emergencies.	ITS, Air Emissions
31.12		Facilitate the transfer of lessons learned from GET ITS deployment to other area transit operators, and look for opportunities for those agencies to better coordinate with GET using its ITS capabilities.	ITS, Air Emissions
31.13		Expand the accident reduction campaigns on Kern's rural highways and county roads.	ITS, Air Emissions
32	Livability	Achieve national and state air quality standards for healthy air by the mandated deadlines.	Air Emissions
32.1		Maintain air quality coordination MOU with the San Joaquin Valley Metropolitan Planning Organizations, San Joaquin Valley and East Kern Air Pollution Control District, and Caltrans Districts 6 and 10.	Air Emissions
32.2		Identification of all Reasonably Available Control Measures (RACM) for ozone and all Best Available Control Measures (BACM) for PM10 by Kern COG's member agencies.	Air Emissions
32.3		Coordinate with all necessary responsible agencies to implement feasible transportation control measures that limit harmful air emissions.	Air Emissions



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Policy – Action No.	Goal(s)	Policy/Action	Strategic Action Element (Ch. 5)
32.4		Seek funding options for Congestion Mitigation Air Quality Program, AB 2766 Motor Vehicle Emissions Reductions Program, and other sources that allow allocations for air emission reduction strategies.	Air Emissions
32.5		During the project level environmental process perform local hot spot analysis of air pollution in accordance with the proscribed federal process to identify which communities may be impacted by proposed transportation projects.	Air Emissions
33	Equity	Proactively implement Federal Title VI and Environmental Justice requirements to ensure equity.	Environ. Justice
33.1		Avoid, minimize, and/or mitigate disproportionately high and adverse human health or environmental effects, including social and economic impacts, on traditionally disadvantaged communities, especially racial minority and low-income communities.	Environ. Justice
33.2		Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.	Environ. Justice
33.3		Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.	Environ. Justice
33.4		As part of the regional performance measures, catalogue existing health conditions, access to public transit and opportunities for active transportation. As part of the Regional Housing Needs Assessment, catalog access to basic infrastructure (drinking water, wastewater and storm water), key demographic indicators, and access to safe, quality and affordable housing.	Environ. Justice
33.5		Utilize tools like CalEnviroScreen to apply for funding for communities and invest in existing communities that demonstrate the highest level of need.	Environ. Justice
33.6		Allocate discretionary funding such as Regional Surface Transportation Program to meet the maintenance needs of existing communities first.	Environ. Justice
33.7		Encourage local jurisdictions to enhance their eligibility for new state grants by considering affordable housing support and stabilization programs that help mitigate displacement of disadvantaged populations.	Environ. Justice
34	Equity	Encourage utility companies, California Air Resources Board and other state agencies to select locations within Kern County to site electric charging stations.	Environ. Justice

### RELATIONSHIP OF RTP GOALS TO *DIRECTIONS TO 2050*

In preparation of the 2018 RTP, Kern COG undertook *Directions to 2050*, a comprehensive community engagement program that solicited input from over 6,000 stakeholders and community members in the Kern region. Building on the momentum of the 2008 Kern Regional Blueprint, the *Directions to 2050* program revisited the nine adopted Blueprint principles for growth. It is important to note that the horizon year for the 2018 RTP is 2042. The theme “*Directions to 2050*” was used in the community engagement program to encourage participants to think well into the future.

*Directions to 2050* community workshop participants as well as online participants throughout the region were invited to prioritize the principles for growth. Community members expressed continuing support for all nine principles for growth, indicating they are still relevant to the Kern region.

## CHAPTER 2 TRANSPORTATION PLANNING POLICIES

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Workshop participants identified the following principles as the top three priorities for the region and their community's future:

- Enhance economic vitality
- Conserve energy and natural resources, and develop alternatives
- Use and improve existing assets and infrastructure

Table 2-2 provides a comparison of the *Directions to 2050* principles for growth and the RTP goals. The RTP is an extension of the *Directions to 2050* community engagement process, providing mobility goals, policies, and actions for the region.

Examples of how the principles for growth interrelate with the RTP goals include the following:

- Improving mobility can include the addition of alternative fuels and modes that would help conserve energy and natural resources;
- Improving accessibility to major employment centers can make it more efficient to access and provide public services to these areas;
- Improving reliability and safety of the transportation system during peak periods can make it more convenient to do business in Kern, enhancing our region's economic vitality;
- Maximizing efficiency of the transportation system can be improved by providing a variety of housing types and densities that are distributed to take optimum advantage of transit and highway infrastructure;
- Promoting livability can be assisted by building on a community's historic assets;
- Promoting sustainability can reduce long-term operating costs, enhancing the economic viability of a region; and
- Ensuring equity can be assisted by providing affordable transportation options such as biking, walking, and transit.

See Chapter 4, *Sustainable Communities Strategy*, for further information on the *Directions to 2050* community engagement process.

## CHAPTER 2 TRANSPORTATION PLANNING POLICIES

**Table 2-2: Directions to 2050 Principles for Growth/RTP Goals Comparison Matrix**

LINKS BETWEEN <i>DIRECTIONS TO 2050</i> PRINCIPLES FOR GROWTH AND RTP GOALS	RTP Goals						
	1. Mobility – Improve the mobility of people and freight.	2. Accessibility – Improve accessibility to, and the economic wellbeing of major employment and other regional activity centers.	3. Reliability – Improve the reliability and safety of the transportation system.	4. Efficiency – Maximize the efficiency and cost effectiveness of the existing and future transportation system.	5. Livability – Promote livable communities and satisfaction of consumers with the transportation system.	6. Sustainability – Provide for preservation and expansion of the system while minimizing effects on the environment.	7. Equity – Ensure an equitable distribution of the benefits among various demographic and user groups.
<i>Directions to 2050</i> Growth Principles							
A. Conserve energy and natural resources, and develop alternatives	♦	♦	♦	♦	♦	♦	♦
B. Provide adequate and equitable public services	♦	♦	♦	♦	♦	♦	♦
C. Enhance economic vitality	♦	♦	♦	♦	♦	♦	♦
D. Provide a variety of housing choices				♦	♦	♦	♦
E. Use and improve existing community assets and infrastructure	♦	♦	♦	♦	♦	♦	♦
F. Use compact, efficient development and/or mixed land uses where appropriate	♦	♦	♦	♦	♦	♦	♦
G. Provide a variety of transportation choices	♦	♦	♦	♦	♦	♦	♦
H. Preserve undeveloped land and spaces				♦	♦	♦	♦
I. Increase civic and public engagement					♦		♦

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### INTEGRATED PERFORMANCE MEASURES AND ENVIRONMENTAL JUSTICE/TITLE VI ANALYSIS

In the 2010 California Regional Transportation Plan Guidelines, the Kern COG RTP was listed as a best practice for Environmental Justice analysis for small to mid-sized metropolitan planning organizations. The analysis is integrated with a system level performance measure analysis that measures progress toward the seven RTP goals, ensuring that progress toward goals is consistent with progress toward Environmental Justice requirements. Appendix D containing the integrated performance measures analysis indicates that this RTP is benefitting Environmental Justice and Title VI areas compared to the county as whole while performing well in most health equity, system level and smart mobility place type performance measures.

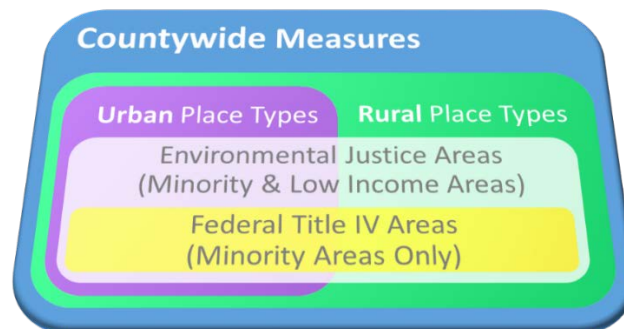
***...the integrated performance measures analysis indicates that this RTP is benefitting Environmental Justice and Title VI areas compared to the county as whole while performing well in most health equity, system level and smart mobility place type performance measures.***

An Environmental Justice/Title VI analysis has been prepared consistent with Federal Title VI of the Civil Rights Act of 1964, Section 11135 and Executive Order 12898 requiring metropolitan planning organizations to focus on Environmental Justice concerns in their planning processes. The analysis is part of a larger proactive planning effort to provide an intensive, proactive outreach to Environmental Justice communities. Garnering public input in the earliest planning stages from all communities can go a long way toward successfully delivering projects, and minimizes the potential for costly challenges late in the process. Appendix C summarizes the RTP outreach effort. In concert with the public input from Environmental Justice communities as a result of the all-inclusive outreach effort, the integrated performance measure analysis provides important feedback to policy makers on how well the regional transportation plan performs in areas that tie to the Regional Transportation Plan Goals. The results of the analysis indicate that with the implementation of the plan, Environmental Justice and Title VI communities will be better off than in most measures of performance than the region as a whole.

### Performance Measures Analysis Methodology

Kern COG has developed an integrated framework for twelve performance measures to demonstrate consistency of the RTP and SCS with its seven established goals. Some of the performance measures comply with as many as five goals.

**Figure 2-1: Integrated Performance Measures Framework**



This figure illustrates the overlap among the twelve integrated performance measures used for countywide analysis, health equity analysis, the two smart mobility framework place types, and

## CHAPTER 2 TRANSPORTATION PLANNING POLICIES

Environmental Justice/Federal Title IV areas. For example, some measures are the same for Environmental Justice, urban and rural place types, and countywide, while other measures may only be used in two of the three categories. The following table contains summary of the analysis results by goals/performance measures.

**Table 2-3: Performance Measures Analysis Summary by RTP Goals for System Level, Smart Mobility Framework, Health Equity and Environmental Justice and Title VI Areas**

Table No. (Apdx. D)	RTP Goal/Performance Measure (PM) Category	Smart Mobility Geographic Coverage Place type(PT)	Performance Measure Description	Performance Measure Target/Test	Target Met? (Yes/No/Partial)
D-4	Mobility / health equity (transit)	Urban, rural, countywide PT	Average Travel Time – Peak <b>Highway</b> Trips	Improvement over No Project Baseline	Yes
D-5			Average Travel Time – Peak <b>Transit</b> Trips	Improvement over No Project Baseline	Yes
D-6	Accessibility / economic well-being / health equity (transit)	Urban, rural, countywide PT	Average Travel Time to Job Centers – <b>Highway</b> Trips	Improvement over No Project Baseline	Yes
D-7			Average Travel Time to Job Centers – <b>Transit</b> Trips	Improvement over No Project Baseline	Yes
D-8	Efficiency / cost effectiveness / health equity (transit)	Urban, rural, countywide PT	Average Daily Investment per Passenger Mile Traveled – <b>Highways</b>	Improvement over Countywide Average	Yes
D-9			Average Daily Investment per Passenger Mile Traveled – <b>Transit</b>	Improvement over Countywide Average	Partial
D-10	Livability / customer satisfaction	Urban, rural, countywide PT	Average Trip Delay Time in Hours	Improvement over Countywide Average	Partial
D-11	Environment / health equity	3 Air Basins	% Change NOx/PM by air basin	Improvement over Base Year	Yes
D-12		Urban, rural, countywide PT	% Change in Households within 500 feet of Roadway Volumes > 50,000	Improvement over Base Year	Yes
D-13	Sustainability / preservation	Countywide PT	Percentage Change in Maintenance Dollars Per Lane Mile	Improvement over Base Year	Yes
D-14	Equity / health equity (transit)	Urban, rural, countywide PT	% of Expenditures versus Passenger Miles Traveled in 2035 – <b>Highways</b>	Improvement over Countywide Average	Yes
D-15			% of Expenditures versus Passenger Miles Traveled in 2035 – <b>Transit</b>	Improvement over Countywide Average	Yes
D-16	Land Consumption / health equity	Countywide PT	% change in Farmland consumed outside City Spheres of Influence	Improvement over Historic Baseline	Yes
D-17	Health equity	Countywide PT	Health Cost Savings	Improvement over No Project Baseline	Yes
D-18	Reliability / congestion	Urban, countywide PT	Average Level of Congestion in Hours	Improvement over Base Year	Yes
D-19	Reliability / safety / health equity	Urban, rural, countywide PT	Annualized Accident Statistics for Annual Average Daily Traffic	Improvement over Countywide Average	Yes
D-20	Federal PM-1 Safety/health equity	Countywide PT	Forecast of Accidents for Vehicles, Bicycles and Pedestrians	Improvement over 5 year running base	Yes

## CHAPTER 2 TRANSPORTATION PLANNING POLICIES

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*\*Note: Due to data limitations Environmental Justice/Title VI areas were not able to be analyzed for performance measures D-11, D-13, D-16, D-17 and D-20.*

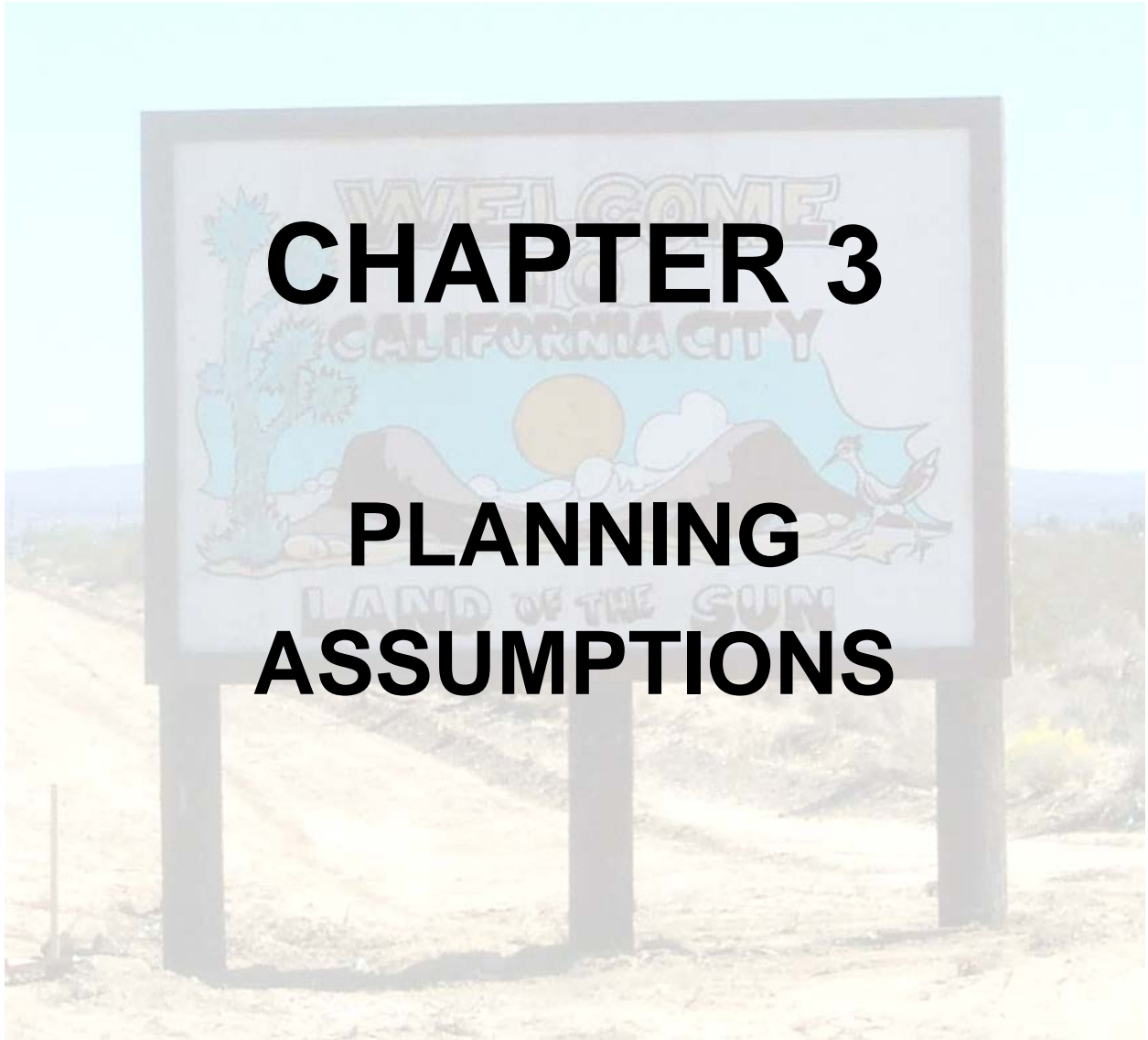
For the detailed performance measure results see the Integrated Performance Measures, Smart Mobility and Environmental Justice Measure Analysis in Appendix D.





# **CHAPTER 3**

## **PLANNING ASSUMPTIONS**





### CHAPTER 3 PLANNING ASSUMPTIONS

The Kern Council of Governments (Kern COG) is the state affiliate data center for Kern County, and oversees transportation plans, programs, and transportation-related projects for its eleven cities: Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. In addition, Kern COG has oversight of similar plans, programs, and projects within the unincorporated areas of Kern County.

***The Kern COG Board adopted a policy to revisit the regional growth forecast every 3-5 years to ensure projections account for the latest growth trends***

It is important that forecasts are updated frequently to account for recent trend changes. In 2001 the Kern COG Board adopted a policy to revisit the regional growth forecast every 3-5 years to ensure projections account for the latest growth trends. This timeframe provides stability to the regional environmental process by allowing time for documents to be completed without a major change to the forecast. On November 19, 2015 the Kern COG board adopted a growth forecast update developed by PlaceWorks of Santa Ana, California. The report documents a sophisticated forecast model used to update the regional growth forecast previously adopted in 2012. The report states,

*"This is a good time to reevaluate growth trends. From the early 2000s to 2006, California, like the nation as a whole, experienced a housing boom. From 2006 to about 2012, the housing market crashed, and the economy suffered through a major recession, which is well represented in 2010 Census data. The economy began growing again in 2010, and by 2013 the housing market was once again growing. Thus, there are now some positive data points on which to base forecasts, a situation that has not been present for several years."*

The next scheduled update will be during the two year window starting November 2018.

The forecast and planning assumptions process is implemented by joint subcommittees: the Kern COG Transportation Technical Advisory Committee (TTAC), the Regional Planning Advisory Committee (RPAC) and the Transportation Modeling Committee (TMC). The Kern COG Board set up the TMC in May 2001 with the adoption of the Transportation Modeling Policy and Procedure. This procedure was re-confirmed with the adoption of a Memorandum of Understanding on Transportation Modeling Coordination between Caltrans, City of Bakersfield, Kern County and Kern COG on January 15, 2004.

The TMC consists of the technical staff from Kern COG member agencies planning and public works departments. The committee is also responsible for sub-area distribution of the growth forecast as well as numerous other regional transportation modeling issues. As part of the development of the SCS, the TMC has been meeting jointly with the RPAC. On February 14, 2018, the TMC met and reviewed the travel model peer review document and alternative assumptions. At that meeting Caltrans District 6 noted that the Kern Travel Model validation statics were some of the best they had from this second round of the valley model improvement program, especially for the peak period model results.

### GROWTH TRENDS

Population in the 8,200-square-mile County of Kern was estimated to be 905,801 in 2018 (Source: CA Department of Finance 2018). Kern County's population increased, on average, by 17,800 people per year from 2000 to 2010 including the 3 years of the great recession. Growth in Kern is driven by value-added agriculture, aerospace/defense, energy/natural resources, transportation logistics/manufacturing, and

## CHAPTER 3 PLANNING ASSUMPTIONS

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health care. This growth was driven by employment in the oil sector and a new renewable energy sector in wind and solar. Kern County's Valley portion of the county produces over 75% of California's in-state oil and 58% of the state's total natural gas. County-wide both commercial scale wind and solar as well as distributed generation solar produces over 12,000 MW of electricity for California as well as local industries. Value added agriculture supported by alternative fuel production such as biodiesel made Kern County in 2016, the largest agricultural producing county in the nation for the first time. Further mission driven expansion at Edwards Air Force Base and China Lake Naval Weapons Station as well as the Mojave Spaceport created growth areas outside the Metropolitan Bakersfield area.

By 2011 Kern was one of the first counties in California to gain back all the jobs lost during the great recession and by 2013 Kern County had the 5th fastest growth rate in California at 1.25%. Four percent (4%) of employment in Kern is in the high-wage oil industry and Kern is consistently one of the top oil producing counties in the nation.<sup>1</sup> When the price of oil dropped more than 75% to \$27 per barrel in 2014, a second recession not experienced elsewhere in the state hit Kern. Kern is seeing early signs of recovery as the price of oil more than doubled by 2018. In addition, employment remains strong in logistics, renewable energy construction and value-added agriculture.

Unlike the previous decade when Kern grew by nearly 18,000 people per year, from July 2010 to July 2017 annual population growth ranged from a high of 10,900 in 2016/17 to a low of 4,400 in 2015/16, averaging 8,200 per year since July 2010. The adopted 2015 forecast model indicates that the population growth will look more like the prior decade, averaging about 21,400 people per year from 2015 to 2035 and about 21,900 people per year over the entire forecast time frame from 2015 to 2042. DOF released the January 1, 2018 and revised January 1, 2017 estimates approximately 2 weeks prior to release of the Draft EIR. These new population estimates were 1/4 percent higher when interpolated to July 1, 2017, the base year for the modeling. This higher than anticipated growth for the base year supports the higher Kern COG adopted growth assumption.

As in all parts of California, housing affordability is linked to job growth and Kern is noted for being the most affordable housing market in the state<sup>2</sup> making Bakersfield a destination for household migration from more expensive markets, like Southern California, that are experiencing a major housing shortage/affordability crisis. The availability of more affordable housing makes Kern a candidate location for satellite offices, and state policies for expanding the renewable energy portfolio continues to provide jobs in this industry and a new streamlined, environmentally protective permit system for oil and gas supports continued permit activity.

In addition, the growth assumptions include a planned High Speed Rail station for Bakersfield that would provide 55 minute passenger rail service between Kern and L.A. Union Station. This potential connection could eventually bring greater job diversity and housing to Kern County beyond historic growth trends. The question is not if, but when we will see the forecasted growth in Kern. Forecast trends will continue to be adjusted in future RTP updates every four years.

### PRIMARY FORECASTS

This section is adapted from the executive summary narrative for the adopted 2015 Regional Growth Forecast prepared by the Chief Economist for Place Works, Inc. For the number of households, population, and housing units, 2015 represents the latest estimates from the CA Department of Finance available at the time of adoption of the 2015 Regional Growth Forecast. In the following forecast summaries, 2000 and

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<sup>1</sup> Drilling Info <http://info.drillinginfo.com/half-us-oil-production-comes-20-counties/>, 2014

<sup>2</sup> Smart Asset, <https://smartasset.com/mortgage/quicken-loans-review#california/most-affordable>, 2017

2010 represent Census data, 2015 is the base year estimate, and 2035 and 2042 are forecasts. For total employment, 2014 was the base year estimate from the CA Employment Development Department.

## NUMBER OF HOUSEHOLDS

A household is a group of people living together in a single housing unit. A household may be one family, an extended family, more than one family, or unrelated individuals.

Table 3-1 summarizes the forecast for the number of households in Kern County. From 2015 to 2035 and from 2015 to 2042, the county would add more households per year than it did from 2000 to 2010. However, because the number of households in 2015 is higher than the number in 2000, the annual rate of growth would be slightly lower, 1.9 percent compared to 2.0 percent.

**Table 3-1: Number of Households Forecast  
Summary, Kern County**

2000	209,000
2010	255,000
2015	263,000
2035	385,000
2042	439,000
<b>2000 to 2010</b>	
Increase	46,000
Annual growth rate	2.0%
<b>2015 to 2035</b>	
Increase	122,000
Annual growth rate	1.9%
<b>2015 to 2042</b>	
Increase	176,000
Annual growth rate	1.9%

Source: PlaceWorks, 2015.

## POPULATION

Population is the total number of people residing in Kern County. Total population is divided into household population (those living in households) and group quarters population (those living in institutional settings, primarily correctional facilities, college dormitories, and nursing homes). The forecast projects the population in correctional facilities separately, at the statewide population growth rate, which is lower than the over- all population growth rate in Kern County.

Table 3-2 summarizes the forecasts for total population and household population for Kern County. Kern County's population increased, on average, by about 17,800 people per year from 2000 to 2010. The forecast indicates that the population growth will average about 21,400 people per year from 2015 to 2035 and about 21,900 people per year over the entire forecast time frame from 2015 to 2042.



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**Table 3-2: Population Forecast Summary,  
Kern County**

	<b>Total Population</b>	<b>Household Population</b>
2000	662,000	632,000
2010	840,000	803,000
2015	874,000	842,000
2035	1,302,000	1,261,000
2042	1,458,000	1,414,000
<b>2000 to 2010</b>		
Increase	178,000	171,000
Annual growth rate	2.4%	2.4%
<b>2015 to 2035</b>		
Increase	428,000	419,000
Annual growth rate	2.0%	2.0%
<b>2015 to 2042</b>		
Increase	584,000	572,000
Annual growth rate	1.8%	1.8%

Source: PlaceWorks, 2015

### GROUP QUARTERS POPULATION

Because the forecast model projects the growth of the population in correctional facilities at the statewide population growth rate, the household population growth rate is slightly higher than the overall population growth rate. Even though the difference is less than a tenth of a percentage point, it affects the forecast. Group quarters would decline slightly as a percentage of the total population, from 3.7 percent in 2015 to 3.2 percent in 2035 and 2.9 percent in 2042.

### AVERAGE HOUSEHOLD SIZE

Kern County has had a trend of increasing average household size, growing from 3.03 in 2000 to 3.20 in 2015. The forecasts indicate that the rate of increase in average household size will slow, such that the average household size in 2035 would be 3.27. The forecasts also indicate that the average household size would then decline, down to 3.11 in 2042.

### NUMBER OF HOUSING UNITS

A housing unit can be a single-family detached house, an individual unit in a multifamily apartment or condo building, or a mobile home. Housing units can be occupied by a household or left vacant. The housing unit forecast refers to all housing units, whether occupied or vacant.

Table 3-3, summarizes the forecast for the total number of housing units in Kern County. The forecast indicates that the average number of housing units constructed each year will increase, but the rate of growth will decline slightly.

<b>Table 3-3: Number of Housing Units Forecast Summary, Kern County</b>	
2000	232,000
2010	284,000
2015	293,000
2035	421,000
2042	478,000
<b>2000 to 2010</b>	
Increase	53,000
Annual growth rate	2.0%
<b>2015 to 2035</b>	
Increase	128,000
Annual growth rate	1.8%
<b>2015 to 2042</b>	
Increase	185,000
Annual growth rate	1.8%

Source: PlaceWorks, 2015

## VACANCY RATE

The vacancy rate is the percentage of housing units that are or are projected to be unoccupied. The vacancy rate in Kern County has been somewhat high relative to the state: 9.89 percent in 2000 versus 5.83 statewide; 10.5 percent in 2010 versus 8.1 percent statewide; and 10.2 percent in 2015 versus 7.8 percent statewide. However, Kern County's vacancy rate is not uncharacteristically high compared to other growing areas, for example: in 2015 Riverside County had a 14.2 percent vacancy rate and San Bernardino County had a 12.5 percent vacancy rate.

The forecasts indicate that the rate of growth in housing units, 1.83 percent from 2015 to 2042, will be slightly lower than the rate of growth in the number of households, 1.92 percent. The result is a decrease in the forecast vacancy rate, down to 8.6 percent in 2035 and 7.4 percent in 2042.

## EMPLOYMENT

Employment is the total number of jobs, both full-time and part-time. Employment is counted at the place where an individual works, not where they live. Thus, the employment data represents jobs in Kern County, regardless of whether the employee lives in the county or commutes to the county from somewhere else.

From 2000 to 2014, Kern County experienced an average employment growth of 5,200 jobs per year. Unlike the other primary forecasts discussed above, 2010 does not make a good comparison year because it

## CHAPTER 3 PLANNING ASSUMPTIONS

represents a recession-influenced low. The forecast indicates that total employment would increase by 5,500 jobs per year from 2014 to 2035, and 6,200 jobs per year from 2014 to 2042.

<b>Table 3-4: Total Employment Forecast Summary, Kern County</b>	
2000	244,000
2010	274,000
2014	318,000
2035	433,000
2042	480,000
<b>2000 to 2010</b>	
Increase	30,000
Annual growth rate	1.2%
<b>2014 to 2035</b>	
Increase	115,000
Annual growth rate	1.5%
<b>2014 to 2042</b>	
Increase	162,000
Annual growth rate	1.5%

Source: PlaceWorks, 2015

### JOBS PER HOUSEHOLD

In 2000, there were about 1.17 jobs per household in Kern County. In 2010, that had decreased to 1.08, reflecting the recessionary impact on the number of jobs. The estimates for 2014 indicate that the ratio has increased to 1.22, reflecting the particularly strong recovery in employment that Kern County has experienced.

Going forward, however, the retirement of the baby boom generation is expected to result in long-term decreases in the labor force participation rate (the percentage of the working age population that is employed or seeking work). And it is not just the retirement of the baby boom generation that will affect this rate. For example, female participation in the labor force, which increased from about 33 percent in 1950. As of June 2015, the female participation rate was 56.7 percent. A lower labor force participation rate equates to fewer workers per household.

The forecast indicates that Kern County will experience a slight reduction in the number of jobs per household, declining to 1.13 in 2035 and 1.06 in 2042. This decline, however, is generally in proportion to the decline in labor force participation expected nationally.

### COMPARISON TO OTHER FORECASTS

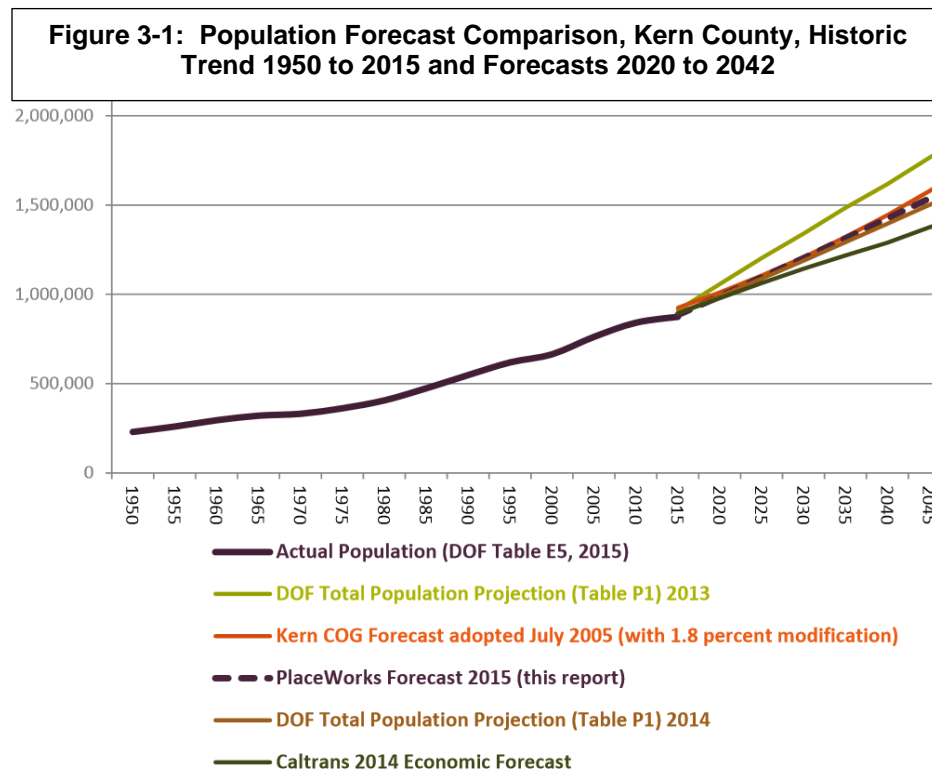
To provide some context for understanding the forecasts, it can be helpful to compare them to forecasts from other sources. The following sections provide comparisons for the total population forecast and for the total employment forecast.

The sources for the comparison population forecasts available in the 2015 Forecast Update are:

- CA Department of Finance total population projections (Table P1) 2013
- Kern COG forecast adopted July 2005
- PlaceWorks forecast 2015
- CA Department of Finance total population projections (Table P1) 2014
- Caltrans 2014 economic forecast

Figure 3-1 shows the five forecasts. The PlaceWorks forecast indicates a 2050 population that is lower than the 2013 DOF projection and the currently adopted Kern COG forecast. It is higher than the 2014 projections from the DOF and Caltrans. The difference between the most recent DOF population projection and the PlaceWorks forecast is 1.8 percent, within the 3.0 percent requirement for the Regional Housing Needs Allocation process.

There are several differences among the various forecasts that lead to the differing results. For example, the DOF projections reflect the State's forecast for statewide population, which is then allocated to each county. The Caltrans forecast is derived from an econometric model focused on employment, from which population projections are derived. The PlaceWorks forecast model combines population and demographic trend projections, a cohort-component model for population by age group, and an employment model.



Source: PlaceWorks, 2015, with data from CA Department of Finance and Caltrans.

Note: Actual population data represents estimates for January 1; forecast data represent projections for July 1.

## CHAPTER 3 PLANNING ASSUMPTIONS

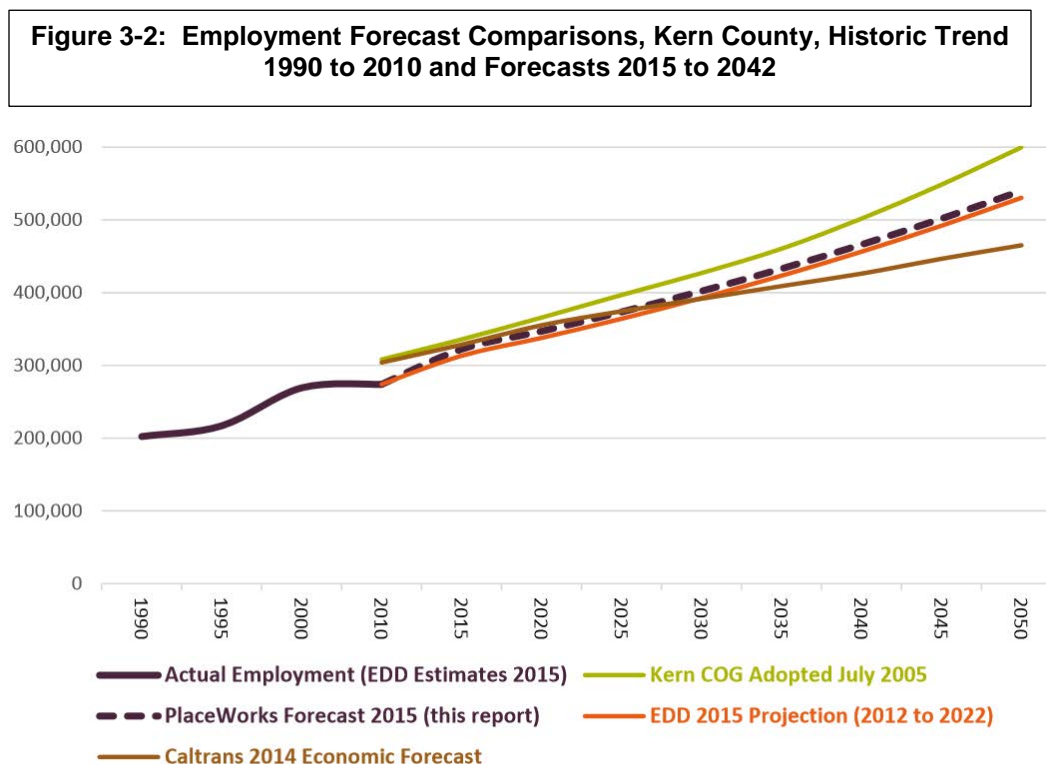
### EMPLOYMENT FORECAST COMPARISON

The sources for the comparison are:

- PlaceWorks forecast 2015
- Caltrans 2014 economic forecast
- Kern COG forecast adopted July 2005
- CA Employment Development Department 2015 projection (2012 to 2022)

The CA Employment Development Department (EDD) projection was prepared in 2015, but it is based on 2012 data. Over the 10-year projection horizon, EDD is projecting employment growth at an annual rate of 1.5 percent. The comparison chart extends this growth rate through 2050, even though EDD has not established a projection past 2022.

The PlaceWorks forecast represents a reduction in total employment in 2050 relative to the current Kern COG adopted forecast. In 2040, this report's forecast is 1.9 percent higher than the extended EDD forecast and 8.6 percent higher than the Caltrans 2014 economic forecast.



Source: PlaceWorks, 2015, using data from Kern COG, CA EDD, and Caltrans.

Note: EDD Projection data for 2025 to 2050 represent an extrapolation of the growth rate trend projected for 2012 to 2022.

## **SUB REGIONAL FORECAST DISTRIBUTIONS**

Over the past decade, growth has concentrated in Metropolitan Bakersfield and the communities of Delano, Wasco, Ridgecrest, California City, Arvin, Shafter, Tehachapi, McFarland and the unincorporated communities around Tehachapi, Rosamond and Frazier Park. In addition, strategic growth occurred at Kern's southern gateway to Los Angeles County involving the Tejon Ranch Commerce Center and related development that supports transportation, logistics, commercial, tourism and other sustainable uses important to the region's economy.

In Metropolitan Bakersfield, approximately 80% of the new housing has been built on the west side, with approximately 40% north of the Kern River and another 40% in the southwest. With completion of a new water delivery system, the northeast has also seen activity.

After 2035, an increase will be seen in Kern's southern gateway with significant residential and related commercial/industrial development from Tejon Ranch Projects. The Tejon Mountain Village Specific Plan in the mountain areas along I-5 between Frazier Park and Fort Tejon will bring I-5 commercial development and 3,450 residential units. The approved Grapevine Project will begin construction of infrastructure related commercial uses and 12,000 residential units in a smart growth master planned community. The jobs housing balance shows that the related Tejon Ranch Commerce Center will provide jobs for the Grapevine project and reduce commutes as well as provide a variety of housing types. An increase in population growth in Southeast Kern is expected to begin to absorb spillover from the Palmdale/Lancaster market area. This coincides with a planned Metrolink station in Rosamond and potential completion of a high speed rail station in Palmdale. The growth is anticipated to syphon off some of the demand for housing in other areas of the county, consistent with existing long term forecasts.

Over the past two decades, Kern workers commuting to Los Angeles County (3%) have kept pace with the county's growth rate, reflecting Kern's self-contained labor market. If you live in Kern, you work in Kern. Of those who commute out of county, most commute to Los Angeles County from communities along the southern edge of the county, such as Rosamond, Tehachapi, and Frazier Park. However, more commuters live in Los Angeles County and work in Kern than the reverse. Most of the imported workers commute to Edwards AFB, Kern's largest employer with over 10,000 jobs.

Much of Kern's employment is dispersed. Consequently, the Metropolitan Bakersfield area experiences a "reverse commute" whereby a segment of workers commute to outlying areas such as farm fields, food processing facilities, warehousing, wind farms, oil fields, prisons, power plants, and government installations. Historically, this reverse commute created a centrifugal force on Metropolitan Bakersfield's housing development where purchasing housing on the urban fringe often reduces a commuter's trip, even though it may increase trip lengths for other purposes such as shopping and services. For those working in the metropolitan area, growth in the suburban areas may also be fueled by the attractiveness of newer and perceived better schools.

Table 3-5 provides anticipated population and housing forecasts distribution for the county and its incorporated cities through 2042.

Employment distribution used EDD, InfoUSA data and the U.S. Census Longitudinal Employer-Household Dynamics (LEHD). Both employment and household distributions use the latest planning assumptions from local governments in Kern, including local general plan data shown in Figure 3-2



## CHAPTER 3 PLANNING ASSUMPTIONS

**Table 3-5: Growth Trends for Kern County and Selected Communities**

Community								1980-2017		2017-2042	
								Historic Growth		Forecast Growth	
								Average Annual		Average Annual	
Year	Census	Census	Census	Census	Estimate	Forecast	Forecast	Rate	Increase	Rate	Increase
	1980	1990	2000	2010	2017	2030	2042				
Kern County											
Population	403,089	543,477	661,653	839,600	895,112	1,208,200	1,469,500	2.1%	13,388	1.9%	22,525
Group Quarters	8,385	15,148	29,970	36,575	32,733	39,300	44,400	3.6%	663	1.2%	458
Households	139,881	181,480	208,655	254,610	266,963	381,600	443,700	1.7%	3,458	2.0%	6,931
Employment	166,901	214,668	232,461	274,900	325,300	426,900	483,500	1.8%	4,310	1.5%	6,204
Metro Bakersfield											
Population	228,000	329,100	409,800	578,300	598,900	764,900	947,000	2.6%	10,093	1.8%	13,651
Group Quarters	2,000	3,100	4,400	3,900	4,900	5,900	6,600	2.4%	79	1.2%	67
Households	89,500	120,000	134,100	176,600	185,200	244,700	286,900	2.0%	2,604	1.7%	3,988
Employment	99,200	136,700	158,500	183,700	201,500	251,800	280,500	1.9%	2,784	1.3%	3,098
Arvin											
Population	6,863	9,286	12,956	19,304	21,157	27,400	33,100	3.0%	389	1.7%	468
Group Quarters	19	107	71	349	349	400	500	7.6%	9	1.4%	6
Households	1,946	2,385	3,010	4,228	4,535	5,800	7,100	2.3%	70	1.7%	101
Employment	2,338	3,190	3,800	3,600	3,861	7,800	11,300	1.4%	41	4.1%	292
Bakersfield											
Population	105,611	174,820	247,057	347,483	383,512	547,300	733,400	3.4%	7,562	2.5%	13,721
Group Quarters	1,709	2,669	3,813	3,395	3,630	4,400	4,900	2.0%	52	1.2%	50
Households	39,602	62,516	83,441	111,132	119,884	169,000	229,500	3.0%	2,185	2.5%	4,299
Employment	49,249	77,610	118,100	137,700	164,241	220,100	286,600	3.2%	3,129	2.2%	4,798
California City											
Population	2,743	5,955	8,385	14,120	14,248	21,400	28,000	4.4%	313	2.6%	539
Group Quarters	0	0	58	2,614	2,157	2,600	2,900	100.0%	59	1.2%	29
Households	990	2,119	3,067	4,102	4,213	6,300	8,400	3.9%	88	2.7%	164
Employment	1,395	2,750	3,700	4,400	4,519	7,000	9,900	3.1%	85	3.0%	211
Delano											
Population	16,491	22,762	38,824	53,041	53,152	62,400	71,800	3.1%	998	1.2%	731
Group Quarters	147	77	5,057	10,897	9,112	10,900	12,400	10.6%	244	1.2%	129
Households	4,912	6,236	8,409	10,260	10,476	12,000	14,000	2.0%	151	1.1%	138
Employment	5,756	7,640	10,800	12,600	14,469	18,200	22,100	2.5%	237	1.6%	299
Maricopa											
Population	946	1,193	1,111	1,154	1,140	1,160	1,190	0.5%	5	0.2%	2
Group Quarters	4	0	0	0	0	0	0	0.0%	0	0.0%	0
Households	338	416	404	414	400	400	400	0.5%	2	0.0%	0
Employment	447	469	476	500	510	600	700	0.4%	2	1.2%	7
McFarland											
Population	5,151	7,005	9,618	12,707	14,919	17,900	20,920	2.9%	266	1.3%	235
Group Quarters	4	66	1,069	1,221	1,623	2,000	2,200	15.1%	44	1.2%	23

## CHAPTER 3 PLANNING ASSUMPTIONS

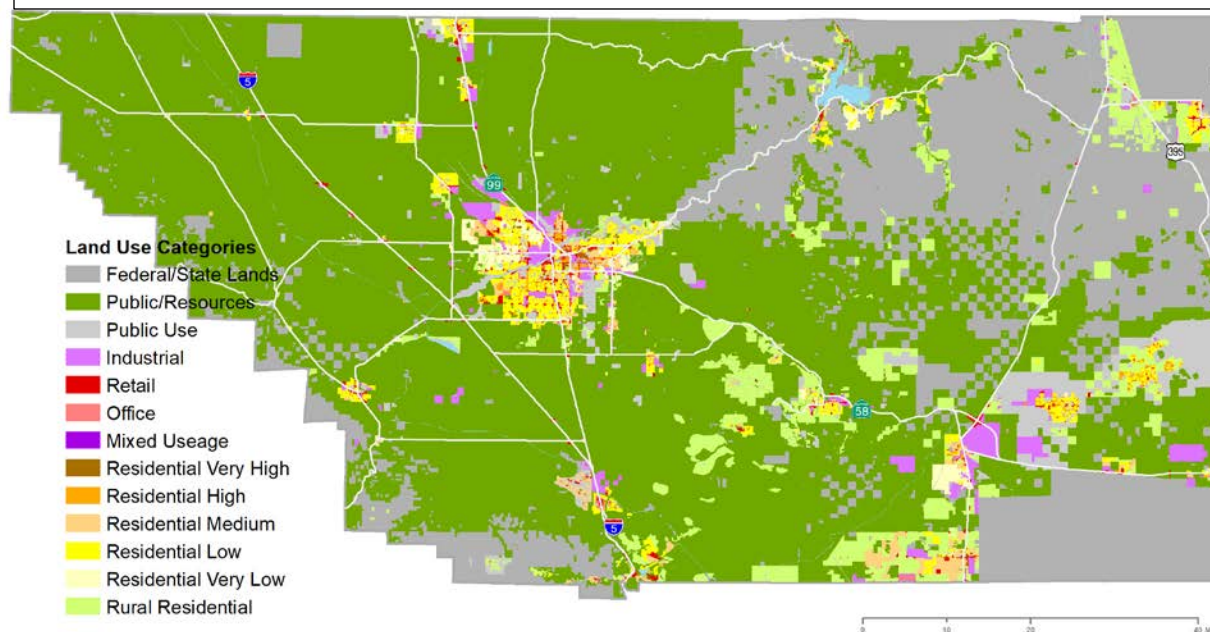
Community	Year							1980-2017		2017-2042	
								Historic Growth		Forecast Growth	
		Census	Census	Census	Census	Estimate	Forecast	Average Annual		Average Annual	
		1980	1990	2000	2010	2017	2030	Rate	Increase	Rate	Increase
Households		1,399	1,685	1,990	2,599	2,938	3,300	2.0%	42	0.9%	29
Employment		1,623	1,950	2,800	3,300	3,870	4,900	2.3%	61	1.7%	84
<b>Ridgecrest</b>											
Population		15,929	28,295	24,927	27,616	28,349	32,300	1.6%	338	1.1%	373
Group Quarters		0	694	309	196	230	300	100.0%	6	1.0%	3
Households		5,762	10,349	9,826	10,781	10,840	12,200	1.7%	138	1.1%	140
Employment		7,622	13,710	12,300	13,300	13,373	13,400	1.5%	156	0.4%	52
<b>Shafter</b>											
Population		7,010	8,409	12,731	16,988	18,868	30,500	2.7%	323	3.8%	1,253
Group Quarters		117	28	647	665	727	900	4.8%	17	1.2%	10
Households		2,284	2,558	3,292	4,230	4,593	7,500	1.9%	63	3.9%	322
Employment		2,707	3,010	4,000	4,700	6,350	14,600	2.3%	99	5.9%	916
<b>Taft</b>											
Population		5,316	5,902	6,400	9,327	9,492	11,300	1.6%	114	1.4%	164
Group Quarters		123	139	559	2,955	2,866	3,100	8.2%	75	1.2%	41
Households		2,096	2,209	2,233	2,254	2,292	2,500	0.2%	5	0.9%	22
Employment		2,401	2,590	2,600	3,000	3,138	3,900	0.7%	20	1.4%	53
<b>Tehachapi</b>											
Population		4,126	5,791	10,957	14,414	12,280	17,400	2.9%	222	2.6%	469
Group Quarters		0	25	4,399	5,927	3,722	4,500	100.0%	101	1.2%	50
Households		1,534	2,335	2,533	3,121	3,075	4,500	1.9%	42	2.9%	137
Employment		1,773	2,390	2,600	3,000	2,904	4,000	1.3%	31	2.6%	110
<b>Wasco</b>											
Population		9,613	12,412	21,263	25,545	26,980	36,800	2.8%	473	2.5%	967
Group Quarters		0	18	6,219	5,720	4,889	5,900	100.0%	133	1.2%	67
Households		3,001	3,471	3,971	5,131	5,587	7,700	1.7%	70	2.7%	220
Employment		3,498	4,130	5,400	6,300	6,709	8,200	1.8%	87	1.5%	125
<b>Unincorporated</b>											
Population		223,290	261,647	264,111	297,901	311,015	402,340	0.9%	2,387	1.0%	3,601
Group Quarters		6,262	11,025	7,769	2,636	3,428	4,300	-1.7%	-77	1.2%	50
Households		75,947	85,201	86,474	96,358	98,130	150,400	0.7%	604	1.2%	1,358
Employment		88,092	95,229	66,361	119,900	101,356	124,200	0.4%	361	0.8%	-743
Population of Major Unincorporated Communities											
<b>Bear Valley Spr.</b>		n.a.	1,593	4,232	5,172	5,200	7,900	4.3%	135	2.6%	198
<b>Ford City</b>		3,392	3,781	3,512	4,278	4,700	5,600	0.9%	36	1.1%	62
<b>Frazier Park</b>		1,444	2,201	2,348	2,691	2,400	3,500	1.4%	26	2.5%	83
<b>Golden Hills</b>		n.a.	5,423	7,434	8,656	9,000	13,600	1.9%	134	2.6%	343
<b>Greenacres</b>		5,381	7,379	n.a.	5,566	5,600	7,200	0.1%	6	1.6%	115
<b>Greenfield</b>		2,572	n.a.	n.a.	3,991	4,600	5,400	1.6%	55	1.0%	53
<b>Lake Isabella</b>		3,428	3,323	3,315	3,466	3,600	4,100	0.1%	5	0.9%	36

## CHAPTER 3 PLANNING ASSUMPTIONS

Community	Year							1980-2017		2017-2042	
		Census	Census	Census	Census	Estimate	Forecast	Historic Growth		Forecast Growth	
								Average Annual		Average Annual	
		1980	1990	2000	2010	2017	2030	Rate	Increase	Rate	Increase
Lamont		9,616	11,517	13,296	15,120	15,400	18,000	1.3%	157	1.0%	175
Mojave		2,886	3,753	3,836	4,238	4,200	5,900	1.0%	36	2.2%	124
Oil Dale		23,382	26,553	27,885	32,684	34,300	40,100	1.0%	297	1.0%	391
Rosamond		2,869	7,430	14,349	18,150	19,700	23,500	5.1%	458	1.1%	262
Rosedale		n.a.	4,673	8,445	14,058	17,100	22,100	4.7%	465	1.6%	351
Weedpatch		1,553	1,892	2,726	2,658	2,400	2,800	1.2%	23	1.0%	27
Weldon		n.a.	n.a.	2,387	2,642	2,700	3,100	0.7%	19	0.9%	27

Sources: 1980-2010 (April) data from U.S. Bureau of the Census; "n.a." = data not available. 2017 (January) estimate data from CA Department of Finance E-5 Report; 2017 (January) Employment Data from CA Economic Development Dept.; Major unincorporated communities population from the 2016 American Community Survey. 2017-2042 (July) Kern COG growth forecast by Regional Statistical Areas (RSA), approved by the Kern COG Regional Planning Advisory Committee February 2016. Forecast for unincorporated communities uses the growth rate for the RSA assuming no annexations. Note: Community trends are subject to periodic annexation and de-annexation activity, population includes prisons.

**Figure 3-3: Generalized Kern County Regional Land Use Map**



## DEMOGRAPHICS

The Kern region has a slight ethnic majority with Hispanics/Latinos making up 50.3% of the total population. Non-Hispanic Whites account for 37.4% of the population, down from 50% in 2000. The rise and shift in population makeup in the Kern region is primarily because of births along with an influx of new immigrants. The African American, Asian, and American Indian populations make up 5.1%, 4.7% and .7% of the

population respectively. Population growth in Kern mirrors the rest of the state, which is one of the most diverse in the nation. Population growth results from large net increases in three population groups: aging baby boomers, their young children - the echo-boomers - and immigrants, mostly from Mexico and Central America. Net migration (people moving to the county minus those moving away) accounted for most of the population gain between 2000 and 2010, i.e. 54%. Nearly 30% of the net migration was the result of immigration from outside the United States. Natural increase (births minus deaths) accounted for 45% of the population gain.

### LAND USE NEXUS

The Metropolitan Bakersfield General Plan Land Use Element contains a program that encourages infill development and designates key transportation corridors that support land use intensification, thereby allowing transit-compatible development. The livable communities component identifies specific incentives to encourage infill development and a more flexible mix of land uses that reduces the overall number of vehicle trips as well as the average length of trips. The element also distinguishes geographic limits (i.e., service area boundaries) that Golden Empire Transit serves in the metropolitan area.

Older sprawling low-density development, with widely separated land uses, creates extra vehicular trip-making and longer trip lengths for all trip categories. For the most part, residents in these low-density areas are unable to walk to shopping, recreation, or entertainment; they must use their automobiles for these trips. This extra travel also has detrimental effects on the community's air quality and livability. Residents will spend more time in traffic and have less time for more enjoyable activities.

The Kern County General Plan (the county areas outside the 409 square miles of the Metropolitan Bakersfield Plan) includes policies to incentivize residential development into developed cities and unincorporated communities as well as the development of Smart Growth communities. While the major population center remains the City of Bakersfield and the Metropolitan Bakersfield General Plan area, industries that cannot be placed in an urban core or need to be adjacent to I-5, SR 99 and SR 58 access are appropriately sited in the Kern County General Plan areas. These industries include oil, renewable energy, processing facilities for chemicals, alternative fuels, food products and logistics. New developments for residential have not been sited in the Kern County General Plan as low density isolated developments since 2009. With the exception of the Tejon Ranch projects which incorporate Smart Growth and job housing balances, the county has emphasized renewable energy, oil permitting, industrial and commercial developments. Infill for unincorporated communities is provided in locations near parks, schools and that have public sewer and water.

Many of Kern COG's member agencies' land use elements have incorporated policies and programs that support development and forecasted development patterns which maximize the efficient use of land and promote reduced vehicle trips by encouraging the following: balanced jobs and housing, walkable spaces, infill development, mixed use development, and/or development along transit routes.

After 2035, limitations in groundwater availability county wide will be reflected in slower population growth and more compact development. The results of the Sustainability Groundwater Management Act (SGMA) required Sustainability Plans will be more compact development with alternative lower water use (such as solar) that may not be available for agricultural use. While traditionally these lands have been converted to residential and commercial uses, the need for water balancing under the new law will restrict those uses. Infill development and existing approved projects will provide for growth areas, rather than the creation of new areas.

## CHAPTER 3 PLANNING ASSUMPTIONS

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### SUSTAINABLE COMMUNITIES STRATEGY

The Kern Region's Sustainable Communities Strategy (SCS) supports a forecasted development pattern and corresponding transportation network that encourages the location of housing near jobs and transportation corridors to reduce regional passenger vehicle travel and resulting emissions while providing sufficient and affordable housing options to accommodate a growing population and preserving Kern County's agricultural economic base, sensitive habitats, and resource areas. This strategy is focused on changing the character of traditional low-density sprawl to create community centers throughout the region composed of targeted mixes of housing and employment. Economic pursuits such as oil production, agriculture, renewable energy, aerospace and military are the basis for dispersed Rural Centers and Strategic Locations for developments within the county that are unlike other areas of the State. Accordingly, unique strategies are needed to support Kern's economic, transportation and other needs. This uniqueness is reflected in the General Plans and programs of Kern County's local governments. For additional discussion, see Chapter 4, Sustainable Communities Strategy.



# **CHAPTER 4**

## **SUSTAINABLE COMMUNITIES STRATEGY**





## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

### A SUSTAINABLE COMMUNITIES STRATEGY FOR THE KERN REGION

This 2018 Regional Transportation Plan (RTP) seeks to guide the Kern region toward a stronger economy, healthier environment and improved quality of life for everyone, while ensuring each community's independence to determine the best path to that future. This Chapter outlines the required Sustainable Communities Strategy (SCS) component of the 2018 RTP. The following section describes what an SCS is, how the Kern region is unique in comparison to any other in California, and key lessons learned from other California metropolitan planning organizations (MPOs) completing sustainable communities strategies that are addressed by the Kern region SCS.

#### What Is the Sustainable Communities Strategy?

The SCS strives to reduce air emissions from passenger vehicle and light duty truck travel by better coordinating transportation expenditures with forecasted development patterns and, if feasible, help meet California Air Resources Board (CARB) greenhouse gas targets for the region. Under California law, an SCS must:

***The SCS strives to reduce air emissions from passenger vehicle and light duty truck travel by better coordinating transportation expenditures with forecasted development patterns***

- Utilize the most recent planning assumptions, considering local general plans and other factors (Government Code (GC) Section 65080(b)(2)(B)).
- Identify the general location of uses, residential densities, and building intensities within the region (GC Section 65080(b)(2)(B)(i)).
- Identify areas within the region sufficient to house all the population of the region, including all economic segments of the population over the course of the planning period of the RTP, taking into account net migration into the region, population growth, household formation and employment growth (GC Section 65080(b)(2)(B)(ii)).
- Identify areas within the region sufficient to house an eight-year projection of the regional housing need for the region pursuant to GC Section 65584 (GC Section 65080(b)(2)(B)(iii)).
- Identify a transportation network to service the transportation needs for the region (GC Section 65080(b)(2)(B)(iv)).
- Gather and consider the best practically available scientific information regarding resource areas and farmland in the region as defined in subdivisions (a) and (b) of GC Section 65080.01 (GC Section 65080(b)(2)(B)(v)).
- Consider the state housing goals specified in GC Section 65580 and 65581 (GC Section 65080(b)(2)(B)(vi)).
- Set forth a forecast development pattern for the region which, when integrated with the transportation network, and other transportation measures and policies, will reduce the greenhouse gas (GHG) emissions from automobiles and light trucks to achieve, if there is a feasible way to do so, the GHG emissions reduction targets approved by the state board (GC Section 65080(b)(2)(B)(vii)).
- Allow the regional transportation plan to comply with Section 176 of the federal Clean Air Act (GC Section 65080(b)(2)(B)(viii)).

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

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- Consider spheres of influence that have been adopted by the Local Agency Formation Commission (LAFCo) within its region (GC Section 65080(b)(2)(G)).
- Quantify the reduction in GHG emissions projected to be achieved by the SCS and set forth the difference, if any, between the amount of that reduction and the target for the region established by CARB (GC Section 65080(b)(2)(H)).
- Consider any adopted multiregional goals and policies, such as the *Directions to 2050* Principles for Growth, in the development of an SCS (GC Section 65080(b)(2)(N)).

California law (GC Section 65080(b)(2)(K)) specifically, states that neither a sustainable communities strategy nor an alternative planning strategy regulates the use of land, nor is it subject to any state approval. Nothing in an SCS supersedes the exercise of the land use authority of cities and counties within the region, and a city's or county's land use policies and regulations, including its general plan, are not required to be consistent with the RTP.

This Chapter outlines how the Kern region will integrate its transportation network and related strategies with a forecasted development pattern for the region that responds to housing needs, changing demographics, and transportation demands. This SCS demonstrates how integrated land use and transportation planning can reduce local and regional GHG emissions from passenger vehicles and light-duty trucks, and shows how the various strategies and programs elsewhere in this RTP document are interrelated and work together to achieve lasting benefits for the region.

The SCS for the Kern region identifies the following:

- A forecasted development pattern to accommodate the region's future transportation, employment, and housing needs, while promoting conservation of natural resources and open space areas.
- A transportation network comprising well-maintained public transit, local streets and roads, managed lanes and highways, and bikeways and walkways.
- Strategies to manage demands on the region's transportation roadway system (also known as transportation demand management, or TDM) in ways that reduce or eliminate traffic congestion during peak periods of demand.
- Strategies to manage operations of the region's transportation system (also known as transportation system management, or TSM) to maximize the efficiency of the network and reduce congestion.

The Kern SCS will be updated every four years in conjunction with the RTP updates. Revisions will reflect amendments to local government general plans and other factors that respond to the changing needs of the cities and the county.

### What is the Purpose of the Sustainable Communities Strategy?

The intent of the SCS is to achieve the state's emissions reduction targets for automobiles and light trucks. The SCS will also provide opportunities for a stronger economy, healthier environment and improved quality of life for community members in Kern County. The SCS seeks to:

#### Improve economic vitality

Our transportation system will be increasingly efficient and cost-effective in the future. The 2018 RTP will generate construction jobs for transportation projects and additional jobs in a broad cross-section of

industries as a result of the improved transportation system. This SCS seeks to reduce obstacles to development and reduce infrastructure costs for new development, which will enable appropriate development that supports the community's vision for the future. With a more efficient transportation system, our region will be more mobile and our roadways will be less congested, enabling the efficient movement of goods through the region. With increased maintenance of streets and roads, and more transit and active transportation options, Kern region transportation costs will be lower and community members will have more resources to spend on themselves and their families.

### Improve air quality

The RTP/SCS seeks to improve air quality in the Kern region by reducing emissions. The SCS component of the RTP will work in tandem with other RTP policies to reduce not only CO<sub>2</sub> emissions but also federal criteria pollutant emissions. We will achieve and exceed our CO<sub>2</sub> emissions reduction target set by CARB by achieving more than a 5% reduction by 2020 and more than a 10% reduction by 2035 compared to the 2005, 16.7 lbs. per capita. The RTP/SCS meets criteria pollutant emission budgets set by the Environmental Protection Agency. By improving air quality, the RTP/SCS helps to remove San Joaquin Valley's \$29 million fine and to meet very fine dust (particulate matter—PM<sub>2.5</sub>) attainment plan goals as well as attain the emission reduction for the other health based criteria pollutants in Kern. In 2013, the San Joaquin Valley portion of Kern went from extreme non-attainment to attainment of the one-hour ozone standard. Continued progress in this area may positively affect climate change impacts. With each passing year, Kern region community members should expect to breathe cleaner air and live healthier lives.

***By improving air quality, this SCS helps to remove San Joaquin Valley's \$29 million fine and to meet very fine dust (particulate matter—PM<sub>2.5</sub>) attainment plan goals as well as attain the emission reduction for the other health based criteria pollutants in Kern.***

This air quality benefit is made possible largely by integrating transportation and land use to allow Kern region residents to live closer to where they work and play and closer to high-quality transit service, bicycle paths, and sidewalks.

### Improve communities' health

Our region's bicycle and pedestrian facilities will expand, providing more opportunities to bike and walk to work, school, the park, the store, the bank, etc. In the future, Kern region residents will be able to live closer to where they work and play. The share of households living within bike or walk distance from where they work and play will increase from 84% to 93% by 2035 compared to the old plan<sup>1</sup>, signaling a more efficient overall development pattern in the future. As a result, more residents will be able to use transit and active transportation as a safe and attractive means of travel. Active transportation helps to maintain our communities' health and well-being. In addition, less vehicle trips will result in better air quality and healthier lives.

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<sup>1</sup> Analysis used methodology suggested by Kern COG RPAC participants based on Human Impact Partners (humanimpact.org) SB 375 Health & Equity Metrics. Kern COG GIS analyzed public services within a 10 min. walk or bike of public services (transit, parks, schools, hospitals). Access to private services remained at 90% between the two alternatives.

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

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### Increase transportation and public safety

Our local transit service and intercity transit services will be expanded and our transit system efficiency will be improved. Kern region community members will be safer as the RTP/SCS seeks to lower accident rates on highways and local streets and roads.

### Promote the conservation of natural resources and undeveloped land

Our military air space, recreation, and agricultural lands are an important resource. Our economic resource areas are an important part of the region's economic base. This SCS acknowledges existing local general plan policies promoting resource conservation and supports Kern's agricultural sector by maintaining existing streets and roads and focusing appropriate compact and in-fill development in urban areas. Kern County has begun planning efforts to create a Natural Community Conservation Plan that combines existing Habitat Conservation Plans in the San Joaquin Valley portion of Kern.

### Increase access to community services

In the future, Kern region residents will have more access to comprehensive community services for health, education, safety, and recreation. By improving transportation infrastructure, such as highways and local streets and roads, and increasing transit and active transportation options, traveling to these services will be more convenient.

### Increase regional and local energy independence

The Kern region will continue to increase its regional and local energy independence. With more transit and active transportation options and by living closer to where they work, community members will have alternatives to driving their cars. Additionally, this SCS seeks to promote conservation of our natural resources and open spaces, providing opportunities to invest in renewable energy production and distribution. Increased energy independence means less dependence on foreign oil, decreased payments to foreign countries, reduced trade imbalances and an improved economy. One recent study by Berry Petroleum Company estimates that even if fossil fuels were eliminated from fueling the transportation sector, local oil production would still see a significant demand from other non-fuel uses such as plastics, asphalt, lubricants and other products. There would not be a need to import oil into California.

***Increased energy independence means less dependence on foreign oil, decreasing payments to foreign countries, reducing trade imbalances and improving the economy.***

### Increase the opportunities to help shape our community's future

Kern region community members will continue to have ample opportunities to provide input in the transportation planning process. We value each person's opinion and will continue to solicit feedback from the public.

## **The Kern Region: Unlike Any Other in California**

Kern County is unlike any other region in California. Kern's large size and diverse valley, desert and mountain environs are dominated by agriculture, oil production, renewable energy, aerospace, military, recreation, transportation linkages and other activities that warrant unique and different approaches to address the SCS goals. These economic pursuits are the basis for dispersed rural centers and strategic locations for developments within the County that are unlike other areas of the State. Accordingly, unique strategies are needed to support Kern's economic, transportation and other needs. This uniqueness is reflected in the general plans and programs of Kern County's local governments.

### LOCAL AND REGULATORY FRAMEWORK FOR THE KERN REGION SUSTAINABLE COMMUNITIES STRATEGY

The framework for the Kern region SCS is established by two key California laws: Assembly Bill (AB) 32 and Senate Bill (SB) 375, described later in this section. The SCS is now a required component of RTPs and must identify how the region will meet GHG emissions reduction targets. One of the factors leading to adoption of AB 32 and SB 375 was the success of numerous grassroots “blueprint” planning efforts throughout the state, including in Kern County. Blueprints bring regional land use and transportation planning efforts together to accommodate future growth in California communities in ways that reflect the grassroots values of local communities. The 2018 RTP presents goals and policies to achieve the region’s mutual vision of a stronger economy, healthier environment and improved quality of life for everyone, while ensuring each community’s independence to determine the best path to that future.

This SCS Chapter of the 2018 RTP includes a strong commitment to reduce emissions from transportation sources to comply with California state regulations, improve public health, and meet national air quality standards.

The following section describes:

- *Directions to 2050* and blueprint planning efforts that preceded the SCS.
- Kern COG’s SB 375 Framework.
- The legal and regulatory authority for the SCS.
- Regional emissions and affordable housing targets for the SCS.

### Laying the Groundwork for the Sustainable Communities Strategy

The Kern Regional Blueprint (2008), San Joaquin Valley Regional Blueprint (2009), Kern SB 375 Framework (2012), and the 2014 RTP laid much of the groundwork for the Kern COG 2018 RTP.

#### Kern Regional Blueprint

Adopted in November 2008, the Kern Regional Blueprint, based on the local general plans of the cities and the county, established a grassroots vision, guiding principles, and an alternative growth scenario for the region as it progresses towards the year 2050. The Blueprint provides the foundation for advancing decision-making for growth management at the local and regional levels. It was developed to shape the region’s future and as a tool for each community to inform how they shape their local community’s future in

#### *Directions to 2050 Principles for Growth*

The SCS employs the vision, guiding principles, and growth scenario developed at the grassroots level as part of the Kern Regional Blueprint and updated as part of the *Directions to 2050* outreach process. These guiding principles are really more like broad categories of principles supporting the RTP goals and policies expressed in Chapter 2, Transportation Planning Policies.

*Enhance economic vitality*

*Conserve energy and natural resources, and develop alternatives*

*Provide adequate and equitable services*

*Provide a variety of transportation choices*

*Provide a variety of housing choices*

*Use and improve existing community assets and infrastructure*

*Use compact, efficient development and/or mixed land uses where appropriate*

*Conserve undeveloped land and spaces*

*Increase civic and public engagement*

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the coming decades. Approximately 3,500 community members of all interests and backgrounds participated in the Blueprint development process. The Blueprint public involvement process began in 2006, and included two statistically valid, 1,200-person quality-of-life phone surveys.

The mutual vision for the future of the Kern region includes:

- Economic development opportunities linked to the education system and current and future industries to build strong local economies and diverse employment opportunities.
- Livable and safe communities for everyone.
- Unique natural resources and open spaces—a healthy environment in which to explore and recreate.

Blueprint participants crafted a set of principles for growth in the Kern region that will help inform decision-making in local communities. These principles for growth are:

- Enhance economic vitality
- Conserve energy and natural resources, and develop alternatives
- Provide adequate and equitable services
- Provide a variety of transportation choices
- Provide a variety of housing choices
- Use and improve existing community assets and infrastructure
- Use compact, efficient development and/or mixed land uses where appropriate
- Conserve undeveloped land and spaces
- Increase civic and public engagement

These principles were reconfirmed as part of the *Directions to 2050* outreach process and are supported by the goals of this 2018 RTP (see Chapter 2, Transportation Planning Policies, Table 2-2). *Directions to 2050* community participants expressed continuing support for all nine principles for growth, indicating they are still relevant to the Kern region. The *Directions to 2050* community engagement program is described in detail later in this Chapter. It is important to note that the horizon year for the 2018 RTP is 2042; planning efforts consider progress towards 2050 but are not yet to the year 2050 as it is anticipated that lessons learned from the current SCS will be incorporated in to future planning efforts for the year 2050.

Since the initial Blueprint process, Kern COG has completed annual statistically valid, quality-of-life phone surveys to track changes in public opinion. The most recent survey (2017) found that creating more high paying jobs is the highest ranking issue on which local governments should be focused.

*See Chapter 2, Transportation Planning Policies, for further information on the Directions to 2050 community engagement.*



### San Joaquin Valley Regional Blueprint

The San Joaquin Valley Regional Blueprint stitched together the Kern Blueprint with the seven other county grassroots blueprint efforts, developed by the eight regional planning agencies (RPAs). The RPAs collaborated to develop a long-term strategy for the future of the eight-county region.

Adopted in 2009 by the San Joaquin Valley Regional Policy Council, the San Joaquin Valley Regional Blueprint effort included Kern Council of Governments, Fresno Council of Governments, Kings County Association of Governments, Madera County Association of Governments, Merced County Association of Governments, San Joaquin Council of Governments, Stanislaus Council of Governments, and Tulare County Association of Governments to develop voluntary, long-term regional growth principles for the future of the eight-county region.

The valley-wide Blueprint identified 12 voluntary growth principles that were consistent with the nine Kern Regional Blueprint principles for growth:

- Create a range of housing opportunities and choices
- Create walkable neighborhoods
- Encourage community and stakeholder collaboration
- Foster distinctive, attractive communities with a strong sense of place
- Make development decisions predictable, fair, and cost-effective
- Mix land uses
- Preserve open space, farmland, natural beauty, and critical environmental areas
- Provide a variety of transportation choices
- Strengthen and direct development toward existing communities
- Take advantage of compact building design
- Enhance the economic vitality of the region
- Support actions that encourage environmental resource management

### Kern COG SB 375 Framework

In February 2012, the Kern COG Board of Directors adopted the SB 375 Framework for development of the SCS. Kern COG's Regional Planning Advisory Committee (RPAC), a committee comprised of local government, agency and stakeholder representatives worked together to develop the framework. The framework's purpose is to guide the development and implementation of the SCS with agreed-upon core values and core actions.

The SB 375 Framework Core Values are:

- 1) The Sustainable Communities Strategy relies on the existing and planned circulation networks and land use designations for Kern County and its eleven (11) incorporated cities.



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- 2) The Sustainable Communities Strategy shall not hinder the local land use authority of Kern County and its eleven (11) incorporated cities,
- 3) The Sustainable Communities Strategy shall allow Kern County and its eleven (11) incorporated cities to continue the pursuit and promotion of a diversified economic base.
- 4) Kern County shall continue to discuss cooperation and coordination with the seven (7) other counties located in the Central San Joaquin Valley, while recognizing the Kern region's unique qualities and developing appropriate strategies for Kern County.

The SB 375 Framework Core Actions are:

- 1) Identify Kern County's existing and planned transportation and circulation network as the Sustainable Communities Strategy (SCS) network.
- 2) Identify and model transportation measures with the purpose of reducing vehicle trips and vehicle miles travelled for Kern County's existing and planned transportation and circulation network to determine anticipated effectiveness.
- 3) Include clean fuel and clean technology (Pavely) regulations when evaluating any measures that may reduce vehicle trips and vehicle miles traveled.
- 4) Use the adopted land uses, that may be amended from time to time, of Kern County and its eleven (11) incorporated cities as the forecasted development patterns.
- 5) Base all models utilized by Kern COG on locally adopted general plans and identified regional economic centers. Any request to change the baseline model will require approval of the local city and/or county whichever has the appropriate authority.
- 6) Consistent with adopted general plans, model strategic locations for new retail and employment uses to determine whether they reduce vehicle trips and vehicle miles traveled.
- 7) Allow for the flexibility to amend the adopted land use elements of Kern County and its eleven (11) incorporated cities based on market demands and market responses.
- 8) Identify local, community oriented, alternative feasible transportation strategies such as enhancing biking and walking within established communities.
- 9) Respect the uniqueness of Kern County when the California Air Resources Board considers revising the targets.
- 10) Strive to achieve an acceptable SCS to allow for the use of CEQA streamlining by the development community.
- 11) Identify regional modeling baseline information and provide updates for the eight (8) sub-regions of Kern County to provide feedback on progress towards achieving the state targets.
- 12) Develop two types of strategies within the plan: (1) strategies that reduce emissions county-wide; and (2) strategies that reduce emissions sub-regionally.
- 13) Explore the potential of establishing modeling budgets for each sub-region of the county.

### Regulatory Framework

#### California Greenhouse Gas Emissions Legislation

Kern COG's SCS must be set within the context of the eight-county Central Valley and the state, where much of the momentum for climate change legislation in the United States originates. Kern COG's SCS must also recognize the significant portion of Kern County that is not in the Central Valley i.e. the desert of eastern Kern and the mountain portions of Kern County.

California has long been a sustainability leader, as illustrated by Governor Schwarzenegger's signing Executive Order (EO) S-3-05 in 2005. EO S-3-05 recognized California's vulnerability to reduced snowpack, exacerbation of air quality problems, and other issues that may require adaptive strategies. To address these concerns, the Executive Order set a goal to reduce statewide emissions to 2000 levels by 2010, to 1990 levels by 2020, and to 80% below 1990 levels by 2050.

In 2006, California became the first state in the country to adopt a statewide reduction target through AB 32. This law codifies the EO S-3-05 goal to reduce statewide emissions to 1990 levels by 2020. AB 32 resulted in CARB's 2008 adoption of a Climate Change Scoping Plan (Scoping Plan), outlining the State's plan to achieve emissions reductions through a combination of direct regulations, alternative compliance mechanisms, various incentives, voluntary actions, market-based mechanisms, and funding.<sup>2</sup> The Scoping Plan identifies local governments as "essential partners" in the State's efforts to reduce emissions. The Scoping Plan was updated and approved by CARB in 2014. The update identified opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments

AB 32 engendered several companion laws that can assist the Kern region in reducing transportation-related emissions, including, but not limited to, AB 1493 emissions performance standards for motor vehicles and EO S-1-07 performance standards for the carbon intensity of transportation fuels.

California Executive Order B-30-15 signed by Governor Brown in 2015, added the intermediate target of 40 % below 1990 levels by 2030. This intermediate target was codified into law by SB 32, which was signed into law by Governor Brown on September 8, 2016. On July 17, 2017, the legislature passed a law that authorized the Air Resources Board to operate a cap and trade system to achieve these emissions reductions.

#### Senate Bill 375 Requirements

SB 375, adopted in 2008, represents the latest in a series of actions at the state level to address California's contributions to global climate change. Building on AB 32, SB 375 seeks to coordinate land use decisions made at the local (city and county) level with regional transportation planning. By coordinating these efforts, it is envisioned that vehicle congestion and travel can be reduced resulting in a corresponding reduction in emissions. SB 375 directed CARB to set regional targets to reduce emissions; regional plans are required to identify how they will meet these targets.

SB 375 has three major components:

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<sup>2</sup> Because the Scoping Plan time horizon is limited to 2020, analysis of the Scoping Plan is presented for the year 2020 only, not for 2035 or 2050. While EO-S-3-05 sets a goal that Statewide GHG emissions be reduced to 80 percent below 1990 levels by 2050, the EO does not constitute a "plan" for GHG reduction, and no State plan has been adopted to achieve the 2050 goal.

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- Using the regional transportation planning process to achieve reductions in emissions consistent with AB 32's goals.
- Offering California Environmental Quality Act (CEQA) incentives to encourage projects that are consistent with a regional plan that achieves emissions reductions.
- Coordinating the Regional Housing Needs Allocation (RHNA) process with the regional transportation process while maintaining local authority over land use decisions.

An SCS is a required component of the RTP. The SCS is an emissions reduction strategy for the region which, in combination with transportation policies and programs, strives to reduce emissions and, if feasible, helps meet CARB's targets for the region. See the discussion above under "What Is the Sustainable Communities Strategy?"

An alternative planning strategy (APS) must be prepared if the SCS is unable to reduce emissions and achieve the emissions reduction targets established by CARB. The APS is separate from the RTP, but it may be adopted concurrently with the RTP.

The following is a further discussion of the State-mandated requirements for the RTP and SCS.

### Meeting Federal Air Quality and Transportation Requirements

The SCS must allow the RTP to comply with Section 176 of the federal Clean Air Act (42 USC 7506) requiring that the RTP demonstrate that it conforms with the state implementation plan, and that it will not cause or contribute to any new violation of any standard, increase the frequency or severity of any existing violation of any standard, or delay timely attainment of any standard or any required interim emission reductions or other milestones in each air basin. In addition, GC Section 65584.01(i)(1) states that it is the intent of the legislature that planning for housing be coordinated and integrated with the RTP. To achieve this goal, the Regional Housing Needs Allocation plan shall allocate housing units within the region consistent with the development pattern included in the SCS.

Kern COG prepares and adopts concurrently with the RTP an air quality conformity analysis to ensure that the RTP/SCS meets the federal conformity requirements.

### Greenhouse Gas Emissions Inventory, Projections, Targets

The purpose of SB 375 is to implement the state's emissions reduction goals for cars and light-duty trucks. This mandate requires CARB to determine per capita emissions reduction targets for each MPO in the state at two points in the future: 2020 and 2035. The 2018 RTP must achieve emissions reductions of 5% per capita in 2020 and 10% per capita in 2035. Because emissions in the transportation sector are closely related to passenger vehicle travel, a mandated reduction essentially requires Kern COG to devise a regional plan and a series of strategies that will produce a per capita reduction in passenger vehicle travel. New targets are anticipated for RTP/SCS Cycle 3.

### Regional Housing Needs Allocation

SB 375 combined transportation and housing planning by integrating the RHNA process with the 2014 RTP. Specifically, GC Section 65080(b)(2)(B), subparagraphs (iii) and (vi), requires that the SCS identify areas within the region sufficient to accommodate an eight-year projection of the regional housing need and consider the state housing goals specified in GC Sections 65580 and 65581. Kern COG engaged in the RHNA process concurrently with the development of the 2014 RTP. This process required Kern COG

to work with its member agencies to identify areas within the region that can provide sufficient housing for all economic segments of the population and ensure that the state's housing goals are met.

### COMMUNITY ENGAGEMENT

State and federal regulations require comprehensive public participation as part of the Global Warming Solutions Act of 2006 (AB 32) and the Sustainable Communities and Climate Protection Act of 2008 (SB 375). The Code of Federal Regulations—Title 23: Highways requires metropolitan planning agencies, such as Kern COG, to enable public participation in the RTP planning process, as well as to facilitate interagency coordination during SCS development. This section describes:

- SB 375 public participation and agency consultation requirements.
- Community engagement activities supporting development of the Kern region SCS.
- A summary of community input used to develop the SCS.

### Public Participation Requirements

The public participation requirements for development of the SCS, pursuant to the requirements of SB 375, can be incorporated into an existing plan. Kern COG currently has a public participation plan that meets federal and state requirements.

SB 375 increased the minimum level of public participation required in the regional transportation planning process, including collaboration between partners in the region during the development of an SCS. Pursuant to GC Section 65080(b)(2)(F), each MPO shall adopt a public participation plan, which shall include:

- Outreach effort to encourage the active participation of a broad range of stakeholder groups in the planning process, consistent with the agency's adopted Federal Public Participation Plan (GC Section 65080(b)(2)(F)(i)).

Kern COG's *Directions to 2050* Outreach process was successful in receiving input from the broadest range of stakeholder groups and the public resulting in input from over 6,000 participants.

- Consultation with congestion management agencies, transportation agencies, and transportation commissions (GC Section 65080(b)(2)(F)(ii)).

Kern COG serves as the congestion management agency for Kern County and includes Caltrans as an ex-officio member of the Board.

- Workshops throughout the region to provide the public with the information and tools necessary to provide a clear understanding of the issues and policy choices. At least one workshop shall be held in each county in the region. For counties with a population greater than 500,000, at least three workshops shall be held. Each workshop to the extent practicable shall include urban simulation computer modeling to create visual representations of the SCS and the APS, if one is prepared (GC Section 65080(b)(2)(F)(iii)).

Kern COG conducted 17 workshops, 12 City Council and Board of Supervisors presentations, 4 Stakeholder Roundtable meetings, 24 active transportation planning events, 8 community festivals and events, 2 online survey activities, 3 - 1,200 person statistically valid quality of life surveys (2015, 2016

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& 2017), 2 Kern County Fairs (2015 & 2016), and 3 emerging strategy workshops to exceed the statutory requirement.

- Preparation and circulation of a draft SCS (or an APS if one is prepared) not less than 55 days before adoption of a final regional transportation plan (GC Section 65080(b)(2)(F)(iv)).

The draft SCS public review includes a 55 day review period prior to final adoption.

- At least three public hearings on the draft SCS in the regional transportation plan and APS, if one is prepared. If the MPO consists of a single county, at least two public hearings shall be held. To the maximum extent feasible, the hearings shall be in different parts of the region to maximize the opportunity for participation by members of the public throughout the region (GC Section 65080(b)(2)(F)(v)).

Public hearings were held on June 6, 2018, in the City of Ridgecrest, June 19, 2018, in the City of Arvin and on June 21, 2018, in the City of Bakersfield.

- A process for enabling members of the public to provide a single request to receive notices, information, and updates (GC Section 65080(b)(2)(F)(vi)).

The Kern COG *Directions to 2050* website (<http://www.directionsto2050.com/>) was established in 2012, and provides an opportunity for interested persons to sign up for notices related to the RTP/SCS development and the public review process.

### Agency Input and Consultation with Local Elected Officials

The Kern County RTP/SCS outreach effort was expanded beyond SB 375 requirements as follows:

- During the development of the SCS, Kern COG must conduct at least two informational meetings in each county for members of the board of supervisors and city councils. Only one informational meeting is needed in each county if it is attended by representatives of the county board of supervisors and city councils that represent a majority of the cities representing a majority of the population in the incorporated areas of that county. (GC Section 65080(b)(2)(E))

Kern COG staff conducted 12 informational meetings with all 11 city councils and the Kern County Board of Supervisors in the fall of 2017.

- The meeting (or meetings) shall discuss the SCS, including the key land use and planning assumptions, with the members of the board of supervisors and city council members in that county and to solicit and consider their input and recommendations. Notices of these meetings are to be sent to the clerk of the board of supervisors and city councils and local elected officials as key stakeholders in the regional transportation system. While local elected officials serve on regional agency boards, expanded consultation is required pursuant to GC Section 65080(b)(2)(E) and (F) to provide outreach to all local elected officials and their member jurisdictions affected by the SCS (and APS if applicable).

The meeting presentation to local elected leaders discussed strategies and land use planning assumptions for the purpose of soliciting their input and recommendations which Kern COG considered in developing the RTP/SCS. The meetings were fully noticed as part of each agenda sent out by the Clerk of the Board and city councils.

- Pursuant to GC Section 65080(b)(2)(G), in preparing an SCS, Kern COG shall consider spheres of influence that have been adopted by LAFCOs within the region. Kern COG should also consult with

LAFcos regarding special districts within the region that provide property-related services such as water or wastewater services, and should consult with these regional special districts, as appropriate, during development of an SCS (and APS if applicable).

The Executive Officer of LAFCo is a member of the RPAC which provides oversight to the development of the RTP/SCS. In addition, the Kern COG land use model includes proximity to existing water and wastewater services. Kern COG consulted with special districts to develop the water and wastewater service areas.

- Based on the 2017 California Regional Transportation Plan Guidelines, Kern COG is encouraged to share data on growth projections and consult with school districts in the development of the SCS (and APS if applicable), especially with respect to land uses and the regional transportation system. Where possible, an SCS should incorporate current and future school needs into the RTP. School-related trips constitute a significant portion of all vehicle trips.

Kern COG consulted with the Kern County Superintendent of Schools to identify existing and forecasted locations of schools and enrollment.

### California Air Resources Board Review

Prior to starting the public participation process, the MPO shall submit a description to the state board of the technical methodology it intends to use to estimate the emissions from its SCS (GC Section 65080(b)(2)(J)(i)). In December 2016 Kern COG and the 7 other Valley COGs provided a technical methodology on development for the 2018 target setting and target demonstration process. Throughout the target setting and RTP development process, Kern COG has communicated regularly with CARB to obtain their input and CARB has participated in many of the Kern COG SB 375 oversight committee meetings. In December 2017 CARB received an updated technical methodology. Following the Summer 2018 scheduled adoption, Kern COG shall submit the SCS to the state board for review (GC Section 65080(b)(2)(J)(ii)).

### **Kern COG Public Involvement Procedure**

The Kern COG public involvement procedure was updated in March 2015 to reflect outreach and review requirements. The procedure provides guidance for Kern COG's elected officials and staff in public participation and interagency consultation throughout the regional planning process. It contains the policies, guidelines, and procedures Kern COG uses in developing the metropolitan planning process. This includes the development and approval of the RTP, Regional Transportation Improvement Plan (RTIP), and environmental review documentation related to growth, transportation, and air quality, and any product prepared by Kern COG staff that statutorily requires public participation or when public participation is directed by the Kern COG Board.

The public involvement process is guided by the following principles:

- It is the right and responsibility of citizens to be involved in the transportation planning process.
- Citizens should be educated about the needs and issues and encouraged to participate in finding solutions.
- Early and timely involvement of citizens is necessary to build community agreement on the needs and solutions before alternatives are proposed.



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- Agreement on the final product is a desirable goal, but agreement does not mean 100% unanimity by all parties. Negotiation and compromise are essential ingredients to building agreement.
- The process by which a decision is reached is just as important as the product. Citizens should end the process satisfied that they had the opportunity to be significantly involved and that their voices were heard and reflected in the final document.
- After decisions are made, actions should follow to maintain confidence in the community involvement process.

The public involvement procedure identifies partner agencies with which Kern COG staff maintains regular contact and encourages participation in the development of local, regional, and state plans. The plan provides procedures and responsibilities for informing and engaging community members in various agency plans, programs, declarations, and policy evaluation. The plan also identifies media resources to use and legal display ad requirements to follow when posting public notices.

### Summary of Activities

Community engagement and outreach were fundamental to the development of the 2018 RTP. By nature, this plan represents the region's mutual vision for its future and was developed using a grassroots, bottom-up approach.

### Regional Planning Advisory Committee

Formed by the Kern COG Board in 2011, the RPAC was created to provide a forum to review and develop recommendations on key activities associated with regional transportation plans and other planning issues, including SB 375 implementation. The Kern COG RPAC reviews and develops recommendations on the following topics:

- Appropriate planning-related sections of the RTP.
- Blueprint planning.
- Climate change planning.
- Sustainable communities planning.
- Regional Housing Needs Allocation.
- Land use and population projections.
- Studies related to the environment (air, water, habitat conservation).
- Rural-urban connections strategy.
- Appropriate studies for inclusion in the annual Overall Work Program.
- Regional Energy Action Planning.
- Other matters as referred by the Kern COG Board.



Members of the RPAC are planning directors, community development directors, or their designees from each Kern COG member jurisdiction. Additional voting members include the public transit agency (Golden Empire Transit) and Caltrans District 6. Community at-large voting members represent varied economic, social, and geographic sectors and are appointed by the Kern COG Board. They may include business groups, nonprofit organizations, military agencies, and tribes. Non-voting members consist of the executive officer of the LAFCo and the president/CEO of the Kern Economic Development Corporation. The San Joaquin Valley Air Pollution Control District (APCD) and the Eastern Kern APCD are encouraged to participate in RPAC meetings.

The RPAC formulated a SB 375 SCS Framework with values and actions that were approved by the Board of Directors in February 2012. The RPAC developed a broad structure of SB 375 implementation for the entire county that included solutions for the region's unique geographic and economic features.

### Transportation Modeling Committee and Kern Climate Change Task Force

The Kern Regional Transportation Modeling Committee was established in 2001 to provide oversight for the Kern Regional Travel Demand Model. After the adoption of the Kern Regional Blueprint in 2008, the Kern COG Board established the Kern Climate Change Task Force. These two committees merged in 2010 to form the Transportation Modeling Committee. Made up primarily of member agency traffic engineers, transportation model users, and other stakeholders, the committee serves as a subcommittee to the RPAC and the Transportation Technical Advisory Committee dealing with technical modeling and forecasting issues.

Kern COG worked with the Transportation Modeling Committee and RPAC to develop and implement the *Directions to 2050* community engagement process and the RTP/SCS.

### Directions to 2050

The *Directions to 2050* program, Kern COG's comprehensive community engagement process, was designed to solicit input from stakeholders and community members on priorities for the region's long-term future. The name *Directions to 2050* was meant to encourage participants to think long term into the future, but as noted above, Kern COG anticipates incorporating data from the current RTP, before planning for the year 2050. The *Directions to 2050* community engagement process extended from September 2015 through February 2018. Over 6,000 community members participated in the *Directions to 2050* process. The program provided various opportunities for community members, stakeholders, and local agencies and jurisdictions to participate in the process, including:

- Four stakeholder roundtable meetings with business and industry, environmental and social equity and environmental justice stakeholders.
- Seventeen community workshops hosted in 9 different local communities hosted by the A. Philip Randolph Community Development Corporation, Greater Bakersfield Chamber of Commerce, Kern County Black Chamber of Commerce, California State University Bakersfield, Bike Bakersfield, Leadership Counsel for Justice and Accountability, Bakersfield Downtown Business Association, United Way of Kern County, Greater Tehachapi Economic Development Council, Delano Alliance/United Way of Kern, Shafter Rotary Club, and the Business, Transportation and Rail Expo. Using interactive voter technology Kern COG gained information from participants about growth principles, strategies for transportation spending and funding solutions. Each workshop included visual simulation computer modeling to create visual representations of regional growth and transportation projects. Workshop presentations and activities were designed to provide community members with the information and tools necessary to provide a clear understanding of the issues and policy choices.

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- Eight community event interactive and educational booths at the Great Kern County Fair (2015 & 2016), the Tehachapi Mountain Festival, Wasco Rose Festival, Delano Street Fair, McFarland Independence Day Festival, Taft Rails to Trails Festival and the Desert Empire Fair.
- Kern COG hosted booths at seven (7) Farmer's Markets to engage the public about planning transportation projects.
- During the summer of 2016, Kern COG embarked on a planning process to enhance walking, bicycling, and transit access throughout Kern County. Eight (8) community workshops were conducted and nine (9) walk audits were held.
- An interactive project website ([www.directionsto2050.com](http://www.directionsto2050.com)) served as a communication and education tool and included interactive online prioritization and resource allocation activities, a survey, and project resources.
- Three statistically valid phone surveys of 1,200 residents each of Kern County (2015, 2016 & 2017) to assess residents' overall opinion of the quality of life in their city or town, to survey the importance of issues related to the future, and to understand the daily commute for the average resident.
- Promotional efforts: Kern COG personally contacted stakeholders, such as city staff, agencies, health organizations, environmental groups, and community-based organizations, distributed fliers advertising community workshops, and posted advertisements and shared press releases with various media resources including social media outreach, promoting the website and online game/survey tool.
- 12 publically advertised presentations were made to each of the 11 incorporated cities and the County Board of Supervisors to receive input from local elected officials.

Additional presentations on the RTP/SCS were made to the the Lamont Chamber of Commerce including the federally recognized Tejon Tribe. In total over 6,000 people provided input into the RTP/SCS.

### Overview of Community Input

Overwhelmingly, the number one priority from the extensive two year *Directions to 2050* community engagement process can be summarized in one small phrase, "maintain, fix and finish what we have." Maintenance of the existing transportation system was clearly the priority of a majority of participants in the public participation process. The outreach demonstrated general support for other secondary priorities including: bike, pedestrian, transit facilities, carpooling and providing housing close to shopping, jobs and transit to increase transportation choice. This input has helped shape the strategies included in the SCS.

### Environmental and Social Equity Roundtable

As outlined above, Kern COG conducted four (4) meetings with business/industry and environmental/social equity groups. Three (3) meetings were held with the Environmental and Social Equity Stakeholder Roundtable to comply with the seven goals that are the core of the 2018 RTP. One of the goals is to ensure an equitable distribution of the benefits among various demographic and user groups. To that end, Chapter 2 outlines three policies:

- Avoid, minimize, and/or mitigate disproportionately high and adverse human health or environmental effects, including social and economic impacts, on traditionally disadvantaged communities, especially racial minority and low-income communities.

- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

The purpose of the three meetings was to continue to share information about the outreach process, provide an overview of recent studies conducted by Kern COG, and present/discuss the environmental justice methodology to be used in the 2018 RTP/SCS. As a result of the meeting the environmental justice methodology was revised to reflect input from the stakeholders. For more information on performance measures related to social equity, see Chapter 2 and Appendix D – Integrated Performance Measures, Smart Growth and Environmental Justice Measures Analysis.

### SUSTAINABLE DEVELOPMENT PATTERN

One of the key components of the SCS is a sustainable regional forecasted development pattern that when integrated with the transportation network enables the region to accommodate future growth in a manner that reduces passenger vehicle emissions, enhances economic vitality, promotes housing affordability, and encourages resource land conservation while preserving private property rights and local land use decision making authority. This forecasted development pattern is the basis for development of the regional transportation system described throughout the 2018 RTP and summarized in this SCS. Kern County has a unique pattern that is dominated by rural, outlying areas. This section describes:

- Current development patterns, urban/rural connectivity, residential densities, and building intensities in the Kern region.
- Anticipated future population, jobs, and housing in the region.
- A forecasted development pattern, regional housing needs, and strategies to promote conservation of resource areas and farmland.

### Current Uses, Residential Densities, and Building Intensities

GC Section 65080(b)(2)(B)(i) requires MPOs to identify the general location of uses, residential densities, and building intensities in the region. The assessment of existing conditions, based on local general plans and planning assumptions, provides the foundation for the Kern COG SCS.

*See Chapter 3, Planning Assumptions, for further information on current land uses, residential densities, and building intensities.*

### Existing Conditions: Putting the SCS into Perspective

Kern County is unlike any other region in California. From an overall perspective, Kern County, consisting of 8,200 square miles (the size of New Jersey), is the third largest county in California. Kern County is 159 miles in length from the northwestern boundary to the southeastern boundary. The population is approximately 900,000 and is expected to grow by 62% over the next 24 years and 82% by 2050. Although two-thirds of Kern's population lives within 1/20th of the area of the county known as Metropolitan Bakersfield, many of the economic centers require long exurban commutes to areas that may not be conducive to urban development.

There are 11 incorporated cities within Kern County: Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi and Wasco. Kern County comprises separate regions

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based on significant variations in terrain, climate, geographic and environmental factors. The regions are identified as follows:

**Valley Region:** The southern San Joaquin Valley below an elevation of 1,000 feet mean sea level.

**Mountain Region:** The westernmost and central portion of the county above the 1,000-foot mean sea level contour in the valley and western region of the county and west of the primary alignment of the Los Angeles Aqueduct in the eastern county, including the southernmost portion of the county.

**Desert Region:** The eastern section of the county, east of the primary alignment of the Los Angeles Aqueduct.

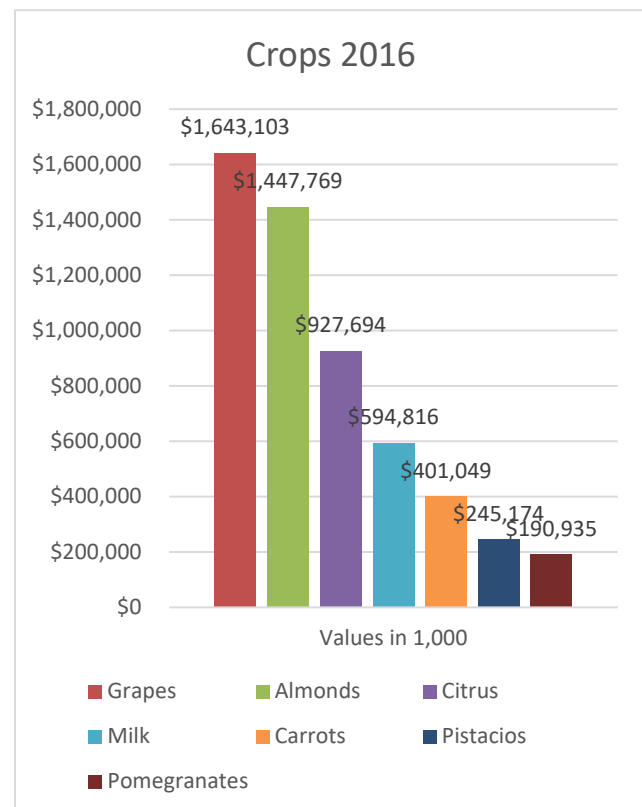
Kern County has six significant industry clusters:

**Figure 4-1: Kern County 2016 Crops**

**Value-Added Agriculture** is defined as the transformation of agricultural products to a higher value for the end consumer. Examples can be seen when carrots are processed into smaller, “baby” carrots, or used in the production of vegetable juice. Locally-produced products like POM Wonderful Pomegranate Juice, Wonderful Pistachios, Bunny-Luv Baby Carrots, and Halos Mandarins are well-known national brands. According to the Agriculture Issues Center at UC Davis, for every 100 jobs linked directly to the agricultural industry, an additional 106 jobs are created in the local economy. Kern County is the leading ag-producing region in the United States, with 1 in every 5 jobs related to agriculture. In addition, every dollar generated by value-added ag leads to an additional \$1.27 generated by the region’s non-agriculture economy.

**Transportation and Logistics** is a fast-growing industry with tremendous potential within Kern. This is a leading cluster and supports the competitiveness of the Energy and Natural Resources and Value-Added Agriculture clusters through the use of warehousing and distribution services. Given Kern’s location at the geographic population center of California, logistically and environmentally Kern is the best location in the state to centralize distribution services to the rest of the state with the lowest carbon footprint. Kern also serves as the immediate northern gateway to Los Angeles County. With California’s two major north- south freeways running through the county as well as the only year-round pass over the Sierra Nevada Mountain Range in the San Joaquin Valley, it is a natural place for growth in transportation and logistics. Kern has become the location for major distribution centers.

**Energy and Natural Resources** production is the cornerstone and foundation of Kern County. Historically oil production has driven energy development. Kern County is the top oil-producing county in California.



This county alone produces 66% of California's oil, about 10% of the U.S. oil supply, and approximately 1% of the world's total oil production. Kern County has four giant oil fields (greater than 1 billion barrels of cumulative production) and as a whole produces about 560,000 barrels of oil per day. In addition cogeneration which produces electricity as a by-product from steam used in the oil fields produces much of the electricity used in both Kern and Los Angeles counties.

Kern County is the renewable energy center for California producing more renewable energy than any other county in the state.<sup>3</sup> There are more than 5,000 wind turbines in the Tehachapi-Mojave wind corridor, producing 1.3 terawatt hours (1.3 million megawatts) each year. Wind energy is set to expand with the completion of the Wind Hub Substation and 500 KV transmission line that is being constructed by Southern California Edison. Solar investment is also on the rise within the County; there are more than 19 commercial solar projects (20 megawatts or less) in the permitting process and two utility scale solar projects (200+ megawatts) in the approval pipeline with the California Energy Commission. The county's dependence on energy and natural resource production as part of our economic structure is reflected in the fact that all 10 of the county's top tax payers are either oil-producing and/or processing companies, renewable energy producers or mining operations.

**Aerospace and Defense** remains a leading industry cluster for the county and particularly for eastern California. California is home to approximately 139,000 aerospace jobs, with over 23,000 of them in Kern County. These high-wage, full-time jobs have staying power thanks to vast open land, lack of development encroachment, proximity to Los Angeles, and higher education levels per capita in East Kern than in most other regions in the county. China Lake is the Navy's largest single landholding in the world. It represents 85% of the Navy's land for research, development, tests, and evaluations use, and 40% of the Navy's land holdings worldwide. As weapons development continues, China Lake consistently adds jobs, both military and civilian.

Edwards Air Force Base covers roughly 470 square miles and houses roughly 12,800 jobs at the Air Force Flight Test Center. Among its many military purposes, Edwards historically provided a landing-place for NASA spaceships coming back from space exploration when weather did not permit landings in Florida.

Mojave Air and Space Port emerged as the leading aerospace test center for commercial operations in North America. No longer a sleepy high desert general aviation Mojave Airport destination, Mojave Air and Space Port has amassed more first flights and significant newsworthy flight activity than any other airport in the world over the past ten years.

Mojave Air and Space Port and industrial park is currently home to more than 60 companies engaged in flight development to light industrial to highly advanced aerospace design, flight test and research and even heavy rail industrial manufacturing,

The potential for space tourism continues to be great, though other states are fiercely competing for this business.

**Tourism, Recreation and Entertainment** suggests continued growth opportunities in both annual expenditures and employment. This includes the generation of tourism and visit activity from people traveling between major cities in Northern and Southern California. Kern County's tourism, recreation & entertainment cluster provides almost 23,000 jobs throughout the county primarily in accommodation and food services. Increasing strengths within this cluster are in sports and recreation related to outdoor assets such as off roading, water sports, and hiking.

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<sup>3</sup> Kern County Renewable Energy Fact Sheet [http://www.drecp.org/counties/factsheets/Kern\\_county.pdf](http://www.drecp.org/counties/factsheets/Kern_county.pdf) 2017



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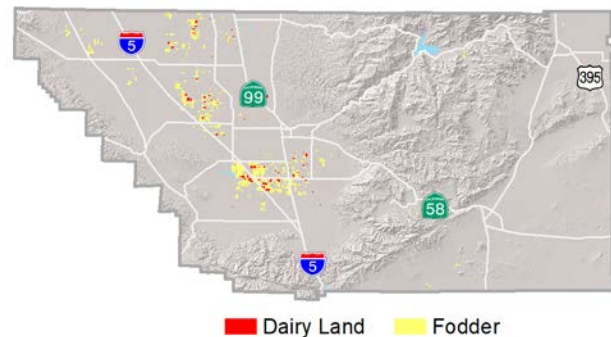
**Healthcare Services** has been recast to reflect the vast array of services and networks in the county. Throughout the San Joaquin Valley, population growth has resulted in major increases in hospital and healthcare employment. Dignity Health is staying a step ahead of population growth by expanding services and facilities at its three Bakersfield hospitals. Through teamwork, innovation and advocacy, Mercy and Memorial hospitals are delivering on their promise to provide excellent, affordable health care. New advancements in cardiac care at Memorial Hospital offer lifesaving options for heart patients and The Robert A. Grimm Children's Pavilion for Emergency Services will provide pediatric care for Kern's smallest residents. The Grossman Burn Center is scheduled to open at Memorial Hospital in 2018. Mercy and Memorial Hospitals together with their partner, Comprehensive Blood and Cancer Center, are dedicated to meeting the special needs of cancer patients and their families.

### Rural/Urban Connectivity Strategy

California Government Code 65080(b)(4)(C) states, "The metropolitan planning organization ... shall consider financial incentives for cities and counties that have resource areas or farmland, as defined in Section 65080.01, for the purposes of, for example, transportation investments for the preservation and safety of the city street or county road system and farm to market and interconnectivity transportation needs." Kern has developed a guideline to direct funding to outlying rural areas to promote safety and interconnectivity in accordance with SB 375. A more complete discussion can be found in Section VII. of the SCS under the Project Selection Criteria. This goes into greater detail on the nature of Kern's unique resource areas and farmland.

Rural, resource areas represent the vast majority of Kern County land uses. Kern's rural lands hold diverse resources strategic to Kern and California's growth and success. For example, Kern County produces 66% of all oil produced in California, has over 1.3 million mega watts of operating and permitted renewable energy. One in six jobs in Kern County are directly related to the resource sectors of forestry, fishing, hunting, mining (esp. oil/gas) and agriculture. Growing interest in ecotourism, from white water rafting to farmer's markets, offers an insight into the development of a diverse and vibrant economy.

**FIGURE 4-2: KERN COUNTY DAIRIES**



**Table 4-1: Farmers' Markets In The Kern Region**

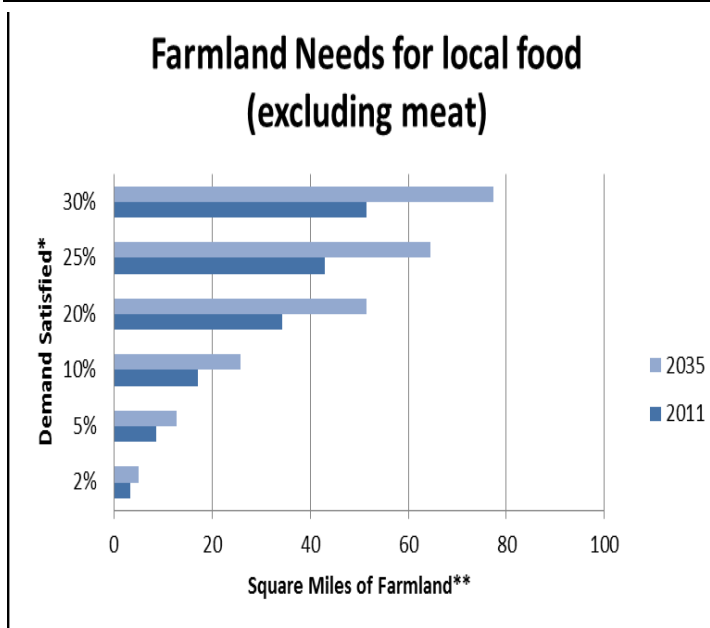
Brimhall Farmers' Market 9500 Brimhall Rd.	Year Round	Sat	9 am-1:30 pm
Clinica Sierra Vista/Delano 1508 Garces Hwy.	May – November	Wed	3 pm – 5 pm
Clinica Sierra Vista/Lamont 8787 Hall Rd.	May – November	Tues	3 pm – 5 pm
From the Farmhouse Shafter 320 Central Ave.	Jun – Aug	Wed	8:30 am – noon
Haggin Oaks Farmers' Market 8800 Ming Ave.	Year Round	Sun	9 am – 2 pm
Lakeshore Farmers' Market	May – Nov	Sat	9 am – noon
Main Street Farmers' Market Tehachapi Rail Road Park	Jun – Aug	Thurs	4 pm – 7 pm
Wasco Farmer' Market Hwy. 43 between 7 <sup>th</sup> & 8 <sup>th</sup> St.	Jun – Aug	Wed	2 pm – 6 pm
Lake Isabella Farmers' Market 21 Alta Pinos Way, Bodfish	Jan – Dec	Sat	10 pm – 2 pm
Valley Farmers' Market Golden State Hwy. & F St.	Year Round	Sat	8 am - noon

Kern strives to provide feasible solutions to transportation, land use and air quality issues that connect these strategic rural employment areas with the major urban areas of the county. The Blueprint, adopted in 2008 by the Kern COG Board made up of local officials from 11 cities and the County of Kern, provides information to assist in the formation of strategies that enhance strategic agriculture, rural communities, resource conservation, recreation, quality of life, and regional sustainability.

**Agricultural Resource Areas (Farmland)** - Residential rural areas of Kern County number 38,700 acres.

Semi-agricultural lands, like warehousing and packaging facilities, yield less than 12,000 additional acres. The combination of which are roughly a third of the 142,000 acres of urban land. When taking inventory of agricultural land; however, the ratio inverts dramatically. Farmland as defined by GC Section 65080.01 (b) is classified as prime, of statewide importance, or otherwise unique in character outside all existing city spheres of influence or city limits; the combination of these lands exceeds 900,000 acres. Additionally, designated grazing land provides a stunning 1.8 million acres. From these lands, Kern County's agricultural revenues topped \$7 billion in 2016, a 6% increase over 2015.

**Figure 4-3: Farmland Needs for Local Food**



Another significant portion of Kern's rural economy is dairies. In 2016, total milk production was 38 million pounds for a total value of \$579 million. Kern produces about 10% of California's milk products and ranks 5<sup>th</sup> among California's counties of which the top eight counties comprise the San Joaquin Valley region and produce about 95% of the state's milk products. The number of Dairies in Kern has dropped from 55 in 2012 to 48 in 2016, and the number of cows has dropped from 168,000 to 158,000.<sup>4</sup>

**Farm to Market Needs** – Central to farm production, Metropolitan Bakersfield provides ideal connectivity for the transportation of agricultural products to markets, both local and statewide. The proportion of locally grown produce destined for local markets is low. Due to the economies of scale, delivery networks often find it more economical to send produce to distant distribution facilities, often resulting in local markets being provided with products not only distributed from other areas, but sourced from them as well. It's estimated that 2% of regional consumption is locally produced. See Figure 4-3:

**Farmland Needs for Local Food** - Despite low consumption of locally-sourced fare, direct markets continue to grow and thrive. Kern County's farmers' markets (see Table 4-1) provide area residents access to a variety of locally-farmed products. Additional forms of agritourism flourish among many local farms that provide retail outlets at the farms themselves. In 2014 California implemented the Urban Agricultural Zone Incentive Act (SB 551) which allows land owners of at least .1 acre and no more than 3 acres in size within metropolitan areas to receive tax incentives for putting land into agricultural use. The minimum five year

<sup>4</sup> California Department of Food and Ag., [https://www.cdfa.ca.gov/dairy/pdf/Annual/2016/2016\\_Statistics\\_Annual.pdf](https://www.cdfa.ca.gov/dairy/pdf/Annual/2016/2016_Statistics_Annual.pdf), 2016



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agricultural preserve will likely accelerate the proliferation of community gardens and markets in urban settings.

From this inventory come a variety of themes to which rural development strategies are focused: *Production, Infrastructure and Consumption*.

**Production:** Connect farmers to available markets & provide business training opportunities to farmers.

**Infrastructure:** Increase local processing capacity & distribution

**Consumption:** Increase the number and types of food outlets, promote local food sourcing.

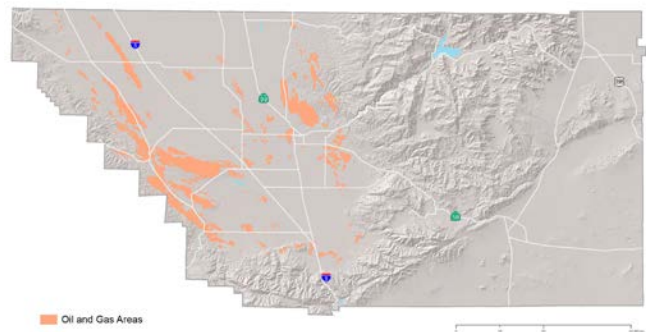
**Oil, Gas and Mineral Resources** - Perhaps one of Kern County's most well-known features is oil and gas production - for good reason. Kern County's 880 square miles of oil fields account for 76% of the oil and gas reserves in California.

Kern County led the state in 2011 with over 60,000 employed in the Natural Resource and Mining industry. Of those, nearly 40% are occupations which are directly related to production and extraction. Consequently, heavy commute traffic is experienced both within adjacent rural areas and between urban and rural areas. This commute traffic is the primary consideration as, unlike agricultural products, petroleum products are transported primarily by rail and pipeline.

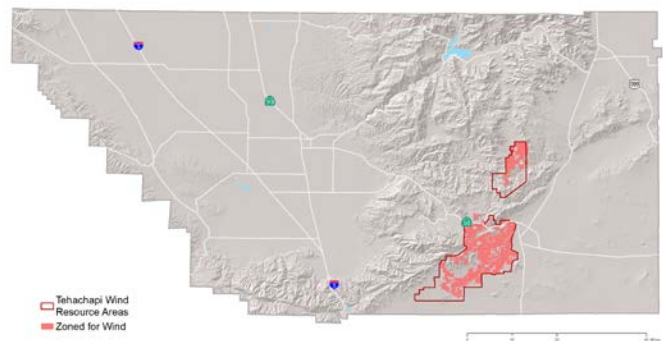
East Kern also includes gold and other mining operations. The largest borax mining operation in the world is located at the eastern edge of the county next to Boron, employing 600 working three shifts per day, seven days per week. An average of 5 trains per week transport the mineral to a bulk transload facility at the Port of Long Beach.

**Wind Energy** - Kern's energy resources extend beyond the traditional—it also hosts one of the first wind farms in the nation. Situated to the east of the mountain City of Tehachapi, the Tehachapi Pass Wind Farm is a pioneering effort at wind power generation that began in the 1980's. Thanks to intensive maintenance, research and development, several generations of turbines coexist and continue to provide power as long as the wind blows. Maintenance, research and development jobs are expected to be a persistent traffic concern in these rural areas, but they aren't the only problem. Further development within the farm's 50 square-mile boundary had been limited by fully utilized transmission lines. However, to meet the State's renewable energy requirements, construction of upgraded transmission lines in Kern County began in 2008, and was completed in 2013. As many as 2,000 additional turbine installations are expected by 2020, providing 4,500 megawatts of power; meaning new installation-related traffic can be expected to continue into the near future and likely well-beyond.

**FIGURE 4-4: OIL AND GAS RESOURCES**



**Figure 4-5: Kern County Wind Farms**



### **Military/Civilian Aerospace Testing Complex -**

In Kern's eastern half, the mountainous shadow of the southern San Joaquin Valley harbors the desert communities of California City, Ridgecrest, Inyokern, Mojave, Rosamond and Boron. Kern County's eastern region boasts not one, but two United States' Military Air bases: Edwards Air Force Base and Naval Air Weapons Station China Lake. Surrounding communities benefit directly and indirectly from their proximity to these bases. The aerospace industry and its service and support-related personnel represent a significant interest to Kern's eastern regional communities, as well as its southern neighbors. As these areas continue to grow eastern Kern will require its own rural and urban policy considerations.

**FIGURE 4-6: KERN COUNTY MILITARY INSTALLATIONS**



**Correctional Facilities** - Another significant rural transportation issue is correctional institutions. Kern County has five public and private high-security institutions that house over 20,000 federal, state and local inmates. There are a number of low and medium "community" correctional institutions located in urban areas (not shown). To manage these facilities, Kern County has almost 5000 correctional officers and first-line supervisors who commute by auto and vanpool for each shift.

**FIGURE 4-7: KERN COUNTY CORRECTIONAL FACILITIES**



### **Rural Resource Area Transportation Safety -**

Alternative transportation connectivity to these resource areas are dominated by regional transit and vanpooling. The rural job market plays an important role among rural and urban residents alike. As rural lands transition into non-agricultural uses, commute and other high speed auto traffic will experience conflicts with slow moving farm vehicles. In addition, vehicle miles driven are appreciably higher than in urban settings due to the lower population density of rural areas. This results in a disproportionately higher number of accidents per capita in rural settings than urban. A sustainable community strategy is required to address rural highway safety issues and provide financial incentives to address them.

### **Forecast Development Pattern**

GC Section 65080(b)(2)(B)(vii) requires MPOs to set forth a forecasted development pattern for the region, which when integrated with the transportation network and other transportation measures and policies will reduce emissions from automobiles and light-duty trucks to achieve, if there is a feasible way to do so, the emissions reduction targets approved by CARB.

### **Housing the Kern Region's Population**

The SCS Strategy Maps (Figures 4-8 and 4-9) have been developed by Kern COG staff and show both the place types reflecting forecasted development patterns and Kern COG modeling assumptions, and the planned transportation investments from this RTP. The maps show how investments in transportation are being coordinated with forecasted development patterns to reduce emissions from automobiles and light-duty trucks. The maps contain transit priority and strategic employment areas and transportation

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infrastructure that are existing, planned or proposed and have been grouped by Kern COG staff into descriptive types. The maps were developed with input from the Transportation Modeling Committee and the RPAC but there are currently no general plans adopted that use these terms or categories.

To develop these conceptual maps staff identified existing, planned and potential Transit Priority and Strategic Employment Place Types. The map legend identifies which place types are existing by using a dark outline, planned place types have no outline, and potential place types are hollow. Aerial photography was used to identify which ones were existing. Each agency's local general plan was used to identify the land uses where these types of developments were permitted. And local jurisdiction staff provided feedback on final placement of the place types locations. If one was requested that was not shown in a local general plan it is shown as a potential location on the map. In summary, the Place Type locations on SCS Strategy Maps reflect local jurisdiction general plans and input. Updates are made every 4 years.

The following place types employed in the RTP are not intended to represent detailed land use designations or policies, but are used to describe the general conditions likely to occur within a specific generalized area based on the assumptions made by local authorities. The place types are each comprised of specific characteristics related to jobs and housing intensity, urban design and transportation choices. It is important to note that these maps are only a snap shot of forecasted development patterns and Kern COG modeling assumptions to be updated every 4 years. For the latest information on land use, land use designations and transit concepts, please refer to the appropriate local jurisdictions.

### *Metropolitan (Metro)*

Metro areas are the regions primary business, civic, commercial and cultural centers that can exceed 60,000 in population. These districts have significant amounts of employment and corresponding residential uses and retail, typically clustered in multistory buildings and include easy access to neighboring residential and employment areas. Metro areas are served by numerous transportation choices. Existing and planned enhancements may include easy walk/bike design and improved transit. Metro areas are also typically located at the convergence of a number of high-capacity transit facilities such as passenger rail. The proposed Bakersfield metro center for Kern is also the planned location for the enhanced passenger rail service such as high-speed rail. In East Kern, the closest metro place type is Palmdale/Lancaster in Northern L.A. County.

### *Community*

Community place types feature subregional business, civic, commercial and cultural centers and draw activity from the subregional area. These areas may range from 15,000 to 60,000 persons or more and contain significant employment centers and a mix of housing choices, supported by retail and daily services. Existing and planned community enhancements may include easy walk/bike design and improved transit.

### *Town*

Town place types feature business activity, local-serving retail, daily services, housing choices, and may include a civic and cultural center and draws activity from the town and immediate area. These areas may range from 5,000 to 15,000 people or more. Existing and planned enhancements may include easy walk/bike design and improved transit.

### *Village*

Village place types feature business activity and essential local services, and housing choices. These areas may range from 50 to 5,000 people or more. Existing and planned enhancements may include easy walk/bike design and improved transit as appropriate.

### *Strategic Employment (Rural/Urban)*

Strategic employment areas can be found in rural and more urban areas and may include both jobs and housing, though these two uses are rarely found in close proximity to each other. These locations correspond to local jurisdiction general plan areas designated primarily for industrial and/or commercial uses, and adjusted based on local jurisdiction input. The maps include three different sizes of strategic employment areas based on future employment levels. These areas often contain employment in isolated resource areas with sporadic activity dependent on the strategic resource at the site (wind energy, agriculture, etc.). Many strategic employment areas are characterized by large operations located in close proximity to a resource to minimize transportation costs and the carbon footprint. In urban areas, existing and planned enhancements may include easy walk/bike design and improved transit. In rural strategic employment areas, regional transit and or vanpooling are existing or planned along with interconnectivity and safety projects.

The transit priority and strategic employment areas were jointly adopted by the city and county into the Metropolitan Bakersfield General Plan in 1982 and are found in the community plans for most of the outlying communities. The concepts have a distinct advantage over a corridor and strip commercial development pattern in that it provides for activity nodes around which future transit, and vanpooling services can be planned for in a way that is supportive of forecasted development patterns.

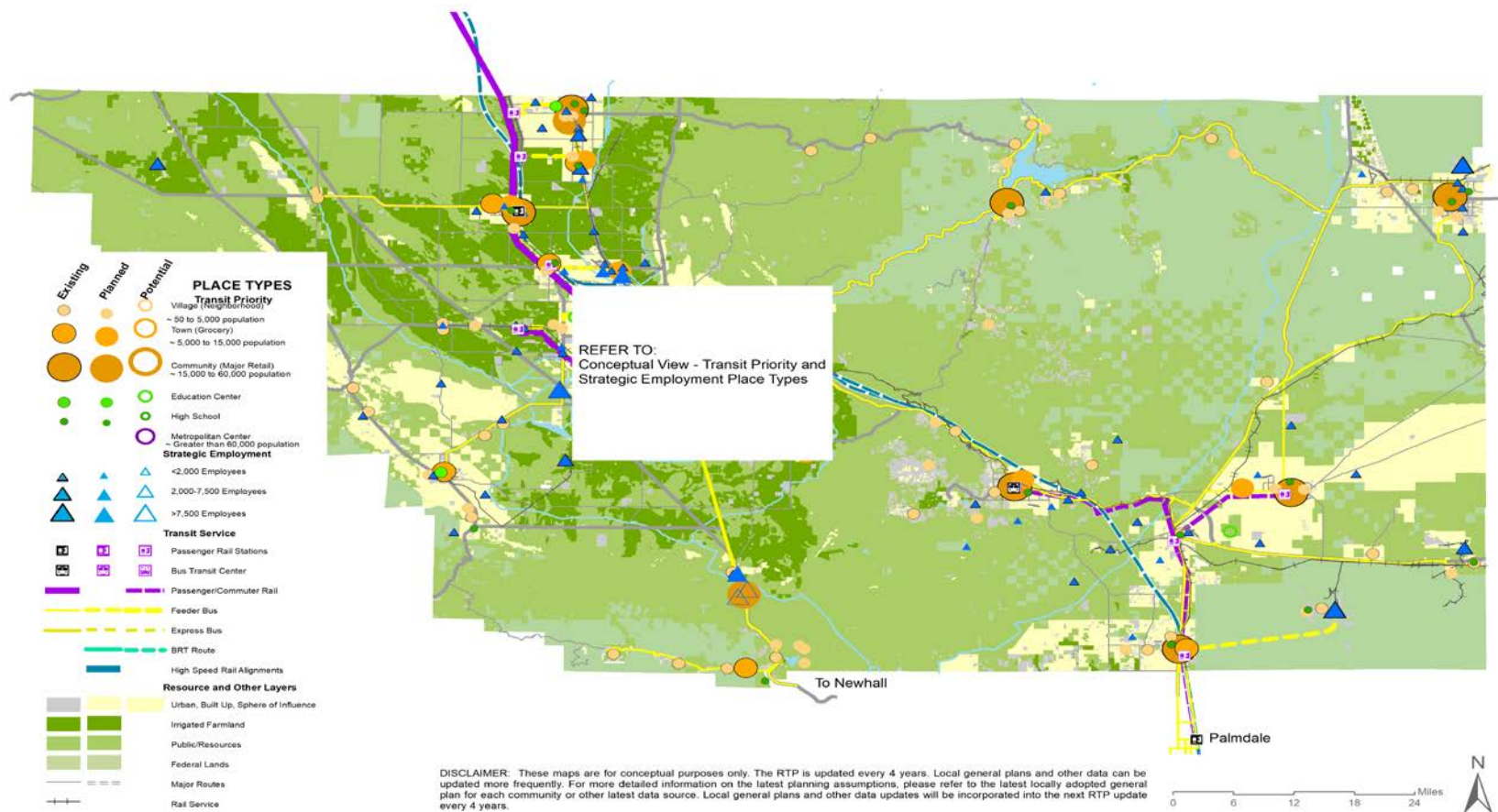
### *Education Centers*

The SCS Strategy Maps also include existing, planned and potential education centers provided by the Kern County Superintendent of Schools and addressed matched using a geographic information system. Kern COG also interviewed staff at the universities, colleges, and trade schools to insure the latest information was used in development of the maps.

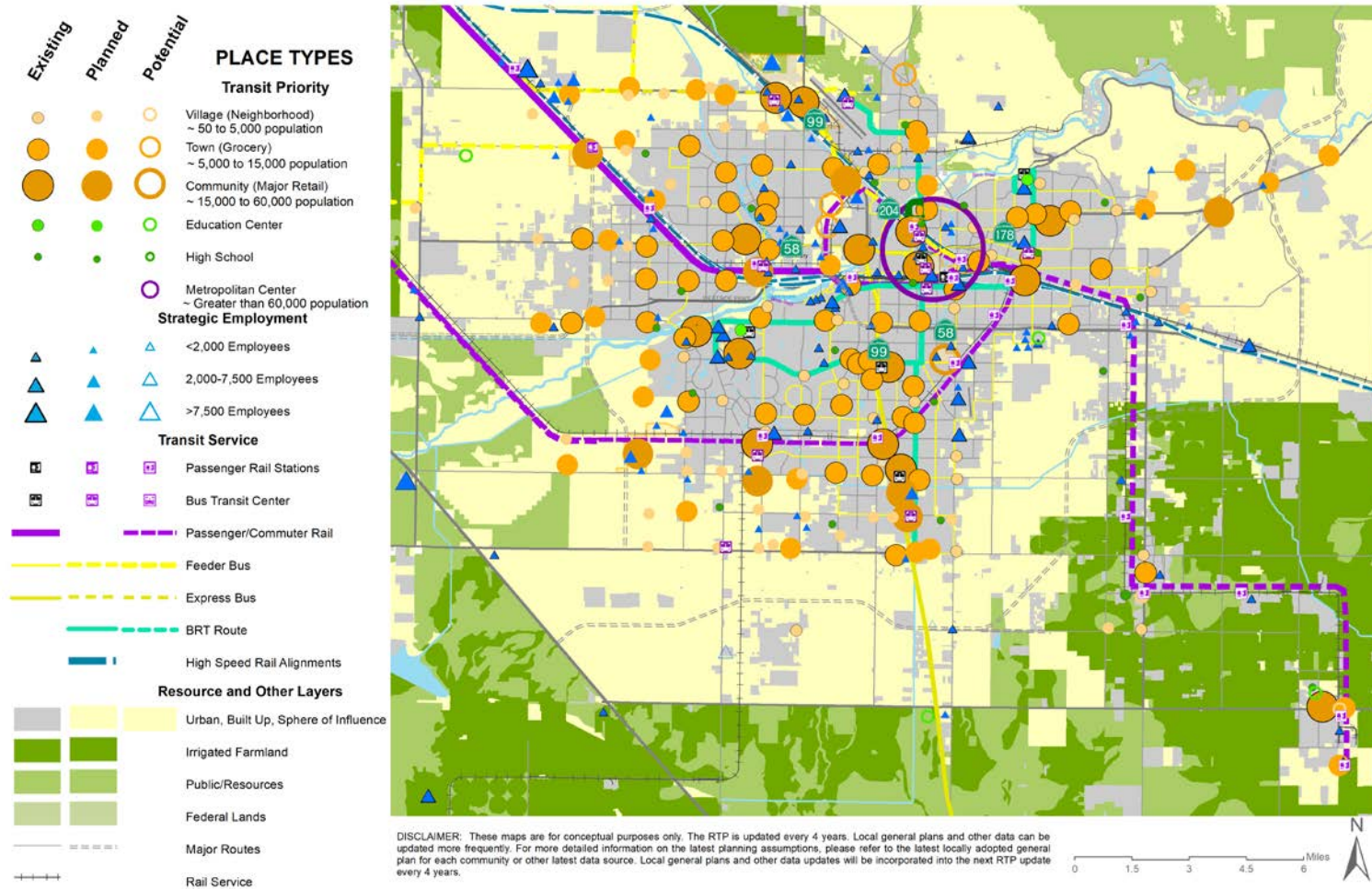
Figure 4-10 depicts a forecasted development pattern based on local area planning assumptions consistent with the transit priority and strategic employment areas. The map also indicates a network of Quality Transit Areas (QTA). These are areas within one-half mile of fixed route transit service based on planned transit expenditures. Nearly all of the region's planned highway projects will benefit the QTA routes. In addition the rural strategic employment areas outside the QTAs will also have access to carpool, vanpool and the HOV network being developed to benefit the resource areas consistent with SB 375



**FIGURE 4-8: TRANSIT PRIORITY & STRATEGIC EMPLOYMENT PLACE TYPES**



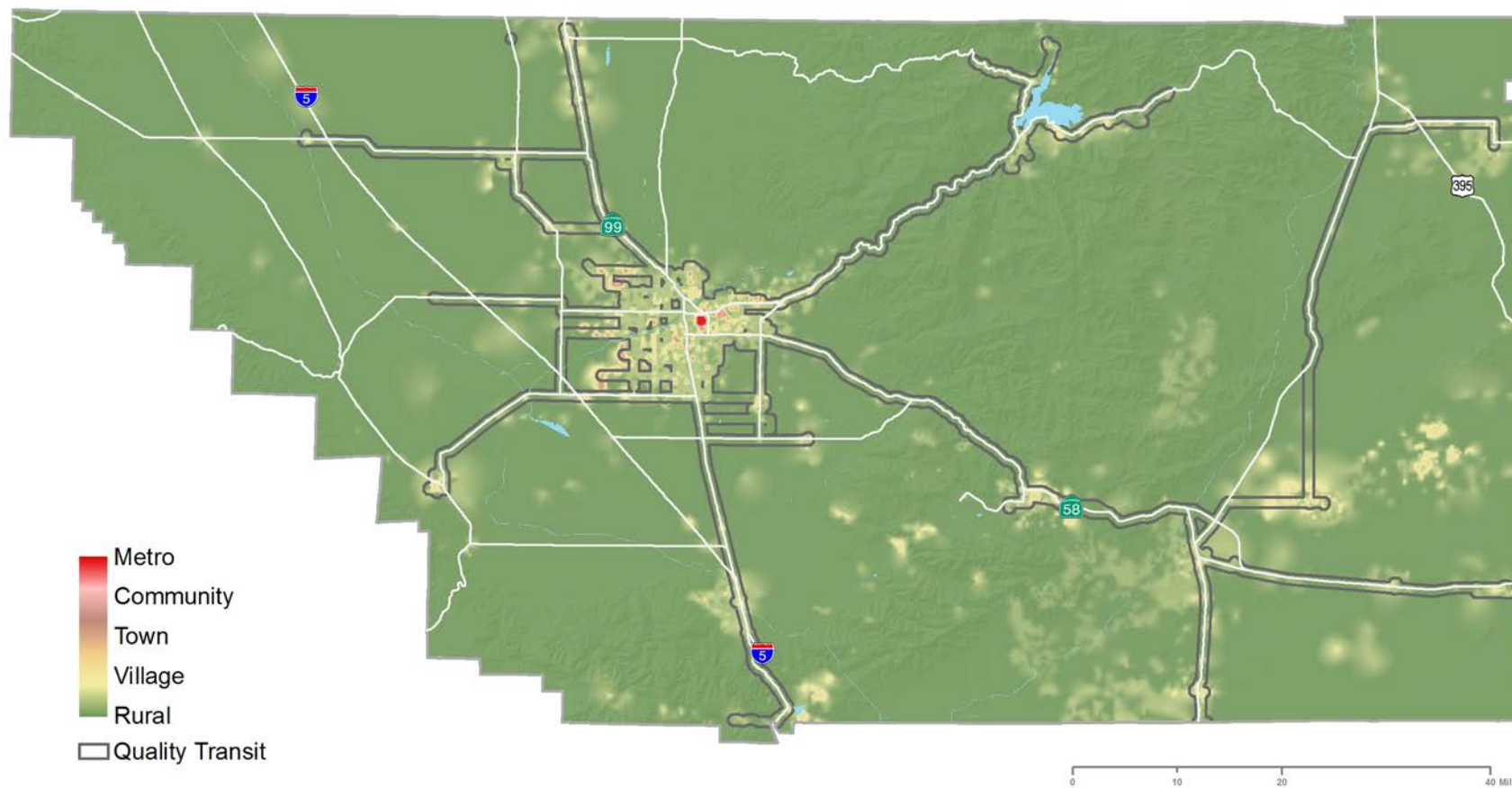
**FIGURE 4-9: TRANSIT PRIORITY & STRATEGIC EMPLOYMENT PLACE TYPES – METRO BAKERSFIELD**





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**FIGURE 4-10: FORECASTED DEVELOPMENT PATTERN MAP – KERN REGION 2035**



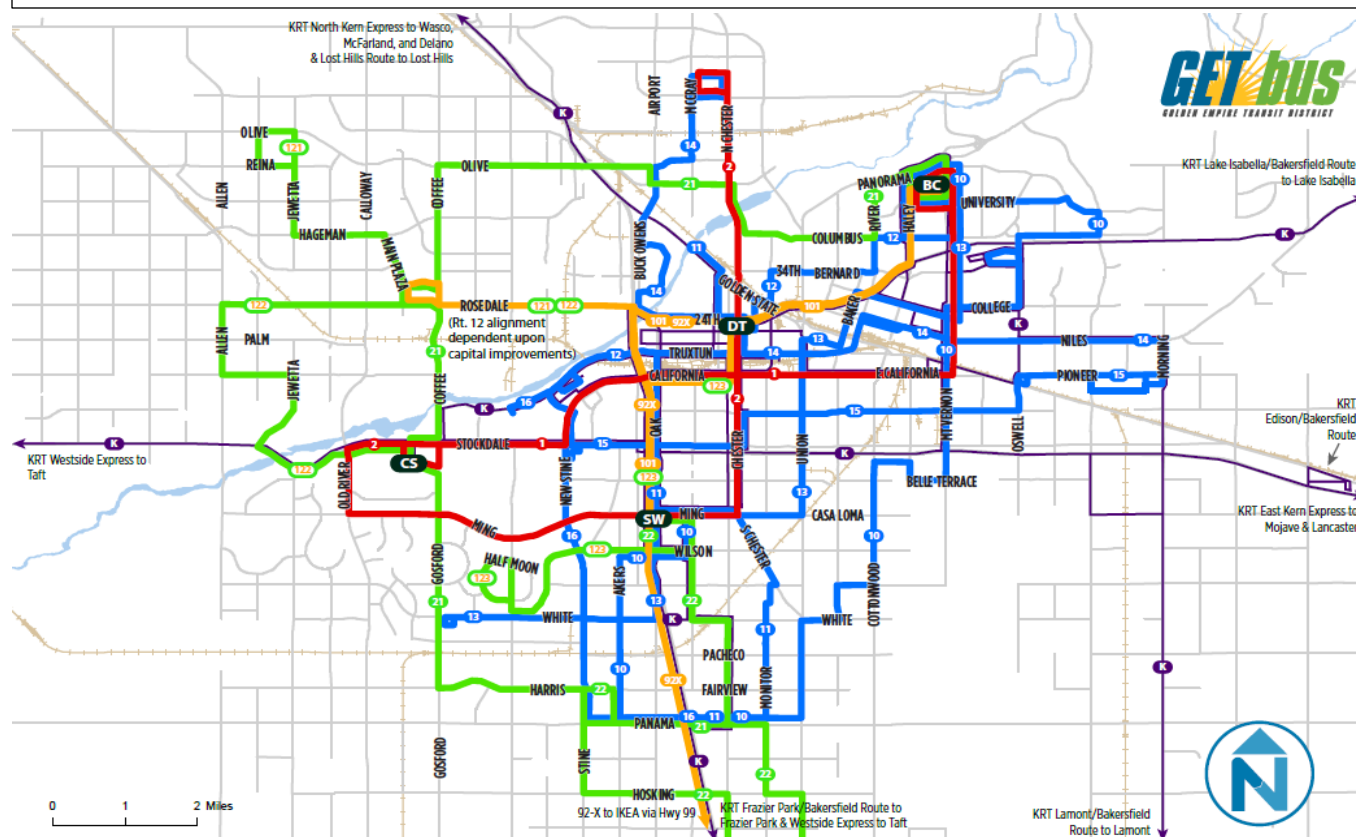
DISCLAIMER: These maps are for conceptual purposes only. The RTP is updated every 4 years. Local general plans and other data can be updated more frequently. For more detailed information on the latest planning assumptions, please refer to the latest locally adopted general plan for each community or other latest data source. Local general plans and other data updates will be incorporated into the next RTP update every 4 years.



### Transit Priority Areas

The SCS identifies QTAs as being located within ½ mile of fixed route transit service along the length of existing and planned routes. The SCS also identifies illustrative Transit Priority and Strategic Employment Place Types which are primarily strategic employment areas characterized by concentrations of residential uses and jobs in close proximity to transit stations to minimize transportation costs and the carbon footprint. Transit Priority Areas (TPAs) combine these two concepts. TPAs are locations within ½ mile of transit stations where urban uses exist or may be planned. Not all of these areas have been identified, as station planning is in the early stages for some routes. The Golden Empire Transit (GET) Long Range Transit Plan, adopted in June 2012, was developed in anticipation of Kern COG's 2014 SCS. The plan provides for gradual phasing of near-, mid- and long-term improvements. The near-term improvements were implemented immediately after the plan was adopted in 2012. The plan supports the centers concept by providing improved

**Figure 4-11: 2012 Metro Bakersfield Short-Term Transit Improvements**



**FIGURE 1-1: DRAFT PROPOSED SHORT-TERM ROUTE NETWORK**

GET Routes	2 Rapid	101 Express	21 Circulator	13 Crosstown	125 Circulator Express	Transit Centers	KRT Routes
	Mon-Fri 6am-11pm Sat-Sun 7am-7pm every 15 minutes	Mon-Fri 6am-7pm Sat-Sun 7am-7pm every 30 minutes  Mon-Fri 7-11pm every 60 minutes	Mon-Fri 6am-7pm Sat-Sun 7am-7pm every 60 minutes No evening service	Mon-Fri 6am-7pm Sat-Sun 7am-7pm every 30 minutes  Mon-Fri 7-11pm every 60 minutes	Mon-Fri 6am-7pm Sat-Sun 7am-7pm every 60 minutes No evening service	DT Downtown SW Southwest BC Bakersfield College CS CSU Bakersfield	Kern Regional Transit

Data Sources: Kern COG, City of Bakersfield GIS

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service to Transit Priority Areas in Metropolitan Bakersfield. The red line on the map indicates rapid bus service, which provides regular service at each stop every 15 minutes. In addition, stops are spaced approximately one-half mile apart to better service the centers concept. Figures 4-11 and 4-12 illustrate phased improvements to regional transit service.

Figure 4-12A: 2020 Mid/Long-Term Transit Improvements

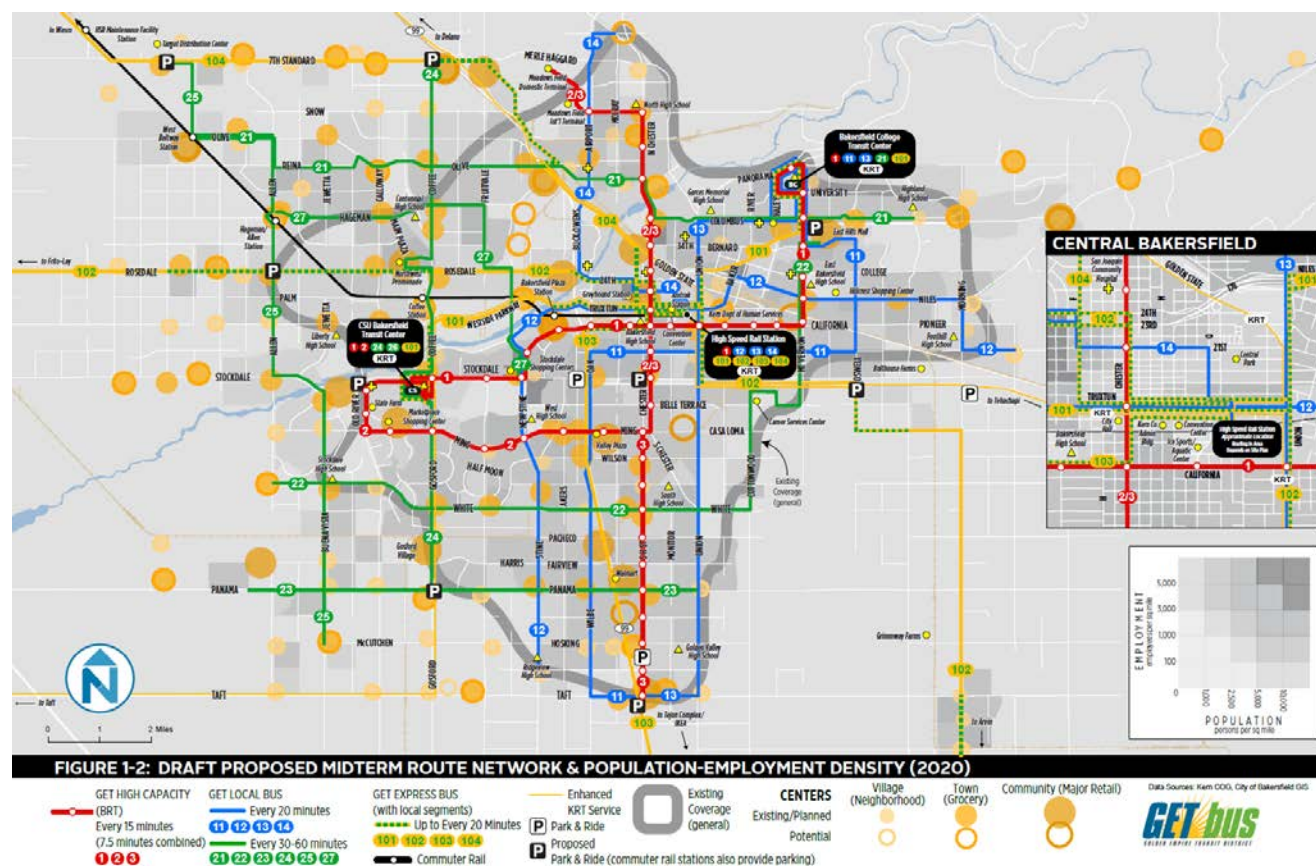
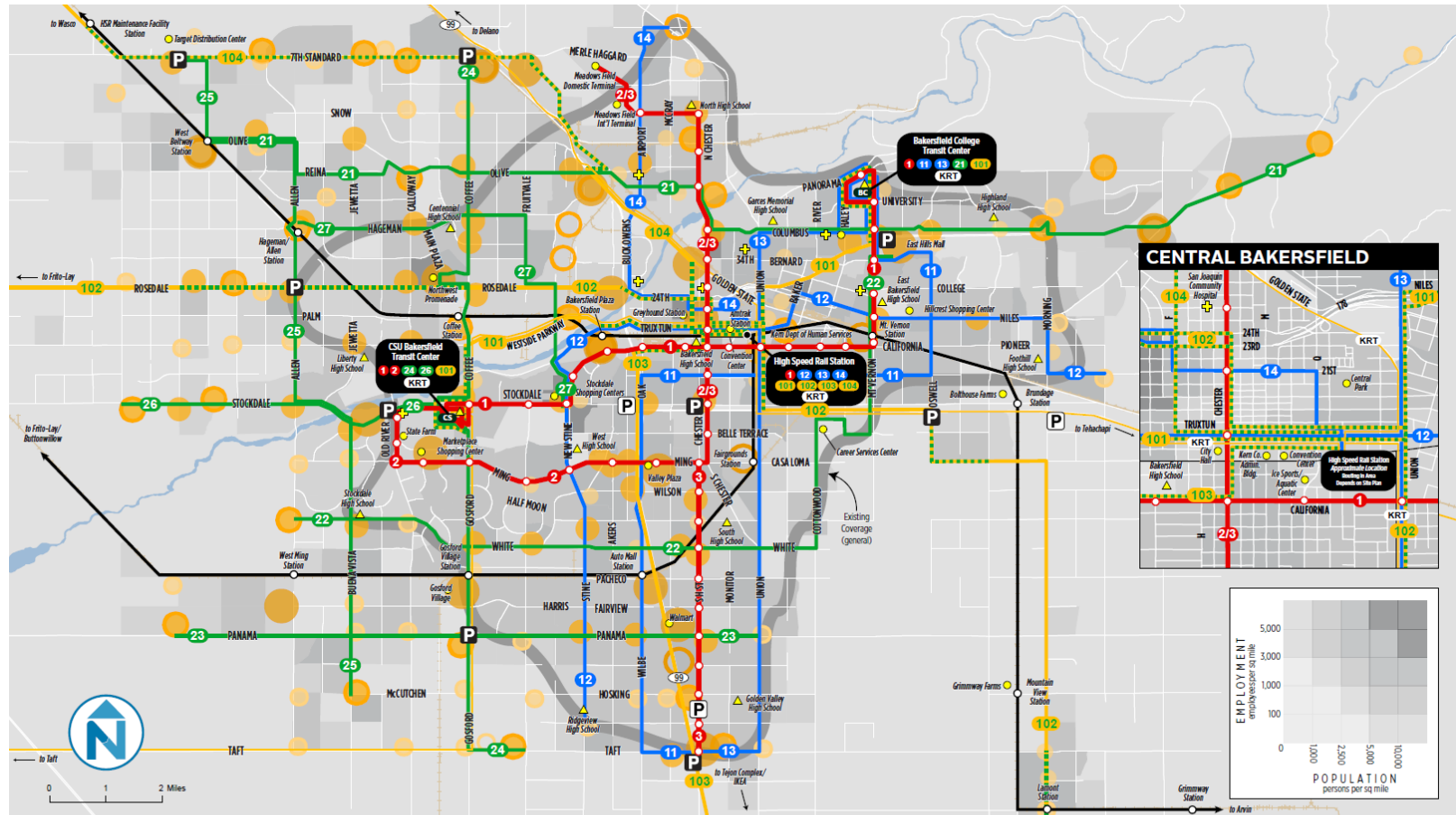


Figure 4-12B: 2035 Mid/Long-Term Transit Improvements





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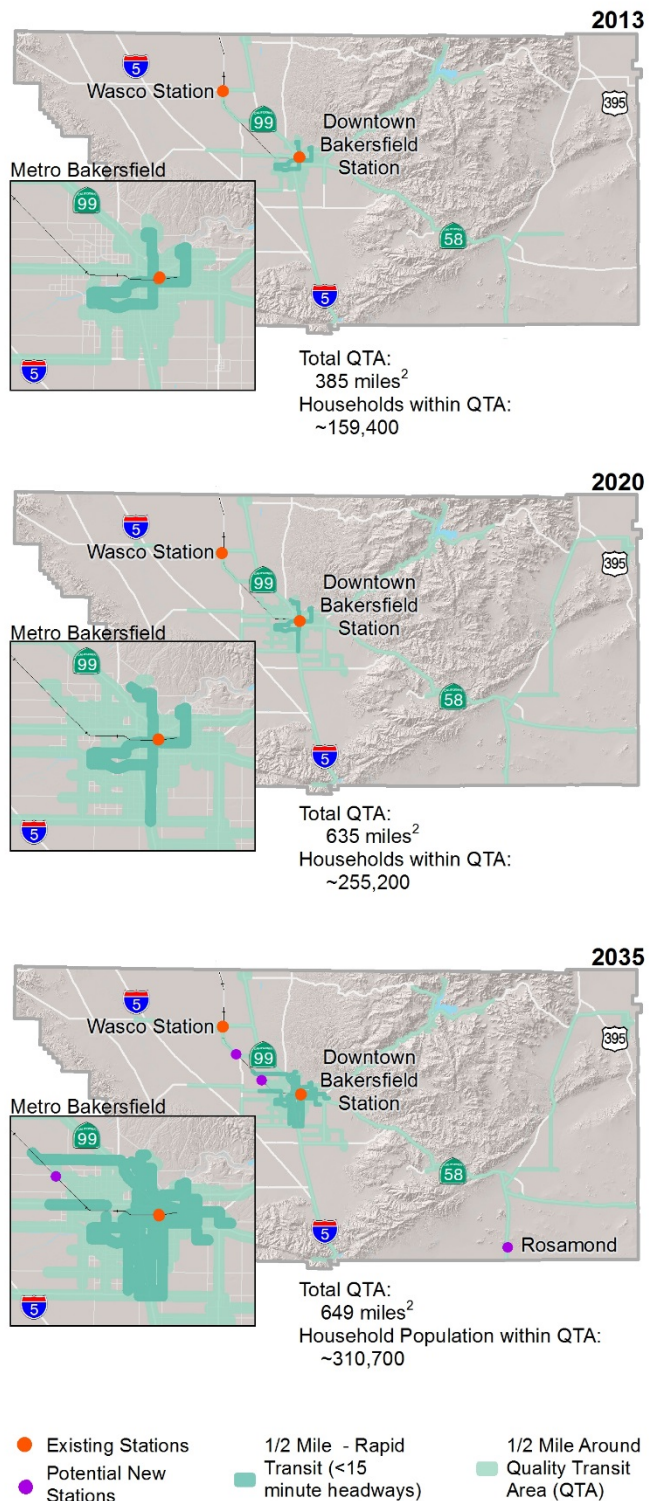
The Long-Range Transit Plan provides for an expansion of transit priority areas that are eligible for environmental streamlining provisions under SB 375. The maps in Figure 4-13 illustrate the expansion of areas within one-half mile of passenger rail service or rapid bus service (15-minute headways), bus rapid transit, and/or light rail. Prior to 2012, only 5,600 people lived within one-half mile of high-quality transit areas. The Kern region has been proactive in expanding high-quality transit service since SB 375 passed in 2008. With the implementation of short-term transit improvements in 2012, population served by transit priority areas has already expanded more than 20 times. Another 38% increase is anticipated by 2020, and an increase of up to 225% is anticipated by 2035 over 2012 service areas. The long-range transit plan assumes passage of a local transportation measure or other new funding source.

The Long-Range Transit Plan also analyzed improvements to the Kern Transit express bus system that services outlying communities. The plan found that KT can achieve operating efficiencies by interfacing with GET at its outlying transfer centers, reducing operating costs and allowing service improvements to outlying communities.

In addition, 2012 saw the finalization of the Kern Commuter Rail Study. The study called for consideration of extending L.A. Metrolink service from Lancaster north to Rosamond and Edwards AFB in eastern Kern. The study recommended additional passenger rail stops on the Burlington Northern Santa Fe Railway alignment in northwest Bakersfield. The stops may become part of a future passenger feeder rail system for Express Amtrak service and for the high-speed rail project, should it move forward.

These transit improvements are subject to the voluntary application of the centers concept or other similar concepts in local general plans. In addition, other factors include removal of barriers to develop these centers and a healthy, diverse housing market demand, and the resources necessary to improve transit. Incorporating these efforts in the SCS will provide a voluntary catalyst to make sure that these factors are addressed.

**Figure 4-13: Expanding Transit Priority Areas to Populations Within One-Half Mile of High Quality Transit**



### Local Agency Formation Commissions' Spheres of Influence

During development of the SCS, MPOs are required by GC Section 65080(b)(2)(G) to consider spheres of influence that have been adopted by Local Agency Formation Commissions (LAFCOs) within the region. MPOs should consult with LAFCOs regarding municipal service review boundaries, foreseeable changes to those boundaries, and service capacities over the period covered by the RTP as well as any local LAFCo-adopted policies regarding conservation of agricultural and open space land, island annexations, annexations, service extensions, and sphere changes. MPOs are encouraged to request the most recent Municipal Service Reviews for local agencies providing services in the region, as well as LAFCo-prepared GIS maps, if available, for all local agency boundaries and spheres of influence in the region. The Executive Officer of LAFCo is a member of the RPAC which provides oversight to the development of the RTP/SCS.

### What Is LAFCO?

Kern County LAFCo was established December 10, 1963, pursuant to provisions of Chapter 1808 enacted by the 1963 California Legislature and Section 56000 (prior code 54780, et seq.) of the Government Code. The duties of LAFCo are to review and approve or disapprove with or without amendment, wholly, partially, or conditionally, proposals for the incorporation of cities, formation of special districts, annexation of territory to local agencies, exclusion of territory from a city, disincorporation of a city, consolidation of two or more cities, and the development of a new community.

### Spheres of Influence

The Transit Priority and Strategic Employment Areas maps (Figures 4-8 and 4-9) include the latest spheres of influence areas adopted by LAFCo, and are consistent with the Forecasted Development Pattern Map. It is important to note that the SCS is a snap shot of the latest available information and will be updated every 4 years, and at that time any new annexations to spheres of influence will be incorporated in the SCS.

## Regional Housing Needs

### Accommodating Eight-Year Regional Housing Needs

Kern COG prepared the RHNA of low- and very low-income housing for each jurisdiction in 2014 for the 2014 RTP/SCS. The 2013 - 2023 RHNA Plan was adopted by the Kern COG Board on June 19, 2014, and approved by the California Department of Housing and Community Development (HCD) on September 10, 2014. Each jurisdiction was assigned a forecast of housing need to be used in local general plan housing elements. SB 375 required local jurisdictions to zone sufficient land to accommodate their low-income housing needs by 2015. The law's intent is that all cities provide sufficient housing to accommodate the forecasted growth in an effort to slow increases in migration from coastal communities to inland communities. The increasing need for lower-income housing may require jurisdictions to consider strategies such as more affordable, compact housing around transit centers. The five recent studies on housing market demand indicate a growing interest for higher-density housing and mixed-use development in certain areas. With enough land identified in local general plans to accommodate significantly more than the total forecasted housing need by 2023 and local plans and zoning that are flexible and responsive to changing market trends, the Kern region continues to have little difficulty in providing adequate acreage for low-income housing.

***With enough land identified in local general plans to accommodate significantly more than the total forecasted housing need by 2023 ... the Kern region continues to have little difficulty in providing adequate acreage for low-income housing.***

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

The Kern region's official regional housing need from HCD for the projection period January 2013 – December 2023 was a minimum of 67,675 housing units. The 2014 RTP/SCS exceeded and was consistent with the minimum required by the HCD Regional Housing Need Determination. Of these, approximately 41% are expected to be in the very low- and low-income category (affordable to those who make less than 80% of area median income), 17% are expected to be in the moderate-income category (affordable to those who make between 80% and 120% of median income) and 42% are expected to be offered at the above moderate-income category (Table 4-2). The allocation represents the minimum housing need that Kern COG's RHNA plan must address in total and also for very-low, low, and moderate income ranges. The SCS incorporated the overall RHNA target for the Kern region and provided a forecasted development pattern that showed where new housing growth could be accommodated in the future.

<b>Table 4-2: RHNA by Income Category</b>		
<b>Regional Housing Need Determination by Income Category for Projection Period: January 1, 2013 through December 31, 2023</b>		
<b>Income Category</b>	<b>Percent (minimum)</b>	<b>Housing Units (rounded)</b>
Very – Low	24.9	16,850
Low	15.6	10,555
Moderate	16.6	11,235
Above-Moderate	42.9	29,035
<b>Total</b>	<b>100.0</b>	<b>67,675</b>

Pursuant to Section 65584, the SCS must identify areas within the region sufficient to house an eight-year projection of the regional housing need. Table 4-3 shows the Kern region has more than enough vacant land capacity for housing at a variety of densities to accommodate the regional housing needs for the existing and projected housing population. It is also important to note that in most communities in the region, low density housing rents are affordable to low and very-low income households. For more information about the 2013 - 2023 RHNA please go to the 2014 RTP on the Kern COG website at [http://www.kerncog.org/wp-content/uploads/2017/08/2014\\_RTP.pdf](http://www.kerncog.org/wp-content/uploads/2017/08/2014_RTP.pdf) - Appendix H.

**Table 4-3: Vacant Land Capacity for Housing Units by Jurisdiction**

Jurisdiction	Existing Housing Units (2013)	Residential Units Capacity* (Vacant)		
		Medium, High, and Mixed Use Density	Very-Low and Low Density	Total
Arvin	4,568	702	2,517	3,219
Bakersfield	123,066	26,791	94,112	120,903
California City	5,226	51,264	38,300	89,564
Delano	10,831	741	5,472	6,213
Maricopa	464	168	644	812
McFarland	2,755	413	877	1,290
Ridgecrest	12,088	2,239	3,511	5,750
Shafter	4,612	1,085	19,452	20,537
Taft	2,522	978	4,443	5,421
Tehachapi	3,622	1,254	2,702	3,956
Wasco	5,649	382	4,203	4,585
Unincorporated County	113,221	65,993	344,204	410,197
<b>County Total</b>	<b>288,624</b>	<b>152,010</b>	<b>520,437</b>	<b>672,447</b>

*\*The residential units capacity used a GIS analysis of each jurisdiction's latest general plan information outside urban/built-up areas, and demonstrates sufficient existing capacity to accommodate a variety of density ranges to meet each jurisdiction's housing need.*

### Conserving Resource Areas and Farmland

The 2018 RTP forecasted development pattern and transportation system attempts to minimize negative impacts on various natural and manmade resources, by acknowledging local general plan policies and strategies related to conservation of these resources. There is acknowledgement around the region of the need to maintain a balance between the need to urbanize and the need to conserve rural lands and their uses while ensuring land use decisions remain local and private property rights are protected.

#### Agriculture and Farmland

Agriculture has deep roots in the region's history and future. The Kern region has some of the most productive farmland in the world. According to the 2016 Kern County Agricultural Crop Report, Kern County Agriculture reached a milestone in 2016 by topping the \$7 billion dollar gross production value. The 2016 gross value of all agricultural commodities produced in Kern County is \$7,187,944,340 which represents an increase of 6% from the revised 2015 crop value of \$6,802,067,690.

Kern County's agricultural areas also provide benefits such as habitat, flood control, groundwater recharge, and energy production. Loss of these lands for agricultural purposes has economic, environmental, and social impacts. In developing the 2018 RTP forecasted development pattern and transportation system, Kern COG relied on the policies of local governments to develop urbanization assumptions based on the



## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

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most recent information available. Local land use policies related to agricultural preservation were of particular importance in this effort.

The California Department of Conservation maps farmland throughout California under the Farmland Mapping and Monitoring Program (FMMP). Figure 4-14 shows a 2016 FMMP map of these farmlands outside the spheres of influence boundaries. Table 4-4 presents an acreage summary of the FMMP mapping categories countywide and outside the spheres of influence. As the table shows, 1.0 square miles per year of important farmland will be consumed by 2042, of which less than 1/10<sup>th</sup> of 1% (1 square mile) is consumed outside the cities spheres of influence. The definition of farmland under Government Code Section 65080.01 (b) excludes farmland from spheres of influence boundaries. In the 28 year period from 1988 to 2016, an average of 1.8 square miles of farmland per year was converted to urban use. With this RTP, farmland consumption may be reduced as much as 40% to an average of 1.1 square miles per year through 2035.

During the period from 1988 to 2016, the region grew by 68.6% or 350, 929 people and urban/built-up areas grew at a rate of 97.6%. In the same timeframe, approximately 293 square miles of farmland was converted to urban and other uses (17.6% of total important farmland). Surprisingly the majority of this conversion was outside spheres of influence to other non-urban uses (fallow/no water available, groundwater recharge, habitat etc.). Over the past two decades water availability has had a significantly greater impact on farmland conversion than urbanization.

For the 2016-2042 planning period (26 years), this RTP/SCS forecasts the addition of 596,123 people and the conversion of 24 square miles. This significantly lower rate of conversion is due largely to local government efforts to balance urban expansion with the conservation of economically viable farmland. This decrease in the impact to farmland from the RTP is important, as the viability of the agriculture industry is correlated with the amount of land in production and the type of production. Limited farmland conversion outside identified areas for economic growth can help to maintain the economic output related to agriculture in the Kern region and protect employment in the agricultural industry.

The California Legislature passed the Williamson Act in 1965 to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. An agricultural preserve defines the boundary of an area within which a city or county will enter into Williamson Act contracts with landowners. The Williamson Act creates an arrangement whereby private landowners contract for a minimum of 10 years with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. In return, restricted parcels are assessed for property tax purposes at a rate consistent with their actual use, rather than potential market value.

Farmland Security Zones are another vehicle to preserve agricultural and open space lands. Farmland Security Zones offer landowners greater property tax reduction than that of the Williamson Act. Land restricted by a Farmland Security Zone contract is valued for property assessment purposes at 65% of its Williamson Act valuation, or 65% of its Proposition 13 valuation, whichever is lower. The minimum initial term for a farmland Security Zone Contract is 20 years.

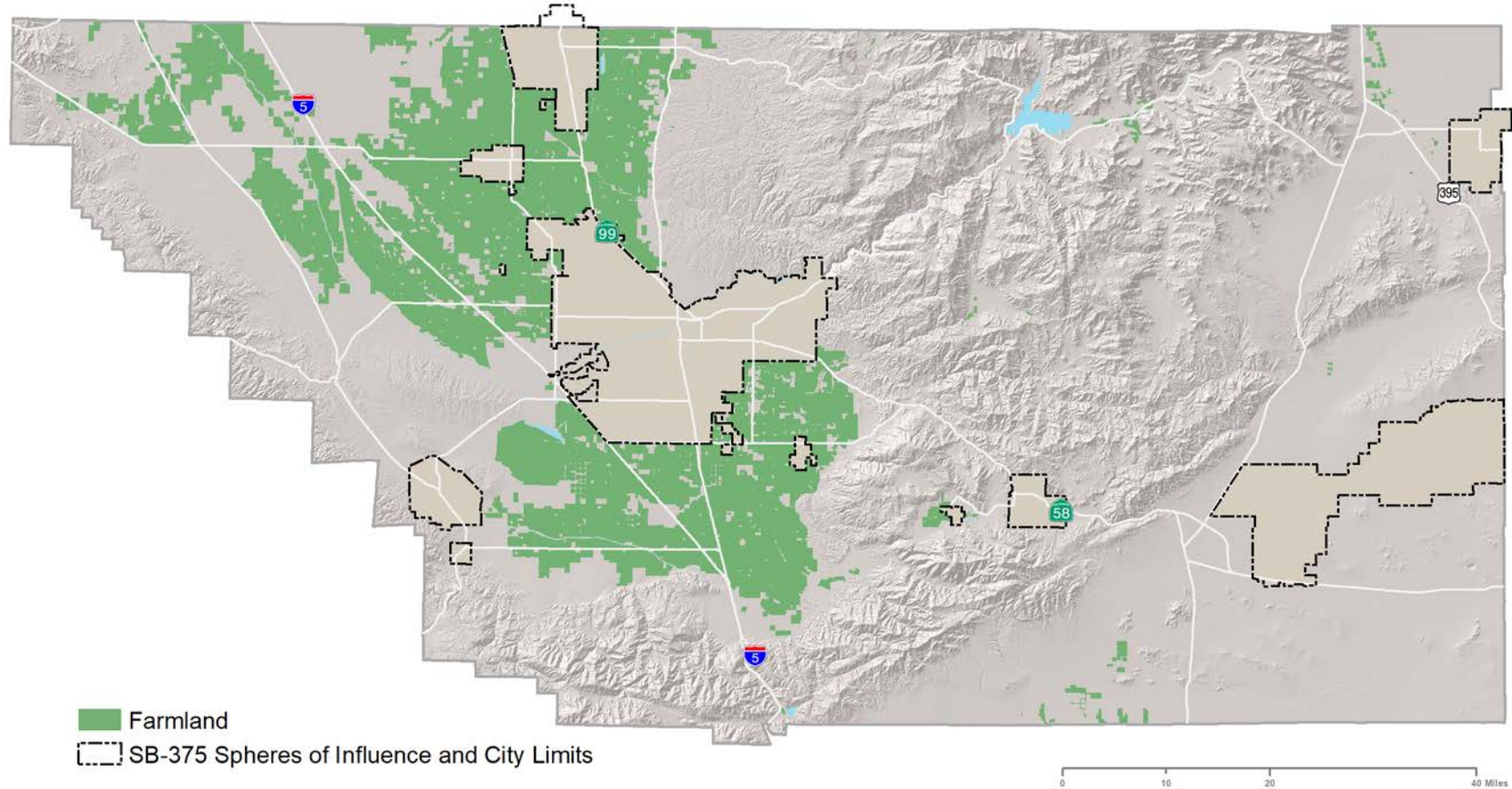
Though state subventions to backfill lost property tax revenue have been eliminated, the program is still embraced by the County and remains an important part of its farmland conservation strategy. Private land use agreements, such as the Tejon Ranch Conservation and Land Use Agreement, are another alternative method to conserve the right to continue farming agricultural lands.

A Notice of Conservation Easement can be placed on land to retain land predominantly in its natural, scenic, historical, agricultural, forested, or open-space condition. A conservation easement is a voluntary agreement between a landowner and a land trust or government agency that permanently limits the uses of the land to protect its conservation or agricultural value. The landowner retains ownership of the land,

but certain restrictions are agreed on through the easement, and recorded on the deed. Eleven land trusts currently operate in Kern County, covering thousands of acres of land.

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

Figure 4-14: Kern County Important Farmland 2016



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## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

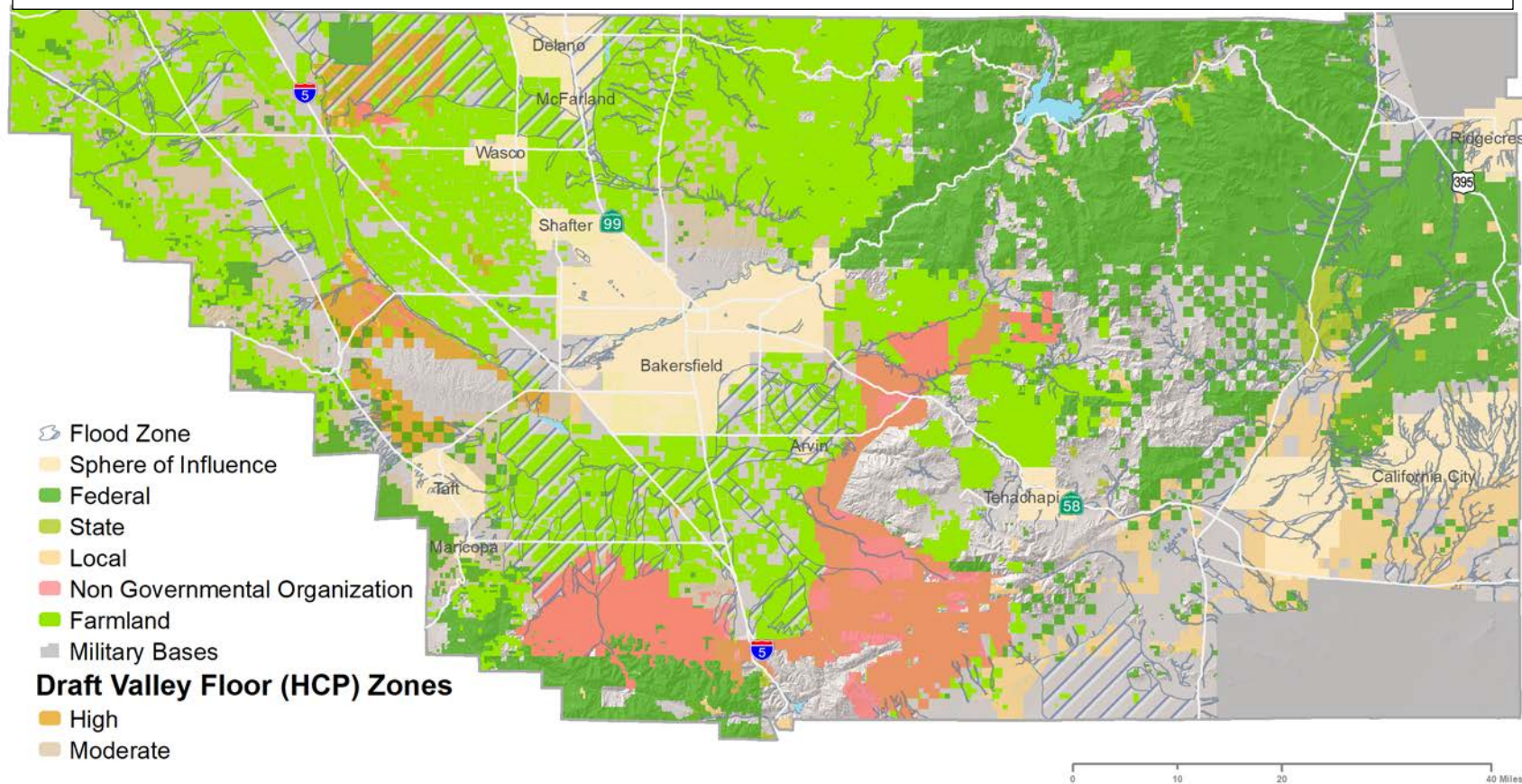
**Table 4-4: Kern County Important Farmland Conversion 1988-- 2042**

	Historic Trend				Forecast			Annual Average	
Year	1988	2016	1988-2016	% Change	2042	2016-2042	% Change	1988-2016	2016-2042 <sup>5</sup>
Kern County Population	511,200	862,129	350,929	68.6%	1,458,252	596,123	69.1%	15,951	19,871
Land Including City Spheres of Influence <sup>2</sup> (square miles)									
Urban/Built-Up	126	249	123	97.6%	327	91	36.5%	5.6	3.5
Total Important Farmland <sup>3</sup>	1668	1375	-293	-17.6%	1351	-24	-1.8%	-13.3	-0.9
Farmland to urban/ built-up			-40	-2.4%	1351	-24	-1.8%	-1.80	-0.9
Farmland to other <sup>4</sup>			-254	-15.2%	1351	0	0.0%	-11.5	0.0
SB 375 Defined Land Outside City Spheres of Influence (square miles)									
Urban/Built-Up	39	95	56	143.6%	125	6.8	8.2%	2.5	0.26
Total Important Farmland <sup>3</sup>	1407	1169	-238	-16.9%	1168	-1.0	-0.1%	-10.8	-0.04
Farmland to urban/ built-up			-8	-0.6%	1168	-1.0	-0.1%	-0.4	-0.04
Farmland to other <sup>4</sup>			-230	-16.3%	1168	0.0	0.0%	-10.5	0.00

Source: California Department of Conservation FMMP (1988-2010), Kern COG Land Use Model (2013-2040); <sup>2</sup>analysis used 2018 city sphere boundaries; <sup>3</sup>identification of important farmland in 2042 includes areas designated for agriculture by the local general plans; <sup>4</sup>conversion of farmland to other uses include fallow/no water available, groundwater recharge, habitat and other uses not analyzed with the Kern COG land use model. This land use forecast is limited to land lost from future urbanization. <sup>5</sup>2014 RTP analysis improved to include project level adjustment areas. Figures may not add due to independent rounding.



Figure 4-15: Resource Areas: Farmland, Habitat, Open Space and Government Lands 2016



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### Recreation and Open Space

Beyond agriculture, open space includes forestry, parks, trails, and wildlife areas that provide habitat and support recreational activities, educational opportunities, and the connection and transition between built and natural environments. Kern COG's inventory of these lands currently account for roughly 3,580 square miles of parks and conservation lands or 43% of the total area of the county. Only one percent of these lands (49 square miles) are in city spheres of influence. (Figure 4-15).

### Habitat

According to federal and state requirements, every land development and transportation project must mitigate, or compensate for, the effects on sensitive habitat and open space. In response to the mandate to conserve natural resources in a more systematic manner, several jurisdictions in the region have developed habitat conservation plans (HCPs) and natural communities conservation plans (NCCPs). In the Valley area, the Valley Floor HCP, which covers over 2.8 million acres is coordinated with the 405 square mile Metropolitan Bakersfield HCP. These two HCPs are in addition to the Chevron Lokern HCP and the Occidental Elk Hills HCP. The U.S. Fish and Wildlife Service (Service) is preparing an Environmental Impact Statement (EIS) to evaluate the potential impacts of alternatives related to the potential issuance of a 30-year incidental take permit and the implementation of the Bakersfield Habitat Conservation Plan (BHCP). The City of Bakersfield (City) is the lead agency under CEQA and has determined that an Environmental Impact Report (EIR) is required. The joint EIS/EIR requires input from the Service, the City and the California Department of Fish and Wildlife (CDFW). The BHCP is being prepared by the Service, the City, CDFW and the County of Kern to address state and federal endangered species compliance requirements, and it outlines strategies to avoid, minimize and offset potential indirect effects to 13 imperiled plant and animal species. The BHCP will help facilitate the roles and responsibilities of local government in overseeing local land use planning and decision-making. A EIS/EIR Scoping Meeting was held in January of 2017, with release of the draft EIS/EIR in late 2018.

During implementation of specific projects, an activity subject to Section 10 of the Endangered Species Act and considered a covered project under the implementing rules of an adopted HCP or NCCP may be able to participate in the plan. To the extent possible, Kern COG and local jurisdictions work with federal agencies and regional partners regarding proposed development in areas containing federally or state protected natural resources. Kern COG gathers and considers information on the timing of any applicable permits and their relationship to HCP and NCCP planning efforts to feed into phasing assumptions for the RTP land use forecast. Given available data, mapping, and HCP and/or NCCP status, Kern COG recognizes the constraints imposed by the federal and state Endangered Species Laws. The ultimate resolution of the many ongoing natural resources planning efforts will have a major influence on future growth patterns in the region. The forecasted development pattern in this RTP considered the uncertainties associated with these ongoing efforts throughout the region. The progress of these planning initiatives will be carefully monitored, and it is expected that once the HCPs/NCCPs are adopted and being implemented, their provisions will have a significant influence on the land use forecasts in future RTPs/SCSs.

It is important to point out that the land use modeling used for the RTP/SCS is constrained to the local adopted general plans which implement the HCPs/NCCPs. This ensures that the SCS adopted forecasted development pattern will not plan for growth in areas identified in the HCPs/NCCPs for conservation. The County of Kern is in the midst of a major general plan update. The update will address land use conservation issues such as habitat and farmland. Appropriate changes to the county's update will be reflected in future RTPs/SCSs.

In June 2008, Tejon Ranch Co. and Audubon California, Endangered Habitats League, Natural Resources Defense Council, California's Planning and Conservation League, and the Sierra Club unveiled the landmark Tejon Ranch Conservation and Land Use Agreement (Agreement). The Agreement provides for



the permanent protection of 240,000 acres (approximately 90%) of the historic Tejon Ranch. The lands to be conserved under the Agreement will be overseen by the independent non-profit Tejon Ranch Conservancy. The Agreement represents the largest conservation and land use Agreement in California history and represents the region's commitment to conservation efforts

### Framework and Funding for Streamlined Land Conservation

The Kern region is committed to funding conservation easements on a project by project basis and has implemented an innovative process for this effort. This commitment is exhibited in three ongoing efforts:

- **Framework for Coordinating Strategic Investments in Land Conservation** – Kern COG provided \$300,000 in planning funds to assist in developing the Metropolitan Bakersfield HCP and Valley Floor HCP in an effort to streamline mitigation of habitat land for transportation projects in the region. They provide a tool to integrate conservation data into project level alternative selection and development, and coordinate strategic investments in mitigation.
- **Funding Program for Conservation Easements** – Habitat mitigation has become a major cost in the development of transportation projects, sometimes as high as 20% of the project cost. A typical widening project in flat rural areas averages about 3% in habitat mitigation in the Kern region. With \$2.2 billion in state/federal highway capital costs (see Chapter 6, Table 6-1) approximately \$67 million will be used to acquire conservation easements. Assuming a typical easement is estimated at \$13,000 per acre, enough transportation funding will be available to purchase approximately 8 square miles by 2042. High speed rail could add up to 4.5 square miles in the San Joaquin Valley and habitat and farmland mitigation from future land development, energy production and other uses will provide significant funding streams to ensure conservation goals in the region.
- **Addressing Farmland and Habitat in the Kern County General Plan Update** – The County of Kern is in the midst of a major general plan update that began in 2014. County land use authority makes this general plan update the appropriate venue to comprehensively address farmland and habitat conservation efforts. The results of those efforts will be reflected in the next RTP update as appropriate.

## MOVING PEOPLE AND GOODS IN KERN COUNTY: A SUSTAINABLE TRANSPORTATION NETWORK

The RTP is at its core a transportation plan. The SCS seeks to better coordinate the process that Kern COG and local agencies use to prioritize long-range transportation investments by ensuring that they are aligned with the forecasted development patterns which achieve RTP goals. This section discusses the following components of a sustainable transportation system to serve the needs of the Kern region:

- A revenue-constrained transportation network funded by financial resources expected between now and 2042.
- Transportation Demand Management (TDM) measures.
- Transportation System Management (TSM) measures.
- Pricing measures.

Each of these four components is explained in further detail in Chapter 5, Strategic Investments.

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

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### Revenue-Constrained Network

Important parts of the revenue-constrained transportation network, which is described more fully in Chapter 5, Strategic Investments, includes an emphasis on maintenance, global gateways, a significant investment in public transit (rail and bus), and facilities that encourage walking and bicycling as forms of active transportation. The aim of these investments is to significantly increase the attractiveness of public transit, walking, and bicycling. Investments in the Kern region's local streets and roads, including access to regional airports, goods movement projects, and TDM and TSM projects and programs, also are integral to the overall transportation network.

#### Rail/Public Transit

The overarching goal of the rail and public transit investments detailed in the 2018 RTP is to provide high-volume rail and transit corridors to move goods and people in and through the region. The objective is to efficiently move goods to and through the region, while connecting homes to the major regional employment centers and high-speed connections to destinations beyond the region.

Rail and public transit measures identified in the 2018 RTP (see Chapter 5) include:

- 310 new buses in the region including Bus Rapid Transit, Rapid Bus, and Express Bus Service
- Extension/enhancement of transit service to new and intensified centers
- Addition of up to six passenger rail stops
- Ridesharing and voluntary employer-based incentives
- Traffic flow improvements/railroad grade separations
- Park and ride lots and vanpooling

Figures 4-8 through 4-12 show the high level of integration between the planned transit system and the forecasted development pattern consistent with the Long Range Transit Plan adopted in 2012.

#### Bicycles and Pedestrians

Investments that promote bicycling and walking also are an important part of the revenue-constrained transportation network. In 2017, Kern COG completed the Kern Active Transportation Plan to build on previous planning efforts, conversations with community stakeholders, and careful observations of the existing transportation network to establish recommendations that can help make Kern County a better place for people to walk and bike. The Plan encourages safer, healthier communities that provide safe and comfortable access to local parks, schools, workplaces, retail, transit and other essential destinations. One objective of the Plan is to serve disadvantaged communities by improving bicycle and pedestrian infrastructure, safety and accessibility. For example, bicycle lanes and bicycle boulevards are recommended throughout Lamont and Weedpatch to provide better connectivity and safer local and regional bicycle travel. Regional connectivity to Arvin will be enhanced through the addition of bicycle lanes and bicycle routes on several other key corridors in southeast Metropolitan Bakersfield. Corridor improvements are also recommended in Lamont along Panama Road, Myrtle Avenue, and San Diego Street to create a stronger pedestrian network and to improve connections to schools and parks. Corridor improvements are also proposed along State Route 184, which runs through both Lamont and Weedpatch, to address a history of pedestrian-related collisions.

The Plan calls for an additional 1,244.7 miles of new Class I, Class II and Class III bicycle paths, lanes and routes in the Kern region. The Plan also calls for 242.2 miles of pedestrian facilities in the Kern region.

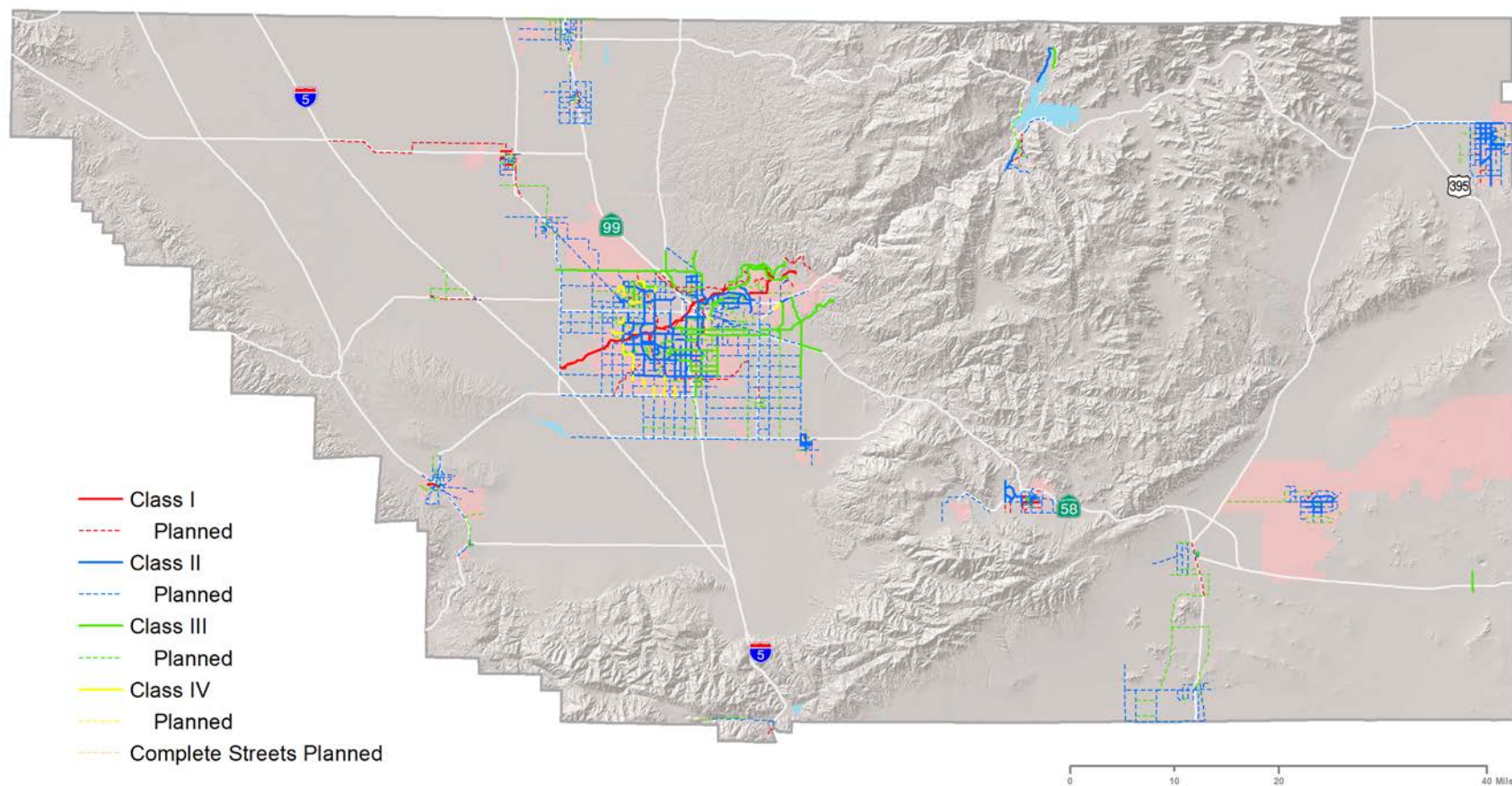
In 2012, Kern COG completed the Kern County Bicycle Master Plan and Complete Streets Recommendations to enhance bike, pedestrian and transit use of the transportation network in the unincorporated portion of Kern County. Since the adoption of the plan Kern County has been one of the most successful regions in California in applying for and being awarded grants for bike and pedestrian facilities. In the 2014 RTP/SCS Kern COG forecasted it would receive \$37 million for active transportation projects by 2040. In the first three years of that plan Kern has already received \$32 million through the state Active Transportation Program, 86% of the funding forecasted in the 2014 RTP/SCS. However, since that plan the identified need has doubled with the adoption of the 2017 Active Transportation Plan. Still, staff forecasts that we should be able to fully fund the projects in the Active Transportation Plan over the next 24 years should our recent funding success continue.

Bicycle and pedestrian measures identified in the 2017 Active Transportation Plan include:

- 41 miles of Class I bike paths
- 291 miles of Class II bike lanes
- 287 miles of Class III bike routes
- Bike parking facilities
- 16 miles of neighborhood green streets
- Pedestrian facilities as part of local transportation projects and developments
- 116 miles of Canal Bike Paths

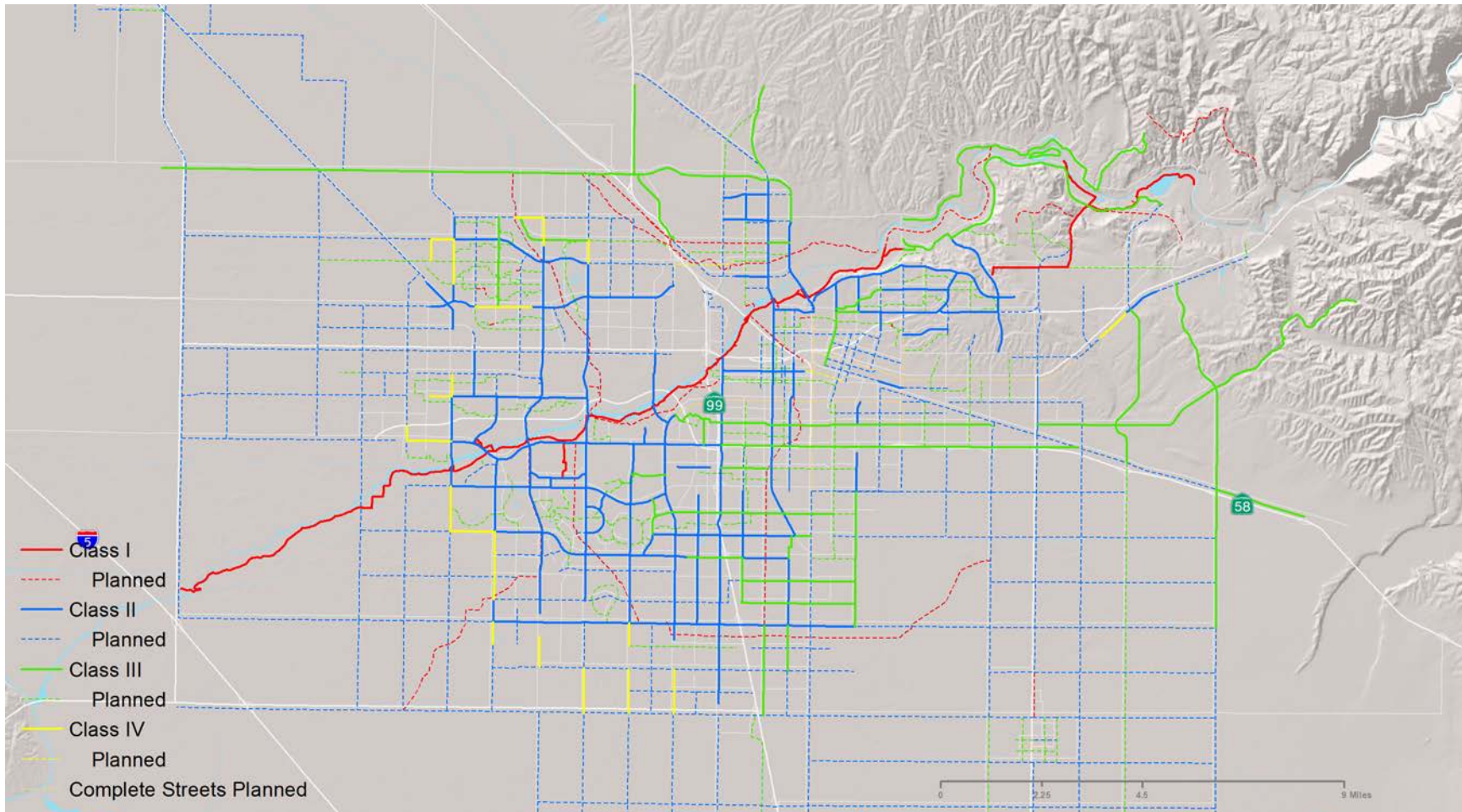
## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

**Figure 4-16: Proposed Bicycle Facilities in the 2017 Kern County Active Transportation Plan**





**Figure 4-17: Proposed Metro Bakersfield Bicycle Facilities in the 2017 Kern County Active Transportation Plan**



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In November 2013 the Bakersfield City Council approved the City of Bakersfield Bicycle Transportation Plan. The City of Bakersfield Bicycle Transportation Plan guides the future development of bicycle facilities and programs in the City. The recommendations in this Plan will help the City create an environment and develop programs that support bicycling for transportation and recreation, encourage fewer trips by car and support active lifestyles.

Bikeway miles recommended in the 2013 City of Bakersfield Bicycle Transportation Plan include:

- 44.55 miles of Class I multi-use bike paths
- 111.07 miles of Class II bike lanes
- 104.03 miles of Class III bike routes

Planned bicycle travel facility mileage by community in Kern County is provided in Table 4-5.

<b>Table 4-5: Bicycle Travel Facilities Mileage in Kern County (Existing estimated from previous construction awards. Planned expansion from 2017 Kern Regional Active Transportation Plan)</b>		
Unincorporated County	97	604
Arvin	5	17.2
Bakersfield (Metro)	143	672
California City	10	39.4
Delano	0	38.8
Maricopa	0	5
McFarland	0	48.5
Ridgecrest	26	70
Shafter	0	46.7
Taft	1	37.1
Tehachapi	4	36.8
Wasco	2	51.5
<b>Total</b>	<b>288</b>	<b>1,667</b>

Bicycle and pedestrian measures identified in the 2018 RTP (see Chapter 5) include:

- Encourage member jurisdictions to implement their adopted local bicycle plans and to incorporate bicycle facilities into local transportation projects.
- Continue to seek funding for bicycle projects from local, state, and federal sources.
- Continue to seek funding to maintain existing bikeways.



- Promote the purchase and construction of bicycle racks and lockers for Kern County multimodal stations.
- Promote the inclusion of bike tie-downs and racks on commuter trains and buses.
- Fund updated Bicycle Facilities Plans for the incorporated cities.

### Highway/Road Facilities and Complete Streets

The Complete Streets Act of 2008 requires local jurisdictions in California to plan for the needs of all transportation system users with every major revision to general plan local circulation elements. Highways and roads can be designed to optimize pedestrian, bike, and transit usage. The complete streets approach affords policymakers, planners, and engineers with the opportunity to carefully evaluate and accommodate the needs of motorists, pedestrians, cyclists, transit vehicles and transit users, the young and old, and the able-bodied and physically challenged through the entire project development process. This ensures that the needs of all users of the public right-of-way are properly accommodated based on informed decisions about existing and future demand and that proper accommodations are designed into the project from the outset.

Highway/road facilities and complete streets measures identified in the 2018 RTP (see Chapter 5) include:

- As roads are maintained, bikeways should be implemented and upgraded per local development standards.
- Fund a Pedestrian Facilities Plan for the County of Kern and the incorporated cities.
- Encourage COG member jurisdictions to implement adopted local bicycle plans and incorporate bicycle facilities into local transportation projects.

### **Transportation Demand Management Measures**

TDM measures are important in helping to improve the efficiency of the region's regional transportation system. These measures help reduce or eliminate vehicle trips during peak periods of demand. They typically offer programs and incentives to encourage the use of modes of transportation other than driving alone or to encourage people to shift their trips to times when demand on the transportation system is low. Examples of current TDM measures are employer-sponsored transportation benefits, regional transit and vanpool subsidies, and carpool and biking incentives.

TDM measures identified in the 2018 RTP (see Chapter 5) include:

- Free car-pool and van-pool programs
- Transit
- Park and ride lots
- Encourage flextime programs
- Intelligent transportation system technologies

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

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### Transportation System Management Measures

TSM measures also help to maximize the efficiency of existing and future transportation facilities. A combination of programs—including signal and ramp metering coordination and optimization, improved performance monitoring, and advanced vehicle and roadside communication platforms—will increase the ability of operators to monitor the performance of the transportation system, manage the system better, and improve efficiency.

TSM measures identified in the 2018 RTP (see Chapter 5) include:

- Carpool facilities where appropriate
- Traffic signalization and synchronization
- Ramp metering where appropriate
- Truck auxiliary lanes on major inclines
- Railroad grade separations

### Pricing Measures

Pricing assumptions are also used to reduce the demand on the Kern region's transportation system. On major freeway and highway facilities, HOV lanes, bus lanes, and toll lanes can be used to fund new capacity for non-single-occupant vehicle traffic. In other California regions, odometer-based tolling (i.e., a passenger vehicle travel fee) is also being considered to fund and maintain infrastructure that support goods movement activity. Variable parking cost can also be used as a strategy to reduce congestion during peak periods. The rising cost of fuel in the Kern region can act as a TSM measure.

Pricing measures identified in the 2018 RTP (see Chapter 5) include:

- Assume a less than 5% net increase in vehicle operating costs by 2035 consistent with the San Joaquin Valley Model Improvement Program 2 (MIP2) validated methodology used by the 7 COGs to the north. The methodology includes region-specific fuel prices, effective passenger vehicle fuel efficiency, which are used to calculate the fuel related automobile operating costs, and also includes non-fuel related costs (tires, insurance, etc.).
- Continue timed parking and parking pricing in downtown Bakersfield parking structures.

### REDUCING GREENHOUSE GAS EMISSIONS IN KERN COUNTY

The key purpose of SB 375 and the Kern region SCS is to reduce per capita emissions originating from passenger vehicles and light trucks. This section:

- Compares the emissions reductions anticipated with implementation of the SCS with the regional targets.
- Quantifies the effect of policies and programs in the RTP that reduce transportation-related emissions in the region.

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

- Describes sources of emissions in the Kern region, 2020 and 2035 emission reduction targets established by CARB for the San Joaquin Valley, and modeling techniques used to estimate and forecast emissions.
- Identifies statewide strategies to reduce transportation-related emissions and their anticipated effect within the Kern region.
- Identifies regional strategies that complement the SCS by reducing emissions in other sectors (e.g., energy consumption).

### Comparison to Reduction Targets.

On September 23, 2010, CARB set targets for lowering emissions in the eight San Joaquin Valley counties. The targets call for a 5% reduction in per capita emissions from passenger vehicles and light trucks by 2020, and a 10% reduction by 2035 through land use and transportation planning. At the time of the writing of this document, new targets were being proposed for the third cycle RTP/SCS by ARB but were not anticipated to be put into affect until after the scheduled adoption of this plan.

Based on the analysis of strategies included in the SCS, CO<sub>2</sub> emissions are anticipated to be 14.1% lower than 2005 levels by 2020 and 16.6% lower by 2035, exceeding the targets established by CARB in 2010 as illustrated by Table 4-6.

**Table 4-6: Results of Greenhouse Gas Emissions and Vehicle Trips Reductions**

Indicators & Measures	2005	2020	2035	2042
Total Population	762,000	988,900	1,313,100	1,469,500
Vehicle Miles Traveled (VMT)				
VMT per Weekday (Miles, in Thousands)	22,236	25,112	32,770	35,284
VMT by Passenger Vehicles per Weekday (-XX, Miles, in Thousands)	18,452	16,435	22,472	25,009
Per Capita VMT (All Travel)	29.18	25.39	24.96	24.01
Per Capita VMT SB 375	24.22	16.62	17.11	17.02
Difference between 2005 Base Per Capita VMT (24.22 miles)	0.0%	45.7%	41.5%	42.3%
SB 375 CO <sub>2</sub> Emissions				
Total SB 375 CO <sub>2</sub> Emissions	6,357	7,661	10,162	11,317
Per Capita SB 375 CO <sub>2</sub> Emissions by Passenger Vehicles per Weekday (lbs)	16.70	15.49	15.48	15.40
Difference between 2005 Base Per Capita CO <sub>2</sub> (16.7 lbs)*	0.0%	-12.5%	-12.7%	-13.2
SB 375 Targets (9/23/10)	0.0%	-5.0%	-10.0%	n.a.

*\*note that these results use the VMIP2 model and are not directly comparable with prior RTP results. For a detailed description of the modeling differences see the 12/30/16 letter to ARB on SB 375 Target Setting Recommendations from the San Joaquin Valley Regional Transportation Planning Agencies.*

[File:///C:/Users/ballr/Desktop/appendix\\_b\\_mpo\\_scenario\\_and\\_data\\_submittals\\_october\\_2017.pdf](File:///C:/Users/ballr/Desktop/appendix_b_mpo_scenario_and_data_submittals_october_2017.pdf)

### Modeling

The analysis of strategies for the SCS used the UPlan land use model, a significantly improved travel demand model (VMIP2), and the CARB Emission Factor model (EMFAC 2014). The modeling methodology was developed in close coordination with CARB and the 7 other San Joaquin Valley COGs using the best available information and best modeling practices. The modeling reflects all the strategies

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

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that are technically feasible to model. No off-model adjustments have been made as part of this analysis. A more detailed discussion of modeling assumptions and forecasts can be found in Chapter 3.

### State-Level Strategies

For SB 375, the State of California has implemented numerous strategies that are assisting the region in attaining the SCS targets. For example:

- AB 118 – Air Quality Improvement Program
- AB 2766 – Motor Vehicle Fee Program
- CalStart
- Cap and Trade Program
- Clean Diesel
- Clean Vehicle Rebate Project
- Caltrans Funded High-Occupancy Vehicle Facilities
- Incident Management/Caltrans Traffic Information Center
- Inspection & Maintenance Programs
- Moyer Program
- Caltrans Funded Park-and-Ride Facilities
- Shifting/Separating Freight Movements
- Caltrans Funded Signal Synchronization and Roadway Intersection Improvements

Note that the methodology for calculating emissions does not include strategies that are accounted for separately under AB 32.

### Regional Strategies

The air district has implemented numerous strategies that are assisting the region in attaining the SB 375 targets as well as other district goals. Kern COG and other entities have also promoted strategies/programs that help with attainment of the SCS targets. For example:

- Bakersfield High Speed Rail Station Area Plan – General Plan Update
- Kern COG Advanced Transportation Technology Planning Program (4,000 EV charging spaces by 2025, shared mobility, autonomous vehicles, etc.)
- Kern Regional Active Transportation Plan Including Disadvantaged Communities
- SJV Rural Transit Shared Mobility Study and Pilot Project for Disadvantaged Communities
- Kern County General Plan Update – Land Use, Conservation, Open Space, Circulation, Housing, and other key elements
- Kern COG Intelligent Transportation System Plan Update
- CalVans Vanpool Program

- Kern COG Commute Kern TDM Programs/Incentives
- Kern Energy Watch and Kern Region Energy Action Planning
- San Joaquin Valley Air Pollution Control District (SJVAPCD) Diesel Engine Retrofits Incentive Program
- SJVAPCD Drive Clean Rebate Program
- Project Clean Air (PCA)
- SJVAPCD REMOVE II Programs
- SJVAPCD Retirement/Replacement of Heavy-Duty Trucks Incentives Program
- SJVAPCD Rule 9310 (SJVAPCD) School Bus Fleets: Retirement/Replacement of Buses
- SJVAPCD Rule 9410 (SJVAPCD) Employer-Based Trips Reduction (eTRIP)
- SJVAPCD Rule 9510 (SJVAPCD) Indirect Source Review: Infill Incentive Zone Transportation Impact Fee Land Use Strategies.
- Valley Clean Air Now (CAN)

Note that many of these strategies reduce emissions from trucks and other areas accounted for separately under AB 32.

### INCENTIVES AND OTHER APPROACHES

The Kern Region SCS provides for an incentive based approach to help achieve the state greenhouse gas emissions goals. This section:

- Describes steps Kern COG and local jurisdictions in Kern County will take to implement the SCS.
- Outlines new CEQA streamlining and other key local provisions afforded to projects that meet certain criteria established in the SCS.

### Promoting Sustainability through Incentives and Collaboration

The 2018 RTP is first and foremost a transportation plan. However, the transportation network and forecasted development patterns envisioned must complement each other. Integration of transportation and land use is essential for improved mobility and access to transportation options.

SB 375 calls for the integration of forecasted development patterns with transportation investments and asks that MPOs identify, quantify, and highlight co-benefits throughout the process. SB 375 provides CEQA incentives for development projects that are consistent with the regional SCS and help meet GHG emissions reduction targets. Kern County and the cities maintain their existing authority over local planning and land use decisions, including discretion in certifying the environmental review for a project, regardless of eligibility for streamlining.

To achieve the goals of the 2018 RTP, public agencies at all levels of government may implement a wide range of strategies that focus on four key areas:

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

- A transportation network that consists of public transit, highways, local streets, bikeways, and walkways.
- TDM measures that reduce peak-period demand on the transportation network.
- TSM measures that maximize the efficiency of the transportation network.
- A forecasted development pattern that accommodates the region's future employment and housing needs, especially in rural outlying areas while protecting habitat and resource areas.

The following tables list specific implementation strategies that local governments, Kern COG, and other stakeholders may consider in order to successfully implement the SCS.

**Table 4-7: Proposed Greenhouse Gas Emissions and Vehicle Trips Reductions Strategies**

Strategy	Responsible Party(ies)	Notes
<b>Transit:</b>		Notes
Construct new transit lines	COG, Transit Agencies, Local Jurisdictions	See GET 2012 Long Range Transit Plan (LRTP)
Expanded bus routes coordinated with planned centers	COG, Transit Agencies, Local Jurisdictions	See LRTP
Expand passenger rail service (Metrolink, Amtrak, HSR)	COG, State, Metrolink, SJV JPA, HSRA	See 2012 Kern Commuter Rail Study (KCRS)
Increase service (e.g., change transit headways, increase network connectivity)	Transit Agencies	See LRTP
Expanded transit service area	Transit Agencies	See LRTP
Rapid bus/shorter wait times	Transit Agencies	See LRTP
Upgrade transit service (e.g., improve service to express bus, etc.)	Transit Agencies	See LRTP
Express transit	Transit Agencies	See LRTP
Bus rapid transit	Transit Agencies	See LRTP
Improve accessibility (e.g., change bike/walk access distance to transit stations, change auto access distance to transit stations)	COG, Transit Agencies, Local Jurisdictions	See LRTP
Optimized bus routes	Transit Agencies	See LRTP
<b>Transportation Demand Management:</b>		
Promote carpooling, vanpooling, telecommuting and teleconferencing	COG, Local Jurisdictions	Commute Kern and E-Trips programs
Expand vanpools	COG, CalVans, Local Jurisdictions	See 2012 Kern MOU with CalVans



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Strategy	Responsible Party(ies)	Notes
Promote walking and biking (e.g., new Class I bicycle facilities, inter-city bikeways)	COG, Local Jurisdictions	See 2012 Kern Bikeway Master Plan (BMP) - accelerated in intensified alternative
Implement employer-based trip reduction strategies and Indirect Source Rule	COG, Air Districts	SJVAPCD Rules 9410 & 9510
<b>Pricing:</b>	-	-
Change in auto operation costs/user fees	COG, State	2/3rds Increase in fuel cost
Increase the cost of parking	Local Jurisdictions	Parking rates downtown
Change in transit fares	Transit Agencies	Reduced fares for seniors/ADA
<b>Transportation System Management:</b>		
Implement Intelligent Transportation Systems (ITS)/traffic management (e.g., change auto travel times, change highway free-flow speed, 511 travel info, signalization/ synchronization, etc.)	COG, Caltrans, Local Jurisdictions	New Kern 511 travel info system, continued signalization/synchronization program
Add HOV facilities	COG, Caltrans, Local Jurisdictions	Caltrans ramp metering plan
<b>Road Projects:</b>		
Delay capacity increasing project (e.g., new beltway)	COG, Local Jurisdictions	S. & W. Beltways delayed
Add general purpose lanes (e.g., reduce congestion and out-of-direction travel)	COG, Caltrans, Local Jurisdictions	Includes Centennial connector and Hageman flyover projects
<b>Land Use:</b>	-	
Modify distribution of households, population, jobs or other variables (infill along major transit corridor consistent with GP)	Local Jurisdictions	Limited to Bakersfield - Consistent with Core Area Impact Fee Development Incentive.
Rebalance housing closer to employment/shopping areas	Local Jurisdictions	Assumes more shopping opportunities and housing in outlying communities near jobs
Market based demand shift to smaller lots/multifamily	Local Jurisdictions	Limited to Bakersfield
Improve the pedestrian environment (walk distance to transit centers)	COG, Local Jurisdictions, Air District	Incentivized by Air District ISR rule
<b>Goods Movement (Non SB 375):</b>		
Relief of Tehachapi Pass rail bottleneck	State, Class I Railroads	Increase class 1 rail capacity by 30%
Increase activity at intermodal rail freight facilities	COG, Local Jurisdictions	Delano UP Cold Connect Facility and Shafter Rail Terminal for intermodal freight transfer activities
Smoother traffic flows through major highway corridors	COG, Caltrans, Local Jurisdictions	SR58 and SR99 improvements
Distribution centers closer to center of population	Local Jurisdictions	Geographic center of pop. for CA is in Kern

### Other Sustainable Practices

Along with the rest of the state the County of Kern is increasing sustainable practices. Through information sharing, coordination among agencies and other feasible means, including provision of funds as appropriate, Kern COG will continue to work to encourage and facilitate:

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

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- Increased permeable surfaces
- Improved stormwater management and protection of water resources
- Quality design
- Other measures to minimize impacts on natural and man-made resources and promote increased livability in Kern County.

### SB 375 Streamlining the CEQA Process

SB 375 provides incentives in the form of CEQA streamlining to encourage community design that supports reductions in per capita emissions. Generally, two types of projects are eligible for streamlined CEQA review once a compliant RTP has been adopted: (1) residential/mixed-use projects (consistent with the SCS) or (2) a transit priority project (TPP).

#### Residential/Mixed-Use Projects

Residential and mixed-use projects (projects where at least 75% of the total building square footage consists of residential use or TPPs) that are consistent with the use designation, density, building intensity, and applicable policies specified for the project area in an SCS and are consistent with an approved SCS may qualify for streamlined CEQA review. If a project meets these requirements and if the project incorporates the mitigation measures required by an applicable prior environmental document, any environmental review conducted will not be required to discuss growth-inducing impacts, any project-specific or cumulative impacts from cars and light-duty truck trips generated by the project on climate change or the regional transportation network, or a reduced-density alternative.

#### Transit Priority Projects (TPP)

A TPP is eligible for CEQA streamlining if it is consistent with an approved SCS, contains at least 50% residential use, is proposed to be developed at a minimum 20 dwelling units per acre, and is located within a half-mile of a major transit stop or high-quality transit corridor that is included in the RTP.

If a project meets these criteria, it may be analyzed under a new environmental document created by SB 375, called the Sustainable Communities Environmental Assessment, or through an environmental impact report for which the content requirements have been reduced. Alternatively, a TPP can be considered a Sustainable Communities Project and be eligible for a new full CEQA exemption if it further meets the additional requirements beyond the base criteria.

Lead agencies (including local jurisdictions) maintain the discretion and will be solely responsible for determining consistency of any future project with the SCS. Kern COG staff may provide a lead agency at the time of its request readily available data and documentation to help support its finding.

#### Other California Environmental Quality Act (CEQA) Streamlining Strategies

CEQA Guidelines Section 15332 for In-Fill Development Projects is used extensively by the local governments in Kern as an exemption for approving infill development. The guidelines state that “Class 32 consists of projects characterized as in-fill development meeting the conditions described in this section. (a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations. (b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.

*(c) The project site has no value, as habitat for endangered, rare or threatened species. (d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality. (e) The site can be adequately served by all required utilities and public services.” This CEQA exemption coupled with other infill incentives are providing significant opportunities for infill development in Kern.*

### Transportation Impact Fee Infill Incentive Zones

Both Tehachapi and Bakersfield, jointly with the County of Kern, adopted transportation impact fees for new development in the greater Tehachapi and greater Bakersfield areas. Both impact fee ordinances have identified core areas where the impact fee is almost half what the fee is on the periphery of the community. The incentive takes into account the higher cost of providing infrastructure on the periphery of a community while providing a financial incentive for infill development.

### Indirect Source Review (ISR) Rule

The San Joaquin Valley Air Pollution Control District is the only region in the State that has implemented a rule to require new development to pay a fee for offsite travel emissions. Called the indirect source review (ISR) rule, the fee uses a modeling tool called CalEEMod to quantify emissions from a proposed development. The tool can account for the incorporation of pedestrian, bike, transit and other strategies to reduce travel. Developments that are successful in providing these strategies could receive reductions or elimination of the fee. This incentive is already resulting in new developments that are designed to be more pedestrian, bike and transit friendly in the Kern region.

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

### Project Selection Criteria

The 2012 Kern COG policy for the project selection process with updates through 2016, incorporates Kern Regional Blueprint growth management and SB 375 SCS framework concepts into the project selection process to:

- Influence local government land use policy by giving priority to transportation projects that reduce vehicle miles traveled (VMT) and/or promote livable communities or transit oriented development (TOD) as applicable;
- Leverage additional funding sources, including new funding sources, by modifying project performance measurement requirements for large projects to allow them to better compete for state and federal discretionary funds.

Table 4-8 summarizes consistency between the goals of the Kern COG RTP and the performance measures/outcomes of the Kern COG funding programs included in this document. The table also demonstrates that all programs include performance measures and outcomes that give priority to projects that reduce VMT, reduce emissions and improve livability consistent with SB 375.

**Table 4-8: Consistency of RTP Goals with Performance Measures Outcomes**

Funding Programs	KCOG RTP Goals							
	SB 375-Related Outcomes			Congestion Relief	Cost-Effectiveness	Safety	Sustainability/State of Good Repair	Economic Well-Being
	VMT Reduction	Emissions Reduction	Livability <sup>1</sup>					
RTIP	✓	✓	✓	✓	✓	✓	✗	✓
RSTP		✗					✗	✗
CMAQ	✓	✓	✓	✓	✓	✓		✗
TE	✗	✗	✗	✗		✗		
TDA	✓	✓	✓	✓		✓	✗	
<p>✓ = Performance measure included in the project ranking criteria</p> <p>✗ = Outcomes derived from eligible projects</p> <p><sup>1</sup> Livability includes enhancing or reducing the average cost of user mobility through the creation of more convenient transportation options for travelers; improving existing transportation choices by enhancing points of modal connectivity, increasing the number of modes accommodated on existing assets, or reducing congestion on existing modal assets; improving travel between residential areas and commercial centers and jobs; improving accessibility and transportation services for economically disadvantaged populations, non-drivers, senior citizens, and persons with disabilities, or make goods, commodities, and services more readily available to these groups.</p>								

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

Table 4-9 illustrates the consistency between the project selection criteria outcomes from the various Kern COG funding programs with the Kern COG SCS Framework Strategies.

**TABLE 4-9: CONSISTENCY OF SCS FRAMEWORK STRATEGIES WITH FUNDING PROGRAM OUTCOMES**

Outcomes from KCOG Transportation Funding Programs		KCOG SCS Framework Strategies																	
		Modify Distribution of households, population, and jobs  Rebalance the mix of land uses  Increase the level of density  Improve the pedestrian environment				Road		Transit				Pricing				TDM			
						Add HOV lanes	Implement ITS / Traffic management	Add general purpose roadway lanes	Construct new transit lines	Increase transit service	Upgrade transit service	Improve accessibility	Develop tolls and toll roads	Implement HOT lanes	Increase the cost of parking	Change in transit fares	Change in auto operation cost	Promote car/vanpooling, telecommuting/teleconferencing	Promote walking and biking
VMT Reduction				✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Emissions Reduction				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Livability				✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓
Congestion Relief				✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓
Cost-Effectiveness				✓	✓	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓
Safety				✓	✓	✓	✓						✓					✓	✓
State of Good Repair				✓	✓	✓	✓				✓							✓	✓
Economic Well-Being					✓	✓	✓	✓	✓		✓	✓	✓						

(THIS CHART IS AN ILLUSTRATION FROM THE KERN COG PROJECT DELIVERY POLICIES AND PROCEDURES)

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

In addition to providing performance measures that reward projects that further the goals of SB 375, the new project selection process includes “Regional Priorities and Equity Guidance” that provides for a financial incentive for safety and connectivity projects in resource areas by targeting 40% of the Regional Improvement Program funding for rural resource areas consistent with Sec. 65080(b)(4)(C) of SB 375.

### Community Travel Feedback Monitoring System

The Kern Transportation Modeling Committee has developed an innovative tool to track progress toward the California SB 375 related passenger vehicle and light duty truck travel. The process will provide feedback to each community and sub area of the county to help them track progress on how they are reducing travel per capita. Kern COG will provide updated travel statistics by community for the Kern region. The Transportation Modeling Committee and the Regional Planning Advisory Committee envision a method to assist communities that are having difficulty reducing emissions per capita. This method may be developed in future cycles of the RTP.

### A Great Start: Sustainable Community Success Stories (See Appendix E)

In order to help demonstrate the Kern region’s extensive efforts to comply with state climate change goals, Kern COG has identified related member agency activities. All of the following success stories, described in Appendix E, benefit the disadvantaged communities by improving emissions, however **the highlighted strategies benefit Kern’s disadvantaged communities directly.**

#### NEW STRATEGIES

1. Bakersfield High Speed Rail Station Area Plan – Specific/General Plan Update
2. Kern COG 4,000 Workplace Charging Spaces by 2025
3. Improvements to 51 Bus Stops – Metro Bakersfield/Disadvantaged Neighborhoods
4. New Taft Transit Center / Regional Transit Hub
5. Early Delivery of Wasco Disadvantage Community Active Transportation Projects
6. Bakersfield Disadvantage Communities Bike Share & Downtown Bicycle Connectivity Project
7. Kern Highway Projects Advancing Complete Streets
8. Kern Regional Active Transportation Plan Including Disadvantaged Communities
9. Kern COG Intelligent Transportation System Plan Update
10. SJV Rural Transit Shared Mobility Study for Disadvantaged Communities
11. SR 184 Lamont Bike and Pedestrian improvements
12. SR 184 and 155 Roundabouts in Disadvantage Communities of Delano and Weedpatch
13. Kern County General Plan Update – Land Use, Conservation, Open Space, Circulation, Housing, and other key elements
14. Early Deployment Pricing Policies for Parking and FastPass HOT Lanes

#### ENHANCED STRATEGIES

15. City of Bakersfield Redevelopment Projects – Mill Creek and Baker Street
16. Commuter Rail Feasibility Study – Amtrak Improvements
17. Rideshare Program – Commute Kern
18. Expanding Park and Ride Lots
19. Dial-A-Ride and Local Transportation Services
20. Kern County Bicycle Master Plan & Complete Streets Recommendations/City of Tehachapi Bicycle Master Plan
21. City of Bakersfield Bicycle Facilities
22. Westside Station Multi-modal Transit Center
23. San Joaquin Valley Vanpool Program (CalVans)
24. Kern County Wind Farm Areas (Largest in U.S.)
25. City of Shafter Container Yard and Intermodal Rail Facility Expansion
26. Intersection Signalization/Synchronization



27. City of Bakersfield 4 New Downtown Infill Housing Projects
28. Cities of McFarland and Shafter – Conversion of transit fleet to electric vehicles
29. Golden Empire Transit – Purchase of 2 Electric Buses
30. Lost Hills Wonderful Park and Communitywide Improvements
31. Grapevine Specific and Community Plan and Special Plan

### EXISTING/CONTINUING STRATEGIES

32. City of Tehachapi General Plan (Form-Based Code, Transect Zone, Mobility Element, Town Form Element)
33. Infill Incentive Zone – Lower Transportation Impact Fee Core Area
34. City of Taft General Plan – Sustainability Principles
35. City of Ridgecrest General Plan and Multi-Modal Circulation Element
36. Metro Bakersfield General Plan Sewer Policy – Hook-up required for parcels less than 6 acres
37. City of Bakersfield Required Lot Area Zoning Strategies
38. San Joaquin Valley Air District's Indirect Source Review to Mitigate Off-Site Impacts of Development
39. Transit Priority Areas in the Kern COG SCS
40. Metropolitan Bakersfield General Plan Centers Concept – Transit Priority & Strategic Employment Place Types
41. GET Short-Term Service Plan (2012–2020)
42. GET X-92 Commuter Express bus service to Tejon Industrial Complex
43. Kern511 – Traveler Information System
44. San Joaquin Valley Blueprint Integration Project
45. Caltrans Vehicle Detection System – State Route 43 Intersection Improvements and East Bakersfield Vehicle Detection Systems
46. California Highway Patrol's Safety Corridors
47. Purchase of CNG Buses (80+ bus fleet)
48. The Electric Cab Company of Delano
49. Downtown Elementary School Expansion (Bakersfield)
50. Traffic Control Devices
51. Kern Region Energy Action Plans (Kern REAP) and Kern Energy Watch Goal 3
52. Tejon Ranch Conservation and Land Use Agreement
53. Kern County Community Revitalization Program
54. Kern Transit – Route Connection with Antelope Valley Transit Authority
55. CSU Bakersfield – Public Transit Center

### ADAPTIVE PLANNING FOR CLIMATE CHANGE

The California Resources Agency produces a guide on planning for adaptive climate change available at [http://resources.ca.gov/climate\\_adaptation/local\\_government/adaptation\\_planning\\_guide.html](http://resources.ca.gov/climate_adaptation/local_government/adaptation_planning_guide.html). The guide is an excellent resource for communities interested in planning for the effects of climate change. The Resources Agency has identified the need to evaluate vulnerability for the following impacts for the three Southern Central Valley counties (Kern, Tulare, Kings):

- Temperature increases
- Reduced precipitation
- Reduced water supply
- Reduced agricultural productivity
- Flooding
- Decrease in tourism – Sierra Nevada foothills
- Wildfire risk in the Sierra Nevada foothills

Although not a comprehensive listing, the Kern region has identified several projects that will address the effects of climate change.

- Kern County has established public cooling centers with “temperature triggers” indicating when they become active. This program was funded through a grant from PG&E and Southern California Edison

## CHAPTER 4 SUSTAINABLE COMMUNITIES STRATEGY

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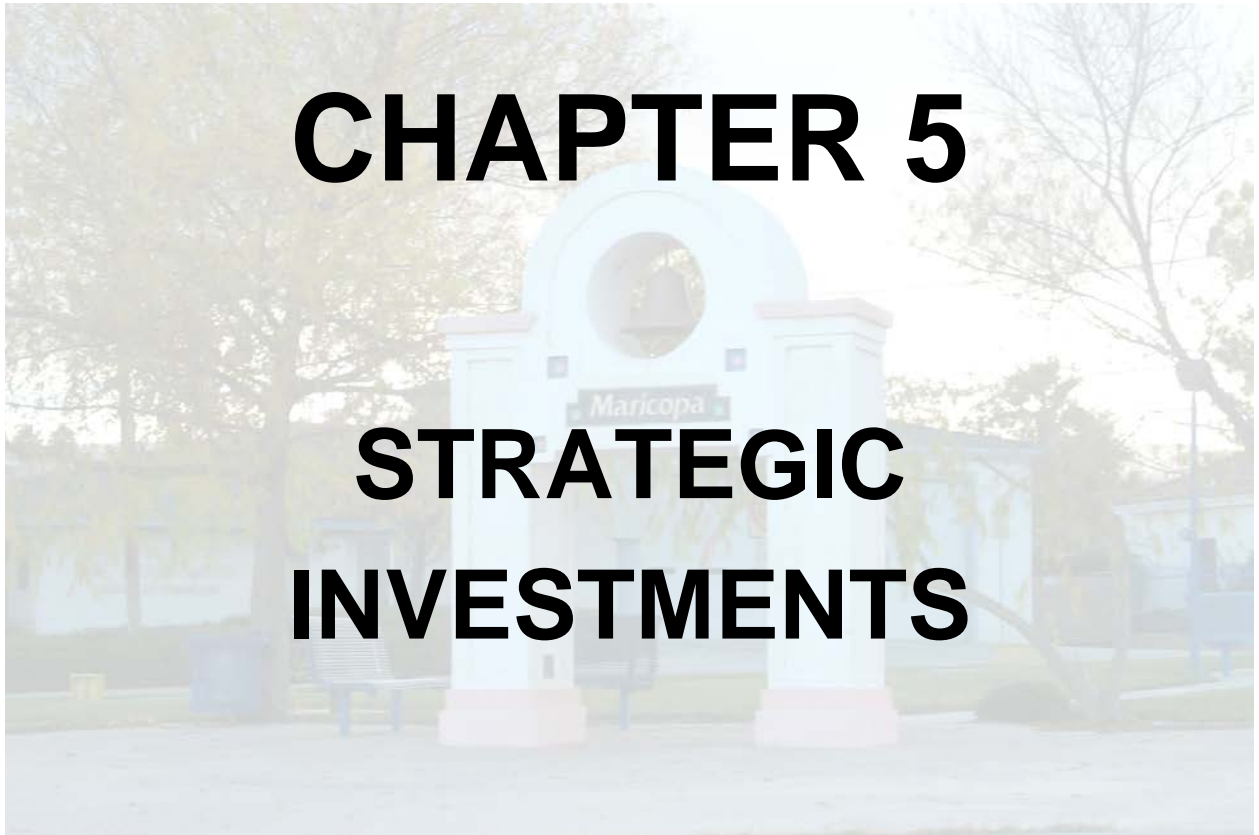
and includes sites in Metro Bakersfield and outlying communities that service agricultural workers and seniors. (<http://www.co.kern.ca.us/pio/coolingcenters.asp>)

- The Kern Water Agency and its member districts continue to implement and expand the largest water banking operation in the state, providing agriculture and urban users greater storage and a more reliable water supply during dry years.
- U.S. Army Corp of Engineers is implementing the Lake Isabella Dam retrofit project that will strengthen and increase the height of the dam by 16 ft. to accommodate larger spring run-off volumes that were not anticipated when the dam was designed in the 1950s. The project will increase storage, protect from flooding and improve recreational and tourism opportunities in the Southern Sierra Nevada.
- Kern County Flood Plain Management Department has developed a plan to improve flood control from extreme weather events in uncontrolled drainage basins. The plan prioritizes projects that benefit disadvantaged communities.
- The State of California is working on the Bay Delta Conservation Plan to provide improved water delivery through the Delta to Southern California.

In addition, Kern COG member agencies received energy related adaptive climate planning information through the Kern Region Energy Action Plan and Kern Energy Watch programs. Many of the communities that participated in the programs developed climate action plans or at a minimum, energy action plans. The climate action planning process includes adaptive planning.

# **CHAPTER 5**

## **STRATEGIC INVESTMENTS**





### CHAPTER 5 STRATEGIC INVESTMENTS

#### INTRODUCTION

This Chapter sets forth plans of action for the region to pursue and meet identified transportation needs and issues. Planned investments are consistent with the goals and policies of the plan, the Sustainable Community Strategy Element (see Chapter 4), and must be financially constrained. These projects are listed in the Constrained Capital Improvement Program (Table 5-1) and are modeled in the Air Quality Conformity Analysis.

Forecast modeling methods in this Regional Transportation Plan primarily use the “market-based approach” based on demographic data and economic trends (see Chapter 3). The forecast modeling was used to analyze the strategic investments in the combined action elements found in this Chapter.

Alternatives are not addressed in this document; they are, however, addressed and analyzed for their feasibility and impacts in the Environmental Impact Report prepared for the 2018 Regional Transportation Plan, as required by the California Environmental Quality Act (State CEQA Guidelines Sections 15126(f) and 15126.6(a)).

The 2018 Regional Transportation Plan promotes a more efficient transportation system that calls for fully funding alternative transportation modes, while emphasizing transportation demand and transportation system management approaches for new highway capacity.

The Constrained Capital Improvement Program (Table 5-1) includes projects that move the region toward a financially constrained and balanced system. Constrained projects have undergone air quality conformity analyses to ensure that they contribute to the Kern region’s compliance with state and federal air quality rules. The Unconstrained Capital Improvement Program (Table 5-2) incorporates the region’s unbudgeted “vision.” These projects represent alternatives that could be moved to the constrained program if support for an individual project remains strong and if project funding is identified.

Status as an unconstrained project does not imply that the project is not needed; rather, it simply cannot be accomplished given the fiscal constraints facing Kern County. Kern Council of Governments (Kern COG) is vigilant in its search for funding to support these projects.

No unconstrained projects are included in the air quality conformity analysis. In the future, as the funding picture changes and community values and priorities for transportation projects are honed, unconstrained projects may be moved to the constrained program. Should this occur, the RTP would be amended and a new assessment of the plan’s conformity with state and federal air quality rules and standards would be made.

For this Regional Transportation Plan, the Unconstrained Capital Improvement Program reflects the vision for Kern County’s ideal system. Dialogue is ongoing with business, government, social services, and agriculture interests to improve everyone’s understanding of how the transportation system impacts the region’s quality of life. The participation process sheds light on important values such as mobility choice and accessibility, travel time reliability, cost effectiveness, and environmental sensitivity.

The planning process is iterative. System-wide performance measures have been developed and will be used to help policymakers and the community-at-large evaluate tradeoffs among transportation

***The 2018 Regional Transportation Plan promotes a more efficient transportation system that calls for fully funding alternative transportation modes, while emphasizing transportation demand and transportation system management approaches for new highway capacity.***

## CHAPTER 5 STRATEGIC INVESTMENTS

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improvement alternatives. Performance measures will also be used to help evaluate how the 2018 RTP contributes to the Kern region's quality of life. Refer to Chapter 2 for additional information about the performance measures.

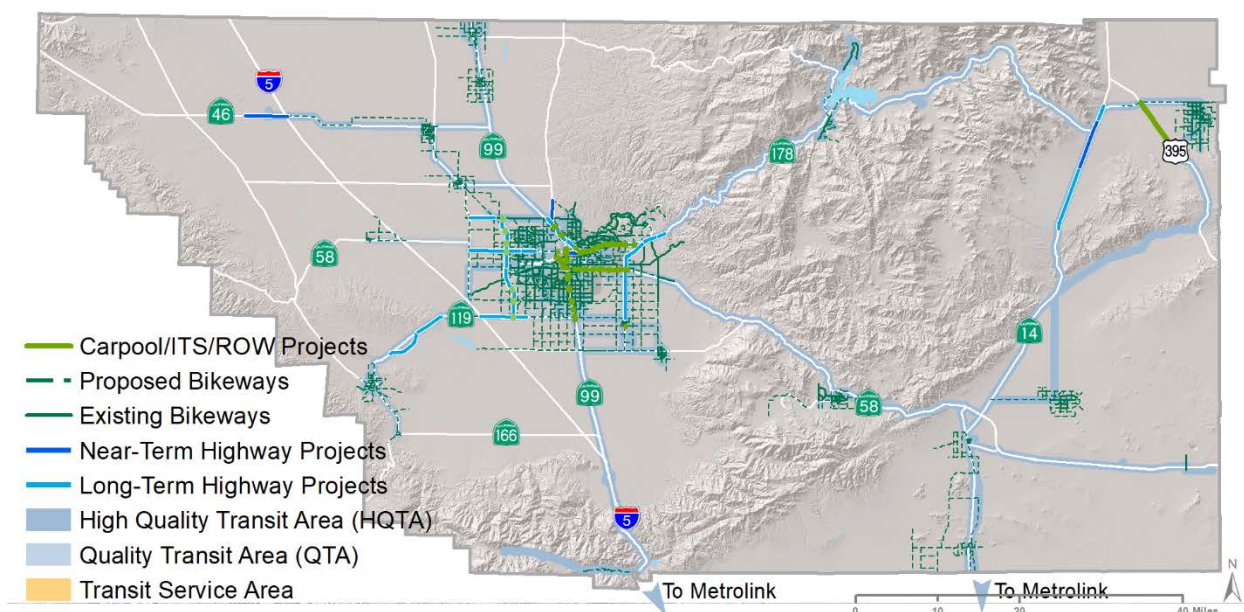
Each element in this Chapter addresses proposed actions to implement the goals and policies of Chapter 2. These actions outline specifically how the goals of the plan will be accomplished. This Chapter contains the following action elements:

- Freight Movement Action Element
- Public Transportation Action Element
- Active Transportation Action Element
- Transportation Air Emissions Reduction Action Element
- Intelligent Transportation Systems Action Element
- Congestion Management Program Action Element
- Regional Streets and Highways Action Element
- Aviation Action Element
- Safety/Security Action Element
- Land Use Action Element

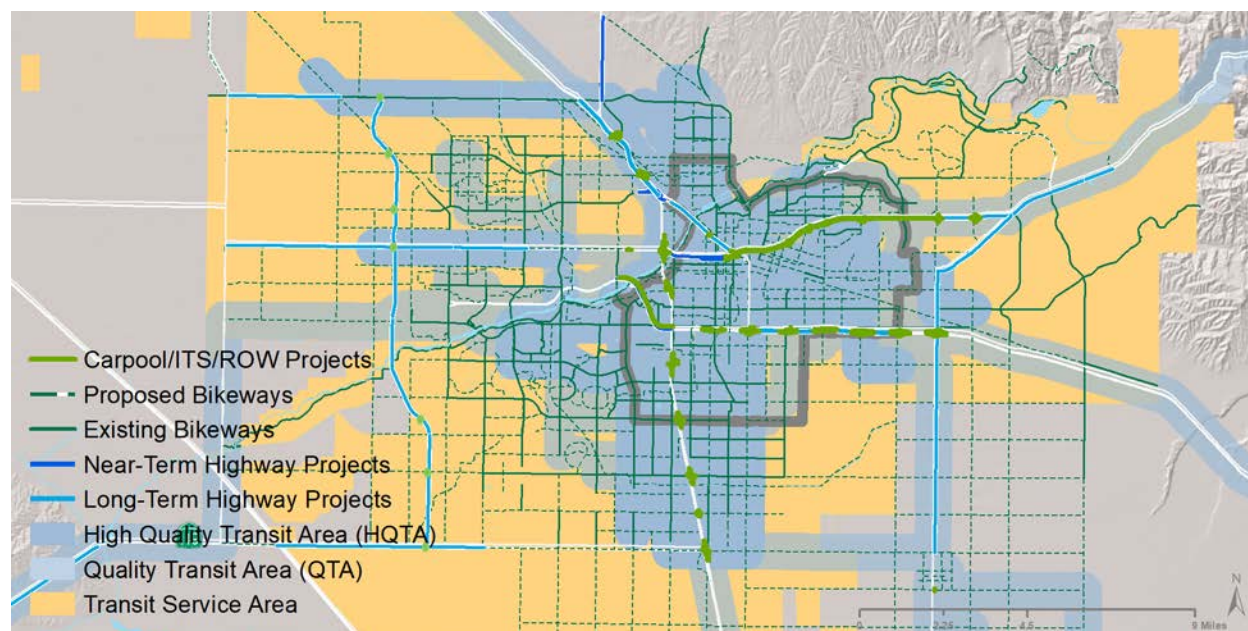
In the following Constrained Capital Improvement Program, major highway improvements are divided into five chronological groupings to facilitate estimations of project completion. Highway improvements that cannot be constructed within the financial constraint of any one group may be repeated in later groups. If a project is not fully funded within the five-year time frame, it would require phasing over a longer time frame. The entire corridor, however, would be environmentally assessed during the preliminary engineering phase.



**Figure 5-1A: Constrained Projects Countywide**



**Figure 5-1B: Constrained Projects Metro Bakersfield**



## CHAPTER 5 STRATEGIC INVESTMENT

**Project Listing – Table 5-1: Constrained Capital Improvement Program**

<b>TABLE 5.1 - Constrained Capital Improvement Program</b>			
<b>2018 through 2042 - Transit &amp; Other</b>			
Project	Location	Scope	Y OE Cost
Vanpool	County wide	Vanpools - build and maintain fleet of 500 Vans by 2042	48,000,000
Park and Ride	Various	Park and Ride Lots (1,500 spaces)	6,000,000
<b>Bus Service</b>	<b>Metro Bkd</b>	<b>Full size alternative fuel buses</b>	<b>232,500,000</b>
		Full size alternative fuel buses - 120 replacement buses	
		Full size alternative fuel buses - Fixed Routes - 130 new buses	
		Full size alternative fuel buses - Bus Rapid Transit - 24 new buses	
		Full size alternative fuel buses - Express Service - 36 new buses	
<b>Bus Service</b>	<b>Countywide</b>	<b>Full, midsize and mini-van size alternative fuel buses</b>	<b>34,700,000</b>
		Full size alternative fuel buses - Express Service - 10 new buses	
		Midsize alternative fuel buses - 120 replacement buses	
		Midsize alternative fuel buses - 120 new buses	
		Mini van / buses - 45 replacement buses	
Bus Service	Metro Bkd	2 Transit Maintenance Stations	60,000,000
Bus Service	Metro Bkd	3 transfer stations	15,000,000
ITS	County wide	ITS related improvements / upgrades	3,000,000
Aviation	County wide	Capital, Maintenance and Operational Improvements	48,000,000
Passenger Rail	Rosamond	Metrolink extension - Palmdale/Lancaster to Rosamond	112,000,000
Passenger Rail	Bakersfield	Amtrak Station - Phase II	13,000,000
Passenger Rail	Bakersfield	High Speed Rail Station - Bakersfield	50,000,000
Passenger Rail	Region	High Speed Rail Alignment and Facilities Fresno to Bakersfield	1,000,000,000
Passenger Rail	Shafter/Wasco	High Speed Rail Heavy Maintenance Facility	450,000,000
<b>Sub-total</b>			<b>\$2,072,200,000</b>

\*the Passenger Rail Program is partially funded through the High Speed Rail Authority and is provided as information. The funding summary includes a portion of \$5 billion of the constrained revenue estimates for work expected between Fresno County and Kern County. The constrained amount of \$1.5 Billion is for work in the Kern region. The remaining \$13 billion is unconstrained for work in the Kern Region and is reflected in Table 5.2. \$26 Billion is the current cost estimate.

Project Listing – Table 5-1: Constrained Capital Improvement Program

TABLE 5.1 - Constrained Capital Improvement Program Continued

2018 through 2042 - Highway Operational Improvements

2018 through 2042 - Highway Operational Improvements			
Project	Location	Scope	YOE Cost
HOV Lanes	Bakersfield	Various State Routes - HOV lanes	149,000,000
		Westside Parkw ay - Heath Road and Stockdale Highw ay to SR 58 at Fairfax	
		State Route 178 - Existing w est freeway terminus to Osw ell Street	
HOV Ramps	Bakersfield	Install HOV Ramps and metering improvements at various locations	148,000,000
		SR 99 Interchange at Snow Road - HOV Ramp Metering	
		SR 99 Interchange at Olive Drive - HOV Ramp Metering	
		SR 99 Interchange at Rosedale Hw y - HOV Ramp Metering	
		SR 99 Interchange at California Ave - HOV Ramp Metering	
		SR 99 Interchange at Ming Ave- HOV Ramp Metering	
		SR 99 Interchange at White Lane- HOV Ramp Metering	
		SR 99 Interchange at Panama Lane- HOV Ramp Metering	
		SR 99 Interchange at SR 119 - HOV Ramp Metering	
		SR 58 Interchange at Oak Street - HOV Ramp Metering	
		SR 58 Interchange at H-Chester Ave - HOV Ramp Metering	
		SR 58 Interchange at Union Street - HOV Ramp Metering	
		SR 58 Interchange at Cottonw ood Road - HOV Ramp Metering	
		SR 58 Interchange at Mount Vernon - HOV Ramp Metering	
		SR 58 Interchange at Osw ell Street - HOV Ramp Metering	
		SR 58 Interchange at Fairfax Road - HOV Ramp Metering	
		SR 58 Interchange at Weedpatch Hw y - HOV Ramp Metering	
		SR 178 Interchange at SR 204 - HOV Ramp Metering	
		SR 178 Interchange at Beale Avenue - HOV Ramp Metering	
		SR 178 Interchange at Haley Street - HOV Ramp Metering	
		SR 178 Interchange at Mount Vernon Street - NOV Ramp Metering	
		SR 178 Interchange at Osw ell Street - HOV Ramp Metering	
		SR 178 Interchange at Fairfax Road - HOV Ramp Metering	
		SR 178 Interchange at Morning Drive - HOV Ramp Metering	
		West Beltw ay Interchange at 7th Standard Road - HOV Ramp Metering	
		West Beltw ay Interchange at Olive Drive - HOV Ramp Metering	
		West Beltw ay Interchange at Rosedale Hw y - HOV Ramp Metering	
		West Beltw ay Interchange at Stockdale Hw y - HOV Ramp Metering	
		West Beltw ay Interchange at Ming Avenue - HOV Ramp Metering	
		West Beltw ay Interchange at White Lane - HOV Ramp Metering	
		West Beltw ay Interchange at SR 119 - HOV Ramp Metering	
		Sub-total	\$297,000,000

## CHAPTER 5 STRATEGIC INVESTMENT

### Project Listing – Table 5-1: Constrained Capital Improvement Program

**TABLE 5.1 - Constrained Capital Improvement Program Continued**

<b>2018 through 2042 - Non-motorized</b>					
Project	Location	Scope	Y OE Cost		
Various locations	Countyw ide	Construct Class I, II or Class III Bike Path; striping; signage	\$149,000,000		
Various locations	Countyw ide	Construct Pedestrian Enhancement Improvements	78,000,000		
Various locations	Countyw ide	Construct Complete Streets Improvements	261,000,000		
<b>Sub-total</b>			<b>\$488,000,000</b>		
<b>2018 through 2042 - Freight Rail</b>					
Project	Location	Scope	Y OE Cost	Project ID	Start
<b>(Information only) Sub-total</b>			<b>\$160,000,000</b>		
<b>2018 through 2022 - Major Highway Improvements</b>					
Project	Location	Scope	Y OE Cost	Project ID	Start
Route 14	Inyokern	Redrock / Inyokern Rd to Rt 178 - w iden to four lanes (Phase1)	42,000,000	KER08RTP006	2019
Route 46	Lost Hills	Brow n Material Rd to I-5 - interchange upgrade at I-5 - Phase 4A	27,000,000	KER14RTP001	2017
Route 46	Lost Hills	Brow n Material Rd to I-5 - interchange upgrade at I-5 - Phase 4B	\$40,000,000	KER08RTP018	2019
Route 65	Bakersfield	James Rd to Merle Haggard Dr - w iden to four lanes	3,000,000	KER08RTP094	2021
Route 99	Bakersfield	Olive Drive - construct interchange upgrades	6,100,000	KER08RTP091	2016
Route 178	Bakersfield	Rt 178 (24th/23rd St) from SR-99 to M Street - w iden existing highw ay	55,000,000	KER08RTP014	2016
Route 184	Bakersfield	At Union Pacific Railroad - construct grade separation	26,400,000	KER08RTP108	2020
Hageman Flyover	Bakersfield	Knudsen Dr to Rt 204 - construct extension	68,900,000	KER08RTP013	2018
Centennial Corridor	Bakersfield	I-5 to Rt-58/Cottonw ood Rd - element of the Bakersfield Beltw ay System - construct new freeway and/or operational improvements	698,000,000	KER08RTP020	2016
<b>Sub-total</b>			<b>\$966,400,000</b>		
<b>2023 through 2027 - Major Highway Improvements</b>					
Project	Location	Scope	Y OE Cost	Project ID	Start
Route 14	Inyokern	Redrock / Inyokern Rd to Rt 178 - w iden to four lanes (Phase 2)	42,000,000	KER08RTP017	2026
Route 58	Bakersfield	Rosedale Hw y - Rt 43 to Allen Rd - w iden existing highw ay	59,000,000	KER08RTP092	2025
Route 58	Bakersfield	Rosedale Hw y - Allen Rd to Callow ay - w iden existing highw ay	59,000,000	KER08RTP090	2025
Route 58	Metro Bkfd	Rosedale Hw y @ Minkler Spur / Landco - construct grade separation	27,000,000	KER08RTP118	2025
Route 58	Bakersfield	Union Ave to Fairfax Rd - w iden to eight lanes	47,400,000	KER08RTP093	2025
Route 119	Bakersfield	I-5 to Buena Vista - w iden to four lanes	31,300,000	KER08RTP099	2026
Route 178	Bakersfield	At Rt 204 - construct interchange	25,700,000	KER08RTP095	2025
Route 184	Bakersfield	Morning Dr to Rt 178 - w iden to four lanes	5,000,000	KER08RTP101	2026
<b>Sub-total</b>			<b>\$296,400,000</b>		

**TABLE 5.1 - Constrained Capital Improvement Program Continued**

2028 through 2032 - Major Highway Improvements					
Project	Location	Scope	YOE Cost	Project ID	Start
Route 119	Taft	Cherry Ave to Elk Hills Rd (Phase 1, bypass) - w iden to four lanes	115,000,000	KER08RTP022	2030
Route 178	Metro Bkfd	Near Osw ell St to Vineland Rd - w iden existing freeway	17,000,000	KER08RTP111	2028
Route 184	Lamont	Rt 58 to Rt 178 - w iden to four lanes	90,000,000	KER08RTP045	2028
Route 184	Bakersfield	Panama Rd to Rt 58 - w iden to four lanes	10,500,000	KER08RTP100	2029
7th Standard Rd	Shafter/Bkfd	Rt 43 to Santa Fe Way - w iden existing roadway	14,000,000	KER08RTP113	2030
West Beltw ay	Metro Bkfd	Rosedale Hwy y to 1/2 mile north of 7th Standard Rd - construct new facility	115,793,000	KER08RTP102	2030
West Beltw ay	Metro Bkfd	Rosedale Hwy y to Westside Parkw ay - construct new facility	93,500,000	KER08RTP016	2030
Sub-total			\$455,793,000		
2033 through 2037 - Major Highway Improvements					
Project	Location	Scope	YOE Cost	Project ID	Start
Route 14	Inyokern	Redrock / Inyokern Rd to Rt 178 - w iden to four lanes (Phase 3)	\$32,000,000	KER08RTP024	2035
Route 58	Bakersfield	At various locations - ramp improvements ( HOV - ramp metering)	\$32,600,000	KER08RTP103	2033
Route 99	Bakersfield	Beardsley Canal to 7th Standard Rd - w iden to eight lanes	90,800,000	KER08RTP138	2033
Route 99	Bakersfield	At Olive Drive - reconstruct interchange	108,000,000	KER08RTP021	2033
Route 99	Bakersfield	At Snow Rd - construct new interchange	138,200,000	KER08RTP115	2033
Route 99	Bakersfield	At various locations - ramp improvements (HOV - ramp metering)	37,000,000	KER08RTP105	2033
Route 178	Bakersfield	At Rt 204 and 178 - reconstruct freeway ramps (HOV - ramp metering)	50,000,000	KER08RTP085	2033
Route 178	Bakersfield	At various locations - ramp improvements (HOV - ramp metering)	37,000,000	KER08RTP106	2033
Route 178	Bakersfield	Existing w est terminus to Osw ell St - w iden to eight lanes (HOV)	140,500,000	KER08RTP026	2035
Route 178	Metro Bkfd	Vineland to Miramonte - new interchange; w iden existing freeway	119,000,000	KER08RTP025	2033
Route 178	Bakersfield	Miramonte to Rancheria - w iden existing highway	19,800,000	KER08RTP084	2033
Route 204	Bakersfield	Airport Drive to Rt 178 - w iden existing highway	55,000,000	KER08RTP083	2035
Route 204	Bakersfield	F St - construct interchange	36,000,000	KER08RTP081	2035
West Beltw ay	Metro Bkfd	Pacheco Rd to Westside Parkw ay - construct new facility	115,793,000	KER08RTP139	2033
West Beltw ay	Metro Bkfd	Taft Hwy y to Pacheco Rd - construct new facility	90,000,000	KER08RTP097	2033
Sub-total			\$1,101,693,000		
2038 through 2042 - Major Highway Improvements					
Project	Location	Scope	YOE Cost	Project ID	Start
Route 119	Taft	Elk Hills - County Rd to Tupman Ave - w iden to four lanes (Phase 2)	48,000,000	KER08RTP086	2040
US 395	Ridgecrest	Betw een Rt 178 and China Lake Blvd - construct passing lanes	20,000,000	KER08RTP089	2040
Sub-total			\$68,000,000		
Total Major Highway Improvements			\$2,888,286,000		

**NOTE: \$77 MILLION OR 3% OF THE TOTAL ESTIMATE FOR MAJOR HIGHWAY PROJECTS IS EXPECTED TO FINANCE LAND CONSERVATION MITIGATION**



## CHAPTER 5 STRATEGIC INVESTMENT

**TABLE 5.1 - Constrained Capital Improvement Program Continued**

<b>2018 through 2042 - Local Streets and Roads</b>					
Project	Location	Scope	YOE Cost	Project ID	Start
Various Locations	Metro Bkfd	Bridge and street widening; reconstruction	\$540,000,000		
Various Locations	Metro Bkfd	Signalization	15,000,000		
Various Locations	Rosamond	Street widening; signalization	112,000,000		
Various Locations	Countywide	Transportation Control Measures	386,000,000		
Various Locations	Countywide	Bridge and street widening; reconstruction; signalization	632,000,000		
			<b>Sub-total</b>	<b>\$1,685,000,000</b>	

\* Note: Adjustments to programming were made regarding the overlap of HOV related improvements listed separately from regionally significant highway improvements.

**2018 through 2042 - Summary of Constrained Projects**

<b>Program Category</b>	<b>Totals</b>
<b>Transit / Rail / High Speed Rail</b>	<b>2,072,200,000</b>
<b>Operational Improvements - HOV Lanes / Ramp Metering</b>	<b>297,000,000</b>
<b>Pedestrian Complete Streets and Bicycle Improvements</b>	<b>488,000,000</b>
<b>Local Streets and Roads</b>	<b>1,685,000,000</b>
<b>Major Highway Improvements 2018-2032</b>	<b>\$1,718,593,000</b>
<b>Major Highway Improvements 2033-2042*</b>	<b>1,169,693,000</b>
<b>Freight Rail</b>	<b>160,000,000</b>
<b>Grand Total</b>	<b>\$7,502,386,000</b>



**TABLE 5.2 - Unconstrained Program of Projects  
Beyond 2042 - Transit**

Project	Location	Scope	YOE Capital Cost
Local Passenger Rail	Shafter, Bakersfield	Amtrak San Joaquins stop in North/West Bakersfield - platform, track turnout, park&ride, ticket both, RoW (2012 Commuter Rail Study)	\$5,000,000
Local Passenger Rail	Shafter, Bakersfield	Up to 4 Amtrak San Joaquins stops on BNSF - platform, track turnout, park&ride, ticket both, RoW (2012 Commuter Rail Study)	\$20,000,000
Local Passenger Rail	Wasco, Bakersfield	Positive Train Control Port Chicago - Bakersfield (Draft 2012 State Rail Plan)	\$24,000,000
Local Passenger Rail	Shafter, NW Bakersfield	Double Track BNSF Jastro/Landco to Shafter (Draft 2012 State Rail Plan)	\$71,300,000
Local Passenger Rail	Shafter, Wasco	Double Track BNSF Shafter to Wasco (Draft 2012 State Rail Plan)	\$37,000,000
Local Passenger Rail	NW Bakersfield	Jastro Curve Realignment (Draft 2012 State Rail Plan)	\$50,000,000
Local Passenger Rail	Wasco, Bakersfield	Corridor Wide Signal Upgrades to 90 MPH - Oakland to Bakersfield (Draft 2012 State Rail Plan)	\$55,000,000
Local Passenger Rail	Wasco, County	Double Track BNSF Wasco to Corcoran (Draft 2012 State Rail Plan)	\$200,000,000
Local Passenger Rail	Eastern California	Mammoth Lakes to Lancaster/Palmdale (2005 E. Sierra Public Transit Study)	\$3,335,000,000
Local Passenger Rail	Metro Bakersfield	Rail Connections to High Speed Rail Station	\$200,000,000
Commuter Rail	Buttonwillow, SW Bakersfield	Metro/Southwest Corridor (2012 Commuter Rail Study)	\$158,300,000
Commuter Rail	Arvin, Lamont, SE Bakersfield	Metro/Southeast Corridor (2012 Commuter Rail Study)	\$162,400,000
Commuter Rail	Wasco, Shafter, NW Bakersfield	Metro/Northwest Corridor (2012 Commuter Rail Study)	\$220,600,000
Commuter Rail	Mojave, Cal City, Tehachapi	Metrolink Service Extension - Tehachapi Corridor (2012 Commuter Rail Study)	\$231,300,000
Commuter Rail	Delano, McFarland	Metro/Airport, Delano Corridor (2012 Commuter Rail Study)	\$317,800,000
Light Rail	Bakersfield	Metropolitan Bakersfield Light Rail System (2012 Long Range Transit Plan)	\$4,000,000,000
High Speed Rail	Kern, L.A. County	Northwest of Bakersfield to Palmdale (potential <i>early</i> initial operating segment from Madera to Palmdale Metrolink Service)	\$20,000,000,000
<b>Sub-total</b>			<b>\$29,087,700,000</b>

## CHAPTER 5 STRATEGIC INVESTMENT

**TABLE 5.2 - Unconstrained Program of Projects Continued**  
**Beyond 2042 - Freight rail**

Project	Location	Scope	YOE Cost	Project ID
Intermodal hub	Delano	RailEx Expansion Phase 3 (Draft SJV Interregional Goods Movement Plan IGM)	\$20,000,000	
Intermodal hub	Shafter	Shafter Inland Port Phases 2 & 3 (Draft SJV IGMP)	\$60,000,000	
shortline rail	Delano, Shafter, McFarland	Shortline Rail Rehabilitation and Gap Closure (Draft SJV IGMP)	\$100,000,000	
shortline rail	Bakersfield	SJVR - Expand Bakersfield Yard Capacity (Draft SJV IGMP)	\$250,000,000	
shortline rail	Arvin, Tejon, Buttonwillow	SJVR - Shortline Rail Improvements (Draft SJV IGMP)	\$100,000,000	
shortline rail	Mojave	Mojave - Airport Rail Access Improvements (Draft SJV IGMP)	\$3,000,000	
<b>Sub-total</b>			<b>\$533,000,000</b>	

**Beyond 2042 - Active Transportation**

Project	Scope	YOE Cost	Project ID
Future long-range non-motorized updates for bicycle and pedestrian related infrastructure may indicate a greater need for capital improvements. During the life of this plan, current expectations may be met as outlined in recent long-range bike and pedestrian studies and reflected in Table 5.1. Should these expectations change in the future this plan will be updated.			
<b>Sub-total</b>		<b>\$0</b>	

**Beyond 2042 - Aviation**

Airport	Scope	YOE Cost	Project ID
California City	Capital Improvements	\$15,479,900	
Inyokern	Capital Improvements	26,429,900	
Kern Valley	Capital Improvements	4,723,827	
Meadows Field	Capital Improvements	36,260,000	
Mojave	Capital Improvements	40,883,089	
Poso	Capital Improvements	450,000	
Shafter - Minter Field	Capital Improvements	8,280,000	
Taft	Capital Improvements	1,804,000	
Tehachapi Municipal	Capital Improvements	7,911,400	
<b>Sub-total</b>		<b>\$142,222,116</b>	

Aviation updates taken from Capital Improvement Plan California Aviation System Plan 2017 ~ 2026

(ACTIVE TRANSPORTATION PROJECTS ARE FOUND IN TABLE 5.1)

**TABLE 5.2 - Unconstrained Program of Projects Continued**

Major Highway Improvements				
Project	Location	Scope	YOE Cost	Project ID
<b>Beyond 2042 - Major Highway Improvements</b>				
Interstate 5	Kern	From Fort Tejon to Rt 99 - w iden to ten lanes	\$86,000,000	KER08RTP027
Interstate 5	Kern	Grapevine interchange - construct new interchange / relocate weigh stati	\$176,000,000	KER18RTP004
Interstate 5	Kern	Laval Road - interchange improvements	\$4,000,000	KER18RTP005
Interstate 5	Kern	7th Standard Rd Interchange - reconstruct	54,000,000	KER08RTP028
Route 33	Maricopa	Welch St to Midway Rd - w iden to four lanes	88,000,000	KER08RTP029
Route 43	Shafter	7th Standard Rd to Euclid Ave - w iden to four lanes	37,000,000	KER08RTP030
Route 46	Wasco	I-5 to Jumper Ave - w iden to four lanes	118,000,000	KER08RTP031
Route 46	Wasco	Jumper Ave (North) to Rt 43 - w iden to four lanes	130,000,000	KER08RTP079
Route 46	Wasco	Rt 46 @ BNSF - construct grade separation	39,500,000	KER08RTP119
Route 46	Kern	Near Lost Hills at Interstate 5 - upgrade and w iden interchange	130,000,000	KER08RTP033
Route 46	Wasco	Rt 43 to Rt 99 - w iden to four lanes	70,000,000	KER08RTP032
Route 58	Kern	Rosedale Highway - I-5 to Rt 43 - w iden to four lanes	31,000,000	KER08RTP038
Route 58	Bakersfield	Future Rt 58 from I-5 to Heath Rd at Stockdale Hwy - construct new freeway	500,000,000	KER08RTP114
Route 58	Tehachapi	Dennison Rd - construct interchange	33,000,000	KER08RTP036
Route 58	Bakersfield	Near General Beale Rd - new truck weigh station	11,000,000	KER08RTP034
Route 58	Kern/Tehachapi	East of Tehachapi to General Beale Rd - truck auxiliary lanes / escape ramp	86,000,000	KER08RTP035
Route 58	Bakersfield	General Beale Rd - construct new interchange	54,000,000	KER08RTP037
Route 65	Kern	Merle Haggard Dr to County Line - w iden to four lanes	216,000,000	KER08RTP039
Route 99	McFarland	Construct new interchange at Hanawalt	88,811,000	KER18RTP001
Route 99	County/Bkfd	Rt 99 @ Minkler Spur - construct grade separation	69,000,000	KER08RTP134
Route 99	County/Bkfd	7th Standard Road to Lerdo Highway - w iden to 8 lanes	90,000,000	KER18RTP003
Route 119	Taft	Rt 33 to Cherry Ave - w iden to four lanes	54,000,000	KER08RTP040
Route 119	Taft	Tupman Rd to I-5 - w iden to four lanes	60,000,000	KER08RTP041
Route 155	Delano	Rt 99 to Browning Rd - four lanes; reconstruct	32,000,000	KER08RTP042
Route 155	Delano	Rt 155 @ UPRR - construct grade separation	39,500,000	KER08RTP120
Route 166	Maricopa	Basic School Rd - reconstruct intersection grade	517,582	KER08RTP043
Route 178	Kern Canyon	Vineland to China Garden - new freeway	500,000,000	KER08RTP044
Route 204	Bakersfield	(Golden State Ave) Rt 99 to M St - construct operational improvements	100,000,000	KER08RTP082
Route 202	Tehachapi	Tucker to Woodford-Tehachapi Rd - w iden to four lane	9,704,661	KER08RTP047
Route 223	Near Arvin	Rt 99 to Rt 184 - w iden to four lanes	69,010,921	KER08RTP048
Route 223	Arvin	East Arvin city limits to Rt 58 - w iden to four lanes	64,697,738	KER08RTP049
US 395	Johannesburg	San Bdo County Line to Rt 14 - w iden to four lanes	244,000,000	KER08RTP050

## CHAPTER 5 STRATEGIC INVESTMENT

**TABLE 5.2 - Unconstrained Program of Projects Continued**

Major Highway Improvements				
Project	Location	Scope	YOE Cost	Project ID
<b>Beyond 2042 - Major Highway Improvements</b>				
South Beltway	Bakersfield	I-5 to Rt 58 - new expressway	\$610,000,000	KER08RTP074
Santa Fe Way	Bakersfield	Hageman to Los Angeles Ave - widen to four lanes	127,238,885	KER08RTP051
East Beltway	Bakersfield	Rt 58 to Morning Drive - construct new expressway	200,000,000	KER08RTP078
Beale Road	Bakersfield	L St/Beale @ BNSF - construct grade separation	69,000,000	KER08RTP127
Q Street	Bakersfield	Q St @ UPRR near Golden State Hwy - construct grade separation	59,000,000	KER08RTP136
Comanche Drive	Cnty/Bkfd	Comanche Dr. @ UPRR - construct grade separation	59,000,000	KER08RTP123
Olive Drive	County/Bkfd	Olive Dr. @ UPRR - construct grade separation	69,000,000	KER08RTP129
Renfro Road	County/Bkfd	Renfro Rd @ BNSF - construct grade separation	59,000,000	KER08RTP130
California City Blvd	California City	Rt 14 east six miles - widen to four lanes	22,000,000	KER08RTP052
Twenty Mule Team Rd	California City	California City Blvd to Rt 58 - widen to four lanes	21,565,913	KER08RTP053
North Gate Road	California City	California City Blvd to North Edwards - construct new four lane road	60,384,555	KER08RTP054
Woollomes Ave.	Delano	Rt 99 - widen bridge to four lanes; reconstruct ramps	134,000,000	KER08RTP056
Garces Highway	Delano	Interstate 5 to Rt 99 - widen to four lanes	288,983,230	KER08RTP057
Cecil Ave.	Delano	Wasco Pond Rd to Albany St - widen to four lanes	17,800,000	KER08RTP055
Kimberlina Road	Kern / Wasco	Kimberlina Rd @ BNSF - construct grade separation	59,000,000	KER08RTP132
Red Apple Rd	Kern	Tucker Rd to Westwood Blvd - widen to four lanes	4,313,183	KER08RTP058
Sierra Way	Kern	Lake Isabella at South Fork Bridge - reconstruct bridge	51,758,190	KER08RTP059
Frazier Park	Kern	Park and Ride facility near Frazier Park Blvd	12,939,548	KER08RTP060
Wheeler Ridge Rd	Kern	I-5 to Rt 223 - widen to four lanes	129,395,476	KER08RTP061
K Street	Kern	Mojave - extend K St to Rt 14	12,939,548	KER08RTP063
Kratzmeyer Road	Kern	Kratzmeyer Rd @ BNSF - construct grade separation	59,000,000	KER08RTP128
Airport Drive	Kern	Airport Dr. @ UPRR - construct grade separation	69,000,000	KER08RTP131
Rosamond Blvd	Kern	Rosamond Blvd @ UPRR - construct grade separation	69,000,000	KER08RTP133
K Street	Kern / Mojave	K St @ UPRR - construct grade separation	69,000,000	KER08RTP135
Elmo Highway	McFarland	Elmo Hwy @ UPRR - construct grade separation	69,000,000	KER08RTP124
Dennison Road	Tehachapi	Green St/ Dennison Rd @ UPRR - construct grade separation	69,000,000	KER08RTP121
Teh. Willow Springs Rd	Tehachapi	Rt 58 to Rosamond Blvd - widen to four lanes	150,961,389	KER08RTP064
Valley Blvd	Tehachapi	Tucker Rd to Curry St - widen to four lanes	23,722,504	KER08RTP065
Kern Ave.	McFarland	Pedestrian bridge at Rt 99 - reconstruct	5,391,470	KER08RTP066
Mahan St	Ridgecrest	Inyokern to South China Lake Blvd - widen to four lanes	32,348,869	KER08RTP067
Richmond Rd	Ridgecrest	E Ridgecrest Blvd - widen to four lanes	6,469,774	KER08RTP068
Bowman Rd	Ridgecrest	China Lake to San Bernardino Blvd - reconstruct	4,313,183	KER08RTP069

TABLE 5.2 - Unconstrained Program of Projects Continued

Major Highway Improvements				
Project	Location	Scope	YOE Cost	Project ID
<b>Beyond 2042 - Major Highway Improvements</b>				
S. China Lake Blvd	Ridgecrest	Rt 395 to College Heights - reconstruct	\$36,662,052	KER08RTP070
Lerdo Highway	Shafter	Lerdo Hwy / Beech Ave @ BNSF - construct grade separation	69,000,000	KER08RTP125
Burbank Street	Shafter	Burbank St @ BNSF - construct grade separation	59,000,000	KER08RTP126
7th Standard Rd	Shafter	I-5 to Santa Fe Way - widen to four lanes	90,576,833	KER08RTP072
Zachary Rd	Shafter	7th Standard Rd to Lerdo Hwy - widen to four lanes	34,505,460	KER08RTP073
<b>North Beltway</b>	<b>Shafter</b>	I-5 to SR 65 - Burbank Street Alignment - construct new highway	<b>500,000,000</b>	<b>KER18RTP002</b>
West Beltway-South	South metro	Taft Hwy to I-5 - extend freeway	100,000,000	KER08RTP075
West Beltway-North	North metro	7th Standard Rd to Rt 99 -extend freeway	100,000,000	KER08RTP076
<b>Sub-total</b>			<b>\$6,969,011,961</b>	

**Beyond 2042 - Local Streets and Roads**

Project	Location	Scope	YOE Cost	Project ID
Various Locations	Region	Bridge and street widening; reconstruction; signalization	\$500,000,000	
<b>Sub-total</b>			<b>\$500,000,000</b>	

**Beyond 2042 - Summary of Unconstrained Projects**

Program Category	Totals
Major Highway Improvements	\$ 6,969,011,961
Local Streets and Roads	\$ 500,000,000
Transit	\$ 29,087,700,000
Active Transportation	\$ -
Aviation	\$ 44,678,000
<b>Grand Total</b>	<b>\$ 36,601,389,961</b>

## CHAPTER 5 STRATEGIC INVESTMENT

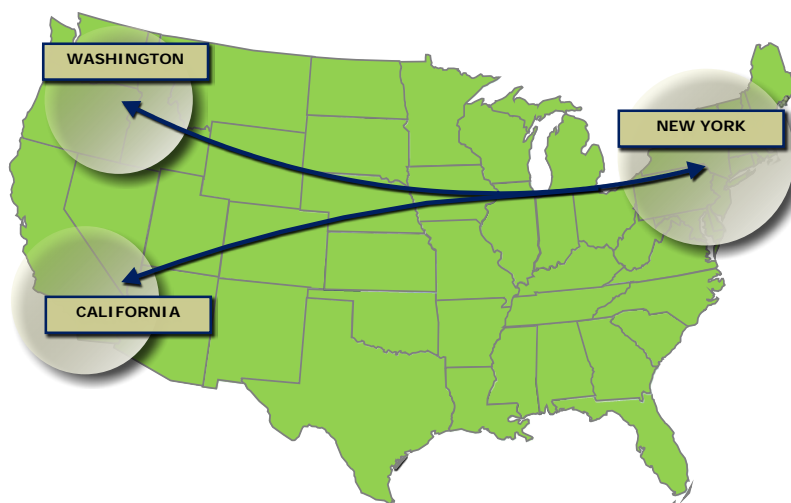
### FREIGHT MOVEMENT ACTION ELEMENT

See the *Land Use Action Element – Highway/Road Land Use Actions*; *Land Use Action Element – Rail/Transit Land Use Actions*; *Land Use Action Element – Global Gateways Land Use Actions*; *Land Use Action Element for freight movement proposed actions*. See Chapter 4, *Sustainable Communities Strategy*, for further discussion on sustainable land use decisions relative to freight movement.

Efficient freight transportation is critical to the economic health of the Kern region. As one of the prime agricultural regions in the nation, the intra-county road linkage of goods to processing plants, and the intercounty linkage of goods to other regions, manufacturers, and shipping ports is essential. In 2017, Kern County for the first time advanced to the number one agricultural producing county in the nation and is the number 2 producer of oil in the lower 48 states. These industries rely heavily on bulk movement by truck, rail and pipeline.

The San Joaquin Valley is also becoming a prominent location for regional distribution centers of consumer products, providing service to coastal population centers as well as its own growing population. In addition, the manufacturing and employment base of the valley is increasing. All these factors contribute to increasing demand for freight transportation.

**Figure 5-2: Delano Union Pacific Cold Connect Facility – Rail Gateway for California's Produce to the East Coast via Union Pacific/CSX Transportation**



### Existing System

#### Rail

Trains provide an economical means of transporting bulk goods over long distances. Their ability to haul large amounts of cargo make for an overall low energy requirement per unit of weight when compared to truck or air transport. The cost and labor associated with loading and unloading trains inhibit use of rail for short hauls locally and within the state.

Two major rail companies, Union Pacific (UP) and Burlington Northern Santa Fe (BNSF), serve Kern County. UP representatives report that they operate an average of 19 trains per day through the San Joaquin Valley carrying food products, general freight, grain, and lumber. In January 2017, UP acquired RailEx LLC's refrigerated and cold storage distribution assets in Delano, a refrigerated rail car and warehousing service now being marketed as UP Cold Connect, to offer perishable goods transportation from the San Joaquin Valley to New York. The UP Food Train network provides a fast and reliable service from this agricultural region to the Midwest consumer base via Chicago and further into the heart of the Northeast region via CSX Transportation. UP has announced plans to increase use of the facility by transporting goods from the Salinas Valley.



The San Joaquin Valley Railroad operates a regional freight service between Tulare, Fresno, and Kern counties on leased UP and BNSF branch lines connecting outlying areas to mainline carriers. They move freight comprised primarily of agricultural and petroleum-based products.

Most cargoes shipped by rail to and from Kern are bulk items such as grains, food products, and oil products. Rail transport provides the option of specialized rail cars such as flatbeds, refrigerated boxcars, fuel tankers, and piggyback cars. These specialized rail cars allow movement of a large variety of goods, giving rail an advantage over other transportation modes for distances over 500 miles. Transport by rail is generally less expensive for long hauls than air or truck transport; however, rail is limited by speed, by fixed track, and by scheduling.

A major example of rail limitation is the route over Tehachapi Summit. Part of the route is single track, and although tunnels have been modified to allow double-stacked containers to pass through, traffic in the opposite direction is often diverted to sidings, creating a congested bottleneck. With the recently completed Tehachapi Pass capacity improvement project jointly funded by the State of California and the BNSF, the 35 trains that could pass through the summit daily, has now increased to 50 trains per day.

Some have suggested that the California High Speed Rail Authority might be able to attract private sector investment by making the tunnels through the Tehachapi Pass provide a parallel rail corridor for that could act as a redundant emergency access tunnel. Decreased travel times and reliability through the Tehachapi pass bottleneck could improve the efficiency/cost effectiveness of freight in a way that could be leveraged to fund the tunnel system through the pass.

### Inland Port and Intermodal Rail Facilities

Intermodal rail terminals are the starting and ending points for trains, as well as the sites of crucial dissemination between modes. Terminals vary widely in configuration, capacity, and operations. Figure 5-3 shows Kern's location at the geographic center of population for California. The Kern region has seen the development of intermodal rail facilities, distribution centers, and value-added production facilities due to Kern's location at the central crossroads of the state.

In the 1980s, railroads consolidated their intermodal service networks into fewer, larger hubs. Railroads saw an opportunity to consolidate facilities through mergers, and the need to consolidate sufficient volume in one location to justify lift machines. The forecasted growth of intermodal traffic, double-stacked container trains, and the entry of piggyback rail/truck trailer initiatives all raise questions about the adequacy of intermodal terminals to handle rail traffic increases efficiently and effectively. In 2006, UP opened a transload facility for shipping perishable goods to Albany, New York for distribution to eastern grocery chains. This facility operates like an intermodal facility except truck loads are loaded onto railcars instead of using containerized or piggyback transfers. Other intermodal distribution facilities include locations for bulk shipping of agricultural products such as grains, coal, propane, and specialty oil products.

The City of Shafter owns and operates the Shafter Rail Terminal (SRT), a non-exclusive, regional rail terminal located adjacent to the Wonderful Industrial Park (WIP). The City has serviced up to 1,500 rail cars per year at the facility and is capable of servicing existing customers, performing manifest work, handling grain trains as well as Trailer on Flat Car trains subject to BNSF providing service. In 2014, the City of Shafter completed a \$3 million expansion funded with Congestion Mitigation and Air Quality funds that enable the facility to handle all levels of service including intermodal, boxcar, tankers, hoppers, and gondolas. The City of Shafter has also completed a Container Yard and is considering a Container Freight

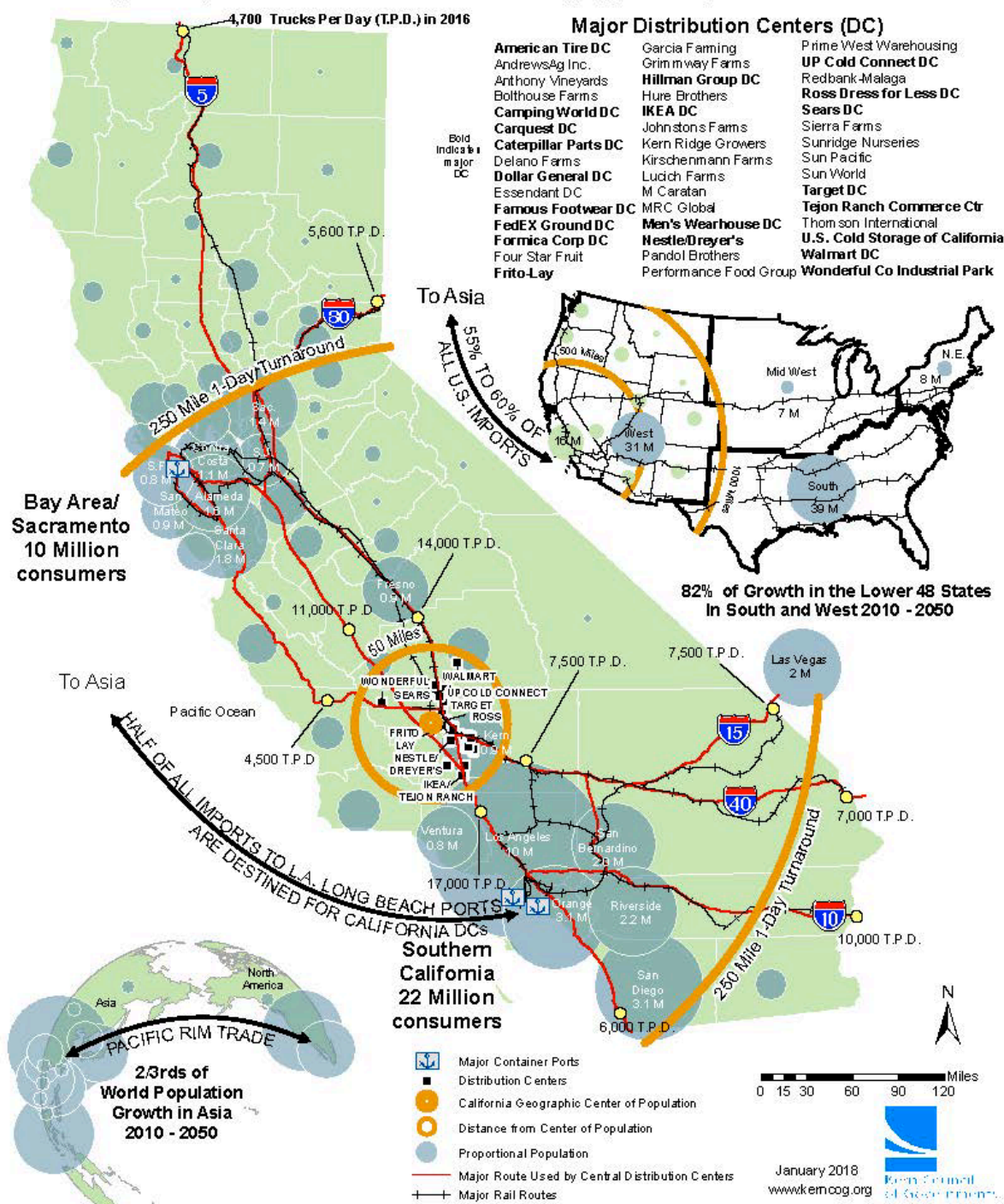
## CHAPTER 5 STRATEGIC INVESTMENT

Figure 5-3:

### California Logistics Distribution Center Cluster

Over 45 Distribution Centers Located within 50 Miles of State Center of Population

Located in Kern County in the immediate vicinity of the City of Shafter, the geographic center of population is the weighted single point that is closest to all people in California. It is the location with the lowest shipping cost and carbon footprint for facilities designed to ship to consumers statewide. It is also a hub for shipping goods throughout the West.



Transload hub, depending on demand. The facility services the WIP as well as other regional users. Expansion plans include establishing a grain transloading facility that would bag and load into shipping containers from bulk grain shipments from the Midwest. The facility could handle additional products from the local region ranging from almonds to specialized oilfield equipment. Two key elements for the success of an inland port are 1) sufficient distance to warrant the cost of loading and unloading trains and 2) a supply of empty containers nearby. The SRT is ideally located approximately 300 miles by rail from both the Port of Oakland and 150 miles from the Ports of L.A./Long Beach, and has a ready supply of empty shipping containers collected from the WIP as well as multiple distribution centers located within 50 miles of the facility.

An inland port would serve as a cargo facilitation center, where a number of import, export, manufacturing, packing, warehousing, forwarding, customs, and other activities could take place in close proximity or at the same site. This facility could function as an inland sorting and depository center for ocean containers transported to the inland port via truck or rail. A major issue regarding the rail facility is the need for rail shuttle service to the ports.

The City of Shafter is supporting an inland port status at the SRT facility. The facility's first phase would include a container hub allowing distributors to drop empty containers at the site that other drivers can pick up. Filling empty containers has the potential to eliminate a large number of empty truck trips over the Grapevine and through the Los Angeles basin. The plan would benefit regional air quality by bringing efficiency to the logistics system in addition to creating jobs.

The City of Delano is working closely with UP Cold Connect intermodal facility to expand use at that facility. The resulting capacity increase could allow shipments to and from this facility to double to nearly \$1 billion in gross shipments annually, further benefiting air quality and job creation. As fuel prices climb the competitiveness of shipping produce by rail will continue to improve.

The Tejon Ranch Commerce Center (TRCC) is the site of the largest activated Foreign Trade Zone (FTZ) in California at 177 acres and has the ability to expand to 500 acres. FTZ's are sites near ports of entry where foreign and domestic merchandise considered international trade can provide important cost-savings benefits involving customs duties and other charges. Users can obtain permission from customs to move merchandise directly from the port of arrival to the FTZ avoiding delays at congested ports. SRT, UP and TRCC are strategically located proximate to major transportation routes serving both Northern and Southern California as well as the regions to the east.

Other intermodal rail hubs include the Grimmway packing facility in southeast Bakersfield and numerous bulk shippers including expanding oil and gas refining operations that receive oil shipments from North Dakota and send refined products as far away as New England.

Another transfer facility worth exploring is a RoadRailer facility, where custom truck trailers designed to connect directly to rail wheelsets can easily switch from truck to rail; many RoadRailers use existing rail yards as transfer points.

### Trucks

Trucking is the most commonly used mode for transporting freight; its popularity stems from its flexibility, timely delivery, and efficiency for hauling distances up to 600 miles. Trucking, however, can be more expensive than rail for longer hauls because of its higher energy costs. In addition, trucking is a major cause of street- and highway-surface failures, necessitating a high level of road maintenance.

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Heavy trucks contribute to roadway deterioration much faster than do automobiles; however, deferred maintenance and water intrusion in the roadbed continue to be additional causes of road damage. As a result, Kern County streets and highways are subject to rapid deterioration and failure. According to the American Association of Highway Officials, a fully loaded 80,000-pound truck has an impact on roads equal to the passage of approximately 9,000 cars.

According to the San Joaquin Valley Interregional Goods Movement Plan completed in May 2013, in the San Joaquin Valley, trucks carry more than 90% of outbound, inbound and intraregional tonnage. Of the 425 million tons moved by truck into, out of, or within the San Joaquin Valley in 2007, more than half are classified as intraregional moves. Truck usage is to be expected in a major agricultural and energy producing region. Inbound commodities to the San Joaquin Valley account for about 29% of the non-through flows and originate in locations including the San Francisco Bay Area, Southern California, the Central Coast and from outside of California. Outbound tonnage comprises about 22% of all non-through moves; again destined for locations including the San Francisco Bay Area, Southern California, the Central Coast and from outside of California.

Major interregional highway corridors handle relatively high volumes of heavy truck traffic. According to the Interstate (I)-5/State Route (SR)-99 Origin and Destination Truck Study (October 2009), the majority of heavy duty trucks traveling on those corridors are 5-axle Double Unit (one unit is the tractor) trucks (71.2% to 90.61%). There are slight differences between fall and spring truck travel. By their very size and slower speed, trucks lead to congestion and reduced levels-of-service on rural highways and local streets. In addition, emissions from trucks, like automobiles and trains, have an adverse effect on air quality. An ever increasing array of federal, state, and air district regulations on truck emissions are continuing to improve this situation. At the Ports of L.A./Long Beach alternative fuels and electric trucks are greatly improving air quality.

While the San Joaquin Valley's major trucking corridors are centered on the north-south arteries of I-5 and SR 99, other state highways, such as SRs 46 and 58, play key distribution roles as well. As Kern County expands its population and employment base, the need for direct, high-capacity east/west truck corridors becomes increasingly crucial. Special attention must be given to the interregional routes to ensure that they remain in serviceable condition and that major reconstruction costs are minimized.

### Goods Movement Studies

In 2017, Kern COG completed two goods movement studies in coordination with the San Joaquin Valley Transportation Planning Agencies. The first one was the I-5/99 Goods Movement Study that looked at options for moving goods through the SJV. The second study was the San Joaquin Valley Goods Movement Sustainable Implementation Plan (SJVGSIP). Key recommendations for the 8-county region included:

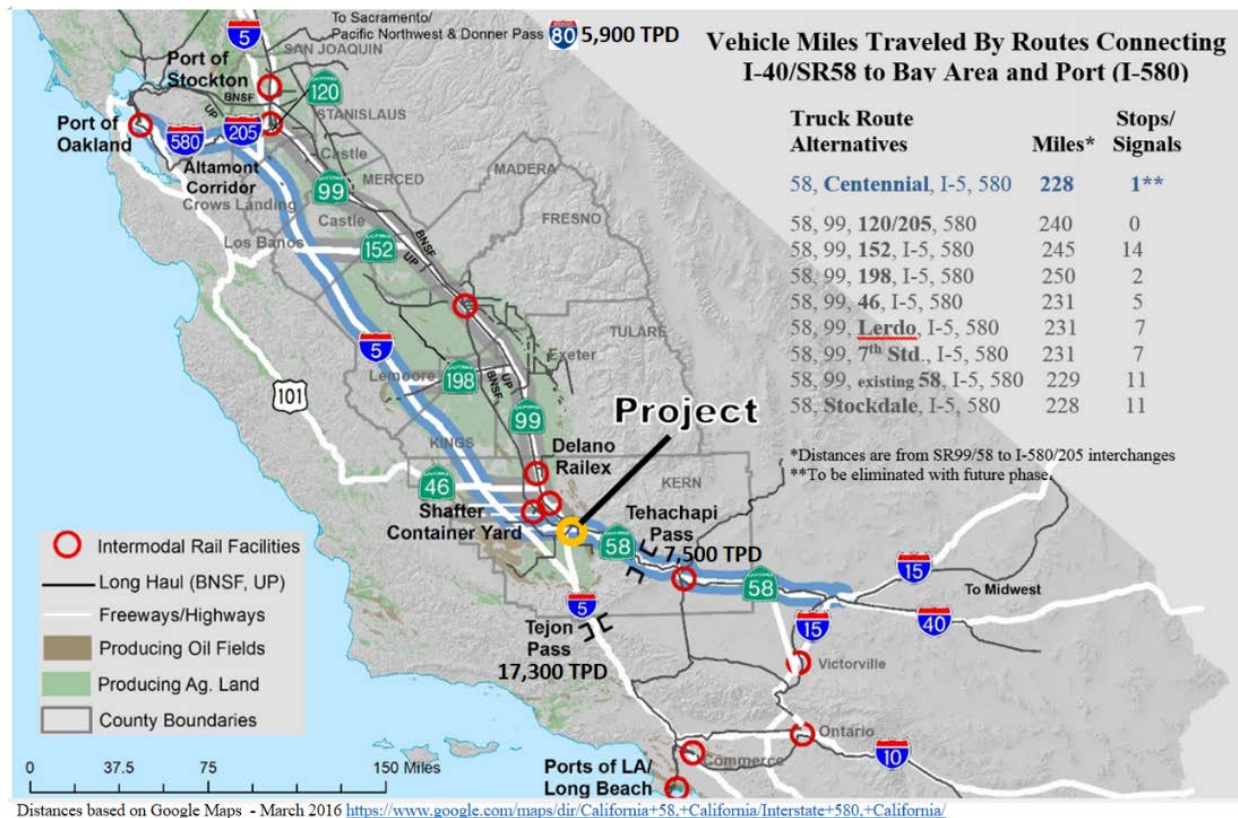
- Identifying and recommending further analysis on connecting corridors including SR-58;
- Identifying projects that may be available for construction in the next 5 years;
- Identifying Intelligent Transportation System solutions for the corridor;
- Identifying operational improvements for goods movement in the region; and
- Identifying truck platooning along the I-5 corridor.

Specifically, the I-5/99 Goods Movement study identified two major corridor to corridor projects that would improve goods movement flow statewide. The first is the completion of the SR-58 Centennial Corridor Project. Figures 5-4 & 5 illustrate how the third phase of the Centennial project when completed in 2021



will shave 12 miles and 7 traffic signals off the average truck trip between the North Valley/Bay Area and I-40 corridor, potentially reducing thousands of vehicle miles traveled and emissions per year.

**Figure 5-4: Major Goods Movement Corridors**



**Figure 5-5: Four Phases of SR 58 Centennial Goods Movement Corridor Connecting I-5 to SR 99**



SR 58 was a joint project with Caltrans and San Bernardino County. The Origins and Destinations Truck Study on SR 99 and I-5 was conducted in partnership with the Tulare County Association of Governments,

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Fresno COG, and Caltrans. In addition, Kern COG commissioned the Origins and Destinations Truck Study on SRs 223, 166, 119, 46, and 65. The three truck studies can be found on the Kern COG website using the following link <http://www.kerncog.org/cms/publications/publications>.

The studies found that trucking dominates SR 58, SR 99, and I-5 corridors. On the SR-58 segments near I-5, SR 14, and US 395, trucks accounted for 29% to 52% of the traffic. On segments of I-5 and SR 99, trucks made up 30% and 40% of the traffic. On SR 58, 56% of the trucks were from out of state, and on I-5/SR 99 only 15% were from out of state, with 57% destined for Southern California. It is important to note that 12% of containers on SR 58 were empty, and 18% on I-5/SR 99 were empty, indicating that there may be some opportunities to reduce deadheading in these corridors. When freight trucks haul full containers to and from delivery locations, shipping costs are cut by as much as 40%.

### Air Freight Service

Air freight service is most commonly characterized by the fast shipment of small items of high value over long distances for high cost. Goods movement by air is an emerging element of freight activity in the San Joaquin Valley. Statewide, 23 out of 43 commercial air carrier airports account for almost 3 million tons of freight transported by air. While air freight is a specialized transportation mode, it accounts for an estimated 33% of the export values in California.

Air carriers depend heavily on truck transportation to deliver goods for transport. A significant feature of air shipment is its dependability and very short in-transit time. Air freight has not played a large role in the Kern area, but with the continued growth of the Los Angeles basin, it is feasible that air freight carriers would consider Kern a favorable alternative location.

### Pipelines

Various pipelines carry natural gas, crude oil, and other petroleum products throughout Kern County. Storage, pumping, and branch lines are used to distribute those products. Southern California Edison (SCE) and Pacific Gas and Electric Company (PG&E) are responsible for the maintenance and operation of the natural gas line, while major petroleum corporations are responsible for the crude oil pipelines throughout the region. State and federal agencies regulate the use of pipelines.

Kern lies at the crossroads of many pipeline systems connecting the West Coast and the nation. This pipeline network provides opportunities for expansion and creation of new terminal facilities. Kern is host to both natural gas and propane intermodal terminals. There are currently crude or gasoline pipeline networks connecting Kern to the Midwest. Over the past several years Kern has experienced an increase in shipments of crude oil from North Dakota to local refineries. Kern's extensive pipeline network may provide a way to translate these shipments to the major refineries in the Bay Area and Southern California.

### Hazardous Material Movement

Because more than 50% of all goods transported throughout the world are hazardous to some degree, human life and property are potentially endangered. Each year, more than 4 billion tons of hazardous products and waste are transported throughout the United States. Hazardous materials are typically transported by rail or by small or large trucks but are also transported by air and pipeline.

Within the Kern region, emphasis is placed on hazardous materials routing and training of emergency personnel in the event of an accidental spill. Interstate transportation of hazardous products and waste through the Kern region on Interstate 5 and State Route 99 increases the probability of dangerous spills. The County of Kern and the City of Bakersfield maintain Hazardous Material Response Units.



Potentially adverse effects associated with transporting hazardous materials can be partially mitigated by restricting roads available to these shipments. Under California law, transportation of hazardous waste must be carried out via the most direct route over interstate highways whenever possible. Exceptions to this general rule are such occasions when it is necessary to avoid highly congested and densely populated areas.

Kings County, northwest of Kern County, is the site of a Class 1 hazardous waste facility. The facility, located at Kettleman Hills, draws trucks carrying hazardous materials from all western states. The presence of these trucks on regionally significant routes increases the probability of dangerous spills.

Hazardous shipments by rail are becoming a growing concern as well. Increased shipments of petroleum products need to be protected against spills and fire. The Kern County Fire Department has specially trained hazardous material (HAZMAT) spill responders funded by the oil industry to respond to transportation-related emergencies.

## Needs and Issues

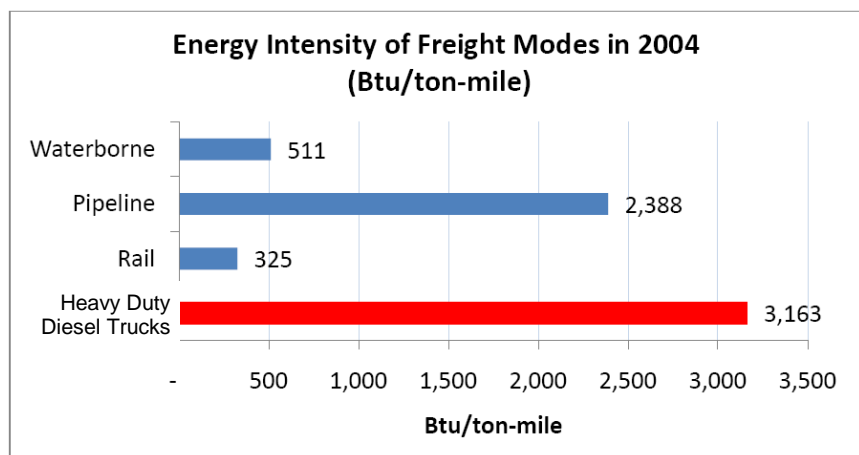
Logistics, agriculture, food processing, energy production, and refining provide a stable base to the economy of Kern County and are dependent on the goods movement infrastructure. Population and economic growth pressures have resulted in increased traffic congestion on the rural roadways that facilitate the “farm to market” goods movement. This congestion affects the safe and timely delivery of fresh produce to market and processing plants.

Farm-related transportation also involves the need to move farming equipment along rural roadways. These roadways are usually single-lane with limited shoulders. Heavy, slow-moving farm equipment along these roads conflict with commuter travel requirements and can create unsafe travel conditions.

The evolving freight movement industry has introduced the concept of “just-in-time delivery,” which replaces warehouses with freight haulers. With just-in-time delivery, the efficient and timely movement of freight along highways and railways becomes ever more essential to the region’s economic growth and development.

Figure 5-6 demonstrates that hauling freight by rail is 10 times more energy efficient than shipping by truck. Preserving and expanding rail use for goods movement will help both regional and environmental goals for the region. Efforts should focus on the development of intermodal rail terminals and the preservation of businesses along the short rail lines to ensure continued use of the short haul rail system. Facilities such as UP Cold Connect in Delano are demonstrating that private capital is already investing in the region’s rail infrastructure.

**Figure 5-6: Energy Efficiency by Transport Modes**



From: ICFI, “Greenhouse Gas Emissions from Freight Trucks”, International Emissions Inventory Conference May 16, 2007

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Kern COG is working with the Central California Rail Shippers/Receivers Association (CCRSRA), San Joaquin Valley Railroad (SJVR) and other rail service providers in the region, and the Kern Economic Development Corporation to find ways to maintain and increase the use of the short-haul rail lines for freight in Kern County. Strategies may include better communication and coordination with the stakeholders as well as the development of public/private partnerships for financing improvements.

### Short Haul Rail Abandonment Issue

In 2010, Kern COG hired Wilbur Smith Associates to conduct the Phase 1 Kern County Rail Study, followed by the Phase 2 Study completed in the summer of 2012. The studies stemmed from a growing concern about the abandonment of short-haul rail lines. During the 1990s, the Eastern Sierra/Lone Pine subdivision connecting the rail spur with China Lake Naval Air Weapons Center was abandoned by Union Pacific (formerly Southern Pacific) as far south as the Trona Railway. In addition, two segments of the old Southern Pacific rail line heading north out of the county to the Port of Oakland were abandoned at about the same time as Southern Pacific (SP) was acquired by UP. In 2009, the federal Surface Transportation Board (STB) approved a third abandonment of a 30-mile segment of the old SP line in Tulare County from the Kern County line, several miles east of Delano, to Porterville.

The Central California Rail Shippers/Receivers Association has concerns that similar abandonments in Kern might happen for two reasons: (1) increasing tariffs and fees by the rail providers, (2) lack of use by business along the route. Lack of use may be partially caused by high railroad tariffs and fees that make it cheaper to ship by truck, or price transport costs beyond what the market can bear, forcing curtailment or closure of the business. After two years of non-use, the STB can approve an abandonment request by the railroad service provider. When rates for scrap metal are high, the risk of rail abandonment increases considerably. The Phase 2 Study determined that a 12.5-mile segment of the Arvin Subdivision is likely to be abandoned.

The studies analyzed alternative uses for rail right-of-way which could help preserve the rail corridor. Although some former rail corridors have been preserved with rails to trails projects, such as in downtown Taft, in many cases preventing abandonment altogether is preferable. Once the rail line is removed, highway crossings can be very expensive to rebuild and mitigate, mainly since the public is no longer accustomed to looking for trains at the road-crossing locations. Some regions are maintaining short-haul lines through a public/private partnership, where the public entity owns the rails and leases their use to a private entity. Others are considering preservation of the line for future passenger service as a feeder rail system for the high-speed rail system. Additional alternatives include right-of-use agreements, where the extra right-of-way on either side of the rail can be used for multi-use trails, roads, and express bus lanes.

In 2013, the SJVR was acquired by Genesee & Wyoming Railroad (G&W). The new ownership has reached out to the CCRSRA and its members and alleviated some of local shippers/receivers concerns about curtailment of short-haul rail service. This issue remains critical to the achievement of regional transportation and air emission goals.

Greater coordination and integration of the various freight transportation modes is becoming increasingly important. Limited resources and intense pressure on existing transportation systems have brought broad-based support for intermodal transportation systems. Kern COG promotes public/private cooperation between modes to increase goods movement efficiency while maintaining a reasonable highway level of service.

## **Proposed Actions**

### Near-Term, 2018–2020

- Develop an annual freight movement stakeholders group for coordinating preservation and expansion efforts.
  - Coordinate preservation and expansion efforts.
  - Encourage communication between short-line rail operators, shippers, and economic development agencies.
  - Explore options for potential uses of the southern portion of Arvin Subdivision as identified in the Kern County Rail Study Phase 2.
  - Explore the potential to retain freight rail service on the southern portion of the Arvin Subdivision. Coordinate with SJVR, Tejon Ranch Company, and other potential area shippers/users, area economic development agencies and the Central California Rail Authority.
  - Explore rail intermodal, transfer facility, and alternative transfer options for the region.
- Maintain liaison with Southern California Association of Governments and all San Joaquin Valley Councils of Government for efficient coordination of freight movement between regions and counties.
- Construct truck climbing lanes on eastbound SR 58 from General Beale Road to the Bena Road overcrossing.
- Program infrastructure improvements such as the widening of Seventh Standard Road in response to proposed freight movement activities in the area.
- Continue development of Shafter Rail Terminal for intermodal freight transfer activities.
- Continue development of the Delano UP Cold Connect Facility for intermodal freight shipping to the East Coast.

### Long Term, 2021–2042

- Widen State Route 184 to four lanes to respond to increasing agricultural trucking activity.
- Widen Wheeler Ridge Road to four lanes as a gap-closure measure to tie I-5 to SR 58 via SR 184.
- Construct new SR 58 freeway through Metropolitan Bakersfield from existing SR 58 at Union Avenue to SR 99 near Golden State Avenue (SR 204), continuing west to I-5. This freeway component would relieve some of the congested truck movement on SR 99.
- Expand rail service to existing distribution centers throughout the County.

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### PUBLIC TRANSPORTATION ACTION ELEMENT

*See the Land Use Action Element – Rail/Transit Land Use Actions for proposed actions related to rail and public transportation modes. See Chapter 4, Sustainable Communities Strategy, for further discussion on sustainable land use decisions relative to rail and public transportation modes.*

#### Existing Transit Services

Within Kern County, existing public transportation services include public transit, Amtrak, and other private carriers such as Greyhound. Local and regional public transit is available within and between sixteen Kern County communities and has been experiencing some challenges. From 2009/10, to 2014/15 public transit services in Kern County saw a 21% reduction in passengers from 8.4 million to 6.5 million passengers. However, during that same period transit bus service nationally saw a 5% reduction and is at its lowest level in more than 20 years. Potential causes of these challenges include an improving economy and lower fuel prices that allow more people to afford their own vehicle. Also, there appears to be a relationship between shared mobility technology using private smart phone application services (i.e. Urber, Lyft, Waze, etc.) that may be affecting transit ridership. Kern is addressing this issue with new studies that are helping to navigate through these new transit challenges. The following is an overview of Kern's transit service providers.

**Kern Transit (KT)**, operated by the County of Kern, provides service to the unincorporated communities of Buttonwillow, Lamont, Kern River Valley, Frazier Park, Rosamond, and Mojave. In addition, the County has agreements with several small cities to share the cost of providing transit service to county areas surrounding incorporated places, i.e., Delano, Eastern Sierra Transit Authority, Shafter, Taft, Tehachapi, and Wasco. KT also provides intercity service between Delano/McFarland/Wasco/Shafter/ Bakersfield; Lamont/Bakersfield; Lake Isabella/Bakersfield; Frazier Park/Bakersfield; California City/Mojave/Rosamond/ Lancaster/Palmdale; Lost Hills/Bakersfield; and Taft/Bakersfield.

**CalVans** is a public vanpool service that serves Central California. At the July 19, 2012, Kern COG Board meeting, the Transportation Planning Policy Committee approved a request from CalVans to become a participating member of its board through an addendum to a Joint Powers Authority. The CalVans board approved Kern COG as its newest member agency at its board meeting on September 13, 2012. In 2017 Calvans operated 31 vanpools in Kern County.

***A publicly operated vanpool system is the most practical and cost effective way of addressing transit needs in the rural areas.***

**Golden Empire Transit (GET)** was formed in 1973 and is the primary public transportation provider for the Bakersfield Urbanized Area. GET operates 16 fixed routes with a fleet of 69 buses in maximum service. The service area within .75 miles of a fixed-route is approximately 111 square miles, and the District population is 492,067. Seventy-seven percent of GET's population resides within Bakersfield city limits, and the remainder is in the unincorporated Kern County areas, including Oildale, Greenfield, Fruitvale, Greenacres, and Rosedale. GET-A-Lift provides complementary paratransit service for Americans with Disabilities Act (ADA)-eligible persons within the GET service area for those who are physically unable to use the fixed-route service. Elderly and disabled services are also provided by the Consolidated Transportation Service Agency (CTSA)

GET has determined that within Metropolitan Bakersfield, the east and southeast areas exhibit the highest service potential. This analysis is based on population density, income, auto ownership, and age. Other areas with high transit potential are portions of Oildale and central Bakersfield. The lowest potential rider areas include portions of the southwest and northwest.

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Table 5-3 summarizes public transportation services operated by Kern County, with a description of services provided by each rural public transit provider, including days of operation and type of service provided.

Transit ridership in Kern County showed a decline during FY 2012–2015 as shown in Table 5-3. Ridership for GET, KT, and Delano account for 97% of all transit riders in Kern. The three agencies combined have experienced an 11% decrease in transit ridership in the past three years.

**Table 5-3: Public Transit Operators Within Kern County**

Operator	Area Served	Service Type	Days of Service	Fare Structure	
				Regular	Discount
Arvin	Arvin, Lamont Tejon Industrial Complex	Dial-a-ride	Mon-Fri	\$1.00 \$2.00	\$.75 seniors, disabled & youth 5–15
California City	California City	Dial-a-ride	Mon-Fri	\$1.70	\$1.00 seniors, disabled, children under 4'9"
<b>CTSA</b>	Metro Bakersfield	Dial-a-ride	Mon-Fri	\$2.00	–
Delano	Delano and adjacent unincorporated area	Fixed route Dial-a-ride	Mon-Sat	\$1.50 \$4.00	\$.75 seniors/disabled \$.50 students 5 and under
McFarland	McFarland	Dial-a-ride	Mon-Fri	\$1.00	\$.50 seniors, disabled, students
Eastern Sierra Transit Authority	Eastern Sierra Transit Authority and adjacent unincorporated area	Dial-a-ride	Mon-Sat	\$2.50	\$1.25 seniors, disabled
Shafter	Shafter & adjacent unincorporated area	Dial-a-ride	Mon-Fri	\$1.00 \$1.25	\$.75 seniors, disabled
Taft	Greater Taft (City, Maricopa, Taft, Taft Hts, South Taft, Ford City)	Fixed route Dial-a-ride	Mon-Fri	\$1.50	\$1.00 (seniors, disabled, students)
Tehachapi	Tehachapi & unincorporated adjacent Golden Hills area	Dial-a-ride	Mon-Fri	\$22.00 (City-County trips)	\$1.00 seniors, disabled, children
Wasco	Wasco and adjacent unincorporated area	Dial-a-ride	Mon-Fri	\$1.75	\$1.00 (seniors, disabled, youth)
Kern Transit	Bkfd-Frazier Park	Intercity	Mon-Sat	Varies with origin and destination	
	Bkfd-Lake Isabella	Intercity	Mon-Sat	\$2.75	\$1.75
	Bakersfield-Taft	Intercity	Mon-Sat	\$2.00	N/A
	Bkfd-Tehachapi	Intercity	Mon-Sun	Varies with origin and destination	
	Buttonwillow-Bkfd	Intercity	Tue, Thu	\$1.75	\$1.25
	Bkfd-Lamont	Intercity	Mon-Sun	\$1.25	\$0.75
	Lost Hills/Wasco	Intercity	Thu, Sat	\$2.00	\$1.00
	E. Kern Express (Bkfd, Keene, Tehachapi, Mojave Rosamond, Lancaster)	Intercity	Mon-Sun	Varies with origin and destination	

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Operator	Area Served	Service Type	Days of Service	Fare Structure	
				Regular	Discount
	N. Kern Express (Bkfd-Delano)	Intercity	Mon-Sun	Varies with origin and destination	
	Mojave-Cal City-Eastern Sierra Transit Authority	Intercity	Mon Wed Fri	Varies with origin and destination	
	Kern River Valley	Dial-a-ride	Mon-Sat	Varies with origin and destination	
	Kern River	Fixed route		\$1.00	\$.75
	Boron	Deviated fixed route	Wed	\$1.00	\$.75 seniors, disabled & youth
	Kern River	Dial-a-ride	Mon-Sat	\$1.00	\$.75 seniors, disabled & youth
	Frazier Park	Dial-a-ride	Mon-Sat	\$1.00	\$.75 seniors, disabled & youth
	Lamont	Fixed route	Mon-Sat	\$0.75	\$.50 seniors, disabled & youth
	Mojave	Dial-a-ride	Mon-Sat	\$1.00	\$.75 seniors, disabled & youth
	Rosamond	Dial-a-ride	Mon-Sat	\$1.00	\$.75 seniors, disabled & youth
GET	Metro Bakersfield	Fixed route	Daily	\$1.55	\$.80 seniors & disabled
GET-A-Lift	Metro Bakersfield	Dial-a-ride	Daily	\$3.00	--

**Table 5-4: Passengers Transported by Kern County Transit Operators**

Operator	2012/13	2013/14	2014/15
Arvin	68,102	68,905	78,217
California City	15,526	14,116	14,441
CTSA	42,905	43,567	46,385
Delano	155,246	162,482	150,681
GET & GET-A-Lift	6,229,975	6,103,178	5,509,080
Kern Transit	636,865	617,412	596,902
McFarland	31,642	29,958	27,700
Eastern Sierra Transit Authority	13,516	17,101	14,339
Shafter	30,662	29,764	14,339
Taft	47,240	44,217	45,011
Tehachapi	5,929	5,663	7,058
Wasco	20,368	20,308	20,047
Totals	7,297,976	7,156,671	6,537,925

Sources: Annual Report of Financial Transaction-Transit, 2012/13 – 2014/15; Transit Operators State Controllers Report



## Important Accomplishments

### Golden Empire Transit District

In 2016-17, GET's fixed-route and GET-A-Lift operation ridership was 5,218,850 riders. GET operates 16 fixed routes, including 2 rapid routes with 15-minute headways and 3 express routes. GET has made a commitment to improving Kern County's air quality by purchasing compressed natural gas (CNG) buses. In 2006, GET became one of the first large transit fleets in the nation entirely fueled by natural gas. GET has installed bike racks on all buses to facilitate intermodal trips, providing an ancillary improvement to air quality. In 2018, GET will begin testing two electric buses to further reduce Green House Gas (GHG) emissions from its fleet. In partnership with IKEA and Tejon Ranch, GET initiated an express route between downtown Bakersfield and the Tejon Industrial Complex in October 2008. A permanent park-and-ride lot for this service has been established in the Greenfield area. GET has installed an automatic vehicle location (AVL) system with a global position system (GPS) tracking system that allows riders to phone an automated service that reports when the next bus will arrive at any designated GET bus stop.

***In 2006, GET became one of the first large transit fleets in the nation entirely fueled by natural gas.***

### Consolidated Transportation Service Agency

North of the River Recreation and Park District (NOR) was designated as the Consolidated Transportation Service Agency (CTSA) in 1999. CTSA uses Transit Development Act and Federal Transit Administration Section 5310 funds to purchase, maintain, and operate vans and buses. CTSA provides low-cost transportation service for seniors 60+ and disabled community members. Services are available Monday through Friday for medical appointments, senior activities, grocery shopping, and other essential trips. CTSA is a demand-response transportation program and provides door-to-door service within Metropolitan Bakersfield.

In response to a ridership drop from 2000 to 2003, and later in 2004, CTSA made several service improvements including wheelchair accessibility on 100% of its fleet and the hiring of additional drivers. Over the past three years, CTSA's ridership has improved by 8.1% and is currently delivering a healthy 15.2% farebox return (10% is required by Transportation Development Act regulations).

### Kern Transit (KT)

Since 1981, KT has provided a vital transportation link to the residents of Kern County. Through the services, KT provides – six local demand response (Dial-A-Rides), 17 fixed routes, and a medical Dial-A-Ride in Bakersfield – customers are able to access employment, medical appointments, education, shopping, and social needs. KT has implemented state and federal grants to acquire items such as 28 new buses, ten bus shelters, and an intelligent transportation system with automatic scheduling capability. Future projects include three transit centers and electronic fare boxes.

In early 2002, KT joined with Inyo Mono Transit, now called Eastern Sierra Transit Authority (ESTA) to provide transit service so KT users can connect in Ridgecrest, to points north, including Lone Pine, Independence, Bishop, and Mammoth. The need for this intercity route was brought about by the cancellation of Greyhound's commercial intercity service along the US 395 corridor, which was suspended in August 2001. Communities and cities in the eastern Sierra, north of Mojave, were left without frequent and effective public or commercial service upon the demise of the Greyhound service.

ESTA is critical to meeting the transportation needs of people living and traveling along US 395 and SR 14. It provides the vital linkage to existing public and commercial transportation services currently serving the

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counties of Kern, Los Angeles, Inyo, and Mono, including demand-response services operated by Eastern Sierra Transit Authority, California City, Mojave, and Rosamond; Antelope Valley Transit Authority and Metrolink in Lancaster/Palmdale; Santa Clarita Transit in Palmdale and Santa Clarita communities; intercity service to Bakersfield with connections to Greyhound and Airport Valet; Amtrak; and connections to regional air service in Inyokern and Bakersfield.

### Amtrak San Joaquin Service Improvements

The State-supported Amtrak San Joaquin service presently extends 362 rail miles between Oakland and Bakersfield and 314 miles between Sacramento and Bakersfield. Six round-trip trains operate daily, and three of these train sets are stored overnight in Bakersfield. Bakersfield represents both the end of the line for the current rail service and the stepping-off point for further travel to Southern California and Nevada. Growing demand for rail service on the San Joaquin line prompted Caltrans to add a second train from Stockton to Sacramento in March 2003.

In FY 2015-16, the Bakersfield station handled 481,000 passengers (boardings and alightings) and was second only to Sacramento as the busiest Amtrak station on the San Joaquin route. In the past 4 years, Amtrak ridership has dropped 7% since it peak in 2013. FY 2015–2016, the San Joaquin route remains the fifth busiest corridor in the country, with 1,107,000 riders.

To protect the existing San Joaquin Rail Service and to promote its improvement, local and regional agencies on the San Joaquin Corridor (Bakersfield, Fresno, Modesto, Stockton, Sacramento, and Oakland) sponsored and supported Assembly Bill 1779 (AB 1779). This bill enabled regional government agencies to form the San Joaquin Joint Powers Authority (SJJPA) to take over the administration and management of the existing San Joaquin Rail Service from the State. AB 1779 was passed by the Legislature on August 30, 2012, with bipartisan support, and was signed by Governor Brown on September 29, 2012. The governance/management of the San Joaquin Rail Service was transferred to the SJJPA on July 1, 2015.

AB 1779 requires the SJJPA to protect the existing San Joaquin Rail Service and facilities and seek to expand service as warranted by ridership and available revenue. The provisions of AB 1779 require the state to continue to provide the funding necessary for service operations, administration, and marketing. Caltrans Division of Rail will remain responsible for the development of the Statewide Rail Plan and the coordination and integration between the three state-supported intercity passenger rail services.

## Transit Needs and Issues

### Limited Transit Dollars

Financial resources for public transportation are limited while demand for those resources continues to increase. Traditional public transportation revenue sources do not support the increasing need for public mass transportation to help mitigate population increases, clean air mandates, and trip reduction programs.

The expansion of public transportation services in the County is predicated on an aggressive financial plan. GET's budget has increased annually as the system responds to increasing consumer demand. The financial core to subsidize public transit services in the Transportation Development Act's (TDA) Local Transportation Fund (LTF). These funds are derived from the County's portion of the local sales and use tax or .25 percentage points of the 7.25% (8.25% in Delano, Ridgecrest and Arvin) sales and use tax rate. Kern COG apportions these taxes to public transit throughout Kern County. In addition, the TDA authorized the state legislature to budget for State Transit Assistance Funds (STAF) by means of allocating a portion of the sales and use tax on gasoline.

However, in an attempt to balance the State's fiscal issues, the Governor periodically reduced or suspended the STAF to transit. In 2017, with the passage of the Senate Bill (SB) 1, STAF is receiving a significant increase in funding beginning in 2018 providing the first significant new source of transit funding in decades. Currently, no local dedicated funding source is available for public transit.

Chapter 6 – Financial Element identifies several new sources that may be dedicated toward transit. Table 6-1 identifies 32% of all funding in this plan going toward transit, high occupancy vehicle, passenger rail, aviation, and other uses. These sources include LTF, farebox, local agency funds/developer impact fees, State Transportation Improvement Program, State Transit Assistance Account, Congestion Mitigation and Air Quality Program, Federal Transit Administration (Sections 5307, 5310, and 5311), federal Stimulus funding, as well as other revenue streams.

### Short-Range Transportation Development Plans

Transportation Development Plans (TDPs) for Kern transit agencies are usually updated every five years and are used as planning tools focusing on short-term transit needs and improvements. TDPs provide recommendations for improving existing service, identify the transit agencies' roles and responsibilities for better coordination of transit services, and identify possible future transit expansion or revision.

GET's Short-Range Transit Plan guides routine decisions associated with operations and maintenance. This document covering a five-year period is updated annually.

A five-year TDP was prepared for the cities of Shafter and Wasco and SR 43s transit services in late 2016. The plans recommend minor changes to both demand-response services and monitoring the business growth along the SR 43 corridor from Bakersfield to Delano for vanpool and carpool opportunities. In 2018/19 Kern COG is seeking new SB 1 grant funds to update all TDPs in Kern County and to look at Kern Consolidated Transit Services Agency system for service to seniors and disabled as well.

Recommendations for Shafter's transit system are included below:

- Implement a 24-hour advance reservation system;
- Adopt formal transit policies including fare structure and fare policy;
- Create and implement a marketing plan to increase ridership and fare revenue for the City's transit program (especially on the fixed-route service);
- Implement a fare increase to support farebox recovery goals (current pricing is lower than many Kern County operators);
- Revise fare policy to allow two children (age 4 and under) to ride free with each fare-paying adult;
- Adopt and enforce formal carry-on bag policy;
- Create a dispatcher position rather than having drivers self-dispatch;
- Implement a 90-day pilot program offering Saturday Dial-a-Ride service from 8:00 a.m. to 3:00 p.m. (using one vehicle);
- Participate in the RTPA's Active Transportation Plan and implement infrastructure to support active transportation;
- Implement bus stop improvements amenities and provide local service information at KT connection points in Shafter; and
- The City of Shafter will implement the recommendations as they deem appropriate.

Recommendations for Wasco's transit system are included below:

- Implement a 24-hour advanced reservation system;
- Develop and implement a marketing plan to increase ridership and fare revenue;

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- Increase the price of the Adult 13-ride Pass to \$20.00 to be more consistent with the discount offered on the Senior/Disabled 11-Ride Pass;
- Revise fare policy to allow two children (age 4 and under) to ride free with each fare-paying adult;
- Adopt and enforce formal carry-on bag policy;
- Create a dispatcher/driver position to ensure service coverage;
- Implement a 90-day pilot program offering Saturday service from 8:00 a.m. to 3:00 p.m. (using one vehicle);
- Extend weekly service hours to begin at 7:00 a.m. and end at 5:00 p.m.;
- Recruit part-time drivers to provide additional coverage for extended weekly hours and Saturday service;
- Participate in the RTPA's Active Transportation Plan and implement infrastructure to support active transportation;
- Install bus stops amenities and provide local service information at KT connection points in Wasco; and
- The City of Wasco will implement the recommendations as they deem appropriate.

In June of 2015, Kern COG and the City of Delano entered into an agreement to prepare a long-range transit plan for the City's transportation system. Kern COG staff provided transportation modeling data and public transportation service advice. The plan was completed in late 2017.

Long range recommendations for Delano's transit system are included below:

- Maintain current route structure;
- Make design improvement along Cecil Avenue and Garces Highway to enable relocation of stops to these arterials;
- Maintain Saturday services as a weekend loop;
- Begin a trial service expansion to serve commuters better;
- Modify/Expand existing routes to enhance access to developing areas;
- Expand or transfer Bakersfield service;
- Implement reduced-fare transit vouchers;
- Provide real-time information system (to increase ridership);
- Transition CNG fueled vehicles to plug-in hybrid or battery electric vehicles;
- Amend zoning to allow transit-supportive development;
- Increase community awareness of DART services;
- Explore vanpools as a supplement to, or substitute for, some service; and
- Consider ridesourcing for first/last mile access to transit.

The City of Delano will implement the recommendations above as they deem appropriate.

### Senior/Mobility-Disabled Public Transportation

The senior and mobility-disabled populations in Kern County have limited access to public transportation. Differing fare structures, trip priorities, and limited service hours inhibit a coordination of efforts among operators of senior and disabled transportation. Kern COG staff carefully monitors annual unmet transit needs public hearing results, attends member agency fairs and events to collect transit needs data, and holds its own unmet transit needs public hearing. Also, Kern COG schedules regular meetings for its Social Services Transportation Advisory Committee to support existing transportation systems that operate to serve elderly and disabled residents in the Kern region.

### **Recent Transit Planning Activities**

#### Shared-Use Mobility Services in Rural Disadvantaged Communities in California's San Joaquin Valley: Pilot Project

Kern COG partnered with the 7 other San Joaquin Valley COGs and the UC Davis National Center for Sustainable Transportation on a grant from the California Air Resources Board to look at emerging shared mobility solutions (such as Uber, Lyft, and Waze) to help stem the decline in transit ridership and improve service to disadvantaged communities. Since the completion of the study,<sup>1</sup> the partnership has grown to include the San Joaquin Valley Air District and has been awarded a \$2.1 million dollar grant to implement a shared-use mobility pilot project in several disadvantaged communities in the region.

Shared-use mobility services largely serve major metropolitan areas. However, increasingly officials, who represent rural communities, want to know whether these types of services may be able to provide more cost-effective access to rural residents than is currently possible by fixed-route and dial-a-ride transit services. Many of these officials must contend with low farebox recovery rates that threaten transit funding and subsequent cutbacks in transit services that are often strongly opposed by constituents.

In this study, the cost-effectiveness of existing inter-city transit service in rural disadvantaged communities in the San Joaquin Valley (California) is compared to hypothetical ridesharing and carsharing services. The results show significant potential to reduce transit costs and reinvest those cost saving to expand shared mobility services.

The cost-effectiveness analysis is supplemented with reviews of existing shared-use mobility pilots and consultations with experts in shared mobility and local transportation planning. The result is one of two shared-use mobility pilot concepts now being rolled out in Kern and Tulare Counties.

The pilot under development in the South Valley will implement carsharing and ridesourcing in affordable housing complexes in the Lamont-Arvin and Wasco communities of Kern County. The development density of selected locations support walk access to carsharing for residents in the affordable housing complexes and surrounding neighborhoods. Ridesourcing would be introduced to provide first and last mile access to transit and carsharing when it is not possible for residents to walk to these services. Ridesourcing would also provide direct access to destinations when it is not possible to complete an essential trip with transit or carsharing. Carsharing and ridesourcing would be subsidized to ensure that

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<sup>1</sup> Shared-Use Mobility Services in Rural Disadvantaged Communities in California's San Joaquin Valley <http://sjvcogs.org/wp-content/uploads/2017/09/Final-Report-Transit-Alternatives.pdf> 2017



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the services are affordable. It is anticipated that this program will produce significant savings from reduced dial-a-ride service costs that can be used for other sustained operations.

### GET Long-Range Plan

GET, in partnership with Kern COG, implements the Metropolitan Bakersfield Transit System Long-Range Plan. The plan documents the relationship between population growth, transit ridership demand, and current operations. It also addresses emerging intracity transit system needs and addresses connectivity between rural areas and major regional transportation facilities such as the Amtrak train station and Meadows Field. A goal of the plan is to implement GET's new vision statement: "GET...doing our part to improve mobility and create livable communities by becoming every household's second car."

***A goal of the plan is to implement GET's new vision statement: "GET... doing our part to improve mobility and create livable communities by becoming every household's second car."***

The GET Long-Range Plan, adopted in April 2012, provides the following three principles and concepts. These principles and concepts provide a framework for evaluating existing built and policy conditions in the region and ways to make improvements in the future.

- **Support transit use at the local level and on a regional scale.** Potential transit ridership and multimodal opportunities should be considered in planning new growth areas, developing land use policies for existing developed areas, and planning for major infrastructure investments. The focus should be on improving the form of the region, with particular emphasis on enhancing pedestrian activity in and around downtown Bakersfield and other potential sites such as adjacent to California State University, Bakersfield (CSUB).
- **Focus development and infrastructure on key cores and corridors.** Transit ridership will be highest when it effectively serves key origins and destinations. Transit becomes an attractive alternative to the automobile when it is accessible, convenient, and efficient. In order to maximize the attractiveness of transit, service should be focused on major corridors such as Chester, California, Mt. Vernon, and Ming Avenues, as well as the Niles and Monterey Street corridors. Accompanying land use and infrastructure policies should encourage more intense development and improved accessibility for all travel modes in these areas. New growth areas, as they become necessary to accommodate regional population growth, should be developed using these same principles.
- **Design streets and new developments to foster street activity and encourage transit use.** Streets are the centers of activity for transit-oriented districts; they are the civic spaces where people walk to transit and support the public life of the districts. Street activity can be generated by increased land use intensity and through-street designs that provide comfortable access for all modes of travel. Street improvements such as sidewalk widening, street tree planting, and providing pedestrian lighting can be coupled with land use changes to maximize the benefit of public infrastructure investments, and the pairing of these decisions will result in comprehensive and complementary planning of land uses and transportation systems.

The GET Long Range Transit Plan uses a phased approach that is already transforming the Metropolitan Bakersfield Transit System. The Near-term plan became operational in October 2012, creating a Rapid Bus network through the core area with headways less than 15 minutes. The Mid-term plan includes expansion of the rapid bus network and implementation of a Bus Rapid Transit (BRT) System. The Long-term plan expands the system further and increases headways throughout the system. Portions of the BRT system may become the future light rail system for Metropolitan Bakersfield.

***Portions of the BRT system may become the future light rail system for Metropolitan Bakersfield.***



In 2016 the City of Bakersfield began a High Speed Rail (HSR) Station Area Plan that is looking at transit connections to a potential HSR station location at F Street and Golden State Highway. The study will recommend adjustments to the Bakersfield Long Range Transit Plan based on the new location for a major intermodal facility.

### Metropolitan Bakersfield Transit Center Study

In 2015, Kern COG partnered with Golden Empire Transit District to prepare a *Metropolitan Bakersfield Transit Center Study*. The study's long-term recommendations were to consider acquiring property at the following locations for future transfer stations: Panama Lane and Highway 99, Mt. Vernon Avenue and Highway 178, and Niles and Mt. Vernon. Each of these sites were considered for their potential to provide transit oriented development (TOD).

### GET Five-Year Information Technology Strategic Plan

GET has made the following technology improvements since 2012 – In 2012, driver work runs were created (Runcuts) for the first time using computer software (Fleetnet). Also in 2012, GET introduced an online Human Resources (HR) application process that allows applicants to apply for open positions using the GET website as well as the GET office using an information kiosk. Finally, in 2012, GET upgraded its security surveillance to increase performance and recording times at all locations. In 2013, all GET paratransit vehicles were equipped with the CAD/AVL/PIS system. Using the CAD/AVL/PIS system, Get-a-Lift service is operated via an automated dispatch. In 2014, the new GPS tracking system (Connexionz) was installed on all buses, providing on-time performance data as well as specific data for boardings, alightings, lift and bike rack use. The system provides real-time information for the public. In 2016, GET completed a five-year information technology strategic plan. In 2017, GET purchased software (UTA) for reporting ridership data from the automated passenger counters (APC) installed on all buses. Also introduced to GET service in 2017, GET linked its service payment system to the Token Transit mobile application for pass purchases. Since KT is also linked to Token Transit, riders may seamlessly purchase rides on both KT and the GET service using public transit throughout Kern County.

### Delano Long Range Transportation System Plan

On September 18, 2017, Delano Transit completed a Long Range Transportation System Plan that provided recommendations to improve the service performance. The recommendations addressed concerns about the systems' Transportation Development Act (TDA) farebox ratio (the ratio between fare revenues divided by total operating cost – Delano is a small urbanized area and is required to generate a twenty percent farebox ratio), changes in bus stops to improve speed and connectivity, and modification of the systems' hourly and weekday service to meet anticipated future population growth.

### Kern Transit Bakersfield Service Analysis

KT completed a study of its services, the Bakersfield Service Analysis, adopted in June 2012, in response to the GET Metropolitan Bakersfield Transit System Long-Range Plan. That plan recommended a series of changes to GET's fixed-route service, which have a number of implications for KT service. The primary objectives of the KT analysis were to determine whether KT might be able to take advantage of the GET changes to (1) improve service for its own customers and (2) reduce operating costs.

### Eastern Sierra Public Transportation Study

Completed in June 2005, the Eastern Sierra Public Transportation Study focused on public transportation services in Mono, Inyo, and eastern Kern counties. The study represented a comprehensive effort to address short-term interregional transit demands, identify strategies to enhance intra-regional mobility,

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and present a preliminary feasibility analysis of longer-term passenger rail service between Mammoth Lakes and the Los Angeles region. Given the varied geography, sparse populations, and long distances that buses must travel, the study found that transit operations through the Eastern Sierra region provide exceptionally good coverage. Nearly all communities within the study area have some level of transit service, offering basic mobility to meet some travel demands.

### Regional Rural Transit Strategy

Kern COG initiated a study to evaluate alternatives to its current network of rural transit services. A project advisory committee representing transit providers and social services throughout Kern County, inaugurated this effort, the Regional Rural Transit Strategy (RRTS), in spring 2017.

- The RRTS inventoried existing public transit services in rural Kern County, identified possible alternatives to existing public transit service and recommended strategies to improve the rural Kern County public transit system. The report provided the following as areas of focus:
  - Identify alternatives that would improve the overall quality of transit service in Kern County;
  - Identify alternatives to traditional transit addressing Kern County's regional rural mobility needs;
  - Develop coordination alternatives that realize an improvement over the way transit is currently operated;
  - Review, identify, and discuss alternative administrative and oversight models for transit services in Kern County;
  - Create a strategy for increasing the visibility and importance of transit in Kern County; and
  - Create partnerships between transit and non-transit organizations in addressing Kern County's transit needs.

The final RRTS produced recommendations for alternative methods of countywide public transit service focusing on improving efficiency, effectiveness, and cost savings. A cost benefit analysis was performed as part of the updates to each TDP.

### High Occupancy Vehicle/Bus Rapid Transit Study

Kern COG initiated the High Occupancy Vehicle/Bus Rapid Transit (HOV/BRT) Study to examine the long-range feasibility of implementing HOV lanes and/or BRT services (in the form of freeway-based express bus or arterial-based BRT) within the Bakersfield metropolitan area and surrounding portions of Kern County. The analysis, results, and recommendations developed through this study are incorporated into the 2018 RTP in Chapter 4, Sustainable Communities Strategy (SCS).

The objectives of this report are to document the study process, which included a review of existing and future baseline transportation conditions within Kern County and an assessment of the performance, benefits, and potential impacts of HOV and BRT improvements within the county.

The study recommends projects or programs that merit further consideration and additional study to provide more detail in terms of travel benefits, costs (capital and operations), and implementation time frames. The analysis completed for this study is conceptual in nature and focuses on identifying need and feasibility. More detailed corridor-level studies of specific projects and recommendations would be necessary prior to the implementation of any of the concepts identified in this report.

### Commuter Rail Feasibility Study

Kern COG initiated the Commuter Rail Feasibility Study, completed in July 2012, to examine a set of alternatives for providing commuter rail service within the Bakersfield metropolitan area and surrounding portions of Kern County, as well as within the eastern region of the county. The study concludes that some commuter rail service in Kern warrants further study, including extension of Metrolink from Lancaster north to Rosamond/Edwards AFB, and the addition of one or more Amtrak stops in north/west Bakersfield.

The study effort includes the review and summary of previous studies and reports that have identified potential transportation, land use, and commuter rail development planning in Kern County. The report builds on the existing and forecasted future demographic conditions within the county, as well as presents example commuter rail case studies throughout the United States for comparison purposes.

Six potential commuter rail corridors are examined in the study, utilizing existing freight rail corridors. The objective of this study is to identify corridors that may be feasible for future commuter rail service, along with potential station locations that would serve these corridors. This study is intended to lay the groundwork for more detailed future study efforts that would define operational characteristics and costs at a greater level of detail within the corridors determined to be feasible.

This study included extensive involvement and input from Kern COG staff, as well as members of the study steering committee. This committee included representatives from Caltrans, Kern County, GET, the California High-Speed Rail Authority, City of Bakersfield, City of Delano, Fresno Council of Governments, County of Los Angeles, Altamont Commuter Express, and Southern California Regional Rail Authority.

***Some commuter rail service in Kern warrants further study, including extension of Metrolink from Lancaster North to Rosamond/Edwards AFB, and addition of one or more Amtrak stops in North/West Bakersfield.***

### High-Speed Rail Authority

Established in 1996, the California High-Speed Rail Authority is charged with planning, designing, constructing, and operating a state-of-the-art high-speed train system. The proposed system stretches from San Francisco, Oakland, and Sacramento in the north—with service to the Central Valley—to Los Angeles and San Diego in the south. With bullet trains operating at speeds up to 220 mph, the express travel time from downtown San Francisco to Los Angeles would be approximately 2½ hours. Intercity travelers (trips between metropolitan regions) along with longer-distance commuters would enjoy the benefits of a system designed to connect with existing rail, air, and highway systems.

The recommended high-speed rail blended system (Los Angeles to San Francisco) would be approximately 520 miles long and would serve over 90% of the state's population. The system would be completely grade-separated, double-tracked, and electrified.

The major challenge to the Authority is to secure financing in order to implement the system. In November 2008, California voters passed Proposition 1A, which authorized the State to issue \$9.95 billion in bonds to fund the first phase of a high-speed rail system. In July 2012, the Federal Rail Administration awarded California \$3.1 billion in stimulus funding to accelerate the purchase of rights-of-way and completion of engineering studies and to begin construction. Up to \$1.5 billion of the \$6 billion identified for the first construction segment could be used to build track in the Kern region. The Authority has estimated that the existing funding will allow the track to get as far south as Wasco or northwest Bakersfield. An additional \$20 to \$30 billion is needed before the first true high speed trains can begin operation.

The California High-Speed Rail Authority (Authority) is required by Public Utilities Code 185033 to prepare, publish, adopt and submit a business plan to the California Legislature every two years. The Authority's

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business plan is an overarching policy document used to inform the Legislature, the public, and stakeholders of the project's implementation, and assist the Legislature in making policy decisions regarding the project.

The 2014 Business Plan (Plan) maintained the core elements of the 2012 Business Plan – a better, faster and cheaper high-speed rail that forms the backbone of a statewide rail modernization program. The 2016 Business Plan summarizes the progress the Authority has made over the past two years, updates the 2014 Business Plan to include recent ridership forecasts and cost estimates and describes the next major decisions and milestones that lie ahead. The 2016 Plan estimated an operating system in 2025. The updates, including refinements to underlying models and analysis, are based on current data and recommendations from outside experts such as the United States Government Accountability Office.

The next Business Plan is anticipated to be presented to the Legislature in May 2016, and every two years thereafter.

### Proposed Public Transportation Actions

#### Near Term, 2018–2020

- GET should decrease emphasis on timed connections at transit centers;
- New GET transit center at CSU Bakersfield (begin construction in 2018);
- Increased GET service to CSU Bakersfield and Bakersfield College;
- Faster GET crosstown trips;
  - New Express routes
  - New “Rapid” routes
  - More direct routes
- Refine KT scheduling practices;
- Consider KT route reconfiguration within downtown Bakersfield;
- Analyze KT stop placement;
- Continue discussions with the Southern California Regional Rail Authority regarding the extension of Metrolink from Lancaster to Rosamond;
- Initiate discussions with the State regarding adding stops to Amtrak San Joaquin service between Bakersfield and Wasco; and
- Monitor advancement of the California High-Speed Rail (HSR) project.

#### Long Term, 2021–2042

- Introduce “full” GET Bus Rapid Transit;

- GET Crosstown service connecting one side of Bakersfield to the other;
- GET Circulator services within neighborhoods or around outlying areas of Bakersfield;
- Continuation of GET Express routes;
- Introduce GET hybrid Circulator/Express service;
- Rapid bus improvements;
- Introduce Express bus service along SR 178/24th Street/Rosedale Highway and SR 99;
- Truck climbing lane along eastbound SR 58;
- Consider Bus Rapid Transit in exclusive lanes with traffic signal priority;
- Consider additional Express bus service;
- Consider ramp metering;
- Consider peak period only HOV lanes;
- Consider converting BRT corridors to light rail transit;
- Consider additional peak period HOV lanes;
- Continue pursuing extension of Metrolink from Lancaster to Rosamond;
- As HSR proceeds to construction;
  - Identify preferred corridor to connect Bakersfield and Delano with commuter rail/HSR feeder service.
  - Identify potential funding for commuter rail operations.
  - Work with local transit providers to connect riders to commuter rail/HSR.
- Reassess feasibility of commuter rail in various corridors.

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### ACTIVE TRANSPORTATION ACTION ELEMENT

*See the Land Use Action Element – Highway/Road for bicycle and pedestrian proposed actions. See Chapter 4, Sustainable Communities Strategy, for further discussion on sustainable land use decisions relative to bicycle and pedestrian travel modes.*

Kern County is especially well suited for active transportation such as biking and walking. According to the Kern COG the statistically valid 2017 Community Survey, 20 percent of residents reported a commute time of 10 minutes or less. The climate and terrain of the region is favorable for active transportation, with many clear, dry days and moderate temperatures. For short trips, biking and walking can serve as an alternative to the automobile. Because these modes are non-polluting and energy efficient, it is an element in the region's multimodal transportation system that leads to a more efficient transportation network.

***According to the National Household Travel Survey, Over 25 percent of trips in Kern County are less than one mile in length.***

This section focuses on bicycle and pedestrian travel facilities with an emphasis on complete streets. Residential developments are often within walking distance of commercial centers; however, design considerations should allow for ready ingress/egress of subdivisions. Mild weather, coupled with safely designed sidewalks and paths, can make walking an enjoyable activity.

### Existing Systems

Bicycle facilities generally fall into three distinct categories: Class I, and variations of Class I bike facilities are the first category. Class I facilities are paved right-of-way for exclusive use by bicyclists, pedestrians, and those using non-motorized modes of travel. Class II bike lanes are defined by pavement striping and signage used to allocate a portion of a roadway for bicycle travel. Several jurisdictions have variations on Class II facilities, which provide optional striping scenarios to allow on-street parking. Class III facilities include sign markings for bicycle routes. There are no pavement markings. The County also has a Class III variation that provides a 4-foot delineated shoulder and bicycle route signage in rural areas.

### Accomplishments Since 2012

With funding from the Caltrans Active Transportation Program, Kern COG led the development of a long-range, holistic plan for creating walkable and bicycle-friendly environments in the cities and unincorporated areas of Kern County. Context-sensitive solutions were sought that reflect the distinctive character and needs of the various communities, large and small, throughout the region.

The County and several jurisdictions have recently completed or launched bicycle, pedestrian, trail and other planning efforts that support pedestrian and bicycle safety for people of all ages and abilities. The Kern Region Active Transportation Plan published in January 2018 builds on this momentum, helping communities focus efforts and successfully obtain funding to implement improvements.

Through an extensive review of existing conditions and comprehensive community and stakeholder outreach, the Active Transportation Plan established a regional vision complemented by stand-alone recommendations for each jurisdiction and unincorporated area. User-friendly maps and prioritized projects provide a clearly defined implementation strategy, enabling communities to put their respective plans into action.



### Kern County Bicycle Plan and Complete Streets Recommendations

In October 2012, Kern COG adopted the Kern County Bicycle Master Plan and Complete Streets Recommendations, which provided recommendations for both constructed and planned bicycle facilities in the unincorporated portion of Kern County. The Complete Streets Recommendations looked at the integration of bike, pedestrian and transit facilities into the transportation system.

### City of Bakersfield Bicycle Transportation Plan

In November 2013 the Bakersfield City Council approved the City of Bakersfield Bicycle Transportation Plan. The City of Bakersfield Bicycle Transportation Plan guides the future development of bicycle facilities and programs in the City. The recommendations in this Plan will help the City create an environment and develop programs that support bicycling for transportation and recreation, encourage fewer trips by car and support active lifestyles.

In transportation planning, more emphasis is being placed on “soft” solutions to transportation control and traffic congestion. The trend toward solving traffic issues without resorting to expansion of highway and freeway facilities has taken hold over the last decade. Kern County has many notable success stories where more effective management of the existing transportation system has reduced or eliminated the need for costly and disruptive expansions. The Kern Region Active Transportation Plan (2017), the Kern County Bicycle Master Plan and Complete Streets Recommendations (2012), and the City of Bakersfield Bicycle Transportation Plan (2013) documents are incorporated by reference as a part of the 2018 RTP.

## **Needs and Issues**

### Maintenance Issues

Maintaining bicycle and pedestrian facilities has always been a challenging issue for local agencies. Roadway maintenance backlogs in nearly every jurisdiction are increasing annually. As the roadway network expands, maintenance efforts and pavement conditions fall further behind. Commitments for investments into new bicycle and pedestrian facilities cannot guarantee a continuing revenue source for upkeep, particularly for bicycle paths on separate rights-of-way. Rather than diminishing bicycle improvements; however, new funding sources or ways to deal with maintenance should be pursued.

### Public Support

For a number of reasons, bicycling has not realized its full potential as a transportation mode within the Kern region. The reasons are primarily related to (1) ease of short-distance travel via automobile; (2) lengthy distances between residences and work sites; (3) relatively inexpensive and widely available sources of automobile fuel; (4) lack of shower and/or locker facilities at employment centers; and (5) a general aging of the population, which may reduce the number of persons who are inclined to take bicycle trips.

General attitudes toward bicycling also present issues. Many area residents do not view cycling as a real transportation mode. These attitudes can be attributed to factors such as:

- Many urban roads do not provide adequate shoulders, causing some cyclists to ride within the flow of traffic.
- Lack of adequate bicycle facilities, such as lockers or alternative means of securing a bicycle.
- Decentralization of employment centers, residential areas, and retail facilities.

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- Lack of knowledge regarding the benefits of bicycling.

Motorists are occasionally unwilling to share the roadways with bicycles, and this may lead to antagonistic situations in the street. Education regarding the transportation system must include cyclists, pedestrians, motorists, and transit passengers.

### Current Planning Activities

Current bicycle and pedestrian planning activities in the Kern region include implementing the Kern Regional Active Transportation Plan and the Kern County Bicycle Master Plan and Complete Streets Recommendation and promoting more pedestrian and bike uses throughout the county as an alternative to driving.

Proposed capital bicycle and pedestrian projects for the 2018 Regional Transportation Plan are listed in Table 5-1.

### Proposed Active Transportation Actions

#### Near Term, 2018–2020

- Encourage COG member jurisdictions to implement their adopted local bicycle plans and to incorporate bicycle facilities into local transportation projects;
- Continue to seek funding for bicycle and pedestrian projects from local, state, and federal sources;
- Continue to seek funding to maintain existing bikeway and pedestrian facilities;
- Promote the purchase and construction of bicycle racks and lockers for Kern County multimodal stations;
- Promote the inclusion of bike tie-downs and racks on commuter trains and buses;
- Fund updated bicycle plans for incorporated cities;
- Fund a Pedestrian Facilities Plan for the County of Kern as well as incorporated cities;
- Investigate the connectivity between Off-Road Vehicles and Non-motorized transportation uses, especially in areas with high concentrations of Off-Road Vehicle use such as the Indian Wells Valley and the California City area; and
- Explore the possibility of the establishment of “Cabana” (covered) parking and information kiosks at Off-Road Vehicle trail heads, especially in the Indian Wells Valley and the California City area.

#### Long Term, 2021–2042

- Periodically update the Kern Regional Active Transportation Plan;
- Continue to seek funding for bicycle and pedestrian projects from local, state, and federal sources;
- Continue to seek funding to help maintain existing bikeway and pedestrian facilities;

- Promote development of revitalized, walkable/bikeable neighborhoods with easy access to transit; paving/controlling dust from streets and shoulders; and improve street intersections that facilitate bicycle travel; and
- Investigate the connectivity between Off-Road Vehicles and Non-motorized transportation uses, especially in areas with high concentrations of Off-Road Vehicle use such as the Indian Wells Valley and the California City area.

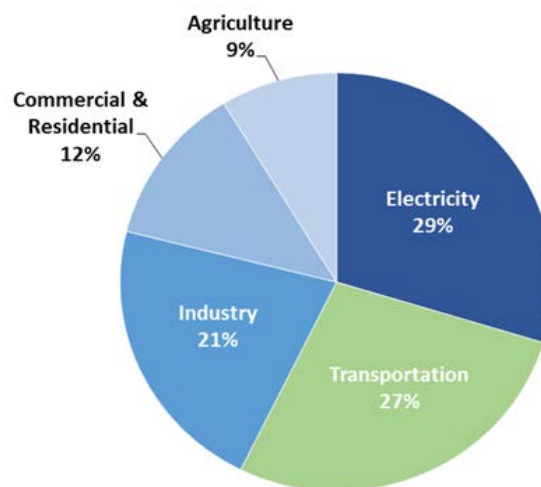
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### TRANSPORTATION AIR EMISSIONS REDUCTION ACTION ELEMENT

The Transportation sector includes the movement of people and goods by cars, trucks, trains, ships, airplanes, and other vehicles. The majority of greenhouse gas emissions from transportation are carbon dioxide (CO<sub>2</sub>) emissions resulting from the combustion of petroleum-based products, like gasoline, in internal combustion engines. The largest sources of transportation-related greenhouse gas emissions include passenger cars and light-duty trucks, including sport utility vehicles, pickup trucks, and minivans. These sources account for over half of the emissions from the sector. The remainder of greenhouse gas emissions comes from other modes of transportation, including freight trucks, commercial aircraft, ships, boats, and trains, as well as pipelines and lubricants. According to the US Environmental Protection Agency in 2015, 27 percent of total U.S. greenhouse gas emissions were from the transportation sector. California's state laws and regulations (such as AB 32) have set goals for reducing California's GHG air emissions. These efforts aim to reduce GHG emissions to 1990 levels by 2020 - a reduction of approximately 30 percent.

**Figure 5-7: 2015 Emissions**

#### Total U.S. Greenhouse Gas Emissions by Economic Sector in 2015

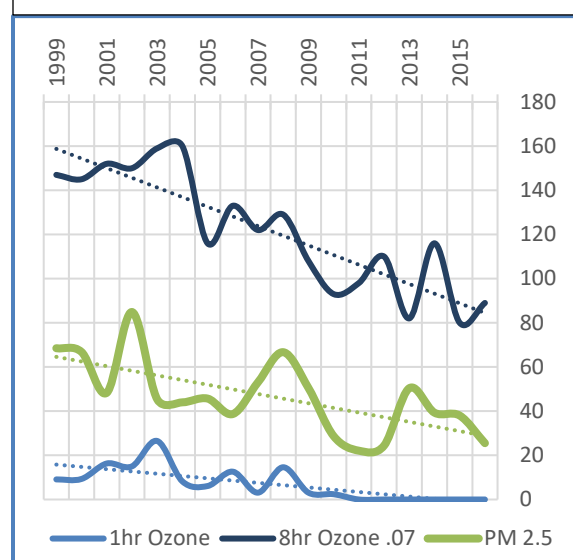


**Total Emissions in 2015 = 6,587 Million Metric Tons of CO<sub>2</sub> equivalent**

Source: US Environmental Protection Agency

In recent years, studies have shown that the Federal Clean Air Act has helped reduce harmful air emissions

**Figure 5-8: Numbers of Days Exceeding Federal Air Standards in Kern 1999-2016**



Note: In this air quality graph, lower ozone and PM 2.5 numbers are equivalent to better air quality. Source: CARB iADAM data.

by 41 percent from 1990 to 2008. Over the past two decades efforts across the nation have led to the reduction of harmful pollutants such as Ozone, Particulate Matter, Carbon Monoxide, Nitrogen Oxide, Sulfur Dioxide, and Lead. With the transportation sector accountable for a significant portion of these air emissions, reduction efforts must target mobile source activities including on and off road vehicles, public transit, freight, and rail movements.

#### Existing System

Air emissions reduction activity in the Kern Region has been carried out by national, state, regional and local entities since the early 1990s. Many are multi-agency efforts, including the U.S. Environmental Protection Agency, US Dept. of Energy, Federal Highways Administration, Federal Transit Administration, California Air Resources Board, California Department of Transportation, California Energy Commission, San Joaquin Valley Air Pollution Control District (APCD), Eastern Kern APCD, Kern Council of Governments and its local member agencies.

**Figure 5-9: Transportation Air Emissions Reduction Efforts in the Kern Region**

<p><b>National</b></p> <ul style="list-style-type: none"> <li>• Corporate Average Fuel Economy (CAFÉ) Standards</li> <li>• Fuel Pricing</li> <li>• Locomotive Idling Reduction</li> <li>• Locomotive Replacement or Repowering</li> <li>• Transportation Construction Equipment Reductions</li> </ul> <p><b>State</b></p> <ul style="list-style-type: none"> <li>• AB 118 – Air Quality Improvement Program</li> <li>• AB 2766 – Motor Vehicle Fee Program</li> <li>• CalStart</li> <li>• Cap and Trade Program</li> <li>• Clean Diesel</li> <li>• Clean Vehicle Rebate Project</li> <li>• High-Occupancy Vehicle Facilities</li> <li>• Incident management/Kern 511 Traveler Information</li> <li>• Inspection &amp; Maintenance Programs</li> <li>• Moyer Program</li> <li>• Park-and-Ride Facilities</li> <li>• Shifting/Separation Freight Movements</li> <li>• Signal Synchronization and Roadway Intersection Improvements</li> </ul>	<p><b>Regional</b></p> <ul style="list-style-type: none"> <li>• CalVans Vanpool Program</li> <li>• Commute Kern TDM Programs/Incentives</li> <li>• Diesel Engine Retrofits Incentive Program</li> <li>• Drive Clean Rebate Program</li> <li>• IdleAIR Idling Reduction Facilities</li> <li>• Project Clean Air (PCA)</li> <li>• REMOVE II Programs</li> <li>• Retirement/Replacement of Heavy-Duty Trucks Incentives Program</li> <li>• Rule 8061 (SJVAPCD) Unpaved Road Dust Mitigation</li> <li>• Rule 9310 (SJVAPCD) School Bus Fleets: Retirement/Replacement of Buses</li> <li>• Rule 9410 (SJVAPCD) Employer-Based Trips Reduction (eTRIP)</li> <li>• Rule 9510 (SJVAPCD) Indirect Source Review: Infill Incentive Zone Transportation Impact Fee Land Use Strategies.</li> <li>• Valley Clean Air Now (CAN)</li> </ul> <p><b>Local</b></p> <ul style="list-style-type: none"> <li>• Bicycle/Pedestrian Projects and Programs</li> <li>• GET Online Trip Planner Transit Marketing, Information, and Amenities</li> <li>• New/Expanded/Increased Transit Services</li> <li>• Road Paving &amp; Street Sweeping</li> </ul>
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Over two decades of air emission reduction efforts at the national, state, regional, and local levels have produced significant improvements to our nation's air quality. The Kern region has an extremely unique geographic landscape and makeup consisting of two air basins – the San Joaquin Valley and Eastern Kern Air Basins. Of the main criteria pollutants identified in the National and State Ambient Air Quality Standards, both Ozone and Particulate Matter currently hold a status of nonattainment within the Kern region. To continue along a successful path for reducing these harmful pollutants, new and innovative strategies must be implemented in the Kern region to further achieve healthy air quality and meet national and state criteria pollutant standards.

## Transportation Control Measures

Transportation Control Measures (TCM) have received a high level of attention since the passage of the state and federal Clean Air Acts and congestion management legislation. As a result, air quality planning areas for the entire San Joaquin Valley, Mojave Desert, and Indian Wells Valley have been designated as nonattainment for harmful pollutants such as ozone and particulate matter 2.5 and 10. According to the state and federal Clean Air Acts, the worst nonattainment areas must ensure that “all feasible measures” be implemented to reduce harmful air emissions. Goals identified in the 2018 RTP, including livability and sustainability, focus on carrying out these requirements to achieve standards for healthy air quality. The most typical and successful Transportation Control Measures include improved public transit, traffic flow improvements and high occupancy vehicle lanes, shared ride services, pedestrian/bicycle facilities, and flexible work schedules. For a complete discussion of Transportation Control Measures being

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implemented in Kern, see the most recent adopted Federal Air Quality Conformity Analysis document available at: <http://www.kerncog.org/publications/regional-transportation-aq-conformity>. The 2018 RTP includes a combined public review process for the Conformity Analysis and is adopted by joint resolution that includes the conformity document.

### Needs and Issues

Recent polls show that air quality has been ranked one of the primary concerns for Kern's residents, especially those in the San Joaquin Valley. Kern County is home to some of the most challenging air pollution problems in the United States. The American Lung Association "State of the Air 2017" found continued improvement in air quality in 2013—2015 for ozone and year-round particulate pollution, but an unrelenting increase in dangerous spikes in short-term particulate pollution. The San Joaquin Valley cities of Bakersfield, Fresno-Madera, Visalia-Porterville-Hanford and Modesto-Merced ranked in the top six for ozone pollution. Those same cities also ranked in the top six for year-round particulate pollution and in the top four for short-term particulate pollution. Air pollution contributes to increased respiratory health problems and costly medical care. The unique topography, weather patterns and growing population of Kern County and the San Joaquin Valley complicate this public health issue. It's not just poor lung health that affects our citizens, it's a sedentary lifestyle. Obesity is a nationwide health problem. According to a 2016 study by the Centers for Disease Control and Prevention, 25 percent to less than 30 percent of the adult population in California is considered obese.

In addition to the air quality benefits of more sustainable growth patterns, focusing future development around more mixed use, walkable neighborhoods can help to reduce high rates of respiratory health problems and obesity that affect Kern County residents. Planning for and providing residents with safe and practical options for walking, biking and transit can boost daily physical activity proven to improve health and lessen the impacts of a wide range of chronic diseases, depression and other mental health issues. In response to the Kern RTP Outreach activities and comments provided by the general public at Kern COG's workshops, reducing unhealthy air emissions is a primary objective of the 2018 RTP. Reducing ozone and particulate matter emissions as outlined in the San Joaquin Valley Air Pollution Control District's attainment plans presents a major challenge. Several issues must be weighed:

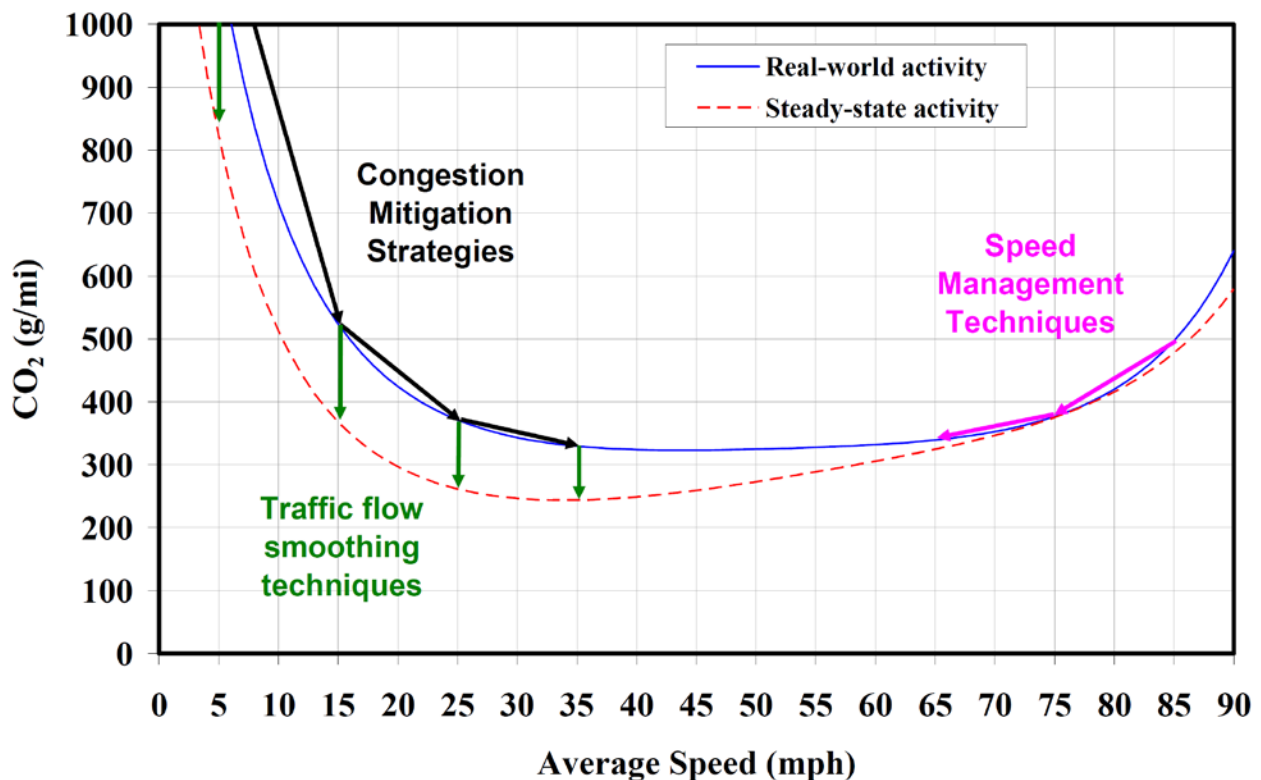
- **Cost Effectiveness** – Maximizing funding is a critical component to successfully achieving air quality goals and standards. It is crucial for air emission reduction efforts to consider cost effectiveness, which is defined as the cost per ton of emissions reduced. Cost effectiveness is weighed by considering factors such as pollutant(s) for which the area is in nonattainment, precursor pollutants of concern, relative size of pollutant inventories, and the existing sources and level of control measures in place. However, cost effectiveness does not always reflect directly on the overall effectiveness of the project.



- **Reduce Congestion** – Figure 5-10 illustrates that reducing traffic congestion at slow speeds while enforcing speed limits on freeways can significantly reduce harmful criteria pollutants. Maintaining smooth flowing traffic on surface streets and freeways can reduce CO<sub>2</sub> emissions as much as 12%. Kern COG's congestion management program action element (discussed later in this chapter), in conjunction with local traffic impact fees, has helped keep Kern's traffic flowing at the optimum speeds of 25 to 60 MPH as the region continues to grow. Continued investment in traffic signal synchronization is a major priority for Kern COG's Congestion Management and Air Quality Improvement Program (CMAQ) funding. In 2012 Kern COG completed a Project Delivery Policies and Procedures document that outlines the process for Kern's member agencies to take in order to benefit from major funding sources. The document is updated on an as needed bases and funding programs evolve.

**Figure 5-10: Vehicle CO<sub>2</sub> Emissions by Speed**

Source: Barth/Boriboonsomsin, 2008



- **Diesel Emission & Idling Reduction Efforts** – According to the National Clean Diesel Campaign (NCDC) the five best practices to reduce emissions from diesel activities are retrofits, engine replacement, vehicle replacement, operational strategies, and introducing clean fuels. As part of the 2005 Energy Policy Act, the Diesel Emissions Reductions Act (DERA) was created offering a significant source of funding for clean diesel projects. State and regional efforts from the Air Resources Board (ARB) and San Joaquin Valley Air Pollution Control District (SJVAPCD) offer programs such as the Hybrid and Zero Emission Truck and Bus Voucher Incentive Project (HVIP) which helps offset costs for truck replacement and engine retrofiting. Recently in California, the On-Road Heavy Duty Diesel Vehicles (In-Use) Regulation has been set into place which says by 2023 nearly all trucks and buses will need to have 2010 model year engines or equivalent.

Another significant effort of diesel emission reduction comes from the EPA's Smartway Technologies Program that supports technologies in idle reduction, aerodynamics, low rolling resistance tires, and retrofits. This effort is clearly exercised in the Kern region with IdleAIR's truck stop facility. IdleAIR

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allows truckers to rest their diesel engines and auxiliary power units while being provided with heating, cooling, electricity, and other at-home commodities inside their trucks.

- Off-Road Mobile Source Emissions – As part of California's Central Valley, the Kern region is highly influenced by the presence of agricultural land uses. Off-Road emissions created from the agriculture and construction industries contribute to particulate matter (PM), nitrogen oxide (NOx), and volatile organic compound (VOC) emissions. Efforts from the USDA's Natural Resource Conservation Services (NRCS) and the SJVAPCD have led to the replacement and retrofit of nearly 1,400 tractors. In conjunction with the NRCS, the Valley Air District has funded approximately \$43 million of these valley wide efforts to improve off-road emissions.
- Alternative-Fuel Fleets – Diesel exhaust still has a toxicity component that may warrant continued conversion of fleets, especially school buses. In 2007, California Executive Order S-01-07 established the Low Carbon Fuels Standard with a goal to reduce carbon emissions 10% by 2020. Also in 2007 the Energy Independence Act set the goal to produce 36 billion gallons of renewable fuel blended into transportation fuel nationwide. The State of California is investing \$100 Million per year on alternative fuels technology including electric plug-in, hydrogen fuel cell, and natural gas. Fueling infrastructure is critical for the success of alternative fuels in the region. With nearly \$1.4 million in funding, the SVAPCD helped UPS deploy 50 hybrid electric delivery trucks in the San Joaquin Valley, and on a more local level, GET successfully converted its fleet of over 100 buses to compressed natural gas (CNG).
- Reduce Vehicle Miles Traveled — A major long-range challenge in nonattainment areas is controlling offsite (indirect source) emissions generated from housing and commercial development in the region. Kern COG's transportation model indicates that each new household generates an average of 60–70 daily vehicle miles traveled. As new gasoline-electric hybrids and zero emission hydrogen-fuel-cell vehicles become commonplace, ozone-related emissions from transportation sources may someday be negligible. However, as passenger vehicle travel increases, so does particulate matter and fugitive dust produced by moving vehicles. New housing developments need to fully mitigate their indirect source impact to air quality, especially for particulate matter. The San Joaquin Valley is the only region in the nation with an Indirect Source Review (ISR) rule (Rule 9510, SJVAPCD) in place that creates incentives for new development to reduce offsite emissions.

### Proposed Actions

#### Near Term, 2018 – 2020

- Maintain air quality coordination Memorandum of Understanding (MOU) with the San Joaquin Valley Metropolitan Planning Organizations, San Joaquin Valley Air Pollution Control District, Eastern Kern Air Pollution Control District, and Caltrans Districts 6 and 10.
- Improve public transit by lowering transit fares and subsidies;
- Increase alternative-fuel fleets – work closely with private and public entities to support the conversion of alternative-fuel vehicles;
- Encourage ridesharing and voluntary employer-based incentives – programs such as Commute Kern's Guaranteed Ride Home program and SJVAPCD's Rule 9410 – eTRIP both promote ridesharing that will immensely reduce vehicle miles traveled, ultimately reducing harmful air emissions;
- Traffic flow improvements/railroad grade separations;

- Park and Ride Facilities – provide 1,500 vehicle spaces by 2042;
- Bicycle and pedestrian travel – construct class I, II, and III bicycle paths, accompanied with striping and signage;
- Promote development of revitalized, walkable/bikeable neighborhoods with easy access to transit; Paving/controlling dust from streets and shoulders and improve street intersections that facilitate bicycle travel;
- PM<sub>10</sub> efficient street sweeping – SJVAPCD Rule 8061: Paved and Unpaved Roads implements the usage of specific street sweepers that target the reduction of PM<sub>10</sub> emissions within urbanized street networks;
- Identify funding options for Congestion Mitigation Air Quality Improvement Program (CMAQ), AB 2766 Motor Vehicle Emissions Reductions Program, and other sources that fund air emission reduction;
- Identify all Reasonably Available Control Measures (RACM) for ozone and all Best Available Control Measures (BACM) for PM<sub>10</sub> by Kern COG's member agencies;
- Special presentations and workshops for member agencies on transportation-related control measure strategies for air pollution emissions as new standards, technology, and funding opportunities evolve; and
- Media campaigns promoting the various air emission reduction measures listed above.

### Long Term, 2021 – 2042

- High Occupancy Vehicle (HOV) lane additions as well as ramps and metering improvements: Centennial Corridor and Westside Parkway provide room to accommodate HOV;
- Add “missing links” (streets) to roadway network that reduce out of direction travel: Centennial Connector will provide a major free-flow traffic connector that will improve air quality by reducing stop and go truck travel on local arterials. The Hageman Flyover Project will provide another east/west connection over SR 99 to downtown Bakersfield central business district; the Mohawk Street extension provides an extension from Rosedale Highway south that connects to Truxtun Avenue accessing downtown Bakersfield;
- Carpool programs – By 2042 a fleet of over 500 vans will be utilized and maintained for vanpooling; and
- Flextime programs – Offsets the traditional work hours of 8 a.m. to 5 p.m., ultimately reducing traffic congestion during peak periods.

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### INTELLIGENT TRANSPORTATION SYSTEMS ACTION ELEMENT

*See Chapter 4, Sustainable Communities Strategy, for further intelligent transportation systems information.*

Intelligent Transportation Systems (ITS) apply advanced information processing, communications, vehicle sensing, and traffic control technologies to the surface transportation system. The objectives of ITS are to promote more efficient use of the existing highway and transportation network, increase safety and mobility, and decrease the environmental impacts of congestion. The Federal Highway Administration sponsored the preparation of Early Deployment Plans (EDPs) to identify ITS application opportunities.

The EDP's primary focus for the Kern County region is the maximization of safety, traffic flow, and efficiency in both rural and urban areas. It presents an integrated, multimodal, phased strategic plan to address the surface transportation needs and problems of the Kern region through the use of ITS. By preparing the EDP, Kern County is in a position to take advantage of federal and other funding opportunities and implement various components of ITS.

***The objectives of ITS are to promote more efficient use of the existing highway and transportation network, increase safety and mobility, and decrease the environmental impacts of congestion.***

Kern COG was the lead agency for this study, with key participation from Caltrans District 6 and the Caltrans New Technology and Research Program, as well as various cities and transportation agencies within the Kern region. The overall goal of Kern's ITS EDP was to develop a multiyear strategic deployment plan that would result in a well-balanced, integrated, intermodal transportation system. Transportation needs that have the potential of being addressed by ITS technologies have been identified and ITS elements that would be beneficial, cost-effective, and implementable have been evaluated. The strategic plan facilitates the integration and coordination of ITS applications valley- and statewide in conjunction with other EDPs conducted throughout California.

### Kern Early Deployment Plan Needs and Issues

Poor visibility because of fog and blowing dust, large percentages of truck traffic, high winds in eastern Kern County, steep grades, snow and ice, rock falls, and red-light violations all contribute to the growing concerns about highway safety. Tule fog, a problem throughout the entire Central Valley region, has caused some of the worst accidents in the state involving dozens of vehicles and closing Interstate 5, the main artery through the valley, for hours at a time. Fog in Kern's mountains causes similar serious incidents along SR 58. Blowing dust, related directly to seasonal agricultural activities, causes similar difficulties for travelers. In the urban areas, red-light violations are an issue. In eastern Kern County, high winds can cause high-profile vehicles to overturn, and snow, ice, and rock falls can make travel unpredictable in rural areas. This EDP places traveler safety first in determining ITS solutions for the Kern region.

Additional issues addressed in the EDP include:

- Improved information sharing among agencies;
- Improved traffic progression across jurisdictional boundaries;
- Reduction in delays due to incidents;
- More informed traveler decision-making through improved traveler information systems;
- Improved data collection through expanded coverage of information sources;

- Increased transit ridership;
- Enhanced transit coverage and efficiency;
- Improved air quality analysis; and
- Improved commercial vehicle operations.

### Kern ITS Programs

Six programs that integrate existing ITS efforts in the Kern EDP were developed and will incrementally advance future expansion of ITS in the region. These programs are:

- Communication Network Development Program – Connects different agencies within the region to allow coordination in operating and managing the transportation system.
- Traffic and Incident Management Program – Integrates various state, regional, and local agencies serving Kern into a comprehensive, region-wide approach to traffic and incident management. Examples include census stations, system and/or incident detectors, coordinated incident management procedures, and freeway changeable message signs.
- Kern Traveler Safety Program – Combines applications that address safety, such as weather stations and photo radar for red light enforcement.
- Kern Informed Traveler Program – Uses advanced warning systems to reduce accidents and congestion and provides real-time information to the traveling public to improve traffic flow. Examples include the Kern 511 Traveler Information System, consisting of a website and an Interactive Voice Recognition System (IVR), Bakersfield's transportation operations center upgrades, and interactive kiosk.
- Kern Smart Transit Program – Increases transit's share of the commuting market by providing an alternative mode that is flexible, convenient, and responsive to customer demand. Examples include upgrading GET service and coordinating GET and KT schedules.
- Enhanced Emergency Response Program – Provides police, sheriff, fire, ambulance, and other service providers with tools that determine quickly and accurately which routes will be most beneficial. Examples include an emergency operations center for emergency response providers and establishing emergency corridor routes.

Implementation of these programs will make transportation throughout Kern County safer, more efficient, and noticeably more pleasant for travelers. These programs were developed specifically for the Kern region, but each was developed as a part of an open, expandable plan, in order to provide a starting point for valley-wide integration of ITS. This means that other Central Valley counties with similar problems and needs will benefit from this plan and can combine ITS programs. Regional integration will provide further opportunities for cost sharing and funding that will result in cost savings to all agencies involved.

### 2018 ITS Plan for the Kern Region

A comprehensive update of the countywide EDP has not been completed since 1997. In the interim, Kern metropolitan area agencies have made significant investments in the planning, design, and implementation of ITS for the surface transportation and transit networks. During that timeframe, stakeholder priorities and needs have changed along with new advances in technology. There is an

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expectation, documented in the 1997 EDP and Architecture, that investment in ITS strategies will continue with a focus at the local level. At the same time, it's important that investments be made in reliable technologies that deliver proven benefit in a cost effective manner. Toward this end, Kern COG is leading a countywide 2018 ITS Plan for the Kern Region to direct ITS investments throughout the county over the next twenty years and beyond.

The ITS planning process is much like any other transportation planning activity, with the primary difference being the focus on technological solutions. One of the primary areas of emphasis of ITS planning is the extensive involvement and participation by the stakeholders of the region. This is especially important to ensure interagency systems integration, address potential institutional issues early, and to provide the necessary education and awareness of advanced technology transportation solutions.

In development of the 2018 ITS Plan for the Kern Region, Kern COG coordinated with stakeholders on an inventory survey of existing ITS elements, a needs assessment, consideration of new ITS strategies, and discussion of ITS architecture. In 2017, the U.S. Department of Transportation released the latest version of the National ITS Architecture framework, now known as Architecture Reference for Cooperative and Intelligent Transportation (ARC-IT) as well as the supporting software Regional Architecture Development for Intelligent Transportation (RAD-IT) to guide the planning and deployment of ITS. The program facilitates the ability of jurisdictions to operate collaboratively and to harness the benefits of a regional approach to transportation challenges. The 2018 ITS Plan for the Kern Region reflects the latest ITS architecture so that stakeholders will be able to deliver federally funded ITS deployments.

### ITS Benefits

Over the past decade, deployment of ITS in the United States has resulted in substantial, quantifiable benefits. Several measured benefits of ITS are summarized in Table 5-5 to demonstrate its potential for improvements within the Kern region.

Table 5-5: Examples of ITS Benefits		
Objective	ITS Goal	Benefit
<b>Freeway Management-Ramp Control: Ramp Metering</b>	Safety	A study of the six-week shut down of the ramp meters in Minneapolis-St. Paul, Minnesota found that ramp meters were responsible for a 21 percent crash reduction.
<b>Traffic Incident Management-Mobilization and Response</b>	Mobility	Traffic incident management programs have reported reductions in incident duration from 15 to 65 percent.
<b>Traffic Control-Adaptive Signal Control</b>	Mobility	Studies from 11 cities in the U.S. and abroad found delay reductions from 5 to 42 percent after installation of adaptive signal control.
<b>Transit Management-Transit Signal Priority</b>	Mobility	Transit Signal Priority implemented as part of the Metro Rapid BRT service in Los Angeles yielded travel time improvements of 7.5 percent and signal delay reduction of 36 and 33 percent on two test corridors.

Source: FHWA-JPO-08-032, *Intelligent Transportation Infrastructure Benefits: Expected and Experienced*. (2008)

### San Joaquin Valley ITS Plan

Using a federal planning grant, the eight San Joaquin Valley counties formed an ITS committee focused on solving transportation problems within the region. The vision for the San Joaquin Valley ITS Strategic Deployment Plan is to enhance the quality of life, mobility, and environment through coordination,



communication, and integration of ITS technology for the Valley's transportation systems. The ITS plan includes major local elements developed by each of the eight counties. The plan coordinates architecture, standards, institutional issues, and provides a framework for deploying ITS projects.

The San Joaquin Valley Intelligent Transportation Systems Strategic Deployment Plan was adopted by Kern COG in November 2001 and is incorporated within the RTP by reference. The plan was federally approved January 8, 2002.

### San Joaquin Valley ITS Architecture Maintenance Plan

While the San Joaquin Valley Regional ITS Architecture is included in the San Joaquin Valley ITS Strategic Deployment Plan, it is considered a process that will be maintained, revised, and validated as needed. The architecture is a set of rules that facilitates the building of systems and allows these systems to communicate and inter-operate when built. Changes to the Regional ITS Architecture, such as new ITS regional needs, plans and priorities, projects, scope, and stakeholders, will be documented through updates to the Deployment Plan. The San Joaquin Valley ITS Architecture Maintenance Plan, including revised management procedures, was adopted by Kern COG on April 21, 2005, and is incorporated within the 2018 RTP by reference. The plan was federally accepted July 14, 2005.

## Proposed Actions

### Short- and Long-Term Actions, 2018–2042

- Continue stakeholder outreach;
- Demonstrate the benefits to member agencies of the Regional Transportation Planning Agencies and Metropolitan Planning Organizations;
- Mainstream ITS into program and project prioritization;
- Mainstream and update regional architecture; and
- Form public/private partnership task force (on project-by-project basis).

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### CONGESTION MANAGEMENT PROGRAM ACTION ELEMENT

As with the previous federal surface transportation acts, under Fixing America's Surface Transportation Act, all urbanized areas larger than 200,000 in population are required to have a Congestion Management Program (CMP), System, or Process. Kern COG has chosen to continue referring to its congestion management activities as a program. The federal Congestion Management Process requirements are similar to the optional California requirements; in fact, the CMP was largely modeled after the California program. Both processes are structured around the identification and monitoring of a system, the establishment of performance standards, and the identification and correction of congestion. The CMP was developed through an open public process in 1991 under state guidelines. Since 1998, the CMP has been included as a subsection of the Regional Transportation Plan. In 2005, the CMP became federally mandated.

The Final Rule for the Federal Management and Monitoring Systems defines an effective Congestion Management Program as a systematic process for managing congestion that provides information on: (1) transportation system performance, and (2) alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs.

***“The program is an effort to more directly link land use, air emissions, transportation, and the use of new advanced transportation technologies as an integral and complementary part of this region's plans and programs.”***

Pursuant to California Government Code Section 65089(a), Kern COG was designated as the Congestion Management Agency in 1991, by the majority of the cities representing the majority of the population and the Kern County Board of Supervisors. Kern COG consists of representatives from the eleven incorporated cities and two representatives from the County of Kern. The Golden Empire Transit District, Joint Planning Policy Board, and Caltrans are ex officio representatives on the Agency Board. The Congestion Management Agency is responsible for developing, adopting, and updating a CMP. The CMP is updated as part of the Regional Transportation Plan every four years. The program is developed in consultation with, and cooperation of, regional transportation providers, local, state, and federal governments, including the California Department of Transportation, and both the Eastern Kern and San Joaquin Valley Air Pollution Control Districts.

In 2009, the California Resources Agency revised the CEQA Guidelines, including the Environmental Checklist Form. The new guidelines expand the definition of traffic congestion to include consideration of impacts to transit, bike, and pedestrian modes, as well as the consideration of travel demand measure strategies.

Because the CMP can be amended and updated as frequently as annually, it can be modified to reflect local conditions in traffic congestion and transportation funding. This document fulfills the statutory requirements for the CMP as required under state law and for the Congestion Management Program under federal law.

#### Purpose

The purpose of the CMP is to help ensure that an efficient transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system level of service (LOS) performance standards and air quality improvement. As discussed in the Transportation Air Emissions Reduction Action Element of this document, smooth, uncongested traffic flow can provide significant improvements to our air quality. The program is an effort to more directly link land use, air quality, transportation, and the use of new advanced transportation technologies as an integral and complementary part of this region's plans and programs.

Local jurisdictions are required to:

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**2018 Regional Transportation Plan (RTP)**

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**Kern Council of Governments (Kern COG)  
August 2018**

- Use consistent level of service methodologies, performance standards, and travel forecasting techniques.
- Adopt and implement a land use analysis program, which includes acting as a responsible agency for traffic impact studies as part of environmental documentation.
- Participate in annual monitoring activities, maintain acceptable performance levels on the system, or if necessary, designate individual segments or intersections deficient through adoption and submission of a deficiency plan to Kern COG. Deficiency plans may be submitted through the environmental review process as part of the traffic study.
- Adopt Transportation Demand Management mitigation and monitoring program prior to their CMP conformity findings in a deficiency plan or traffic study.

Failure of a local jurisdiction to fulfill these responsibilities could engender loss of federal gas tax funding. According to the 2008 Federal Highway Administration Guidebook on the Congestion Management Process for Transportation Management Agencies greater than 200,000 population and in federal nonattainment areas, “no Federal funds may be spent for capacity-expanding projects unless they come from a CMP”.

### Contents

The CMP includes the following six elements:

- **Land Use Impact Analysis:** An established process where Kern COG, in consultation with its member agencies, evaluates the impacts of proposed local land use decisions on Kern County's transportation system, including an estimate of the costs associated with mitigation requirements. This process employs the existing CEQA agency review process.
- **Multimodal Performance Standards:** Determine how much traffic, during peak hours, is acceptable on state freeways, highways, and major streets within Kern County. These standards do not replace adopted city or county traffic goals, which generally establish more stringent standards. In addition, identify frequency and routing of bus service, and coordinate transit service provided by separate operators throughout Kern County.
- **Regional Traffic Model:** Predict level-of-service exceedances, prioritize the Capital Improvement Program, and analyze the impacts of land use on the CMP network. Kern COG maintains the regional traffic model for evaluation of congestion performance measures in the RTP and as a key input to local and regional traffic studies.
- **Transportation Demand Management:** Describe programs to promote alternatives to single-occupant vehicle travel. These include such activities as carpools, vanpools, transit, bicycles, park-and-ride lots, and intelligent transportation system technologies. These programs will improve air quality in the region and help meet the goals of the Air Quality Attainment Plans, as well as climate change goals. Often, environmental documents include Transportation Demand Management strategies (TDMs) and Transportation System Management strategies (TSMs). Kern COG, Caltrans, and local governments should incorporate TDMs/TSMs as part of their Transportation Plans, Circulation Plans, transportation studies, and corridor studies, as appropriate.

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- Capital Improvement Program (CIP): Establish transportation improvements that can be expected to improve traffic conditions over a minimum of seven years. This program has been developed to make the best use of the funds currently available. The CIP is developed and maintained by Kern COG with public and member agency input.
- Deficiency Plan: Project leads prepare a plan of remedial actions when a roadway level of service standard is not maintained on the designated Congestion Management roadway system. The plan may be addressed in a stand-alone traffic impact study or as part of the environmental document. A Corridor System Management Plan (CSMP) may be prepared by Kern COG to identify actions along congested corridors and systems for inclusion in traffic impact studies.

In addition to these components and as a part of the process of developing and monitoring the program, the local government agencies and Caltrans are required to develop and maintain a traffic data base for use in a countywide model and to monitor the implementation of the program elements. This database requirement may be fulfilled through participation in the Kern COG regional traffic count program.

Along with state-level requirements, federal transportation funding legislation requires each state to develop and implement a transportation Congestion Management Process that will be incorporated into the regional planning process, comply with the intent of the federal requirement, and be considered a part of Kern County's CMP. The program identifies areas where congestion occurs or may occur, identifies the causes of the congestion, evaluates strategies for managing/mitigating congestion and enhancing mobility, and develops a plan for implementation of the most cost effective strategies. Strategies regarding congestion management include:

- Transportation demand management measures.
- Traffic systems management operations improvements (i.e., signal coordination, freeway service patrol, real-time traffic conditions online, etc.).
- Measures to encourage high-occupancy vehicle (HOV) use.
- Enhanced mobility measures that provide a congestion relief valve in corridors that are not affected by the peak period congestion (i.e., arterial-based peak-period transit/HOV lanes or light rail).
- Congestion pricing.
- Land use management and activity/transit-oriented center strategies.
- Incident management strategies.
- Application of ITS technology.
- Addition of general purpose (mixed flow) traffic lanes.
- Other mitigation that allows for mobility through congested corridors for modes other than single-occupant vehicles, including non-motorized bike and pedestrian trips.

Advances in telecommunications technology and networks provide an additional opportunity to further mitigate congestion by reducing the need for travel both within the region and between regions. To an extent, these telecommunications advances are occurring within the private sector without public sector initiatives. However, Kern COG is evaluating a potential public sector role.

## **Monitoring and Implementation Process**

To ensure the CMP is being implemented, the cities and county provide the Congestion Management Agency considerable information annually, primarily in the form of technical data, as well as policy and planning summaries, including the following:

- **Traffic Level of Service:** Each city, the county, and Caltrans must provide peak-hour traffic counts and level of service calculations on their designated streets and intersections. As participants on the Kern Regional Transportation Modeling Committee, these agencies oversee a regional traffic count program and travel demand forecasting program administered by Kern COG.
- **Local Traffic Models:** Kern COG is required to approve any traffic models used by the cities and the county to evaluate impacts of proposed land use development on the transportation system. After the model has been initially approved by the Congestion Management Agency, only changes to the model will need to be submitted.
- **Land Use Database:** Kern COG is required to establish and maintain a uniform land use database for the development and monitoring of the program. All current and future land use projections must be included in the database. Any changes to the land use database must be submitted to Kern COG.
- **Local Capital Improvement Program:** The program includes a minimum seven-year Capital Improvement Program to maintain or improve the level of service on the CMP network and transit performance standards, and to mitigate regional transportation impacts identified through the program's land use analysis element.
- **Performance Monitoring:** Kern COG is required to update the level of service for the Congestion Management System network as well as system wide congested travel statistics using the Kern COG regional travel demand model.

## **Designated Regional Transportation System**

The purpose of defining the CMP network is to establish a system of roadways that will be monitored in relation to established level-of-service standards. At a minimum, all state highways and principal arterials must be designated as part of the Congestion Management System of Highways and Roadways. Kern County has 18 designated state highways. The roads selected as principal arterials by the Congestion Management Agency serve interregional traffic traveling between state highways and also complete gaps in the congestion management network.

California Government Code Section 65089(b)(1)(A) requires that the Congestion Management Agency establish a system of highways and roadways that includes all of the state highways and principal arterials. Once a roadway is included in the network, it cannot be removed. All new state highways and principal arterials must be included in the system. If in the future, however, an existing segment of state highway is replaced by a new alignment, the new alignment would be added to the congestion management network while the old alignment would be dropped from the network.

Figures 5-11 and 5-12 provides a graphic display of the Congestion Management System of highways and roadways. A listing of state highways and principal arterials on the designated Congestion Management System is provided below.

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### Congestion Management Program System

#### Highways

Interstate 5	SR 155
SR 14	SR 166
SR 33	SR 178
SR 43	SR 184
SR 46	SR 202
SR 58*	SR 204
SR 65	SR 223
SR 99	U.S. 395
SR 119	

\*The Westside Parkway, new Centennial Connector and a portion of Stockdale Highway will be added to the CMP system when the designation of SR 58 moves from Rosedale Highway to those routes, potentially by 2020.

#### Principal Arterials

China Lake Boulevard – SR 178 to Route 395

Rosamond Boulevard – Tehachapi-Willow Springs Road to SR 14

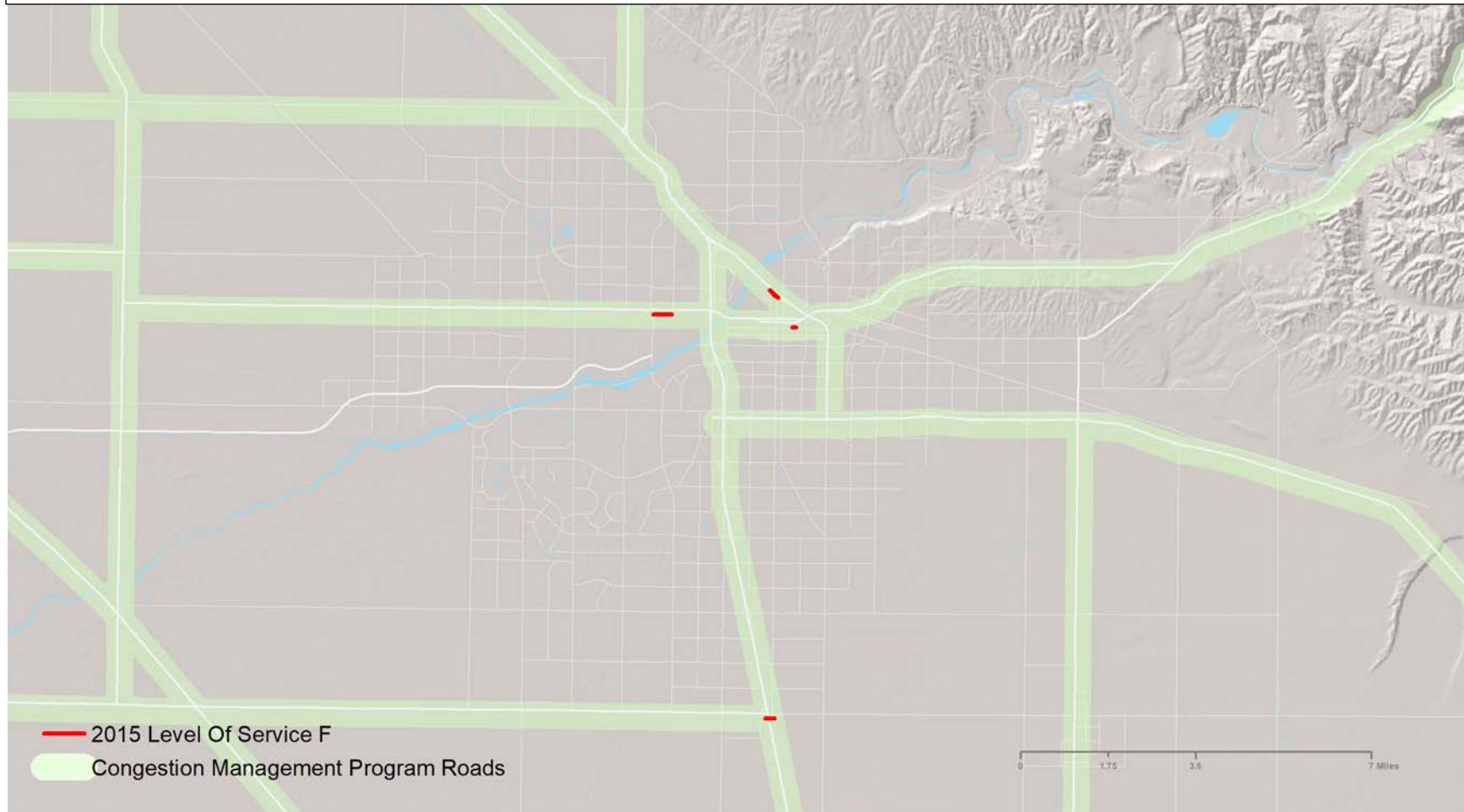
Seventh Standard Road – SR 99 to Interstate 5

Tehachapi-Willow Springs Road – SR 58 to Rosamond Boulevard

Wheeler Ridge Road – Interstate 5 to SR 2

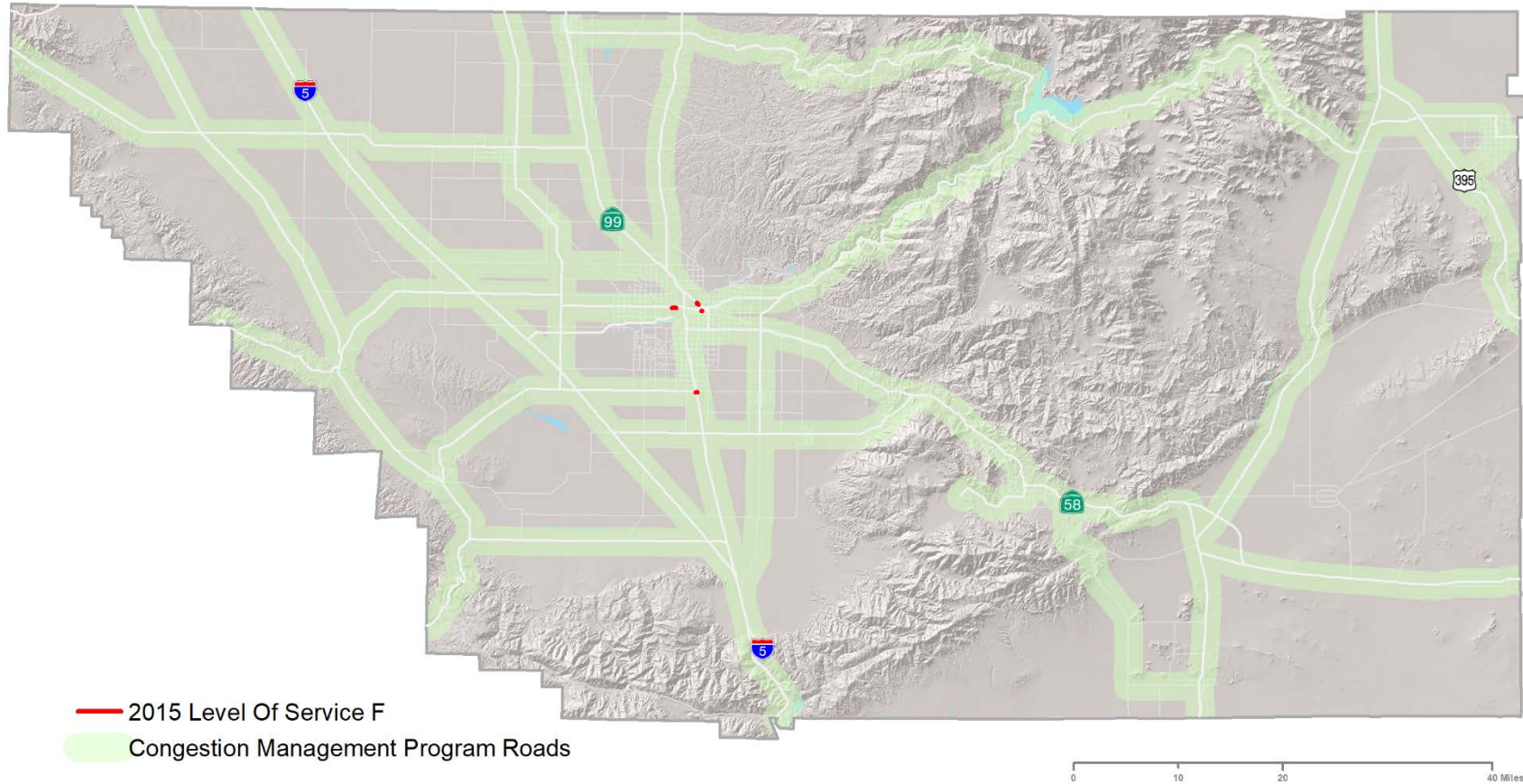


Figure 5-11: Metropolitan Bakersfield Congestion Management Program Corridors



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**Figure 5-12: Kern County Congestion Management Program Corridors**



## Level of Service Standards

The purpose of this section is to establish level of service standards for the Congestion Management road network in Kern County. California Government Code Section 65089(b)(1)(B) requires that level of service standards be established at no worse than LOS E, or LOS F if that is the current level of service.

Level of service, according to the Transportation and Traffic Engineering Handbook, is a "qualitative measure that represents the collective factors of speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs provided by a highway facility under a particular volume condition." Level of service is ranked from A to F, with A being best and F being worst (see Table 5-6).

<b>Table 5-6: Levels of Service</b>	
Level of Service A	Free flow: no approach phase is fully used by traffic and no vehicle waits longer than one red indication. Insignificant delays.
Level of Service B	Stable operation: an occasional approach phase is fully used. Many drivers begin to feel somewhat restricted within platoons of vehicles. Minimal delays.
Level of Service C	Stable operation: major approach phase may become fully used and most drivers feel somewhat restricted. Acceptable delays.
Level of Service D	Approaching unstable: drivers may have to wait through more than one red signal cycle. Queues develop but dissipate without excessive delays.
Level of Service E	Unstable operation: volumes at or near capacity. Vehicles may wait through several signal cycles and long queues form upstream from intersection. Significant delays.
Level of Service F	Forced flow: represents jammed conditions. Intersection operates below capacity with several delays that may block upstream intersections.

Jurisdictions are encouraged to incorporate multimodal level of service standards as appropriate for each community facility type, place type and corridor type as recommended in the latest Highway Capacity Manual update. The 2012 update to the project selection criteria includes consideration of highway, bike and pedestrian level of service. To refer to the Kern COG Project Delivery Policies and Procedures please use the following link (under Policies and Procedures): <http://www.kerncog.org/category/docs/other-docs/>.

## Adopted Level of Service Standards

One of the most important elements of the congestion management process is to establish traffic level of service standards to decide how much traffic, during peak hours, is acceptable. LOS is a way of measuring the amount of traffic congestion.

Level of service E has been established as the minimum system-wide LOS traffic standard in the Kern COG Congestion Management Plan. Those roads currently experiencing worse traffic congestion have been accepted at their existing traffic level of LOS F. By so doing, cities and the county will not be penalized through loss of gas tax funds for not meeting the new CMP LOS E standard. Existing LOS F locations are listed below.

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- Portions of SR 119 at SR 99
- Portions of SR 178/23rd Street – L Street to N Street
- Portions of SR 204 – Airport Dr to F Street
- Portions of SR 58/Rosedale Highway – SR 99 to Fruitvale Ave

Projects along one of the existing LOS F segments, with 1 or more peak-hour trips (or as required by the most recent Caltrans Guide for the Preparation of Traffic Impact Studies), shall include a deficiency plan for the affected corridor segments as part of the traffic study for the project's environmental document or as a separate stand-alone deficiency plan for the affected corridor.

Overall, the number of congested segments and vehicle miles traveled has dropped since the last travel demand model validation. Of the segments that remain LOS F, a stand-alone Corridor System Management Plan (CSMP)/deficiency plan has been completed for SR 58. The CMP assumes that recently completed capacity increasing improvements will operate better than LOS F until the next transportation model update indicates that the segment has been degraded to LOS F again. The model update validation uses observed traffic data from the annual traffic monitoring program. A CSMP or Transportation Concept Report (TCR) has not been completed for the congested portions of SR178 however, a project currently underway on that route is anticipated to relieve congestion before then next CMP analysis. These routes are under the grace period for requirement of a deficiency plan and have capacity improvements already planned in this RTP. All other deficiencies are off the CMP network.

In addition to the LOS standards of the CMP, some cities and the County of Kern have adopted policies to help maintain their own LOS standards. In most cases, these local policies are aimed at maintaining LOS C. These standards are not intended to replace local policies by allowing greater congestion; they serve a very different purpose. The locally adopted LOS standards are tied to the cities' and county's authority to approve or deny development, require mitigation measures, and construct roadway improvements. The level of service standard is a planning tool to be used in the development review process. Failure to meet the local standard does not have direct negative federal financial impacts.

In 2017, California Office of Planning Research released new guidelines that govern how CEQA is used to address congestion as required by SB 743. LOS has now been replaced with VMT as the primary method to measure traffic impact under CEQA in California. The CMP is a federally required process, and the new guidelines continue to allow for LOS analysis on state routes and to comply with local ordinances. The CMP is not affected by SB 743.

### Mitigating Deficiencies

The Deficiency Plan is similar to a CSMP or TCR. The deficiency plan section of the traffic study should analyze affected portion of the CMP network and parallel corridors as appropriate. A grace period is being provided until Kern COG and/or Caltrans completes the CSMP or TCR for all the congested segments in the Congestion Management network.

- Multimodal Analysis – The modes analyzed should be dependent on the place type. For example, in most cases rural intercity travel need not look at pedestrian facilities. The plan should provide mitigation and a monitoring program to offset impacts to all modes through incident and demand management strategies.
- Corridor Analysis – Corridor impacts to a mode may be mitigated by providing capacity on a parallel facility. For example, an impacted facility may lack pedestrian and bike facilities; however, a parallel



bike/pedestrian path within the corridor could offset this deficiency. In addition, impacts to transit buses stuck in the same traffic congestion as single-occupant vehicles could be mitigated by the provision of a transit/HOV lane in the congested travel direction during peak periods. Additional mitigation for congestion could be through the provision of a freeway service patrol to rapidly clear traffic accidents during peak periods.

- **Multimodal Circulation Plans** – As required by AB 1358 effective January 2011, at the next regularly scheduled update, local circulation plans should consider other modes and methods for assessing service. In addition to the road network, circulation plans should include bike, pedestrian, and transit networks. The bike/pedestrian/transit networks should provide for transit-oriented development centers that could serve as transfer points and nodes for future express and/or regional service. The centers also should provide a connected network linking to future high-speed rail and passenger rail stations. These centers should be reflected in the Land Use Element of the General Plan with higher densities and a mix of land uses that make for a vibrant pedestrian-oriented destination.
- **Funding Mitigation** – Funding for mitigation may be phased as part of the mitigation monitoring program. Developer-funded mitigation would be timed with the completion of phases that created the impacts. Other funding sources could include local and regional traffic impact fees, a transportation sales tax measure, and the Kern Motorist Aid Authority DMV fee for freeway service patrols and traveler assistance 511 services. A Corridor System Management Plan could be prepared by Kern COG to assist with the development of the cost/benefit analysis.
- **Congestion Pricing** – On major freeway and highway facilities, HOV lanes, bus lanes, and toll lanes can be used to fund new capacity for single-occupant vehicle traffic. At the national level, odometer-based tolling is being considered to fund and maintain infrastructure that supports goods movement activity. Variable parking costs can also be used as a strategy to reduce congestion during peak periods.
- **Grace Period** – Member agencies are not required to prepare a deficiency plan or traffic study as required under this section until Kern COG or Caltrans completes the Corridor System Management Plan or Transportation Concept Report for the deficient segments on the CMP system.

### **Congestion Management Agency Role**

Under the State CEQA Guidelines, the Congestion Management Agency monitors a countywide level of service standard and withholds federal gas tax funds if the standard is not met or mitigated. Local agencies often establish more stringent level of service requirements as part of the circulation plans. The CMP standard is not viewed as being in conflict with locally adopted LOS standards that are more stringent.

It is the Congestion Management Agency's responsibility to ensure that all cities and the county are following the CMP. Of particular importance is the establishment of traffic counts and regional traffic modeling. Kern COG completes one coordinated and comprehensive review of current LOS traffic data with each RTP update; each city and the county is evaluated in the same manner. Through the Kern Regional Traffic Count Program, the cities, county and Caltrans undertake traffic counts on their roads annually. Use of recent peak-hour traffic counts as a basis for traffic forecasting eliminates much of the "guesswork" and ensures that the review is based on actual traffic conditions.

Provisions include:

- All roadway segments on the Congestion Management network shall maintain a level of service of E or better;

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- Any roadway segments on the Congestion Management network that are operating at a level of service worse than E on the adoption of the first CMP shall be required to prepare a deficiency plan as part of the traffic study for a proposed development. The plan shall provide mitigation through transportation system management and travel demand management strategies and/or capacity for other modes such as transit and HOV that is not affected by the slower speeds of congested single-occupant vehicle travel. The plan shall provide mitigation along the congested portion of the corridor if mitigation of the affected CMP network links is not feasible; and
- The CMP will assume that a recently completed capacity increasing improvement will operate better than LOS F until the next transportation model update indicates that the segment has been degraded to LOS F again, as indicated by observed traffic counts.

### Conformance Monitoring

This section identifies specific conformance monitoring procedures to determine if the local jurisdictions are complying with the traffic level of service standards, the interim transit frequency, routing, and coordination requirements, adoption and implementation of the program to analyze the impacts of land use decisions on the Congestion Management System, and compliance with the Transportation Demand Management/Trip Reduction Element.

California Government Code Section 65089.3(a) states, "The agency (CMA) shall monitor the implementation of all elements of the CMP. Annually, the agency shall determine if the county and the cities are conforming to the Program, including, but not limited to, all of the following:

- Consistency with levels of service and performance standards, except as provided in subdivisions (b) and (c);
- Adoption and implementation of a transportation demand management/trip reduction ordinance; and
- Adoption and implementation of a program to analyze the impacts of land use decisions, including the estimate of the costs associated with mitigating these impacts.

### Determination of Nonconformance

If, pursuant to the annual traffic monitoring process, the Congestion Management Agency finds that a local jurisdiction is not conforming to the provisions of the CMP, the Agency shall hold a noticed public hearing for the purpose of determining conformance. Further, the Agency shall notify the nonconforming jurisdiction in writing of the specific areas of nonconformance. A nonconforming jurisdiction may appeal the determination of nonconformance for the purpose of scheduling a re-hearing before the Agency within 100 days of the initial notice of nonconformance.

The nonconforming jurisdiction shall have 90 days from the date of the receipt of the written notice of nonconformance to come into conformance with the CMP, in accordance with Section 65089.4(a). If the nonconforming jurisdiction has not come into compliance with the CMP, the Congestion Management Agency shall make a finding of nonconformance and shall submit the finding to the California Transportation Commission and the State Controller.

In accordance with Government Code Section 65089.4(b), the State Controller will withhold apportionments of funds required to be apportioned to that nonconforming jurisdiction by Section 2105 of the Streets and Highways Code, until the Controller is notified by the Agency that the city or county is in conformance. If, within the 12-month period following the receipt of a notice of nonconformance, the Controller is notified by



the Agency that the city or county is in conformance, the Controller shall allocate the apportionments withheld pursuant to this section to the city or county.

If the Controller is not notified by the Congestion Management Agency that the city or county is in conformance pursuant to paragraph (2), the Controller shall allocate the apportionments withheld to the Agency. The Agency shall use the funds apportioned for projects of regional significance that are included in the Capital Improvement Program required in Section 6.8 of this document. The funds may also be used for projects identified in a deficiency plan that has been adopted by the Agency. The Agency cannot use the funds for administrative or planning purposes.

### **Appeals Process**

A local jurisdiction found to be in nonconformance with a provision of the CMP may file a written request of appeal within 90 days of the date of the receipt of the written notice of nonconformance. Within 100 days of receipt of the written notice of appeal from a local jurisdiction previously found to be in nonconformance, the Congestion Management Agency will schedule a noticed public hearing for the purpose of reconsidering the finding of nonconformance.

Within 60 days of the date the appeal is filed, the local jurisdiction filing the appeal may submit information pertaining to the written notice of nonconformance. After the public hearing on the appeal of the finding of nonconformance is concluded, the Congestion Management Agency will:

- Notify the local jurisdiction that, because of the information considered at the appeal hearing, the finding of nonconformance is being withdrawn; or
- Notify the California Transportation Commission and the Controller's Office that the local jurisdiction has not come into conformance with the CMP.

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### REGIONAL STREETS AND HIGHWAYS ACTION ELEMENT

*See the Land Use Action Element – Highway/Road Land Use Actions for further discussion on sustainable land use decisions relative to highways and roads.*

A system of safe and efficient highways, streets, and roads is essential to the movement of people, vehicles, and goods in and through Kern County. Public vehicles, private automobiles, and commercial shippers all share the same transportation network. Providing a system of state and federal highways and regionally significant arterials that can meet this variety of needs is critical to the plan's goal of enhancing the quality of life for Kern County's residents.

***The new project selection criteria incorporate livable community strategies into the prioritization elements for projects of regional significance.***

In 2012, Kern COG adopted new SB 375-enhanced project selection criteria, which will be used for all future calls for projects. The new project selection criteria incorporates livable community strategies into the prioritization elements for projects of regional significance. This is an important step for the region in that it helps to implement Chapter 4 Sustainable Communities Strategy by allowing projects that incorporate sustainable strategies to score higher for funding consideration. Additionally, complete streets elements were incorporated into the project selection criteria and the Congestion Mitigation and Air Quality Improvement (CMAQ) Program to prioritize new projects.

### Existing Streets and Highways System

Streets and highways relevant to this element are the state and interstate highways in the county. These projects are federally funded and/or considered "regionally significant." This element also recognizes principal arterials as important to the movement of goods and people in the region. Interstate highways in Kern County relevant to the 2018 RTP include Interstate 5 (I-5) and US Highway 395.

The following roadways are also relevant to this plan:

- State Route 14 (Midland Trail and Antelope Valley Freeway)
- State Route 33 (Westside Highway)
- State Route 43 (Central Valley Highway)
- State Route 46 (Famoso Highway)
- State Route 58 (Rosedale Highway/Mojave Freeway)

- State Route 65 (Porterville Highway)
- State Route 99 (Golden State Highway)
- State Route 119 (Taft Highway)
- State Route 155 (Delano Woody Highway)
- State Route 166 (Maricopa Highway)
- State Route 178 (Crosstown Freeway/Kern River Canyon Road/Isabella Walker Pass/Inyokern Road)
- State Route 184 (Weedpatch Highway/James Throne Memorial Highway)
- State Route 202 (Cummings Valley Road)
- State Route 204 (Golden State Avenue/Union Avenue)
- State Route 223 (Bear Mountain Boulevard)

### Major Accomplishments

Achievements related to the region's network of highways, streets, and roads are depicted below. The following major state highway projects are under construction or completed:

- 24<sup>th</sup> Street improvement – State Route 178 from State Route 99 to M Street – Bakersfield
- Calloway Drive grade separation – Bakersfield
- Challenger Drive Extension – Tehachapi
- Coffee Road grade separation – Bakersfield
- Hageman Road grade separation at Santa Fe Way
- Morning Drive improvements – Bakersfield
- Seventh Standard Road widening – three segments in Shafter, Bakersfield, and the County
- Seventh Standard Road widening from Santa Fe Way to State Route 99
- Seventh Standard Road grade separation at Santa Fe Way
- West Eastern Sierra Transit Boulevard – widening
- Westside Parkway – Bakersfield
- White Lane – bridge widening in Bakersfield
- State Route 14 – widening from Mojave to California City

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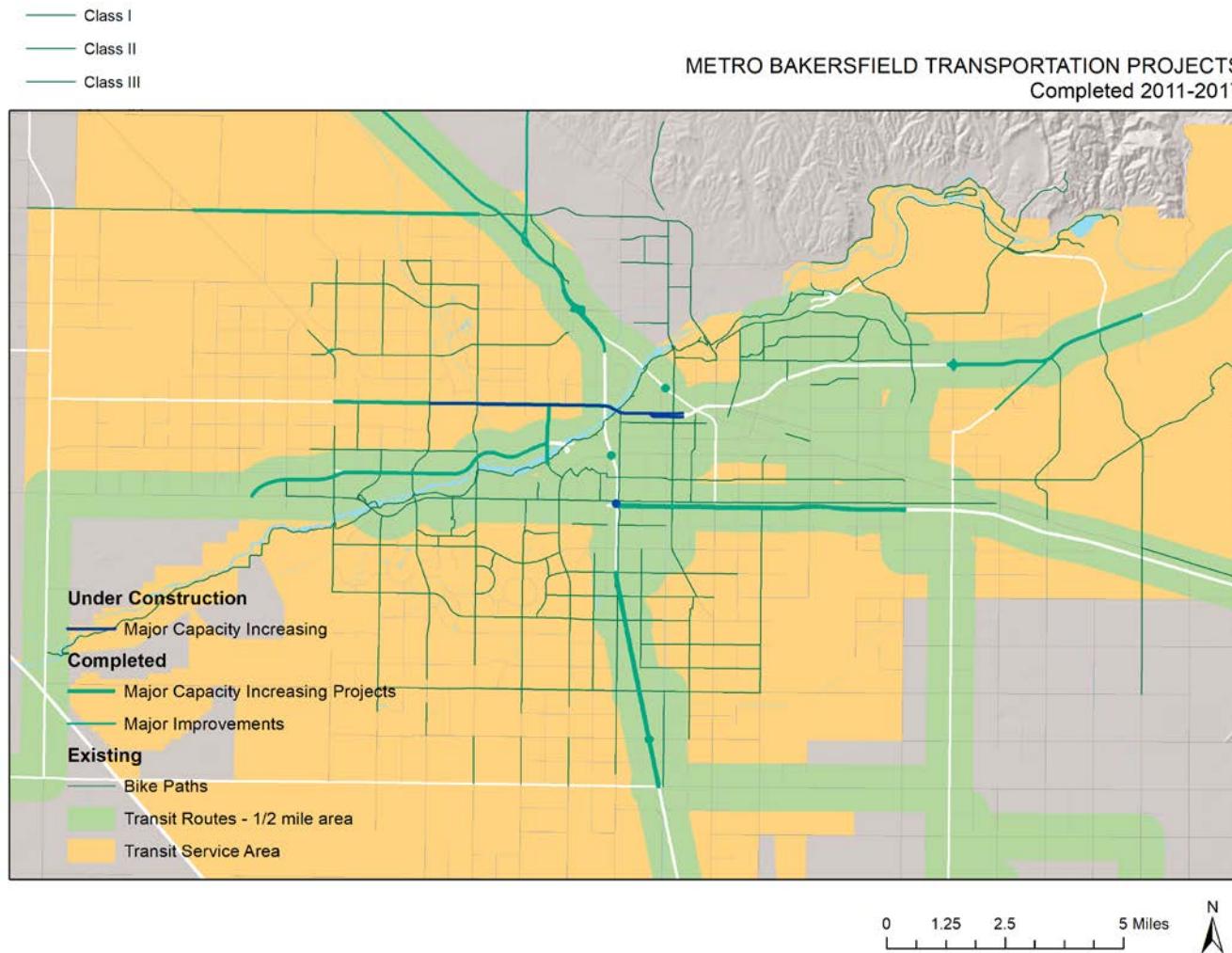
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- State Route 46 phases 1-3 – west Kern County
- State Route 46 phase 4 – west Kern County
- State Route 46 – widening west of Interstate 5 to the county line
- State Route 58 – Mojave Freeway
- State Route 58 (Mojave Freeway) – frontage road
- State Route 58 widening – Cottonwood Road to State Route 99 - Bakersfield
- State Route 58 Rosedale Hwy widening – Allen Road to State Route 99 - Bakersfield
- State Route 58 Centennial Corridor – Bakersfield
- State Route 99 Widening – Wilson Road to State Route 119 - Bakersfield
- State Route 99 – widening in Bakersfield
- State Route 99 – widening near Delano
- State Route 119 phase 1 – Cherry Ave to Tupman Rd
- State Route 178 at Fairfax Road – new interchange
- State Route 178 at Morning Drive – new interchange
- State Route 178 – widening near Oak Street – Bakersfield
- State Route 178 Widening from Vineland Road to east of Miramonte Drive – Bakersfield
- State Route 202 – new bridge near Route 58 at Tehachapi

The following regionally significant roadway projects are undergoing necessary environmental review, right-of-way acquisition, and/or design work:

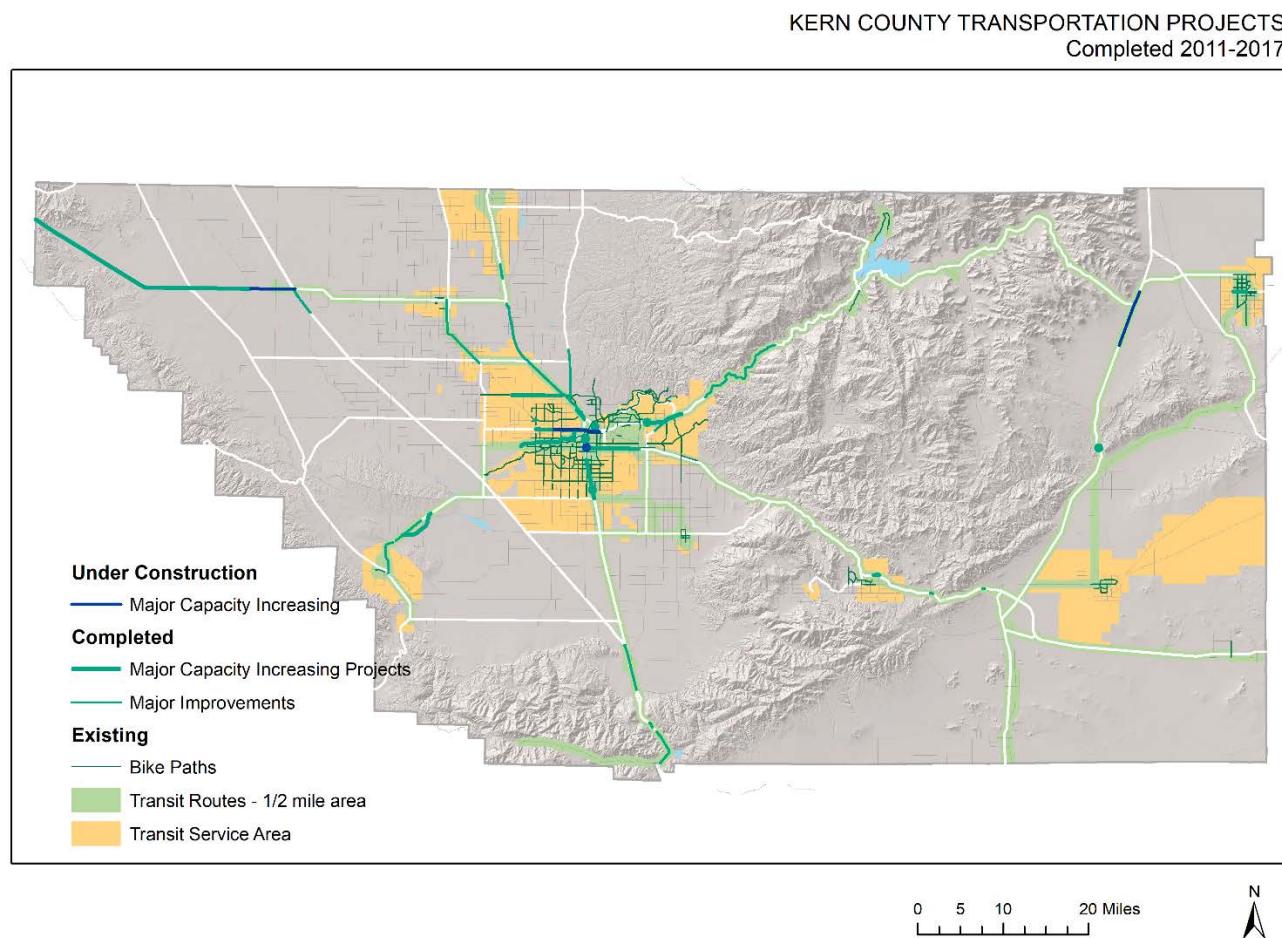
- Centennial Connector - Bakersfield
- State Route 119 phase 2 – Cherry Ave to Tupman Rd
- State Route 14 – west of Eastern Sierra Transit Authority
- Hageman Road extension – Bakersfield
- 7<sup>th</sup> Standard Road Hwy 43 to Santa Fe Way (partial environmental completed)

**Figure 5-13: Metro Bakersfield Projects**



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**Figure 5-14: Kern County Projects**





## Needs and Issues

### Maintenance Needs

Maintaining the local transportation infrastructure is of critical importance for the entire region. Based on extensive input for development of this RTP, maintaining the roads are the public's top transportation priority (Appendix C - Public Outreach Results). The 2016 California Statewide Local Roads Needs Assessment states: "The conditions of California's local streets and roads are rolling off the edge of a cliff. On a scale of zero (failed) to 100 (excellent), the statewide average Pavement Condition Index (PCI) has deteriorated to 65 ("at risk" category) in 2016". The chart below represents the deterioration of Kern's roads since 2008 when the Statewide Assessment began.

***Based on extensive input in development of this RTP, maintaining roads is among the public's top transportation priorities.***

County	Center Line Miles	Lane Miles	Area (sq. yd.)	Average Weighted PCI				
				2008	2010	2012	2014	2016
Kern	5,495	12,519	111,410,008	66	63	64	64	63

It is more cost effective to apply preventive maintenance treatments and extend a facility's life than to reconstruct once it has completely failed. Funds to handle the backlog of needs simply have not been available. Funding from the federal gas tax has traditionally been used to support the maintenance of these facilities; over time, however, gas tax revenues have failed to keep up with inflation.

**Figure 5-15: Thresholds and Treatments**

California took steps to provide funding for street and road maintenance when Senate Bill 1, the Road Repair and Accountability Act of 2017, was signed into law on April 28, 2017. This legislative package invests \$54 billion over the next decade to fix roads, freeways and bridges in communities across California and puts more dollars toward transit and safety. These funds will be split equally between state and local investments.

100		Preventive Maintenance
70		Thin HMA overlays
50		Cold in Place Recycling/Thick HMA Overlays
25		Reconstruction
0		

PCI Thresholds & Treatments Assigned for Asphalt Pavements

Maintenance of highways also requires considerable investment. State highway maintenance and safety project expenditures are generally funded as part of the State Highway Operation and Protection Program (SHOPP), which do not require local matching dollars. The California Department

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of Transportation (Caltrans) prepares a 10-year SHOPP for the rehabilitation and reconstruction of all state highways and bridges that recognizes the growing inventory of deferred maintenance needs.

Table 6-1 (Chapter 6, Financing Transportation) provides a revenue forecast for local, state, and federal funding and includes a specific revenue forecast for the maintenance of state highways in the Kern region. All other funding sources for local maintenance and transit operations are combined by funding type in the table. Figure 6-1 provides a general overview of financial resources expected for local road rehabilitation, state highway rehabilitation, and transit operations and maintenance. Financing assumptions include an increase in funding for maintenance from a variety of potential national, state and local sources actively being explored.

### Bakersfield Federal Demonstration Project – Thomas Roads Improvement Program (TRIP)

The foundation for planning the Metropolitan Bakersfield highway transportation network was titled the Bakersfield Beltway System in federal legislation, as shown on Figure 5-16. This system of freeways and expressways consists of three major roadways: Central System, West Beltway, and North Beltway. These facilities may be built in phases, which may initially be constructed as expressways and upgraded to freeways as future demand requires.

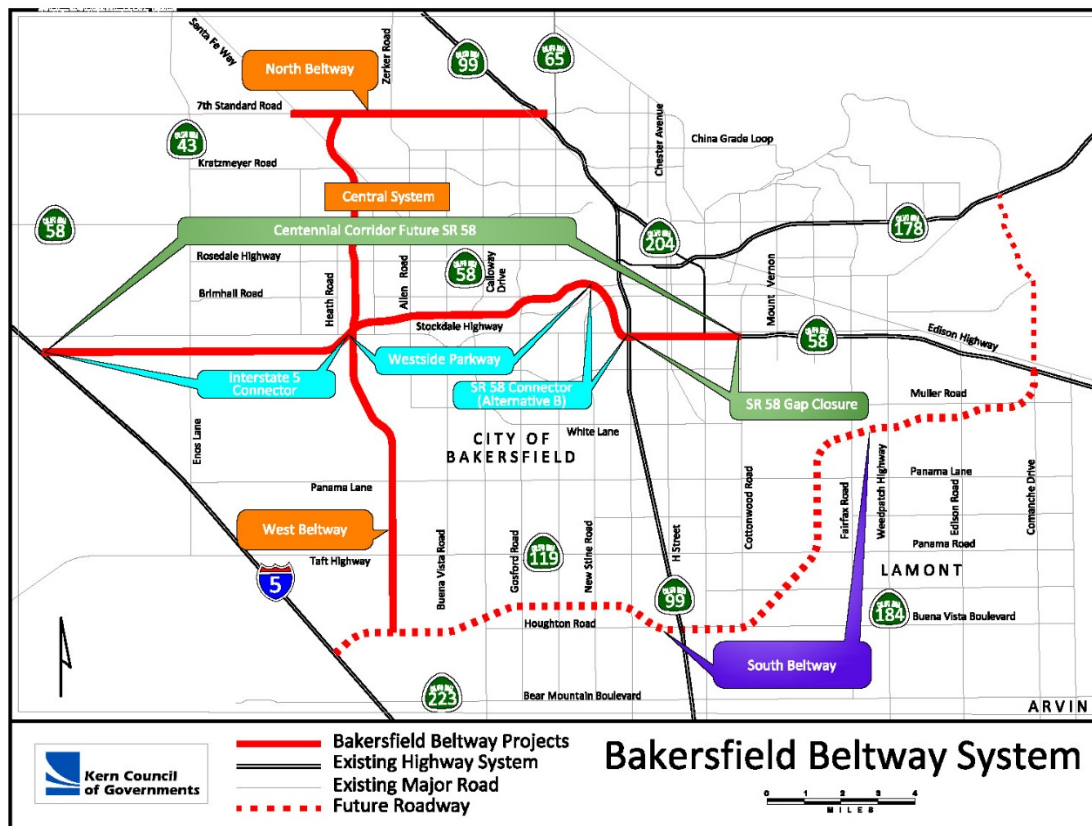
The Central System is an element of the Bakersfield Beltway System that includes the State Route (SR) 58 Gap Closure, along with the Centennial Corridor, which consists of the SR 58 Connector, the Westside Parkway, and the Interstate 5 Connector.

The State Route 58 Gap Closure project added a third lane in each direction to a three-mile stretch of the State Route 58 freeway between State Route 99 and Cottonwood Road. The additional lanes were constructed within the existing median. The project also widened the "P" Street Bridge, Madison Street Bridge, Cottonwood Road Bridge and the Bakersfield Corral Railroad Overhead to accommodate the additional lanes.

The SR 58 Connector will include to SR 99, and a new freeway will extend from the western terminus of the SR 58 Gap Closure to Westside Parkway. The facility will include right of way for a future high occupancy vehicle lane (HOV). Westside Parkway begins about 1 mile east of SR 99, extends across the Kern River at Truxtun Avenue, and continues along the north side of the river, connecting with Stockdale Highway near Heath Road. The I-5 Connector will extend from the western terminus of Westside Parkway to I-5, parallel to Stockdale Highway. Initially, this section will consist of operational improvements on the existing Stockdale Highway. Together, these three projects constitute the Centennial Corridor.

The completed Central System will provide the necessary capacity for east/west travel and relieve congestion on existing SR 58 (Rosedale Highway), California Avenue, SR 99 and other existing routes. The Central System will also provide for regional and interstate east/west goods movement through the metropolitan area. Once this facility is finished, it is anticipated that Caltrans will designate the Central System as the new SR 58

**Figure 5-16: Bakersfield Federal Demonstration Projects**



The West Beltway will provide a major north/south route through the western portion of Metropolitan Bakersfield, an element of the network that connects SR 99 with Interstate 5. The facility would include meters, and HOV lane on ramps. This freeway would reduce traffic congestion on SR 99 and provide a link across the Kern River from southwest Bakersfield to the Westside Parkway.

The North Beltway will provide an east/west connection in the Shafter area. This facility initially would be built as an expressway, providing access for the Shafter/northern Metropolitan Bakersfield area while connecting SR 99 with Interstate 5.

### Level of Service

Implementation of the 2018 RTP will result in improvements to existing transportation systems and will meet required regional transportation needs. Proposed street and highway programs are aimed at reducing existing traffic, improving safety, and resolving other circulation conflicts. Implementation of planned improvements to the street and highway network, improvement of county airports, provision of mass

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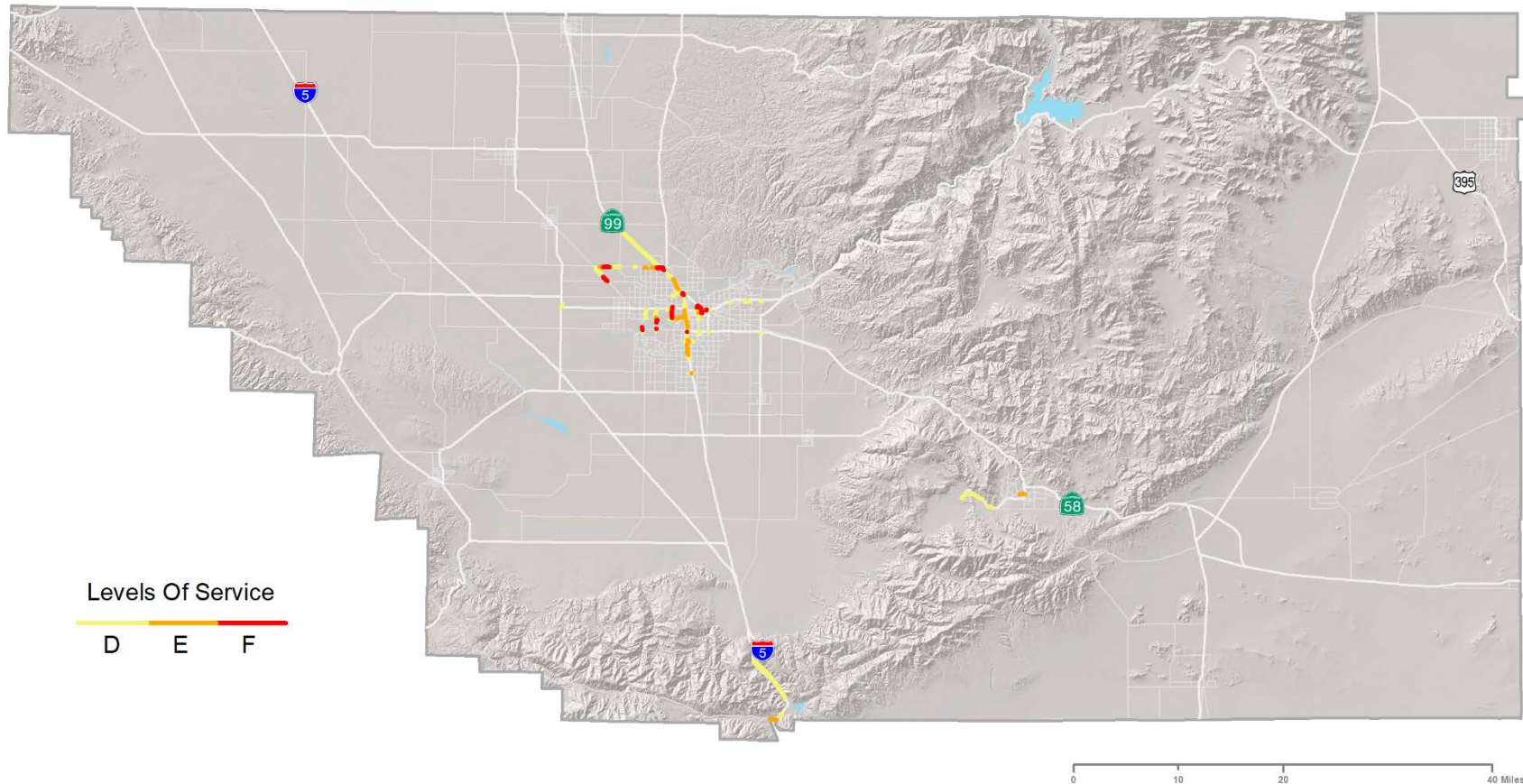
transportation services and facilities, identification of additional bikeways and pedestrian improvements, and improved transportation systems that accommodate goods movement will have beneficial effects on a region-wide basis.

**Level of service (LOS)**, according to the Transportation and Traffic Engineering Handbook, is a “qualitative (performance) measure that represents the collective factors of speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operation costs provided by a highway facility under a particular volume condition.” LOS measurement is used to assess the regionally significant system of streets and highway facilities. Proposed projects for the highway system use LOS values to determine and rank the type and number of transportation projects necessary to accommodate current and expected future growth.

LOS values range from A to F representing various levels of traffic flow from free flow for A to stop-and-go gridlock traffic for F. Additional variations for LOS values are based on the road type; interrupted traffic flow facilities that include stop signs and signals have a modified version for LOS steps. Uninterrupted traffic flow facilities would include freeways and other highway facilities that do not have fixed traffic elements such as stop signs or signals.

LOS values are integrated with Kern COG's transportation model by assessing final traffic volumes against specific capacity values. These volume-over-capacity values are then related to LOS values based on accepted industry standards for transportation models. The transportation model network reflects capital improvements from Table 5-1 and resulting traffic volumes. Figures 5-17 and 5-18 reflect “build” scenario LOS values because the network includes the Constrained Capital Improvement Program. Figures 5-19 and 5-20 reflect the “no build” scenarios in that the network only reflects current system improvements, while future growth values are used to generate future vehicle miles traveled without the proposed improvements.

Figure 5-17: Kern County Traffic Congestion – 2042 Build Scenario





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**Figure 5-18: Metro Bakersfield Traffic Congestion – 2042 Build Scenario**

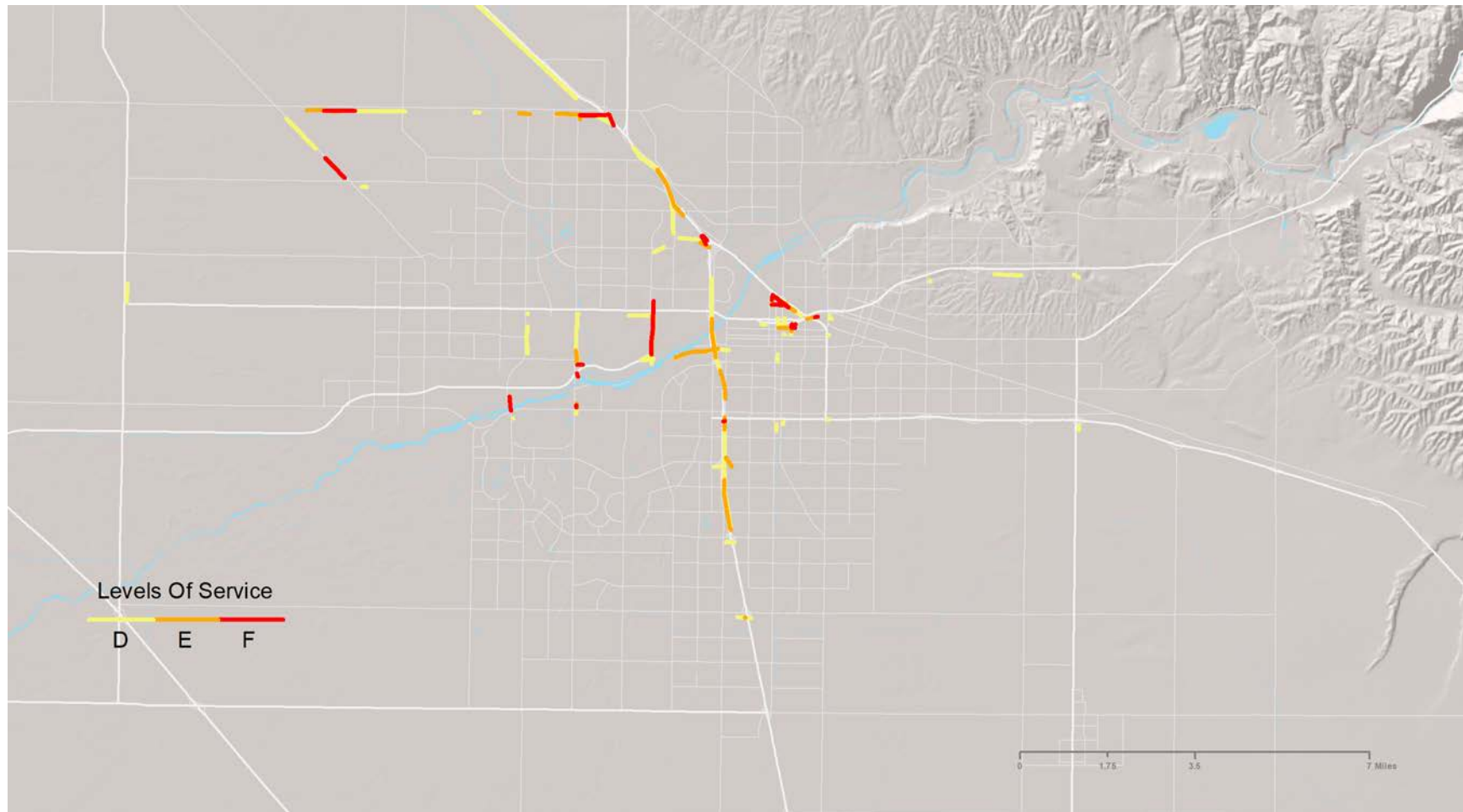
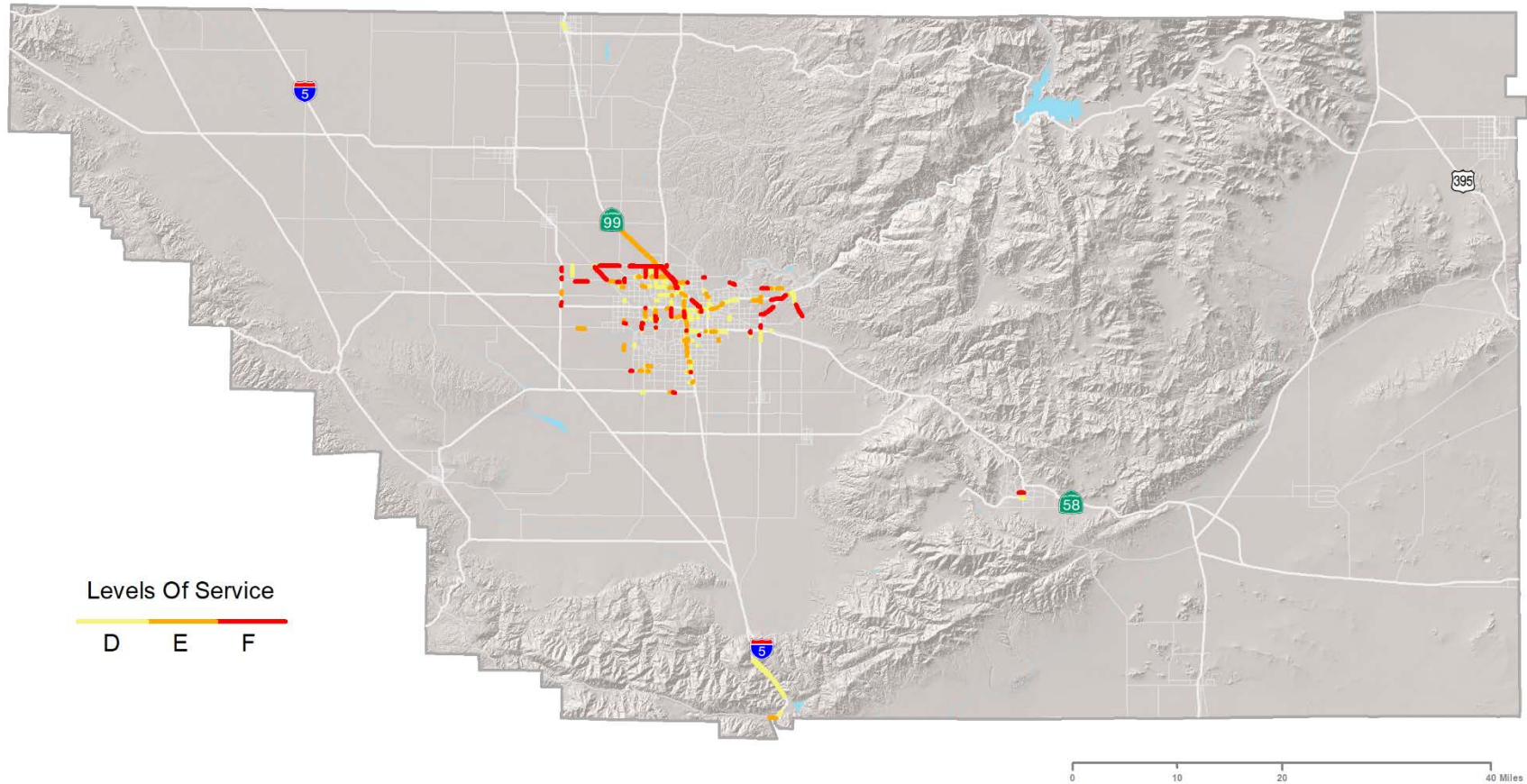


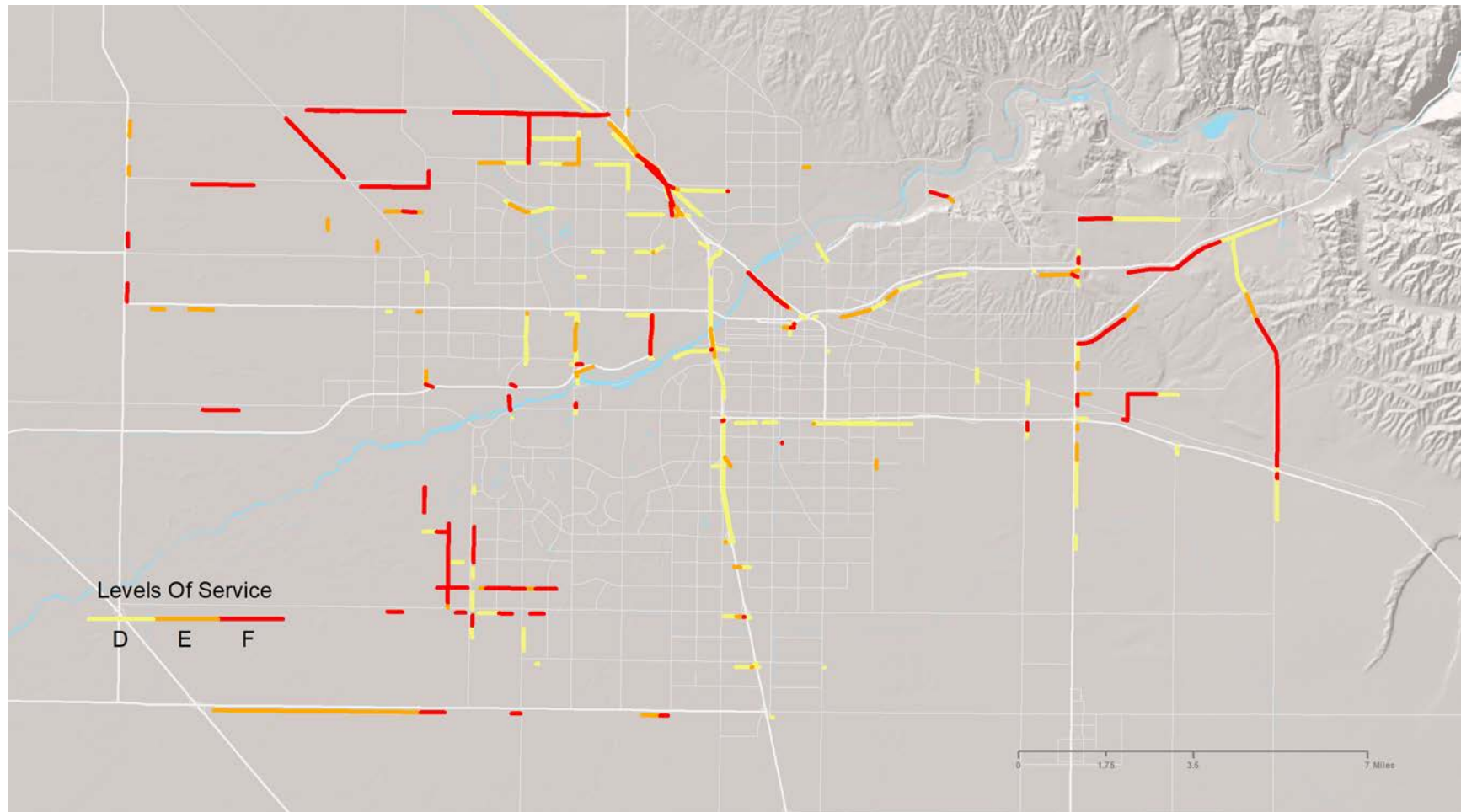


Figure 5-19: Kern County Traffic Congestion – 2042 No Build Scenario



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**Figure 5-20: Metro Bakersfield Traffic Congestion – 2042 No Build Scenario**



#### Regional Transportation Impact Fees (TIFs)

Kern COG continues its studies regarding the possibility of raising the fees levied on new development to maintain transportation infrastructure. Continued funding shortfalls highlight the need to investigate all possible revenue sources. Kern COG prepared the Southeast Kern Transportation Impact Fee Nexus Study to assess impacts and benefits of an impact fee for that portion of Kern County. Several TIF programs were put in place as a result of the study. The Rosamond TIF is \$1,461 per new housing unit, while Tehachapi's TIF is \$4,772 per new residential unit. Wasco adopted a TIF of \$685 per new housing unit. The Metropolitan Bakersfield TIF assesses nearly \$13,000 on every new housing unit built within the city or unincorporated areas. Both the Metropolitan Bakersfield and Tehachapi ordinances created a core area with a fee almost 40% less than the rate charged to development on the community periphery, the intent being to encourage infill development.

Other TIF studies will be performed for other sub-regions of the county to establish the relationship between needed infrastructure improvements associated with new development. Ultimately it is up to each local jurisdiction to determine if an impact fee warrants adoption.

#### Interregional Partnership Planning

Kern COG embarked on three interregional partnership efforts. The Eastern California Transportation Planning Partnership with the regional planning agencies of Kern, San Bernardino, Los Angeles, Inyo and Mono counties. Executive Directors and staff from all member agencies meet frequently to discuss transportation and economic development projects of mutual benefit. Of particular interest are multimodal transportation plans for US Highway 395 and the SR 14 and 58 corridors, including truck movement studies.

The Executive Directors and staff from the 8 COGs that contain portions of the San Joaquin Valley meet monthly and adopt an annual work program and apply for grants and coordinate regional projects. In addition, two board members from each of the 8 COGs make up the San Joaquin Valley Policy Council that meets quarterly.

The partnership between Kern COG and San Luis Obispo COG is governed by an agreement focused on improving the SR 46 corridor. The partnership successfully leveraged state choice funding for this corridor.

Kern COG fosters a continuing partnership with the Southern California Association of Governments through periodic meetings to address transportation projects and programs of mutual interest, potential funding sources and legislative priorities.

***Both the Metropolitan Bakersfield and Tehachapi ordinances create a core area with a fee almost 40% less than the rate charged to development on the community periphery, the intent of which is to encourage infill development.***

**Figure 5-21: Transportation Impact Fees – Per Single Family Housing Unit**

<u>Jurisdictions</u>	<u>outlying / core area</u>
Metro Bakersfield / County	\$12,870 / \$7,747
Tehachapi /County	\$ 4,772 / \$2,952
Rosamond-Willow Spr.	\$ 1,461 / \$1,461
Wasco	\$ 685 sliding scale
McFarland	\$ 8,194 / \$8,194
Delano	\$ 4,345 / \$4,345

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### Roads and Streets Monitoring

On an ongoing basis, Kern COG collects data and monitors roadway conditions throughout the county for road and street maintenance purposes. This effort includes providing input to the Federal Highway Administration Highway Performance Monitoring System, as well as conducting traffic counts and vehicle occupancy counts at various locations in the county. When requested by the individual jurisdictions, Kern COG will undertake an analysis of Pavement Management Systems within Kern County as well as a cumulative analysis of pavement conditions and recommendations for addressing funding issues.

Pavement Management Systems are used by incorporated cities to develop better ways to measure serviceability and life cycles, and are used to determine the most appropriate time to rehabilitate pavement, what the most cost-effective method is, and what the cost will be to maintain a roadway system at a desirable condition.

### Proposed Capital Improvements

As described above, the 2018 RTP includes all of the Metropolitan Bakersfield TIF projects, as well as regionally significant street and roadway improvements identified by other Kern COG member jurisdictions. In addition, state highway projects, coordinated and prioritized locally, are a significant component of the Capital Improvement Program. These highway projects are also coordinated with Caltrans Districts 6, 9 and 10.

### **Proposed Regional Streets and Highways Actions**

#### Near Term, 2018–2020

Work with Caltrans, COG member agencies, and other interested parties to prepare environmental studies, right-of-way acquisitions, and design engineering work to:

- Widen State Route 119 near Taft. (Safety);
- Widen State Route 14 near Freeman Gulch/Inyokern. (Safety);
- Provide input to neighboring regions' transportation studies and projects for corridors that have significance to the Kern region. In particular:
  - Participate in San Bernardino County's study for the US Highway 395 corridor, and SR 58.
  - Participate in implementing the SR 99 Business Plan with the 7 other counties in the San Joaquin Valley.
  - Participate in implementing the SR 46 improvements with San Luis Obispo County. (Safety)
  - Participate in regular meetings with Southern California Association of Governments to coordinate projects along I-5, SR 14 and SR 58 corridors;
- Maintain Regional Traffic Models to aid in traffic and air quality analyses;

- Prepare a systems-level planning analysis of various transportation system alternatives using multimodal performance measures;
- Pursue ground access improvements for Meadows Field;
- Local Governments consider pursuing alternative funding sources such as regional and individual TIFs where justified as a necessary means to address transportation needs; and
- Implement the capital improvements for highways, regional roads, and interchanges for this time period.

### Long Term, 2021–2042

- Maintain existing roadway infrastructure;
- Implement as appropriate and feasible the recommendations of completed transportation planning studies;
- Pursue and implement the recommendations from earlier transportation planning studies;
- Implement capital improvements for highways, regional roads, and interchanges for this time period; and
- Review and revise countywide transportation impact fees.



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### AVIATION ACTION ELEMENT

*See the Land Use Action Element – Global Gateways Land Use Actions for proposed actions related to air travel and connectivity. See Chapter 4, Sustainable Communities Strategy, for further discussion on sustainable land use decisions relative to air travel and connectivity.*

Kern County's airports address a variety of local and regional services. The aviation system connects the traveling public and freight and cargo movers with California's major metropolitan airports. Additionally, Kern's airports serve the US military directly or in an auxiliary fashion. Many of the airports also support local farmers, police and medical services and provide recreational opportunities. Together, the airports provide a viable mobility option for the county's residents and businesses.

***Kern County's aviation system includes 14 publicly owned airports.***

### Existing Aviation System

Kern County's regional airport system includes a diverse range of aviation facilities. It is comprised of seven airports operated by the Kern County Department of Airports, four municipally owned airports, three airport districts, two privately owned public-use airports, and two military facilities. Scheduled air carrier and commuter airline service is provided at Meadows Field, which serves Metropolitan Bakersfield and surrounding communities.

General aviation needs are served by public use airports, both publicly and privately owned, throughout the county. These serve the full range of business, agriculture, recreation, and personal aviation activities.

Kern County's aviation system includes 14 publicly owned airports that are open for use by the general public:

- Meadows Field
- Elk Hills/Buttonwillow
- Kern Valley Airport
- Lost Hills Airport
- Poso Airport
- Wasco Airport
- Taft Airport
- Bakersfield Municipal Airport
- California City Municipal Airport
- Delano Municipal Airport
- Tehachapi Municipal Airport
- Mojave Air/Spaceport
- Inyokern Airport
- Shafter Minter Field

Characteristics of Kern County's public access airports vary significantly, from size and number of operations to their types of activities and to their expected growth and impact on their local economies. As a group, the airports combine a range of services designed to meet the passenger, business, agricultural, recreational, and emergency service needs for the region.

### County of Kern Airports

**Meadows Field**, located on 1,107 acres 4 miles northwest of central Bakersfield, is classified as a commercial service primary airport under the National Plan of Integrated Airport Systems. This facility serves both commercial and general aviation needs for Bakersfield and the southern San Joaquin Valley region.



The airfield consists of two parallel runways and associated taxiways. The main runway (12L/30R) was extended over Seventh Standard Road to a length of 10,857 feet in 1987. This is a Category I Instrument Landing System runway with a medium intensity approach lighting system with runway indicator lights, precision approach path indicators, and a medium-intensity runway lighting system.

***The master plan allows for the construction of a third runway (east of the existing runways) to meet any resulting air freight capacity expansion.***

Established in 1927, Meadows Field was the first airport in the Bakersfield area. By 1930, the airport handled over 12,000 passengers and close to 7,000 operations annually. When the recession occurred, Meadows Field experienced a significant decrease in enplanement numbers from 173,737 in 2006 to 100,433 in 2016. American and United provide non-stop passenger service to Denver, Phoenix, and San Francisco. One-stop flights are also provided to hundreds of domestic and international destinations.

Meadows Field is an active general aviation airport with numerous Kern-based corporations using the facility for their operations. General aviation is served on approximately 35 acres both northwest and southwest of the terminal area. A full range of fixed-base services is available.

Air cargo operations for the Kern region are conducted primarily at Meadows Field, with a projected increase in activity from 964 tons in 1995 to an anticipated 1,700 tons by 2030. Federal Express, DHL/Airborne, and UPS currently provide air cargo service from Meadows Field. While the potential for air cargo growth has not been fully studied, initial assessment does not preclude establishment of domestic or international air cargo services at Meadows Field. As Los Angeles region airports reach saturation, Meadows Field should be considered a prime contender for increased air freight shipment. The Meadows Field Airport Master Plan addresses the need for a land use plan that would consider reserving adequate runway frontage to develop a dedicated air cargo facility. Additionally, the master plan allows for construction of a third runway (east of the existing runways) to meet any resulting air freight capacity expansion.

**Elk Hills/Buttonwillow Airport** serves seasonal agricultural aircraft and personal aviation needs of western Kern County. It is located near the intersection of I-5 and SR 58, a highway-oriented commercial area.

The airport has a 3,260-foot unlighted runway, paved aircraft tiedown space for twelve aircraft, and ten automobile parking spaces. Existing land use in the vicinity of the airport is agriculture.

**Kern Valley Airport** serves commercial, recreational, and occasional fire suppression activities in the Lake Isabella/Kern River Valley area, and is on lease from the US Forest Service. The airport is located south and east of the community of Kernville, with other nearby communities, including Wofford Heights, Lake Isabella, Bodfish, Mountain Mesa, Onyx, and Weldon. Outdoor recreation is the prime attraction in this region, and aviation activity continues to increase.

The airport has a 3,500-foot runway and 30 aircraft tiedowns, 15 hangar spaces, and parking for 20 automobiles. Other facilities include gasoline sales, a fixed-base operator, and a restaurant. The airport is situated on 51.5 acres leased from the National Forest Service; a Forest Service firefighting base is adjacent to the airport on 3.5 acres.

Existing land use includes a small residential area northeast of the airport, farm and rangeland to the east and south, and Lake Isabella on the west. A fly-in campground is available on the west side of the airport.

Kern County Department of Airports completed an Airport Master Plan for Kern Valley Airport in 2005. Short-term airport improvements recommended in the master plan include constructing a 500-foot unpaved

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overrun for Runway 35; relocating the northern portion of the parallel taxiway; installing an Automated Weather Observation Station; and other service-related improvements. Long-term improvements include widening and extending the runway, widening the parallel taxiway, widening the connector taxiway, and land acquisition to accommodate these projects.

**Lost Hills Airport** serves local and regional agricultural, business, and personal aviation needs in northwestern Kern County and is located near the intersection of I-5 and SR 46. This intersection is developing as a highway-oriented commercial area. SR 46 is the primary access to the central coast area from the southern San Joaquin Valley. The airport is an important base for agricultural aircraft operating over the area's extensive cropland.

The airport currently has a 3,020-foot runway, 12 aircraft tiedowns, and four hangar spaces. Existing land use around the airport is predominantly agriculture, with a small residential area northwest of the runway. The community of Lost Hills is west of the airport.

Kern County Department of Airports completed an Airport Master Plan for Lost Hills Airport in 2005. Short-term airport improvements recommended in the master plan include installation of an Automated Weather Observation System. Long-term airport improvements include installation of precision approach path indicators for both ends of the runway; provision for a Global Positioning System-based instrument approach procedure; extension of the existing runway; and construction of a full-length parallel taxiway.

**Poso Airport**, located approximately 20 miles north of Bakersfield, is used primarily for agricultural and training aircraft. The airport is also used for recreational purposes in conjunction with drag racing events at an adjacent paved strip. Poso has a 3,000-foot runway and 20 aircraft tiedowns. No other services or facilities are available. Adjacent land use is agricultural, with a small highway-oriented commercial development to the northwest of the airport.

**Taft Airport** serves business and personal aviation needs for the City of Taft and southwestern Kern County, an area of intensive oil production and processing. While significant demand has been voiced for an airport in this region, the existing facility has been considered insufficient for some years. The runway heading is poorly oriented to wind direction, the runway gradient exceeds FAA standards, and insufficient land is available for improvements. Kern County is evaluating available options for improving the airport. The existing runway is designated as Runway 7-25. While published as 3,550 feet long by 60 feet wide, it is currently only 3,284 feet between runway thresholds. Adjacent land uses consist primarily of oilfield activities to the north, east, and south, with the City of Taft to the west.

**Wasco Airport** serves agricultural, business, and personal needs for the area around the City of Wasco. The airport is located 1 mile north of Wasco and 22 miles northwest of Bakersfield. The airport is an important base for agricultural aircraft operations. It has a 3,380-foot runway, 36 aircraft tiedowns, six shelters, 11 T-hangars, and four hangar spaces. The main runway has a medium-intensity runway lighting system, and the airport has a beacon. Existing land use in the vicinity of the airport is agricultural.

Kern County Department of Airports completed an Airport Master Plan for Wasco Airport in 2005. Short-term airport improvements include rehabilitation of the aircraft parking pavement; purchase of land or acquisition of aviation easements northeast of the airport to accommodate future runway/taxiway extension; installation of an Automated Weather Observation System; and installation of precision approach path indicators for both ends of the runway. Long-term airport improvements include extension of the runway/taxiway to 3,900 feet, installation of taxiway lights, installation of runway end identifier lights, provision for a global positioning system-based instrument approach procedure, and other projects designed to improve service to airport users.

### Municipal Airports

In addition to the airports operated by Kern County, four airports are owned and operated by municipalities located in three geographic subregions of the county: San Joaquin Valley, Southern Sierra/Tehachapi Mountains, and Mojave Desert. In the Valley, the Cities of Bakersfield and Delano operate municipal airports. The City of Tehachapi operates a municipal airport in the mountain area, and California City Municipal Airport is located directly west of that desert community.

**Bakersfield Municipal Airport** serves business, personal, and recreational aviation needs in the Bakersfield metropolitan area. The airport completed an ambitious development program, including land acquisition, and construction of a 4,000-foot runway, associated taxiways, and support facilities. Bakersfield Municipal Airport is located in southeast Bakersfield, approximately 1.5 miles south of SR 58 and about 2 miles east of SR 99.

Existing land use in the vicinity of the airport consists of industrial to the west and north, low-density and rural residential to the northeast and east, and rural/agricultural to the east and south. Planned land use for the area adjacent to the airport, as depicted in the Casa Loma Specific Plan, continues the current pattern, with some extensions of industrial activity into undeveloped areas.

**California City Municipal Airport** is used for various general aviation activities, especially recreational aviation. The airport is located northwest of California City approximately 8 miles east of SR 14 and 2 miles north of California City Boulevard. The airport consists of a single 6,035-foot runway with medium-intensity runway lighting and a 5,010-foot parallel taxiway. Two dirt glider landing strips and a parachute drop zone are located 0.75 mile south of the airport. Existing land use in the immediate area is predominantly undeveloped desert, with developed portions of the city east of the airport.

**Delano Municipal Airport** serves business, personal, and recreational aviation activity in the north-central part of the county. Extensive crop-dusting and helicopter operations, as well as ultra-light activities, are accommodated at this airport. The airport is located just east of SR 99 approximately 2 miles southeast of central Delano. Existing facilities consist of a main runway that is 5,650 feet long. The main runway has medium-intensity runway lights and precision approach path indicators on both ends. A displaced threshold on the secondary runway with 4,010 feet is available for aircraft landings.

Existing land use consists of mixed urban uses to the northwest; a golf course and park area to the northeast; industrial uses to the east and south; and SR 99 to the west.

**Tehachapi Municipal** is a general aviation airport providing business, personal, and recreational aviation services. The airport is located between SR 58 and Tehachapi Boulevard. The airport is also adjacent to the Burlington Northern Santa Fe/Union Pacific Railroad, but a railroad spur into the airport is not currently available. Existing airport facilities include a 4,035-foot runway equipped with low-intensity lighting and precision approach path indicators, as well as displaced thresholds, on both ends of the runway.

Existing land uses consist of industrial to the west, east, and south, urban residential to the south, and SR 58 on the north. North of the freeway is developing as primarily commercial and office, including the community post office and a new hospital.

### Airport Districts

Three airport districts operate in Kern County; each is organized as a special district, with a board of directors and an airport manager. Minter Field is located within the City of Shafter. East Kern and Indian Wells airport districts are in eastern Kern County.

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**Indian Wells Airport District/Inyokern Airport** serves the China Lake Naval Air Weapons Station, the community of Inyokern, and the City of Ridgecrest. It also serves local general aviation needs for personal, business, and recreational flying. Several fixed-base operators provide services at the airport. The airport is located northwest of the small community of Inyokern.

Existing facilities consist of three runways, the longest of which is the 7,344-foot Runway 15-33. This runway and Runways 2-20 (6,275-foot length) and 10-28 (4,153-foot length) are equipped with medium-intensity runway lights and precision approach path indicators on Runways 20 and 33. Displaced thresholds are located on both ends of Runway 15-33 and Runway 20.

Although Inyokern does not have a scheduled airline service operating at this time, it is in negotiations with an airline service to introduce new scheduled airline service. A new scheduled airline operator may begin operations as early as 2018.

A fixed-base operator currently provides aircraft maintenance and flight instruction service. The airport provides both automated and full-service jet fueling. Federal Express and United Parcel Service currently provides air cargo service, moving over 500 tons annually. Other activities at Inyokern include based and itinerant soaring activity, film production, and Sheriff's Department search and rescue activities. The airport hosts annual air shows and drag races.

**East Kern Airport District/Mojave Air/Spaceport** currently offers fixed-base operator facilities for airport users from Edwards Air Force Base, Rosamond, Mojave, Tehachapi, California City, and Boron. The airport serves as a civilian flight test center for business, military, civil, and home-built aircraft being developed for testing. It also serves as a base for modification of major military and civilian aircraft. The airport is located northeast of the community of Mojave and is within 1 mile of SR 14 and SR 58. A rail spur from the Union Pacific Railroad leads into the airport. In 2004 the Mojave Air/Spaceport became the first FAA approved civilian space port, and is home to the manufacturing and flight testing of Virgin Galactic's Spaceship One and Spaceship Two, the first manned civilian re-useable spacecraft.

***In 2004 the Mojave Air/Spaceport became the first FAA approved civilian space port, and is home to the manufacturing and flight testing of Virgin Galactic's Spaceship One and Spaceship Two, the first manned civilian re-useable spacecraft.***

Existing airport facilities include a 12,500-foot runway and two crosswind runways. The longest runway is equipped with high-intensity runway lights while the 7,040-foot runway is equipped with medium-intensity runway lights. The third runway is 4,900 feet long but has no lighting.

Existing land use in the vicinity consists of mixed urban use to the east and south in the community of Mojave, industrial and highway commercial uses to the northwest, and undeveloped desert to the north and east. The airport itself includes a substantial area devoted to aviation-related industrial uses.

**Minter Field Airport District/Shafter Airport** serves general aviation activities at the junction of SR 99 and Lerdo Highway. Minter Field has two main runways and one crosswind runway. Runway 12/30 is 4,520 feet long, has both Very High Frequency Omni-directional Range non-precision and global positioning system-based instrument approaches, and is equipped with a precision approach path indicator and landing lights.

A third runway serves as a general aviation crosswind landing alternative. One of the benefits this runway offers is to allow student pilots the opportunity to practice crosswind approaches and departures.

Minter Field is surrounded primarily by agricultural uses with a commercial area and industrial uses to the south. The airport owns 3 miles of rail spur connected to the Union Pacific Railroad and is served directly by KT.

### Military Aviation Facilities

China Lake Naval Air Weapons Station (NAWS) and Edwards Air Force Base (EAFB) are located in an area referred to as “the R-2508 complex,” which is used for the advancement of weapons systems technology and tactical training. The R-2508 complex consists of several restricted airspace areas; it is approximately 110 miles wide and 140 miles long, and covers approximately 20,000 square miles in eastern Kern, San Bernardino, Los Angeles, Ventura, Tulare, and Inyo counties. However, the nature of operations conducted within this airspace creates a flight hazard to non-military aircraft.

In addition to NAWS and EAFB, other military installations use this air space, including Fort Irwin Military Reservation near Barstow, Air Force Plant 42 at Palmdale, and Lemoore Naval Air Station.

### **Needs and Issues**

#### Demand

In general, demand for aviation services appears to be met within Kern County. Most of the capital improvement projects for Kern County airports focus on maintenance of existing runways and taxiways with an occasional need to improve navigational aids. However, Kern County Airports' staff is working toward qualifying Meadows Field as a reliever airport for Los Angeles International Airport.

Given aviation forecasts for Los Angeles International Airport, at some time over the next 20 years, air traffic for the region may reach saturation. Shafter Airport, Delano Municipal, and Bakersfield Municipal have all recently invested in aboveground automated fueling systems to reduce staff cost and improve fueling service hours to local and non-based pilots. Over the next 5 to 10 years, Kern County airports along with airports across the nation, will be investing in navigational equipment designed to allow instrument approaches using global positioning system technology.

#### Airport Ground Access/Intermodal Connectivity

Regional passenger air service and its intermodal connectivity to ground transportation systems is a key federal transportation planning goal. Just as land use should be designed to take maximum advantage of the existing transportation infrastructure capacity, the transportation infrastructure should also be designed to maximize access to key intermodal passenger hubs such as regional airports, transit and rail. Existing transportation infrastructure includes one regional airport with passenger service in Kern County. Meadows Field is the primary regional facility for Metropolitan Bakersfield and the southern San Joaquin Valley.

The terminal at Meadows Field provides good access to SR 99 via Seventh Standard Road, and improvements to this access route are scheduled in the Federal Transportation Improvement Program. The potential for Meadows Field to serve as an overflow facility for Southern California's air traffic may create the need for improvements to ground access. Improvements to Airport Drive, Snow Road, Merle Haggard Drive, and SR 65 near the airport may be necessary. Better connectivity with the existing Amtrak station in downtown Bakersfield and the high-speed rail could result in the need for a transit shuttle, bus rapid transit, light rail, or spur connection between downtown Bakersfield and the airport. The Metropolitan Bakersfield Transit System Long-Range Plan envisions extension of a bus rapid transit route to Meadows Field between 2021 and 2025.



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Ground access to Inyokern Airport is adequate for the foreseeable future. The potential for air taxi service to smaller airports could increase traffic at these facilities. Corporate jets are increasingly using the Internet to pick-up additional travelers headed in the same direction and provide a supplemental funding source for their operation. This capability to book a small aircraft while in flight has transportation planners speculating that a whole industry of air taxi providers using satellite global positioning system (GPS) navigation could provide point-to-point service, increasing the use of small airports. If this were to occur, an increased demand for vehicle/transit/rail access to existing smaller airports may result. Efforts must be made to preserve and maintain access to all civilian airports in the region and expand that access as needed.

### Airport Land Use

Over the past decade, former agricultural areas in Kern County have been developed for residential, commercial or industrial use. Since many of the region's public access airports are in agricultural areas or on the urban fringe, much of the new growth is moving closer to the airports. Assuring that the areas around Kern County's airports are devoted to compatible uses has become a more challenging task in this environment of growth pressures.

Noise issues are generally a function of urban encroachment in the vicinity of an airport. In Kern County, virtually all airports were originally developed in areas that were some distance from other development. Frequently, the very success of the airport served as the catalyst for adjacent development. Since the purpose of an airport is to facilitate the take-off and landing of aircraft, and since aircraft make noise, conflicts over noise are an early indicator that an airport is facing the broader issue of urban encroachment.

Noise contours maps have been prepared through various programs for all of the airports in Kern County, using the FAA Integrated Noise Model. For the more active airports, the noise analysis has been part of preparing an Airport Master Plan. Noise contours were also prepared for airports as part of various Airport Land Use Commission studies. A Comprehensive Land Use Plan has been prepared that includes land use analysis, noise contours, airspace plans and layout plans for all Kern County airports.

### **Recent Aviation Planning Activities**

Kern County Department of Airports opened the Meadows Field William M. Thomas Air Terminal northwest of the former terminal in February 2006. The building is designed to be expandable to meet future air service demands. The building currently accommodates up to six jet-boarding gates and can be expanded to add six additional bridges. The terminal has also been designed to allow another wing to be constructed that would accommodate an additional 12 jet-boarding gates. Ground area to accommodate additional parking facilities is reserved.

The Department of Airports anticipates the following activities over the near-term:

- Complete renovations to the Customs and Borders Office (former terminal);
- Market Meadows Field for international air cargo service;
- Upgrade the lights and signs for Runway 30R; and
- Undergo environmental review and project approvals for the Meadows Field, Wasco, Lost Hills and Kern County Airport Master Plans.

In June 2004, East Kern Airport District/Mojave Airport became the first civilian airport to be certified as an inland spaceport by the Federal Aviation Administration. Later the same year, aircraft manufacturer Scaled



Composite launched their first sub-orbital aircraft from Mojave Airport, ushering in the age of privately-owned manned space programs.

In 2008, with input from County of Kern Planning Department, eastern Kern agencies, and stakeholders, the Governor's Office of Planning and Research completed its Joint Land Use Study (JLUS) for R-2508 (Edwards Air Force Base, China Lake Naval Air Weapons Station, and the surrounding military operation area). The purpose of the JLUS is to reduce potential conflicts while accommodating growth, sustaining the economic health of the region, and protecting public health and safety. The JLUS committee meets biannually to review those JLUS projects that have been implemented and strategize on researching possible resources to implement remaining projects.

### Homeland Security

Following the events of September 11, 2001, the Department of Homeland Security made airport security a top funding priority. Meadows Field and Inyokern Airport constructed security fences and staffed security checkpoints to improve passenger-boarding security and reduce threats of terrorism.

### **Proposed Actions**

#### Near Term, 2018–2020

- Work with Meadows Field and Inyokern Airport to obtain funding from the state and federal governments for their respective development programs;
- Work with local and regional transit providers to increase alternative mode ground access options at Meadows Field;
- Assist Meadows Field with planning related to high-speed rail connections;
- Work with public airports to increase their access to state and federal funds; and
- Work with the JLUS committee to implement planning activities listed in the JLUS for R-2508 airspace (China Lake Naval Air Weapons Station and Edwards Air Force Base).

#### Long Term, 2021–2042

- Continue to work with the public access airports to increase their access to state and federal funds;
- Update the Regional Transportation Plan to be consistent with the California Aviation System Plan, and regional aviation systems plans, as necessary;
- Implement the Action Plan of the Central California Aviation System Plan;
- Participate in master plan updates for various Kern County airports; and
- Implement planning actions and strategies listed in the JLUS for R-2508.

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### SAFETY/SECURITY ACTION ELEMENT

Federal law specifies that MPOs will develop a metropolitan planning process that provides for consideration of projects and strategies that will increase the security of the transportation system for motorized and non-motorized users. Kern COG is committed to promoting increased safety, and the performance measures of the Regional Transportation Plan include safety as a critical factor.

***Kern COG's commitment to public safety includes a safety performance measure as a critical factor in the Regional Transportation Plan.***

California's Strategic Highway Safety Plan (SHSP) is a statewide, comprehensive, data-driven effort to reduce fatalities and serious injuries on public roads. The SHSP is updated regularly to ensure continued progress and meet changing safety needs.

The new updated SHSP (2015) includes the following:

- Increases the focus on reducing the number of severe injuries and the rate at which severe injuries occur in each 100 million vehicle miles travelled;
- Measures the cost effectiveness of improvements;
- Develops strategies and actions to address the more difficult problems:
  - Repeat DUI offenders
  - Breath test refusals
  - Drug-impaired driving
- Identifies the locations of fatalities and severe injuries;
- Identifies areas with high-risk factors for potential crashes;
- Includes tribal roads;
- Creates improvements to rail-highway crossings;
- Involves even more safety stakeholders from across the state;
- Involves the public to create a culture of traffic safety;
- Coordinates with other safety statewide plans, including California Transportation Plan, California Freight Plan and Highway Safety Plan; and
- Improves the speed of data results.

### Recent Planning Activities

#### Golden Empire Transit District's Vision and Planning Guidelines

In December 2010, the GET Board of Directors adopted the following Vision Statement:

*"GET...doing our part to improve mobility and create livable communities by becoming every household's second car."*

In addition to the Vision Statement, the Board also adopted a number of Planning Guidelines:

- Services should be designed in a manner which maximizes the seamless connectivity between all routes, modes, and systems. In this context, seamless means that the passenger should not be discouraged from making a trip because of perceived barriers related to: (1) physical connections, (2) timed transfers, (3) fare payment, or (4) information services;
- The system-wide transit operating speed (as measured by total Annual Revenue Miles divided by Total Annual Revenue Hours) should increase each year, or at the very least, should never drop below the 2010 baseline;
- Transit service should be designed in a manner that allows it to have a meaningful impact on regional air quality and support achievement of greenhouse gas reduction targets;
- Transit should be designed in a manner that supports healthy lifestyles by fostering a pedestrian- and bicycle-friendly environment;
- Transit service should be financially sustainable over all time periods; and
- Transit planning should be conducted in collaboration with cities and the County in order to integrate transit and land use planning decisions.

#### General Transit Planning Principles

In addition to the GET Board Guidelines, a number of general fixed-route transit best practices were applied in development of the service plans:

- Service productivity (cost-effectiveness) and coverage must be balanced in a way that reflects local values;
- Devote a fair share of resources to corridors featuring transit-supportive land use and demographic patterns;
- Whenever possible, routes should have trip-generating "anchors" at both ends;
- Routes should be as direct as possible;
- Avoid creating large one-way loops; and
- Avoid requiring out-of-direction travel, especially in the middle of routes.

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### Transportation Security

#### Policies and Recommendations

Kern COG's Transportation Security Plan 2012–2042 provides an action plan and constrained policies detailing nine measures that the agency will undertake in regional transportation security planning.

1. Kern COG should help ensure the rapid repair of transportation infrastructure critical in the event of an emergency.
  - a. Kern COG, in cooperation with the state agencies, should identify critical infrastructure needs necessary for emergency responders to enter the region, the evacuation of affected facilities, and the restoration of utilities.
  - b. Kern COG, in cooperation with the California Transportation Commission (CTC), Caltrans, and the federal government, should develop a transportation recovery plan for the emergency awarding of contracts to rapidly and efficiently repair damaged infrastructure.
2. Kern COG should continue to deploy and promote the use of intelligent transportation system technologies that enhance transportation security.
  - a. Kern COG should work to expand the use of ITS to improve surveillance, monitoring, and distress notification systems and to assist in the rapid evacuation of disaster areas.
  - b. Kern COG should incorporate security into the regional ITS architecture.
  - c. Transit operators should incorporate ITS technologies as part of their security and emergency preparedness and share that information with other operators.
  - d. Aside from developing ITS technologies for advanced customer information, transit agencies should work intensely with ethnic, local, and disenfranchised communities through public information/outreach sessions, ensuring public participation is used to its fullest. In case of evacuation, these transit-dependent persons may need additional assistance to evacuate to safety.
3. Kern COG should establish transportation infrastructure practices that promote and enhance security.
  - a. Kern COG should work with transportation operators to plan and coordinate transportation projects, as appropriate, with the Department of Homeland Security grant projects to enhance the regional transit security strategy (RTSS).
  - b. Kern COG should establish transportation infrastructure practices that identify and prioritize the design, retrofit, hardening, and stabilization of critical transportation infrastructure to prevent failure in order to minimize loss of life and property, injuries, and avoid long-term economic disruption.
4. Kern COG should establish a forum where policymakers can be educated and regional policy can be developed.

- a. Kern COG should work with local officials to develop regional consensus on regional transportation safety, security, and safety/security policies.
5. Kern COG will help enhance the region's ability to deter and respond to acts of terrorism and human-caused or natural disasters through regionally cooperative and collaborative strategies.
  - a. Kern COG should work with local officials to develop regional consensus on regional transportation safety, security, and safety/security policies.
  - b. Kern COG should encourage all Kern COG elected officials to be educated in the National Incident Management System (NIMS).
  - c. Kern COG should work with partner agencies and federal, state, and local jurisdictions to improve communications and interoperability and to find opportunities to leverage and effectively use transportation and public safety/security resources in support of this effort.
6. Kern COG should enhance emergency preparedness among public agencies and with the public at large.
  - a. Kern COG should work with local officials to develop regional consensus on regional transportation safety, security, and safety/security policies.
  - b. Kern COG should work to improve the effectiveness of regional plans by maximizing the sharing and coordination of resources that would allow for proper response by public agencies. Kern COG should encourage and provide a forum for local jurisdictions to develop mutual aid agreements for essential government services during any incident recovery.
7. Kern COG will help to enhance the capabilities of local and regional organizations, including first responders, through provision and sharing of information.
  - a. Kern COG should work with local agencies to collect regional GeoData in a common format and provide access to the GeoData for emergency planning, training, and response.
  - b. Kern COG should develop and establish a regional information sharing strategy, linking Kern COG and its member agencies for ongoing sharing and provision of information pertaining to the region's transportation system and other critical infrastructure.
8. Kern COG should provide the means for collaborating in planning, communication, and information sharing before, during, or after a regional emergency.
  - a. Kern COG should develop and incorporate strategies and actions pertaining to response and prevention of security incidents and events as part of the ongoing regional planning activities.
  - b. Kern COG should offer a regional repository of GIS data for use by local agencies in emergency planning and response, in a standardized format.

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### LAND USE ACTION ELEMENT

See Chapter 4, *Sustainable Communities Strategy*, for further information on sustainable land use.

Land use is one of the most important factors in effective transportation planning to preserve the region's economic, environmental, and equitable sustainability. While Kern COG does not have jurisdiction over land use planning, the agency promotes and encourages dialogue among stakeholders involved in the land use decision-making process, through city and county General Plan actions, the environmental process and the 2018 RTP outreach process.

Land use affects all transportation modes; however, some transportation facilities are more dependent on land use decisions than others. To rank the importance of land use decisions for transportation-related infrastructure, planners can consider the number of site opportunities to accommodate a particular facility or land use. The more site opportunities, the easier and cheaper it is to find a place to move the facility. Figure 5-22 illustrates a potential hierarchy or priority for placing transportation facilities based on site opportunity.

**Figure 5-22: Hierarchy for Transportation-Related Land Use Decisions**

As an example, in transportation planning, airports have a very limited number of sites where they can be located. They require a large area and must be located away from steep terrain as well as residential development. If development encroaches on an airport the use of that facility can be greatly curtailed or even closed, negatively affecting the region's economy and payback on the original investment in that facility. Another example of this hierarchy can be the location of local streets. When a subdivision is designed the positioning of the streets is often adjusted to optimize the layout of the residential lots. Local streets have many site opportunities or options to best fit the surrounding uses. In terms of transportation related land use decision, the positioning of local streets is not as important as the location of major transportation infrastructure investments such as airports or other global gateways.



This action element covers transportation planning priorities from a land use perspective. The discussion is organized using the suggested hierarchy in Figure 5-22, focusing on the uses with the fewest number of site opportunities first. Each transportation category discussed below (global gateways, rail/transit, and highways/roads) will also focus on the need to preserve locations for intermodal connectivity and viability, ensuring the RTP goals are met. In addition, this action element will not override local land use public decision making and will respect private property rights.





## Global Gateways Land Use Actions

*See the Aviation Action Element section above for further discussion on air travel.*

### Inland Ports

Landlocked Kern County has no seaports; however, it is closely linked to international trade through the ports of Los Angeles/Long Beach and Oakland/Stockton. The Kern region has infrastructural and economic connections to two of the world's largest international trade gateways. During the economic boom from 2000 to 2006, one-third of all waterborne freight container traffic at U.S. ports was handled by the twin ports of Los Angeles and Long Beach. Los Angeles/Long Beach port freight headed for destinations outside of Southern California are estimated to account for 75% of total container traffic (Leachman & Associates LLC, Port and Modal Diversion for SCAG, 2005). Fifty-seven percent (57%) of all trucks on SR 99 and I-5 are heading to or from Southern California; of those, 18% are empty shipping containers being transported to or from the ports (Kern COG, I-5/SR 99 Origin and Destination Truck Study, October 2009).

The City of Shafter is developing an inland port hub with the ability to gain synergy from the combining of import loads destined for distribution centers in Shafter and Kern County with the export agricultural needs of the Southern San Joaquin Valley. The City of Shafter (a rural area) is located within 300 miles of over 40 million people in some of the United States most urban areas and provides the unique opportunity to maximize efficiency, produce jobs, and create wealth while reducing the impact to the environment. It is unparalleled in providing multiple economic and environmental benefits for California. The City of Shafter has invested in technology with a 30+ mile state-of-the-art fiber optic communications network and has recently completed the construction of over 17,500 feet of rail track capable of handling entire unit trains from the class-one railroad Burlington Northern Santa Fe (BNSF).

Rail access to the ports provides sustainable economic, environmental, and equitable opportunities for a region and is the highest land use concern related to transportation facilities in Kern County. In June 2009, Paramount Farming Company produced a White Paper that estimated the inland port facility would bring \$1.2 billion per year in financial benefits to the state and region, and would provide 31,800 permanent jobs at the Port of Oakland and in Shafter by 2030. In addition, the project could provide \$3.4 billion in state and local tax revenue over the next 20 years. By shipping products to the port via rail rather than by truck, the facility would reduce 5 tons per day in nitrous oxides (NO<sub>x</sub>) and 471 tons per day in carbon dioxide (CO<sub>2</sub>) emissions, making this project one of the biggest transportation source reductions for air quality and climate change emissions in the state. From a land use perspective, preserving rail and truck route connections to this vital state hub, and preventing encroachment of sensitive land uses near the facility, is of primary concern for regional sustainability.

The Tejon Ranch Commerce Center sits at the southern gateway to Kern County, an area of California already home to major distribution centers for IKEA, Famous Footwear, Dollar General, Caterpillar, Target, Sears, Nestle, Frito Lay, and many others. Sitting directly on Interstate 5, it is the area's best location, with fully-entitled land for development of up to 20 million square feet of new warehouse and industrial space.

Tejon Ranch Company and The Rockefeller Group opened the Outlets at Tejon in August 2014. The upscale 320,000 square-foot outdoor shopping center has more than 70 retailers on 43 acres. The center is located on Interstate 5, near Laval Road in Kern County. The Outlets benefit from favorable regional demographics, with 3.2 million people living within an hour's drive and approximately 65 million travelers passing by the location annually.

The permitted development at TRCC includes the potential for 20 million square feet of industrial and 4.8 million square feet of commercial use. To date the development of TRCC has created over 4,000 jobs and

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at full build-out, TRCC will provide for over 6,000 jobs and significant financial benefits to the state and region.

Tejon Ranch Commerce Center is part of an expanded 1,093-acre Foreign Trade Zone (FTZ), which allows users to move merchandise directly from port of arrival to the FTZ, avoiding delays at congested ports. IKEA is utilizing Foreign Trade Zone benefits at Tejon Ranch Commerce Center. Tejon Ranch Commerce Center is the site of the largest activated Foreign Trade Zone (FTZ) in California. FTZ's are sites near ports of entry where foreign and domestic merchandise considered international trade can provide important cost-savings benefits involving customs duties and other ad valorem taxes. Users can obtain permission from Customs to move merchandise directly from the port of arrival to the FTZ avoiding delays at congested ports. Tejon Ranch Commerce Center is strategically located proximate to major transportation routes and are within 50 miles of the geographic center of population for the state making the location ideal for serving both Northern and Southern California as well as the regions to the east.

To complement Tejon Ranch Commerce Center and the Outlets at Tejon, Grapevine at Tejon, a new sustainable master planned community located adjacent to the Tejon Ranch Commerce Center calls for 12,000 residential units and 5.1 million square feet of commercial space. The community will provide residential opportunities for the thousands of workers currently employed at businesses within the Tejon Ranch Commerce Center reducing employment related vehicle miles traveled. The community will be designed in a way that promotes water efficiency, walkability, bikeability and key retail and commercial uses within close proximity to residential areas. It is planned that the community will be developed over the next 20 years.

### Airports

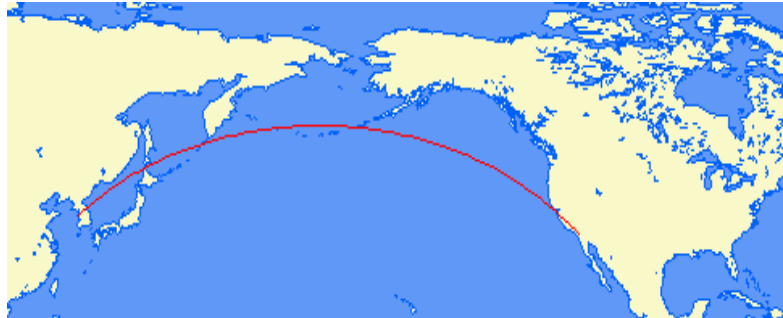
Airports have a few more site opportunities than seaports but encompass large areas when the surrounding affected land uses are considered. This is especially true when taking into account expansion potential of an airport. This section covers the importance of maintaining and expanding air freight and air passenger service for sustainability of the region, and the need to protect these facilities from encroachment by sensitive land uses.

### Air Freight

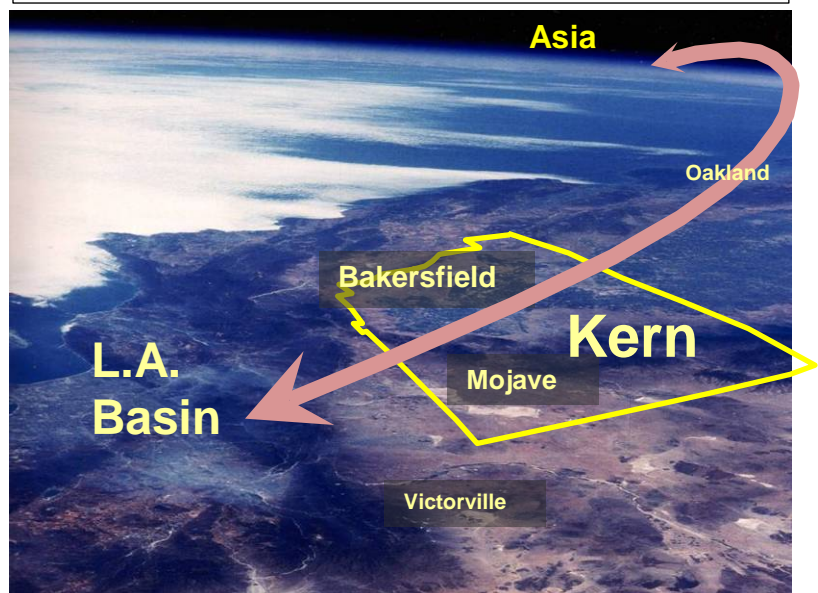
As Asia and the southwestern United States continue to grow, air freight is anticipated to steadily increase once economic recovery is realized. Anticipated increases in time-sensitive cargo have made air freight from Asia a booming business. Southern California is focusing its expansion of air freight capacity at the Southern California Logistics Center (formerly George Air Force Base) in Victorville. However, the facility's 3,000-foot elevation makes it more costly to fly out of than lower altitude facilities because lower air density requires greater fuel consumption on takeoff, especially during the summer.

Kern County's main airport is Meadows Field, adjacent to the northern edge of Bakersfield. At 500 feet elevation, the facility requires less fuel to ascend with a full load and lies on the most direct path from Southern California to Asia (see Figures 5-23 and 5-24). Meadows Field has the fifth longest runway in California and has recently added international service capability. A third runway and cargo terminal are planned. Meadows Field has good highway connectivity to Ventura, Los Angeles, and San Bernardino counties through I-5 and State Routes 99 and 58. Meadows Field is also within 6 miles of the Shafter intermodal facilities and is connected by existing rail spurs to both Burlington Northern Santa Fe and Union Pacific railroads.

**Figure 5-23: Great Circle Route Between Southern California and Asia** [HTTP://GC.KLS2.com/](http://GC.KLS2.com/)



**Figure 5-24: Kern County Great Circle Route Between Southern California and Asia**



Mojave Airport in eastern Kern County also serves as an operational air freight facility within the county. The primary focus of this airport is as a civilian flight test center, and it is the only FAA-recognized private spaceport in the nation. The facility provides an intermodal transfer facility with the goal of handling two flights per day. Freight service may increase if it does not affect the primary research role of the facility.

Preservation of these facilities is essential. Protecting these facilities from residential and other conflicting encroachments should be one of the highest priorities for land use decision-makers. Moving the facilities is cost prohibitive and would likely reduce the strategic advantage the existing locations have with regard to proximity to Asia, as well as connectivity to highway and rail facilities.

### **Air Passenger Service**

As with air freight, the Los Angeles Basin's runway capacity to handle air passenger service will not be able to meet demand, even with the planned Palmdale International Airport. The Southern California Association of Governments' overall plan to sustain its region's growth in air passenger demand is to link the region's airports with high-speed rail. This would allow the more congested airports to ferry passengers to and from outlying airports where additional capacity is available. The goal is to create an integrated airport system for Southern California that allows users to fly into one airport, catch transit or a train, and fly out of another airport with no more than a 30- to 90-minute layover. Meadows Field should be linked into the reliever network of airports through the California High-Speed Rail (HSR) network. Approved by California's voters in 2008, high-speed rail would likely accelerate the connectivity of Meadows Field to Palmdale, Burbank, and Los Angeles International Airport (LAX). Currently, high-speed rail is planned to link downtown Bakersfield and Union Station in downtown Los Angeles. An express bus transit route between LAX and Union Station already exists. Similar transport between downtown Bakersfield and Meadows Field would

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also be needed to provide seamless high-speed rail service. Once this connection is established, Meadows Field will become a “front door” to Southern California for passenger travel from Asia.

At less than 50% capacity, Meadows Field is the most underused full-service civilian airport in Southern California. The County of Kern completed construction of a jet terminal in early 2006 to handle planned expansion, and the former terminal is currently unoccupied and has been remodeled as an international airport facility. The accessibility and relative lack of congestion between Kern and Ventura, Los Angeles, and San Bernardino Counties would make this facility a prime location for travel to and from Asian destinations. To accommodate proposed lengthening of runways to the northwest of Meadows Field, future circulation plans should consider realignment of SR 65 to the west.

The emerging trend for air-taxi/business jet charter service provides potential business for smaller airport facilities throughout the Kern region. The ability of a business traveler in a rental car to book an air taxi or business jet while the jet is in flight, and rendezvous with the jet at a nearby airport, could transform activity at smaller airports. Development of a system of small, very light jet-capable airports with good freeway access could relieve congestion at overcrowded regional hub airports. It could also put most of California within a 30-minute point-to-point jet flight from Kern County. Facilities such as Bakersfield Municipal Airpark and general aviation airports in California City, Inyokern, Delano, Shafter, Wasco, Tehachapi, Taft, Mojave, Kern Valley, Buttonwillow, Lost Hills, Rosamond, and Famoso should be preserved for potential expansion to this type of service. The need for rental car and restaurant facilities at these locations, as well as runway expansion to a minimum of 5000 feet, should be recognized as a long-term goal.

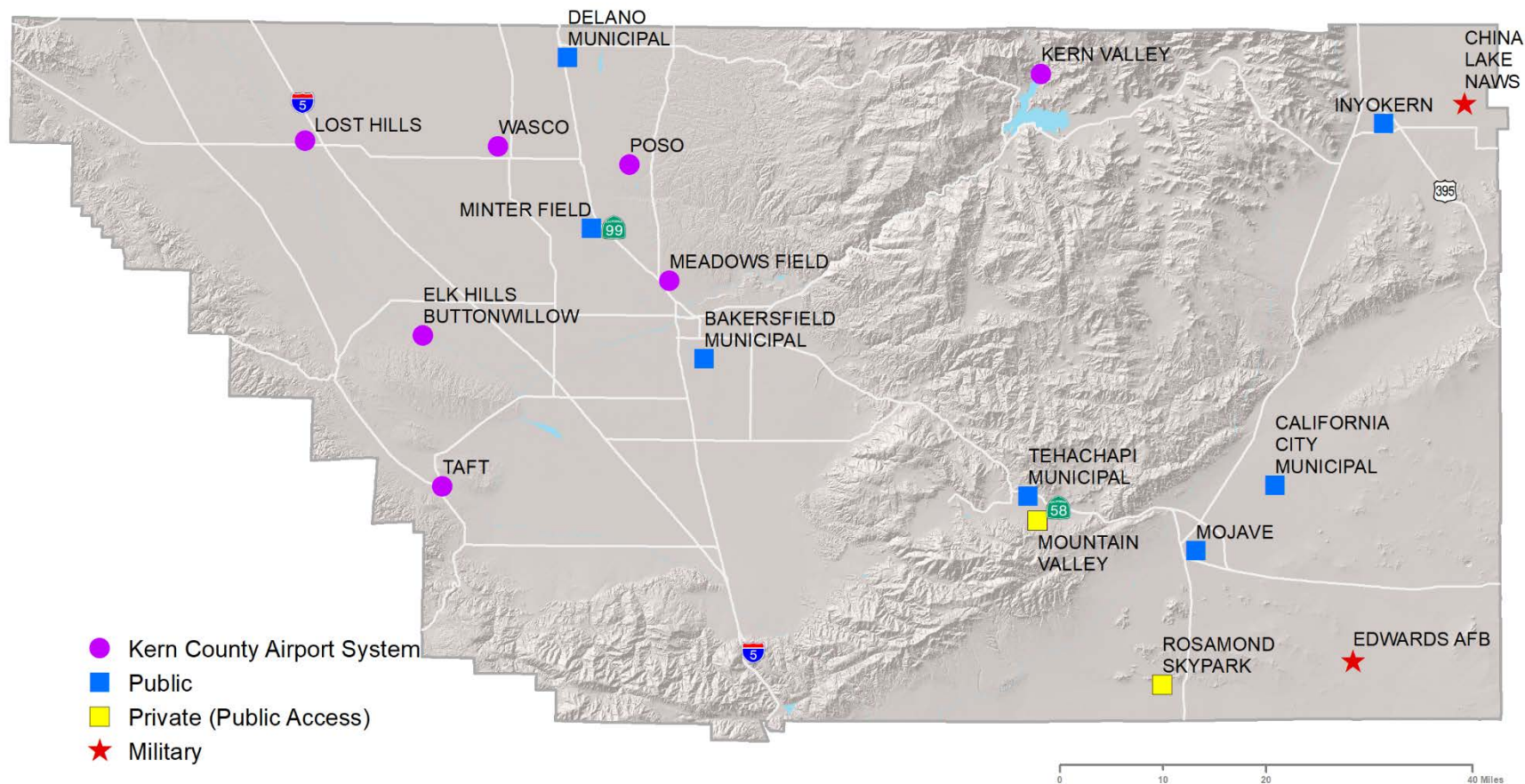
To preserve these facilities, local General Plans and concomitant land use decisions must assume that local airports may expand and runways will be lengthened. Even the smallest facility should be planning for expansion to air taxi service. Protecting these facilities from encroachment by sensitive land uses will help provide the economic engine and infrastructure to encourage job growth.

### Conflicting Land Uses – Setback Distances

Preserving global gateways from encroachment by incompatible land uses is critical to the economic and environmental viability of the region. The encroachment of sensitive land uses upon inland ports and airports can greatly limit the use of such facilities and eventually force their closure. Cities and the county address land use compatibility issues in their respective General Plans and implementing ordinances, and together with the CEQA process have the means to conduct health risk assessments, air quality analysis and noise assessments to establish standards and conditions that are applicable to each local land use jurisdiction's situation. Table 5-7 provides advisory recommendations for suggested setback distances that would limit exposure to harmful air pollution. (These are rough estimates and should be used only when no other data or local study is available.)



**Figure 5-25: Potential Air Taxi Jet Charter Facilities**



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**Table 5-7: Air Quality Recommendations on Siting New Sensitive Land Uses Such as Residences, Schools, Daycare Centers, Playgrounds or Medical Facilities**

Source Category	CARB Advisory Recommendations
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard. Within 1 mile of a rail yard, consider possible siting limitations and mitigation approaches.
Distribution Centers, Truck Stops	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.

Source: California Air Resources Board, *Air Quality and Land Use Handbook* <http://www.arb.ca.gov/ch/landuse.htm>

Noise sources should also require proper setbacks when siting future transportation facilities or when considering mitigation such as increased insulation and sound walls. Each jurisdiction is responsible for maintaining an Airport Land Use Compatibility Plan with specific information on siting land uses adjacent to each airport. Table 5-8 provides some advisory recommendations when no other information is available.

**Table 5-8: Noise Recommendations on Siting New Sensitive Land Uses Proximate to Airports**

Source Category	Advisory Recommendations
Regional Airports, Commercial/Air Freight	Avoid siting new sensitive land uses within 10,000 feet of planned and existing runway approaches and 2000 feet on either side. LAX has CNEL 65dB extending 5 miles beyond the runway and up to 1 mile laterally along the departure path. Within 14,000 feet in any direction of a runway observe appropriate height restrictions based on conical surface.
Local Airports, Very Light Jet/Air Taxi Service	Avoid siting new sensitive land uses within 5,000 feet of planned and existing runway approaches and 1000 feet on either side. Within 14,000 feet in any direction of a runway observe appropriate height restrictions based on conical surface. Local airports that may one day serve as air taxi service ports should have expansion plans increasing runway length to a minimum of 5,000–7,000 feet subject to local studies to accommodate very light jet air taxi service.

Source: Kern Council of Governments, *Kern County Airport Land Use Compatibility Plan*, amended March 2004

## Global Gateways – Land Use Actions

### Near Term, 2018–2020

- Facilitate the Shafter Rail Terminal and the Wonderful Industrial Park by programming infrastructure to service rail and truck traffic that may be generated by the facility;
- Use the California Environmental Quality Act review process to inform stakeholders and decision makers on the impacts of sensitive land use developments near vital transportation infrastructure necessary to handle increasing air traffic and international cargo, as well as increasing port activity;



- Work with the Kern County Department of Airports and local planning departments to preserve existing airports from encroachment by sensitive land uses to strategic global gateways;
- Implement the Directions to 2050 Growth principles vision for economic vitality by planning and programming infrastructure to provide connectivity to air traffic and international cargo facilities;
- Coordinate with the County of Kern, City of Bakersfield, and City of Shafter on the proposed expansion of Meadows Field in the County of Kern Airport Master Plan; and
- Coordinate with the Southern California Association of Governments, the Metropolitan Transportation Commission, and the ports to minimize impacts of port activity through Kern County.

### Long Term, 2021–2042

- Monitor progress toward implementing regional principles developed by the Directions to 2050 visioning process consistent with local general plans;
- Coordinate with the Kern County Department of Airports, municipalities and airport districts to establish intermodal connectivity for rail, trucking, transit, and passenger vehicles; and
- Work with Kern Economic Development Corporation to promote logistics and aerospace job opportunities in Kern County.



### **Rail/Transit Land Use Actions**

*See the Freight Movement Action Element and Public Transportation Action Element sections for further discussion on rail freight transport and public transportation modes.*

Rail and transit provide the highest-volume corridors for movement of goods and people in and through a region. These facilities require seamless connectivity. If these connections are degraded or broken by incompatible or competing land uses, the system can become less effective or even threatened with elimination. Preservation of rail and transit facilities is the next highest transportation land use priority after global gateways.

### Rail Freight

Not only is connection to the ports vital, but connections with switching yards to out-of-state destinations are a primary function of the rail system. In 2008, a facility opened in Delano, consolidating most of the perishable shipping activity in the southern San Joaquin Valley. The facility hauls refrigerated box car units between Delano and Albany, New York, in six days, where they are distributed to East Coast grocery store chains. The facility was acquired by UP in 2017 and marketed as UP Cold Connect.

Bulk hauling specialty oil products from several oil refineries and gas plants in the region travel the network of short-haul rail facilities to out-of-state customers via the Bakersfield freight yards. Preservation of Kern's short-haul rail network, operated by the San Joaquin Valley Railroad, is a key priority.

Along the national class 1 rail system, the Tehachapi Pass provides passage of goods between the Port of Oakland and the all-weather southern route through the Rockies, to Texas and Chicago. With the recently completed Tehachapi Pass capacity improvement project jointly funded by the State of California and the BNSF, the 35 trains that could pass through the summit daily, has now increased to 50 trains per day.

## CHAPTER 5 STRATEGIC INVESTMENTS

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Other rail freight includes bulk mining in Trona and Boron. Eastern Kern County is the source for half of the world's supply of borates. Rio Tinto (formerly U.S. Borax) ships five unit trains a week from Boron to a company-owned facility at the Port of Long Beach. Like many shipper/receivers that use short-haul rail, Rio Tinto may not be able to afford to ship by truck. Loss of short-haul rail service could mean curtailment or closure of the operation. Preserving short-haul rail means preserving the Kern region's economy.

Preservation of freight rail corridors in Kern is essential to promoting the principles of the Directions to 2050 visioning process. Strategies such as public/private partnerships and leveraging passenger rail service to preserve the short-haul system should be considered. Shipping freight by rail is ten times more energy-efficient than by truck, making preservation and expansion of rail freight vital to both the preservation of natural resources and development of a sustaining economy and strategic employment place types.

### Passenger Rail/Public Transit

Like freight rail, passenger rail and public transit have limited site opportunities and are highly dependent on surrounding land uses. It is important that investment in these modes follow land use decisions that support such investment. This section covers rail and transit priority place types, transit-oriented design, and carefully planned parking facilities that promote transit use and that could be considered in the next update of a jurisdictions circulation plan.

**Transit Oriented Land Use Concepts** – Passenger rail and transit are dependent on where the population is located. Figures 4-8 and 4-9 of the Sustainable Communities Strategy Chapter illustrate Transit Priority and Strategic Employment Place Types for Kern. Rather than showing large areas of planned urban growth, the maps show existing, planned and potential places where future transit and passenger rail service investment might occur based on existing variances in adopted General Plan intensities. In addition, the maps illustrate how transit investment would coordinate with these existing and planned place types.

Transit viability is closely linked to land use density and intensity within a region. Before World War II, land uses in most communities were focused on walkability and streetcar accessibility. Most communities in the Kern region have an urban core based on these concepts. The historic pre-WWII Bakersfield downtown was very walkable and accessible via a streetcar system. The Southern Pacific passenger train station on Baker Street in Old Town Kern (East Bakersfield) was connected to the Santa Fe train station in downtown Bakersfield on F Street by an electric trolley that ran along 19th Street from 1901 to 1942. Suburban explosion since WWII has spawned a low-density development pattern that results in a heavily subsidized, underused transit service.

As Metropolitan Bakersfield has grown, it has loosely developed around a network of auto-oriented retail centers illustrated in the Centers Concept map from the Metropolitan Bakersfield General Plan. Transit connectivity between the centers in the northwest are hindered by a 3-mile-wide low-density oil production and refining complex on the northwest side of the Kern River. The result is poor transit service from the rapidly growing northwest to the rest of Metropolitan Bakersfield. A ring of centers now exists around this industrial area, including Downtown/Westchester, California Avenue, The Marketplace/CSUB, Northwest Promenade, and Rosedale Highway/SR 99. Each of these centers covers a large area that often lacks a central focal point or pedestrian pocket for concentrating urban transit access, requiring a car to get from one store to another within the centers. Beyond this ring of centers, potential new centers are planned in outlying areas.

Transit oriented development can play an important role in outlying communities and rural areas as well. However, the techniques must be scaled down to fit the lower intensity land uses. Service to outlying areas lack the ridership to warrant frequent service. The importance of connecting services via dial-a-ride local circulator bus service can increase the service area for riders in outlying communities. Vanpooling can play an important role in providing service to strategic employment areas in outlying communities as well. The

public unmet transit needs process helps ensure that transit needs in rural and urban areas that are reasonable to be met, are provided service.

The following are a suggested list of tools and concepts available to the local land use authorities.

### Existing Tools and Concepts

**Reduced Impact Fees for Core Area Development** – To encourage gradual infill development, in 2003 the City of Bakersfield and the County of Kern jointly adopted a two-tiered traffic impact fee for Metropolitan Bakersfield. The fee in the “core area” is almost half of the \$12,870 per house in the “non-core area.” The City of Tehachapi also adopted a reduced fee for core area development. The core area is primarily the older built-out portions of the community that have the infrastructure in place. The logic behind the lower core area fee is that housing in these areas should not have to pay as high a fee because the transportation infrastructure is already in place. The result is a fee structure that promotes infill and increased densities in areas with readily available bus transit, bike, and pedestrian access.

**Indirect Source Review (ISR) Rule** – The San Joaquin Valley Air Pollution Control District has enacted the ISR rule, requiring new development to pay a fee for mitigating air quality impacts. All or a portion of the fee can be waived if a developer includes strategies that improve air quality, such as walkable design, bike paths, better access to transit, etc.

**High-Speed Rail Station Area Planning** – The City of Bakersfield Economic and Community Development Department is already planning intensification of land uses around the proposed high-speed rail station in downtown Bakersfield. Plans include the addition of 600 housing units and the Mill Creek pedestrian parkway that connects shops, restaurants, offices and housing to the downtown high-speed rail station site.

**Blueprint/Directions to 2050 Principles in General Plan** – The City of Maricopa has incorporated the Blueprint/Directions to 2050 Principles into its General Plan such as enhancement of existing assets, and compact walkable development.

**Healthy Communities** – The City of Delano adopted a new element to its General Plan called the Health and Sustainability Element. The new element includes goals and policies designed to strategically form a community that provides a healthy and sustainable environment for its residents.

**Climate Change Policies** – The City of Taft is incorporating emission reduction policies that relate to climate change in its General Plan update. The City of Delano adopted a Climate Action Plan which includes a range of measures to reduce GHG emissions from a variety of sources throughout the City as well as a Municipal Energy Action Plan for City facilities.

**Form-Based Code General Plan** – The City of Tehachapi developed and adopted one of the first citywide form-based code General Plans in the nation. The plan focuses on the architectural design of a community and encourages infill and development in the central community with transit access.

**Complete Streets in Circulation Elements** – Effective in 2011, AB 1358 required General Plan Circulation Elements to include transit systems, bike systems, and pedestrian facilities in addition to automobile circulation networks. According to Government Code Section 65302(b)(2)(A) and (B), with the next substantial revision to a jurisdiction’s General Plan Circulation Element, the jurisdiction must incorporate a multi-modal network with complete street techniques for safe and convenient travel for all users, including public transit users in the rural, suburban, and urban context of the General Plan. Circulation Plan update guidelines are available at

[http://opr.ca.gov/docs/Update\\_GP\\_Guidelines\\_Complete\\_Streets.pdf](http://opr.ca.gov/docs/Update_GP_Guidelines_Complete_Streets.pdf) .





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**Specific Plan Lines** - In addition, Kern County has already made extensive use of specific plan lines to preserve right-of-way for future highway corridors. Local land use plans can consider other strategies to preserve transit centers and corridors. Specific plan lines can be developed that identify transit-oriented centers, corridors, and boulevards to allow for gradual higher-capacity transit modes as land use densities warrant.

### New Tools and Concepts

**Transit More Responsive to Peak Period Demand Changes** - A major advantage of transit over single-occupant vehicle facilities, such as freeways, is that transit is more economical when a corridor reaches capacity. The cost to add a bus or another railcar along a corridor as congestion increases is considerably

**Table 5-9: Phased Transit Capacity Intensification**

	LOCAL	INTERCITY	INTERREGIONAL
 <b>Fixed-Route Transit</b>	<b>Rural (Village/Neighborhood) Transit Capacity Phase</b>		
	Dial-a-Ride/Senior Transit/Rideshare/Taxi/Vanpool	Regional Transit (KRT) /Senior Transit/Feeder Bus	Regional Transit (KRT) /Rail Feeder Bus/ Greyhound
 <b>Bus Rapid Transit</b>	<b>Suburban (Town/Community) Transit Capacity Phases</b>		
	Dial-a-Ride/Senior Transit/Taxi/etc.	Regional Fixed Route (KRT)	Rail Feeder Bus
	Fixed Route Bus(GET)/Circulator Bus	Rail Feeder Bus/Greyhound	Passenger Rail Service (Amtrak)
	Express Bus/Bus Rapid Transit (BRT)	Intercity Commuter Rail (Metrolink)	
	Commuter Rail/Light Rail (Metrolink)		
 <b>Commuter Rail</b>	<b>Urban (Metro) Transit Capacity Phases</b>		
	Shuttle Bus/Circulator Bus	Rail Feeder Bus	Passenger Rail Service
	Fixed Route Bus (GET, DART)	Intercity Commuter Rail (Metrolink)	High-Speed Rail
	Bus Lanes/Mixed Carpool Lanes		
	Express Bus/Bus Rapid Transit (BRT)		
Rail Feeder Bus			
 <b>High-Speed Rail</b>	Commuter Rail/Light Rail (Metrolink)		

Source: Adapted from the Transportation and Land Use Coalition (TALC)

less expensive than adding right-of-way for another roadway lane; the bus is only needed during peak periods, making it more efficient than providing a travel lane that is underused 90% of the time.

**Phased Transit Capacity Intensification** – As transit oriented place types gradually develop, eventually sufficient land use intensity will be available to support increased capacity modes such as express bus service, bus rapid transit and, eventually, commuter/light rail. In 1997, the MTIS developed a sketch plan for a commuter rail network connecting Metro Bakersfield to outlying communities. As part of the Metro



Bakersfield Long Range Transit Plan completed in April 2012, commuter rail service using existing spur lines to link with the high-speed rail station in Bakersfield was studied. A gradual phasing of transit-capacity intensification needs to be brought online carefully, to match the gradual land use intensification. Table 5-9 illustrates the progressive steps along a local, intercity, or interregional corridor as it becomes sufficiently used to support higher-capacity transit modes.

The Bay Area Transportation and Land Use Coalition (TALC) suggests an evolving transit strategy that promotes the concept of Express Bus/Bus Rapid Transit (BRT) as an interim step between fixed bus routes and higher-capacity modes such as light rail. BRT is an evolving term for a host of sophisticated technologies including articulated buses, auto drive technology, and traffic signal green-light extension used on both bus-only and mixed-flow lanes. The Federal Transit Administration offers the following definition of BRT:

*Bus rapid transit (BRT) is a combination of facility, systems, and vehicle investments that convert conventional bus services into a fixed-facility transit service, greatly increasing their efficiency and effectiveness to the end user.*

The TALC strategy focuses on a planned and evolving intensification of transit-oriented development destinations for use as BRT stops. TALC's strategy of phased transit mode intensification, as the centers and corridors infill and ridership increases, allows the transit fare box revenue to drive the building and gradual intensification of the transit facilities along the corridor. Table 5-9 illustrates the evolving progression from rural to suburban to urban transit usage as the land use intensifies and the ridership warrants higher-capacity transit modes.

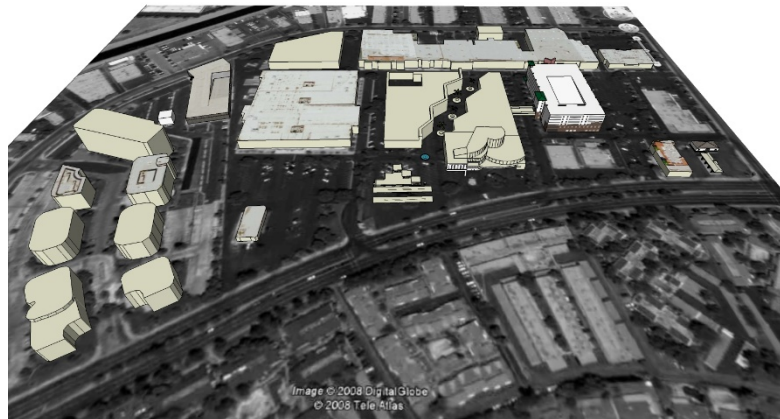
TALC suggests that infill land development around the transit centers should gradually drive the intensification of transit infrastructure. As new low-density suburban development occurs, a phased land use plan can provide areas for the future densification and infill with more intense urban uses around a transit center. This might include reserving areas for future commercial, mixed use, and more compact housing options.

**Figure 5-26: Bakersfield-California Avenue Shopping Center Existing/Potential**

**Existing**



**Potential**



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**Parking and Transit-Oriented Development** – Detailed transit-oriented development standards that include the concept of phased land use intensification around transit centers can be found in *The Next American Metropolis: Ecology, Community, and the American Dream* (Calthorpe 1993). The design guidelines include “surface parking redevelopment” e.g., “Land devoted to surface parking lots should be reduced through redevelopment and construction of structured parking facilities. The layout and configuration of the surface parking lots (near transit centers) should accommodate future redevelopment; design studies showing placement of future buildings and parking structures should be provided.”

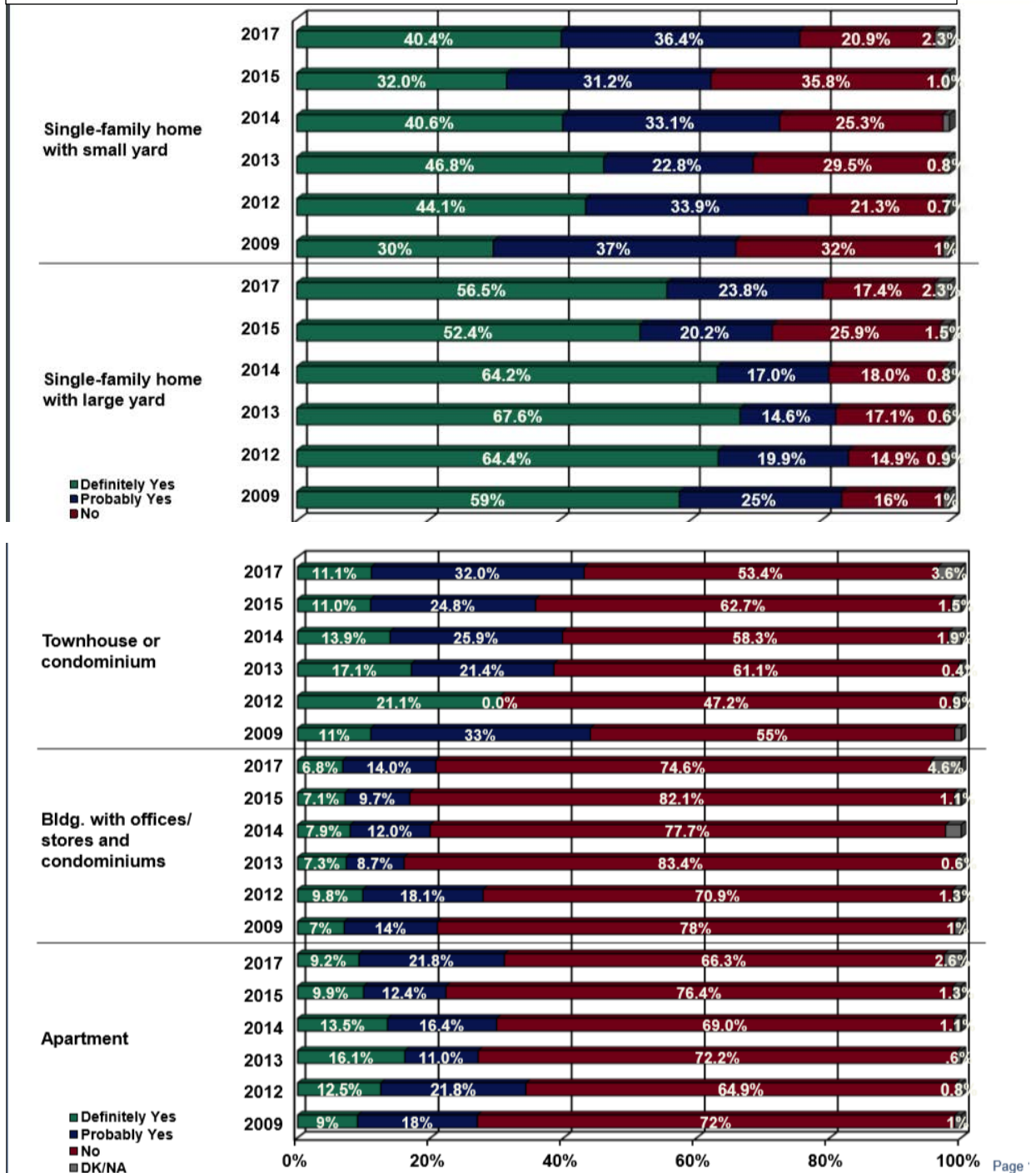
Parking structures are expensive and have limited applicability for most rural and suburban centers. However, one of the more effective opportunities to intensify low-density development around transit-oriented development centers is to control parking configuration. Figure 5-26 is an example of many older retail centers with large parking areas that only fill up two times a year—the day after Thanksgiving and the day after Christmas. Implementation of other parking concepts, such as joint use parking by office, carpooling, retail, entertainment, churches, and mixed-use residential, can provide a more efficient and consistent usage of parking on weekdays, weekends, and evenings. Greater pedestrian and transit use allows a reduction in parking near transit centers by 15% to 25%. Parking for carpoolers, and access for bicyclists and transit commuters, requires additional consideration in this process.

Parking costs can also be used to promote development of a major transit center. Charging for parking creates a disincentive for people to drive to the center, encouraging them to take transit, carpool, bike, or walk. In Old Town Pasadena, proceeds from the parking fees and meters were used to finance pedestrian street improvements that transformed a blighted downtown into a vibrant destination, which boosted the area’s businesses and created a transit-oriented infill node for the new Gold Line transit station at Mission Park. Parking costs used to fund local projects that benefit those paying them are referred to as user-based fees. User-based fees for all forms of transportation expenditures are becoming more common and would have to be heavily relied upon to implement transit-oriented development.

**Market Driven Housing Choices** - Recent surveys and studies suggest a shift in the market demand for housing. Since 2009, Godbe Research conducted annual statistically valid community surveys of 1,200 people each. Many of the surveys ask about housing choice. Figure 5-27 provides information from the 2017 Community Survey and compares the information to the 2009, 2012, 2013, 2014 and 2015 surveys.



**Figure 5-27: Kern Housing Preference 2017 Community Survey**



## CHAPTER 5 STRATEGIC INVESTMENTS

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### Proposed Rail/Transit-Related Land Use Actions

#### Near Term, 2018–2020

- Acknowledge city and county adopted General Plans and amendments and the related California Environmental Quality Act (CEQA) review process to inform stakeholders and decision makers on the impacts of sensitive land use developments near vital transportation infrastructure necessary to handle increasing local, intercity, and interregional transit use;
- Work with GET, KT, other local transit providers, and local land use planners to preserve existing and future transit opportunities from the encroachment of low-density land uses around transit-oriented development centers;
- Implement the long-range 2018 RTP in partnership with member agencies to preserve near- and long-term transportation infrastructure, thus promoting the gradual intensification of transit use only when market demand for compact land uses increases;
- Encourage the adoption of General Plan circulation elements that address transit, bike, and pedestrian modes. Consider specific plan lines and form-based codes where appropriate to implement transit improvements along designated transit corridors that connect transit-oriented development centers;
- Expand transportation choices and transit usage by providing market-driven housing choices that include more compact and mixed land uses within walking distance to transit centers;
- Identify and space transit-oriented, village, town, and suburban/community centers a minimum of 1 to 4 miles apart or as determined in adopted city and county General Plans and subsequent amendments;
- Provide convenient and safe walking and bike paths to a fixed transit hub at each development center;
- Allow reduced parking requirements near transit centers that have alternative modes of access such as walking and bike paths, circulator buses, etc.;
- Coordinate with GET on implementation of traffic signal green-light extension technology as a first step toward implementation of Bus Rapid Transit and peak period bus/carpool lanes on arterial streets; and
- Coordinate with GET, KT, and the Kern County Department of Airports to improve intermodal connectivity between transit systems and Meadows Field.

#### Long Term, 2021–2042

- Monitor progress toward implementing principles developed by the Directions to 2050 outreach process;
- Promote more compact and mixed-use centers along major transit corridors where appropriate to support more intense transit options such as Bus Rapid Transit and light rail as areas urbanize;
- Land uses should be mixed both horizontally and vertically where appropriate. Vertical mixed use, with ground-floor retail in developed areas and activity centers as identified through land use plans, can increase the vitality of the street and provide people with the choice of walking to desired services;

- More important for Bakersfield, mixing uses horizontally can prevent desolate, single-use areas and encourage increased pedestrian activity; scale of use and distance between uses are important to successful horizontal mixed-use development;
- Support and enhance transit priority and strategic employment place types. These areas have a strong impact on transportation patterns as the major destinations. They are generally characterized by their regionally important commercial, employment, and service uses. To make these places more transit-supportive, they should be enhanced by land use decisions that locate new housing and appropriately scaled retail and employment uses to diversify the mix, creating an environment that maximizes transportation choice;
- The cities and the county should be encouraged to provide land use intensities where appropriate at levels that will promote use of transit and support pedestrian and bicycle activity. A general threshold for transit-supportive residential uses is 10 to 15 units per acre within ½ mile of a high-frequency transit stop (15 min. headways or less). This density can be lower, however, if the urban environment supports easy pedestrian/bike access to transit. Nonresidential uses with a floor area ratio (FAR) of 0.5 provide a baseline that can support viable transit ridership levels. Local land use plans should provide flexibility to maximize the intensity of development in transit priority place types to be more responsive to changing market conditions; and
- The cities and the county should be encouraged to provide parking requirements (and parking provisions) compatible with compact, pedestrian, and transit-supportive design and development. Requirements should account for mixed uses, transit access, and the linking of trips that reduce reliance on automobiles and total parking demand.



### Highway/Road Land Use Actions

*See the Regional Streets and Highways Action Element, Public Transportation Action Element, Freight Movement Action Element, and Active Transportation Action Element sections above for further discussion on facilities and connectivity.*

*See Chapter 4, Sustainable Communities Strategy, for further discussion on sustainable highway/road facilities and connectivity.*

While roads and highways have considerably more flexibility in siting than air, rail, or transit modes, roads provide interconnectivity to all other modes. At these intermodal connection points, road and highway land use decisions are considerably less flexible because of the limited number of site opportunities. Preserving intermodal connections, while ensuring the capacity necessary to minimize congestion, is a major concern for land use planning. When siting roads and highways, local planners rely on special transportation studies and circulation plans. The following are some ideas that planners might consider implementing to encourage sustainable roads and highways within the Kern region.

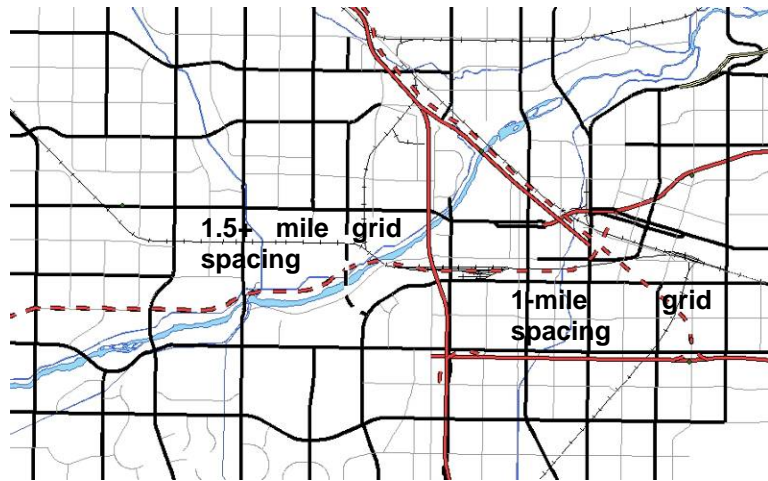
### Road and Highway Grid

A rule of thumb is that highways and freeways in urban areas should be spaced 3 to 6 miles apart. Recent specific plan line adoptions around Metropolitan Bakersfield have resulted in a beltway system that will be more than 7 miles from the next parallel freeway facility. As new housing is built on the urban fringe, residents may strongly object to new freeways being constructed near their homes, thus potentially driving the beltway system further out; the arterial circulation system in the interior would suffer increased congestion as a result. Parallel arterials halfway between two parallel freeways that are spaced too far apart would be servicing greater loads than six-lane arterials can absorb because they must carry additional traffic that the freeway system is too distant to service.

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The Central Bakersfield arterial network can be characterized as a high-volume, interrupted grid pattern (Figure 5-28). While many regions provide a four-lane arterial grid, Metropolitan Bakersfield is fortunate to have a six-lane arterial network that is laid out on roughly 1-mile intervals with curvilinear deviations from the section line grid. However, the arterial system is interrupted by a series of railroad corridors, freeways, canals and a river, resulting in greater than 1.5-mile gaps between arterials. A level of service degradation can be anticipated where arterials are spaced at greater than 1-mile intervals. The decision to allow the lower-density arterial spacing avoided building costly bridges, as well as further arterial segments on the urban fringe where future traffic volumes would be expected to be low. As new entitlements were approved beyond these locations, congestion levels increased in these areas.

**Figure 5-28: Central Bakersfield's Interrupted Arterial Grid**



In addition to arterial spacing, spacing of freeway interchanges has resulted in increased traffic congestion levels. Ming Avenue, White Lane, and Panama Lane, at State Route 99, were all spaced 1.5 miles apart when the highway was designed to rural specifications in these areas. Now that the region has urbanized, heavy traffic congestion is common at all three interchanges.

Irregular spacing of arterials can make it more challenging to synchronize traffic signals in more than one direction. Arterials with signals at irregularly spaced collectors and entrances to shopping centers further complicate traffic signal coordination efforts. A collector network that directs local traffic to and from the arterials commonly deviates from the grid layout in the newer suburbs, hindering traffic signal synchronization.

The silver lining of having an imperfect arterial grid is that it results in higher levels of congestion that may promote the use of transit and other modes. However, bus transit is often stuck in the same traffic congestion. Transit service needs to provide a congestion free alternative to get around during peak periods if it is to be a viable alternative to automobile travel. Providing alternatives such as light rail and bus lanes during peak travel periods ensure that transit provides a congestion free alternative to single-occupant vehicle travel.

### Bus and Carpool Lanes

One of the most efficient uses of high-occupancy vehicle (HOV), low-emissions vehicle (LEV) lanes is to provide priority access to express bus service. The sight of buses speeding past congested traffic can be a strong inducement for commuters to take advantage of transit, helping to relieve congestion and extending the service capacity of a freeway by providing an alternative means to get through a congested corridor.



In October 2005, Caltrans analyzed the congested portions of State Routes 58 and 99 in Metropolitan Bakersfield. The findings indicated that, for the most part, HOV lanes would not provide much additional congestion relief over mixed-flow lanes. This is primarily a result of the relatively short commutes, making the time savings differential less significant. However, the incorporation of an express bus or BRT service that uses the HOV lane can greatly improve the performance of transit ridership. Northbound SR 99 through Metropolitan Bakersfield was identified as feasible for implementing an HOV lane; however, building a carpool lane in just one direction is not much of an incentive for carpooling. The cutoff for feasibility in the study was 400 vehicles per peak hour of travel to 1800 vehicles per lane. SR 99 southbound had a higher level of vehicle occupancy in the study—sufficiently high that a 2+ person vehicle per lane facility would become saturated. Use of congestion pricing or increasing the capacity to 3+ during peak periods could combat the saturation problem. No funding was identified in the study for financing the HOV lanes; however, federal Congestion Mitigation and Air Quality Improvement Program (CMAQ) funds and the Air District's new Indirect Source Review (ISR) fee may be eligible for an express bus/HOV/LEV lane.

In 1994, HOV lanes for the Westside Parkway and Downtown Parkway (now called the Centennial Corridor south) were studied as part of the facility's Tier 1 Environmental Impact Report. Modeling showed that the facility would carry less than 2 vehicles per minute, a third of the traffic necessary to make the facility run efficiently by 2015. However, analyzing a much longer horizon indicated that eventually the facility could benefit from an HOV/LEV/bus lane as it became more congested. The source of the congestion is a high level of new entitlements approved on the fringe of the metropolitan area. Incorporating an express bus and future HOV/bus lane into freeways that will eventually become congested is an essential traffic relief valve for an expanding metropolitan area.

Some regions have developed carpool lanes on arterial streets (Figure 5-29). In Seattle, on some arterials, the right lane is reserved as a business access and transit (BAT) lane. The lane may be used for turning right into or out of parking lots and at intersections, or by a bus. The BAT lane configuration allows the bus service to get through when the arterial is congested. Buses are allowed to travel through the intersection in the BAT lane. A BAT lane also allows for carpools, vanpools, and emergency vehicles to get through when traffic is backed up.

At its September 18, 2012, meeting, the Kern COG board took action to join the CalVans Board to provide input to increase vanpool services in Kern County. Currently, CalVans operates 65 vanpools in Kern County equaling a reduction of vehicle miles traveled (VMT) in Kern of 1.7 million miles. Kern COG and CalVans estimate a possible 200 vanpools may be in operation in Kern and reduce VMT by 5.2 million miles.

#### Park-and-Ride Locations

Park-and-ride locations should be planned at the terminus of an express bus/BRT/light rail line and near major intermodal facilities such as freeway interchanges, airports, and regional rail. As the metropolitan

**Figure 5-29: Business Access and Transit (BAT) Lanes**



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area expands, new TOD centers will be established beyond the former terminus. At that point, the former terminus can begin to intensify and infill, likely converting the park-and-ride facility into parking for additional office and commercial activities. Currently, a large number of informal park-and-ride areas have been established at commercial centers throughout Bakersfield. They support vanpools that go to the prisons, oil fields, and other outlying resource employment areas surrounding Metropolitan Bakersfield. Facilitating the expansion of vanpooling is important to the region's goals.

### Freight Mobility on Highways and Roads

Closely tied to the region's economic and environmental goals, truck freight mobility along highways is highly dependent on land use decisions. For this discussion, freight mobility is divided into three separate areas:

- Interregional through-county, or "primary" goods movement;
- Freight destined/originating locally, or "secondary" goods movement;
- Local freight delivery such as Federal Express/UPS, or "tertiary" goods movement.

### Primary Goods Movement

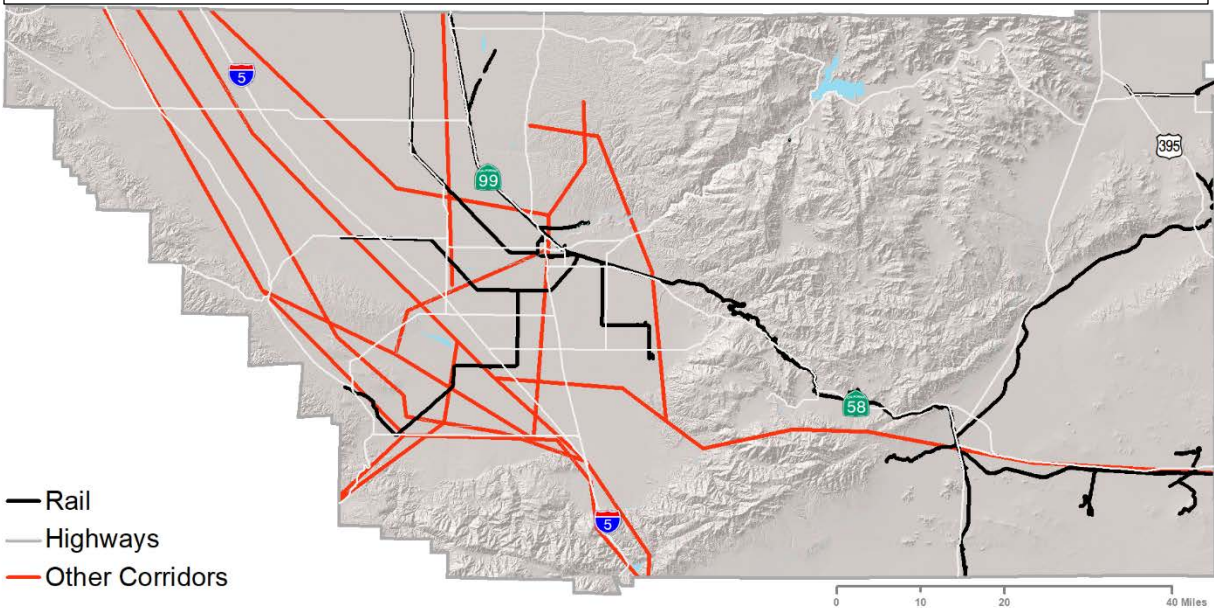
Of the primary or through-county goods movement, pipelines handle more tonnage than all other modes combined (Figure 5-30). These privately operated facilities allow the inexpensive movement of liquid and gas products. In addition to relieving a tremendous tonnage of equivalent truck and rail traffic, the pipelines have terminals that transfer cargo to rail and truck. It is these intermodal points that have the greatest effect on the existing transportation infrastructure and need to be protected from conflicting land uses. The propane gas terminal near Taft is one example of this type of facility, and the Alon Oil Refinery terminal on

Rosedale Highway is a distribution point for oil products by truck. Golden Bear, San Joaquin, and other local refining facilities also ship oil products that originated from the local and regional pipeline networks in the region.

Kern lies at the crossroads for much of the trucking goods movement throughout the state. Figure 5-30 shows the State Highway system that passes through the county. The Tejon and Tehachapi passes are major bottlenecks for trucking and rail. Preservation of these corridor passes for goods movement is critical to Kern County's and California's economic health. Forecasted growth along these corridors is expected to increase dramatically over the next several decades. While Caltrans has proposed additional truck passing lanes through the mountain passes, the number of lanes that can fit in the narrow canyons through the passes is limited.



**Figure 5-30: Primary Goods Movement Corridors: Truck, Rail, Other**



Options to increase capacity through these passes include adding truck toll lanes that use congestion pricing to create an incentive for trucks to travel at off-peak times. Another option is the double tracking of the rail line over the Tehachapi Pass. This alternative would greatly increase the capacity of the corridor while reducing truck emissions by as much as tenfold. Coordinating the financing of all truck-lane facilities and double tracking the rail corridor could result in more efficient goods delivery to Southern California.

In other areas of the county, congestion on State Routes 99 and 58 through Metropolitan Bakersfield is impeding primary freight traffic through the region. A system of beltways surrounding Metropolitan Bakersfield will help relieve these corridors. Shown on Figure 5-31 as red lines, these facilities should be considered heavily traveled truck routes, and land use along these corridors should be tolerant of truck traffic.

### Secondary Goods Movement

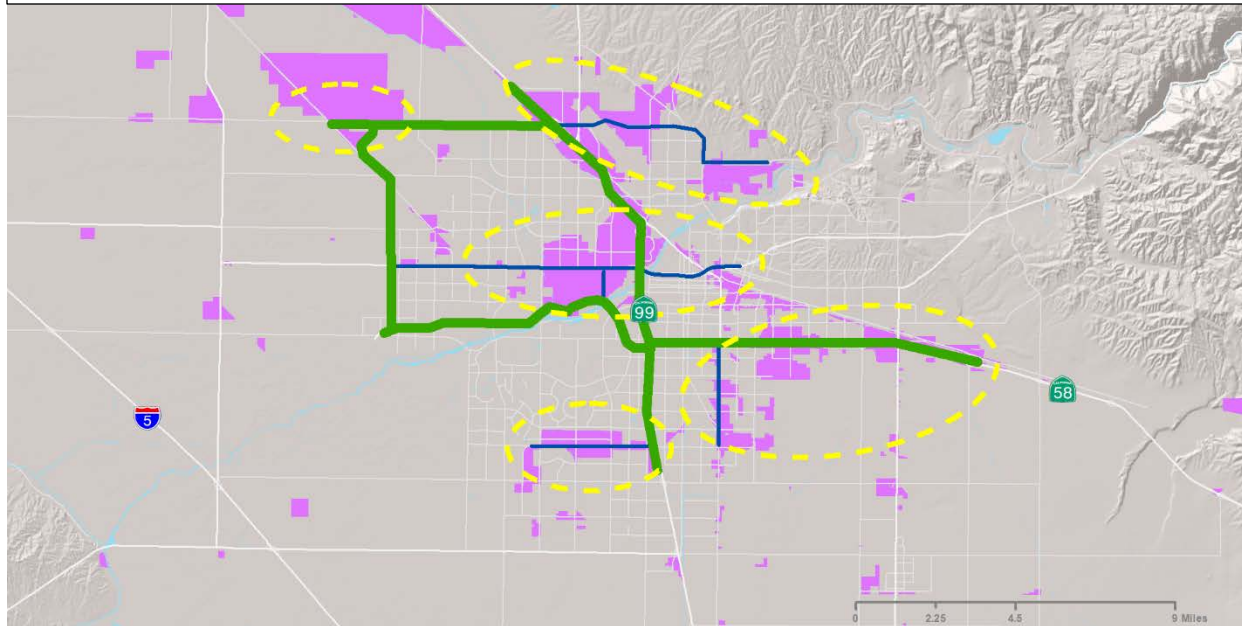
Secondary goods movement focuses on transport of goods that originate or are destined locally. Secondary goods shipments tend to originate from industrially zoned areas. Metropolitan Bakersfield has five major industrial activity areas that generate freight movement; these areas are shown on Figure 5-32. Connecting these areas is a series of internal arterials and collectors that must handle high volumes of truck traffic. Figure 5-32 shows these facilities as dark blue lines. The yellow dashed areas are the industrial districts. The thicker green lines are a network of major arterials and freeways that connect these districts with each other. The industrial district north of Bakersfield is located at the Wonderful Industrial Park

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**Figure 5-31: Primary Truck Goods Movement Facilities: Existing and Future**



**Figure 5-32: Secondary Goods Movement Facilities Connecting Industrial areas in Metro Bakersfield**

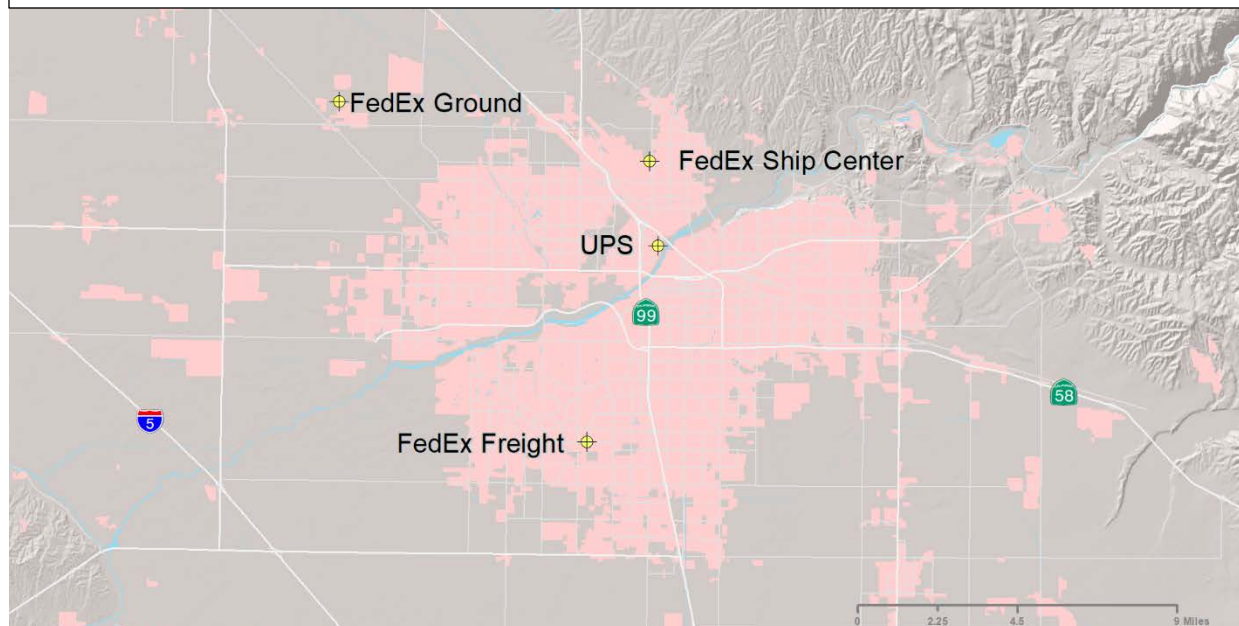


Transporting goods along these corridors requires special turning -radius considerations for longer truck trailers. National Surface Transportation Assistance Act truck routes must be able to handle trucks up to 53 feet in length and require special median design to accommodate the larger turning radii. The maintenance of truck routes needs to be accommodated to promote the region's economic and environmental goals.

Connections from these industrial districts to the primary or regional goods movement corridors on State Routes are critical. The primary goods movement network in Metropolitan Bakersfield is becoming heavily congested. Development of additional primary goods movement corridors, as a system of beltways around Metropolitan Bakersfield, will help to relieve some of this congestion.

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**Figure 5-33: Tertiary Goods Movement Nodes**



### Tertiary Goods Movement

Tertiary goods movement is the distribution of goods locally. Facilities such as Federal Express and UPS use the entire local street network for delivering goods and services (see Figure 5-33). It also includes other goods movement such as grocery and retail store deliveries. Delivery service is a rapidly expanding sector for goods movement as Internet shopping becomes more prevalent. Providing adequate capacity and siting for these tertiary goods movement activities is critical for the economic viability of the region.



## **Proposed Road/Highway-Related Land Use Actions**

### Near Term, 2018–2020

- Continue to use the CEQA review process to inform stakeholders and decision-makers on the impacts of sensitive land use developments near vital transportation infrastructure;
- Work with member agencies to preserve existing and future road and highway rights-of-way from the encroachment of sensitive land uses;
- Implement the long-range 2018 RTP in partnership with member agencies to preserve near- and long-term transportation infrastructure that promote the preservation of goods movement routes and facilities;
- Encourage the adoption of general plan circulation elements with specific plan lines as appropriate to preserve goods movement corridors and high frequency transit corridors; and
- Provide for all types of truck-related goods movement along truck-route corridors.

### Long Term, 2021–2042

- Monitor progress toward implementing regional principles developed by the Directions to 2050 outreach process;
- Promote land use along freight corridors that are compatible with goods movement traffic;
- The transportation and circulation framework should define compact districts and corridors that are characterized by high connectivity of streets to not overly concentrate traffic on major streets and to provide more direct routes for pedestrians, good access to transit, and streets that are designed for pedestrians and bicycles, as well as for vehicles;
- New residential developments should include streets that provide connectivity. Cul-de-sacs and walls around communities are especially challenging for providing effective pedestrian and bike access to public transit;
- Transit improvement projects should be targeted at areas with transit-supportive land uses (existing and planned) in and around key destinations and projects that can increase pedestrian activity;
- Streets should be designed to support use by multiple modes, including transit, bicycles, and pedestrians, through proper scaling and provision of lighting, landscaping, and amenities. Amenities must be designed to provide comfortable walking environments;
- Buildings should be human scaled, with a positive relationship to the street (e.g. entries and windows facing onto public streets, and appropriate articulation and signage);
- The impact of parking on the public realm should be minimized by siting parking lots behind buildings or screening elements (walls or landscaping). Buildings should be close to the road so parking can be located on the side or in the rear; and
- Relax roadway level of service (LOS) standards in high-priority transit corridors. In high-demand, high-capacity transit corridors—specifically, the Lines 1 and 2 Rapid alignments identified in the Short-Term

## CHAPTER 5 STRATEGIC INVESTMENTS

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Plan, where service is proposed to be upgraded to bus rapid transit—it may be desirable, even necessary, to reduce minimum standards for intersection LOS. There has been some discussion already of site-specific relaxations of the existing City of Bakersfield standard of LOS C related to adjacent transit-oriented developments. If traffic lanes along major arterials such as Chester Avenue and California Avenue were to be set aside for exclusive use by transit vehicles, congestion might result at some locations, exceeding the existing threshold for mitigation. In these cases, mitigation could be pursued, but it might not always be possible or even desirable to implement typical mitigation such as additional turn lanes, as such measures can sometimes impinge on the pedestrian realm or even adjoining properties. In these instances, policymakers would be faced with a decision: accept somewhat higher levels of traffic congestion at these locations or accept less robust transit-priority treatments. It should be noted that minimum roadway level of service standards in many urban areas are LOS D, or less in some cases.

### Land Use Decisions Outside Kern County

Land use decisions in neighboring jurisdictions can greatly impact Kern's regional transportation system, as is being experienced at the northern end of the San Joaquin Valley. Spillover development from coastal areas will be a primary driver for development in the Kern region. However, the percentage commuting to Los Angeles County from 1990 to 2000 remained unchanged at 3% of the total households in Kern, indicating that the main wave of urbanization has yet to reach this county. Kern COG and the Southern California Association of Governments (SCAG) meet periodically to discuss interregional planning issues such as land use, transportation strategies, and regional housing needs. Recent meetings have been held to discuss the proposed Centennial new town development on Tejon Ranch property south of the Kern County line near Interstate 5 and State Route 138. Kern COG provides modeling on the transportation impacts of this development to the Kern region. In addition, Kern COG has agreements in place with the San Joaquin Valley metropolitan planning organizations and the four-county Eastern Sierra Transportation Planning Partnership.

### Proposed Actions

#### Near Term, 2018–2020

- Encourage land use decisions by member agencies that promote pedestrian, bike, and transit-oriented mixed-use and infill development;
- Continue to review and comment on environmental documents and their identified transportation impacts, recommending pedestrian, bike, and transit-oriented development strategies;
- Promote increased communication with neighboring jurisdictions on interregional land use issues;
- Coordinate regularly with SCAG on interregional land use and transportation planning issues;
- Coordinate with the San Joaquin Valley Metropolitan Planning Organizations on interregional land use and transportation planning issues; and
- Coordinate with the Eastern Sierra Transportation Planning Partnership on interregional land use and transportation planning issues.

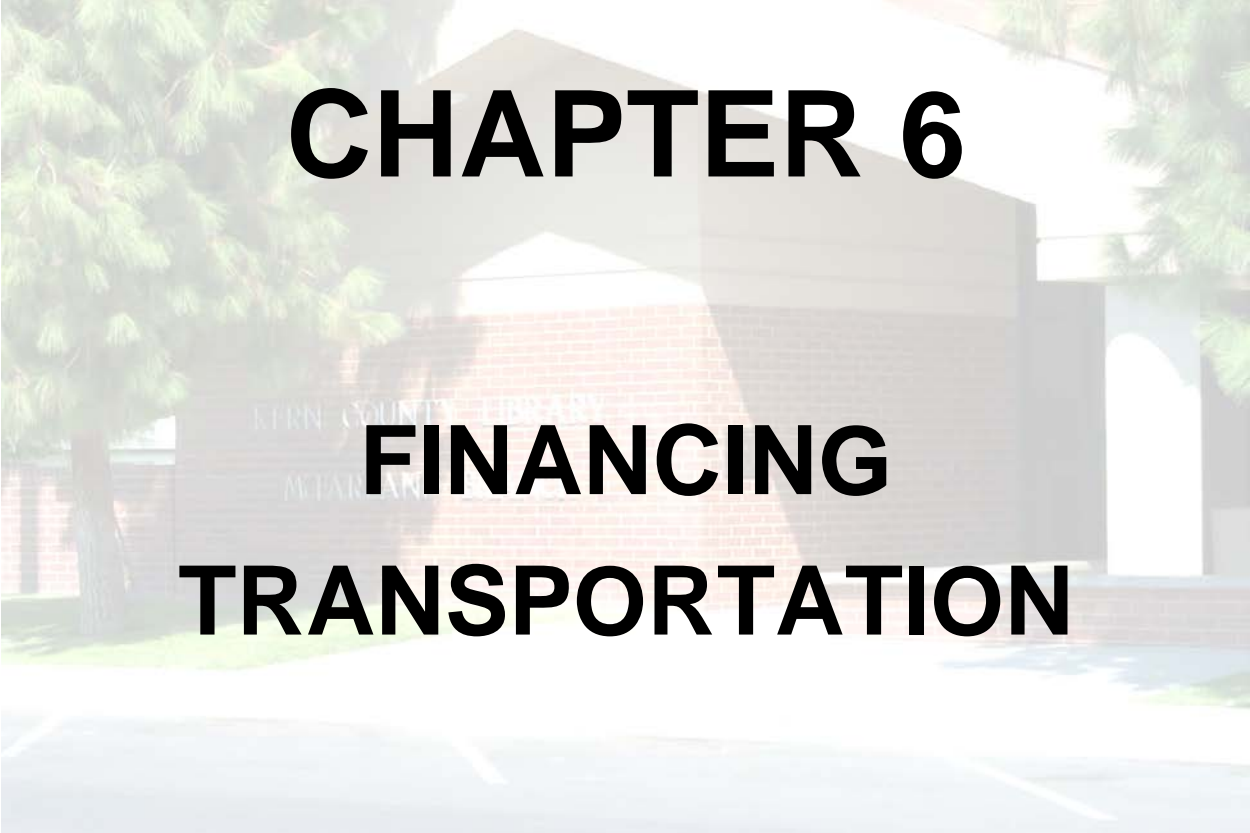
#### Long Term, 2021–2042

- Encourage land use decisions by local government member agencies that promote pedestrian, bike, and transit-oriented mixed-use and infill development;



- Where appropriate, encourage local government agencies to plan for high-density, pedestrian-oriented transit hubs that support the current and planned investment in alternative transportation modes such as bus transit;
- Encourage higher densities by member agencies necessary for the Regional Housing Needs Allocation Plan;
- Promote land use patterns that support current and future investments in bus transit and that may one day support passenger rail alternatives;
- Re-evaluate feasibility of commuter rail alternatives and intermodal connections with implementation of the GET Long-Range Transit Plan and in light of potential high-speed rail service;
- Promote increased communication with neighboring jurisdictions on interregional land use issues;
- Coordinate regularly with SCAG on interregional land use and transportation planning issues;
- Coordinate with the San Joaquin Valley Metropolitan Planning Organizations on interregional land use and transportation planning issues;
- Coordinate with the Eastern Sierra Transportation Planning Partnership on interregional land use and transportation planning issues; and
- Continue coordination activities with the San Luis Obispo and Santa Barbara COGs on interregional land use and transportation planning issues for State Routes 33, 41, 46, 58, and 166.



The background image shows a brick building, likely a school or university, with a large tree on the left and a parking lot in the foreground. The text is overlaid on this image.

# **CHAPTER 6**

## **FINANCING TRANSPORTATION**



### CHAPTER 6 FINANCING TRANSPORTATION

Regional transportation plans must include a financial element that identifies monetary resources to implement the plan (23 USC 134(h)(2)(B)). This Chapter serves as the Financial Element to fulfill the federal requirement that the 2018 RTP be financially constrained (i.e., budgeted) and provides a cost analysis for implementing the program of projects included in the Strategic Investments (Action Element). It describes the financial situation that will exist between FY 2018 and FY 2042, the implementation period for this 2018 RTP.

#### FINANCIAL ANALYSIS PROCESS

The Kern Council of Governments (Kern COG) has estimated revenues that are reasonably expected to be available from known federal, state, local, and private sources of transportation funding to implement the proposed projects. Each year, Kern COG is responsible for selecting and prioritizing transportation projects for the allocation of millions of dollars in funding. These responsibilities involve programming federal, state, and local transportation funds, each of which may have different requirements, limitations, and schedules.

Projecting revenues and expenditures over this length of a planning period is difficult at best. The analysis relies partly on historical funding patterns from state and federal sources, though effort has been made to account for new methods of allocating state transportation funds since the passage of Senate Bill 45 (Government Code Chapter 622), effective January 1, 1998. In addition, the year of expenditure must be considered when estimates for capital projects are developed; this is required by the federal surface transportation act, FAST Act.

Even for existing funding sources, understanding and implementing the complex array of local, state, and federal programs is not easy. Some of the programs rely on allocations, others on apportionments, and others are matching programs. Different combinations of apportioned, allocated, or matched dollars from local, state, and federal sources can be applied to one project. Many of the projections included in the 2018 RTP rely on simplified financial assumptions upon which programming assumptions are then based.

The comparison of revenues and expenditures are not an exact budget, but rather a forecast of future financial conditions for the FY 2018-2042 planning period covered by this RTP,

For additional information please refer to Chapter 1.

#### REVENUE PROJECTION ASSUMPTIONS

The 2018 RTP financial plan identifies forecasted revenues and expenditures approaching \$13.3 billion for capital and operations and maintenance, for all modes. Approximately \$8 billion is identified to support the region's capital transportation investments. About \$5.3 billion is designated for operations and maintenance of the current and future system. The plan includes a constrained revenue forecast of local, state, and federal sources that are considered reasonably available over the life-span of the 2018 RTP. Financially constrained projects reflected in Table 5-1 are matched with expected revenue summarized in Table 6-1 and based on revenue streams considered by the region to be reasonably available. Approximately 90% of these revenue streams are based on traditional and past revenue streams, while about 10% are considered reasonably available anticipating future changes to local and regional policies and revisions to state and federal transportation legislation.

Approximately \$1.8 billion of the \$13.3 billion revenue estimate is based on revenue streams considered reasonably available to regions in the future as a result of: (1) adjustments to state and federal gas tax rates based on historical trends and recommendations from two national commissions (National Surface

## CHAPTER 6 FINANCING TRANSPORTATION

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Transportation Policy and Revenue Study Commission and National Surface Transportation Infrastructure Financing Commission); (2) leveraging of local sales tax measures; (3) potential national freight program/freight fees; (4) future state bonding programs; (5) mileage-based user fees; and/or other potential new revenue sources. A similar conservative assumption was made in prior RTPs with the approval of federal review agencies.

For the Kern region, each of these funding concepts has a varied weight of opportunity; they are all options that have been under discussion by state and federal legislators for many years and are currently considered reasonably available by larger regional agencies in California. While no one item should be considered a silver bullet for a smaller region such as Kern, collectively, and based on a very conservative estimate, Kern considers several to be reasonably available revenue streams during the life of the plan.

The conservative estimate of \$1.8 billion is based on a combination of newer financing opportunities coming into play during the life of this plan. As such, these revenue streams are collectively listed in Table 6-1 and included as “Other Revenue” in the Revenue Summary for the financially constrained element of this plan. No one item is selected, since Kern’s transportation history is mostly dependent on transportation impact fees, other local bonding, and local, state, and federally legislated transportation bills including earmarks and appropriations. In the past several years, state and federal discretionary transportation funding opportunities have turned to performance-based outcomes for the project selection process. In 2012, the Kern region implemented a project selection policy that supports revenue leveraging and performance-based selection criteria to support livable communities and complete streets concepts. Presented below is justification for Kern’s “Other” revenue assumptions.

- Kern COG has updated its project selection policy and guidance document to direct its priorities toward projects that support livable communities and complete streets goals.
- Improvements to the gas tax structure, odometer-based taxes, federal freight-related programs, and other identified programs will collectively serve to develop consistent and sustainable funding streams not currently enjoyed by most regions or states. Reforms in these areas would benefit not only the Kern region but all regions in the state and nation.
- Kern projects constrained by the addition of \$1.8 billion focus on the areas of operations and maintenance and expanded services to transit, maintenance of streets and roads, and the further implementation of projects that support livable community concepts and complete streets.
- Regional highway capacity projects in Kern include a serious need for safety improvements to many lane miles of two-lane “conventional” highways that could be much safer with four lanes and shoulders/pedestrian improvements.
- Currently waning funding levels for projects of regional significance would be bolstered by state and federal excise tax reform and afford the opportunity for Kern to deliver identified projects that improve safety and increase mode choices.
- The plan does not recommend the use of future revenue streams to add capacity projects, but Kern COG understands that these projects will require a sustainable revenue stream brought on by state and federal reforms to the gas tax to sustain core assumptions to deliver these projects.
- Kern COG has taken steps to move toward integrating safety priorities of capacity needs with cost-effective operational improvements that cost less but provide safety benefits.
- Ongoing outreach to Kern residents indicates a resounding priority to maintain our streets and roads, improve non-motorized opportunities, improve transit, and keep our highways safe.



The assumptions below represent revenue streams considered reasonably available over the last several transportation acts.

- **National Highway System (NHS) and Surface Transportation Program (STP) dollars** are combined with State Highway Account (SHA) dollars to fund the State Transportation Improvement Program (STIP). Total funding available for STIP is apportioned as county shares. The STIP is then divided into two funding groups: (1) the Regional Improvement Program (RIP), which programs 75% of STIP funding; and (2) the Interregional Improvement Program (IIP), which programs the remaining 25%. Of the IIP funding, only 10% can be used in urban areas; the rest is for rural highway projects and other programs, such as rail.
- **County-share estimates to fund state highway projects** and other projects of regional significance are based on California Department of Transportation (Caltrans) projections of Kern County's share and are projected over a 20-year period. Inflation rates were not applied for revenue projections. The first five years of revenue estimates assumed current Federal Transportation Improvement Program (FTIP) project funding plus an additional \$30 million. The second five years assumed a RIP rate of \$30 million per year for five years and \$10 million per year from the discretionary IIP source. The final 10 years assumed \$30 million for RIP and \$10 million for IIP per year.
- **Year-of-expenditure project estimates** shown in Tables 5-1 and 5-2 are constrained by reasonably available revenue estimates outlined herein. Year-of-expenditure is defined as the anticipated fiscal year that construction would begin. A statewide annual average of 3% for expected inflation was applied to these estimates.
- The assumption for the **State Highway Operations and Protection Program (SHOPP)** funding projection was to calculate the last five years of SHOPP projects based on the FTIP.
- Safety Program dollars were allocated in four distinct programs: **Highway Bridge Program (HBP)**, **Highway Safety Improvement Program (HSIP)**, **Safe Routes to School (SRS)**, and **Local (Section 130) At-Grade Crossing**. These were averaged over the last five years and extrapolated based on FTIP analysis. No inflation factors were applied.
- For the **Regional Surface Transportation Program**, annual apportionments were averaged and projected over 20 years. Inflation factors were not applied.
- For the **Congestion Mitigation and Air Quality Improvement (CMAQ) Program**, annual apportionments were averaged and projected over 20 years. Inflation factors were not applied.
- The **Bakersfield and Rosamond Transportation Impact Fee programs** are based on residential, commercial, and industrial development but are difficult to predict. For the Rosamond Impact Fee, an average was determined to have been collected over the last several years, while the Bakersfield impact fee was calculated based on the latest fee schedule. Amounts were then projected linearly with growth and inflation factors applied.
- **FTA Funding Section 5307 (Urbanized Area Formula Apportionments for Transit)** was projected using annual inflation and growth factors and past FTIP programming.
- **FTA Funding Section 5309 (New Starts/Major Investments for Transit)** was projected using annual inflation and growth factors and past FTIP programming.
- **FTA Funding Section 5310 (Elderly and Disabled Persons Transit)** was projected using annual inflation and growth factors and past FTIP programming.

## CHAPTER 6 FINANCING TRANSPORTATION

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- **FTA Funding Section 5311 (Non-Urbanized/Rural Transit Assistance)** was projected using annual inflation and growth factors and past FTIP programming.
- **Local Transportation Fund (LTF)** was projected using annual inflation and growth factors and past FTIP programming.
- **Transportation Alternatives (TA)** federal fund is 10% of the estimated county share. That value was projected without inflation factors.
- **Community Development Block Grants (CDBG)** – A small percentage (5%) of improvements from these grants were directed toward normal non-motorized improvements, including bicycle lanes and sidewalks.
- **Tax Credit Incentives** – Also a community development revenue stream, a similar assumption was made as with the CDBG grants, assuming that any new or reconstruction has and would require improvements to roadways and sidewalks contiguous to upgraded or new property construction.
- **SB 1** – Senate Bill 1, the Road Repair and Accountability Act of 2017, was signed into law on April 28, 2017. The newly adopted state gas tax is expected to introduce approximately \$500 million or more of new revenue to the Kern region for use on streets and roads maintenance. There are several discretionary components to the newly formed funding program and Kern projects could be advanced as a result of those programs perhaps exceeding the \$500 million estimate. SB 1 is a 20-year program.

The assumptions below represent newer goals and policies that the Kern region will rely on to deliver an additional 13% of the program.

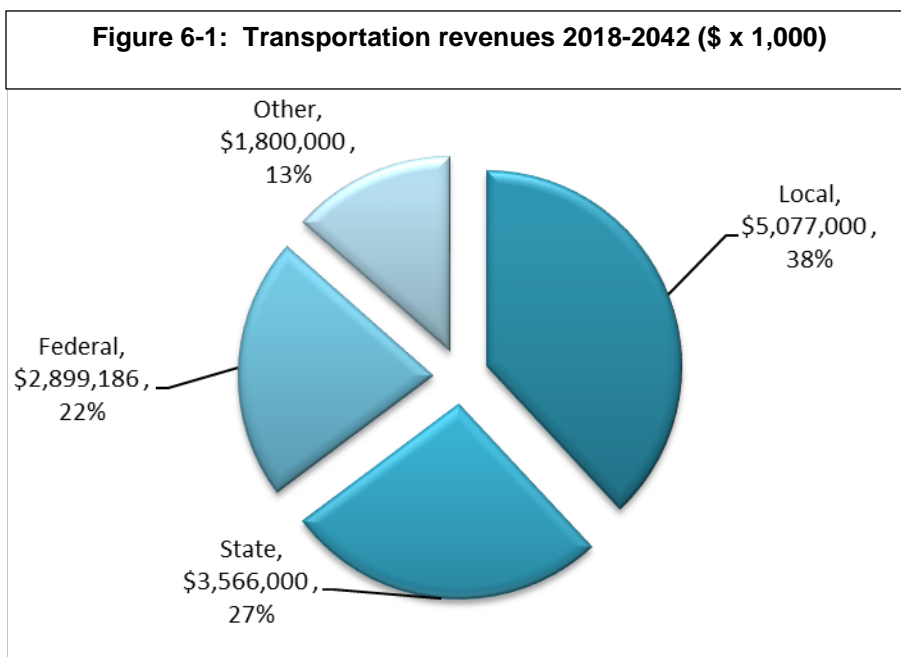
- **State and Federal Gas Excise Tax Adjustment to Maintain Historical Purchasing Power** – Additional \$0.15 per gallon gasoline tax imposed at the state and federal levels starting in 2017 and continuing to 2024 to maintain purchasing power.
- **Mileage-Based User Fee (or equivalent fuel tax adjustment)** – Mileage-based user fees would be implemented to replace gas taxes—estimated at about \$0.05 (in 2011 dollars) per mile starting in 2025 and indexed to maintain purchasing power.
- **Private Equity Participation** – Private equity share as may be applicable for key initiatives (e.g., toll facilities). Freight rail package assumes railroads' share of costs for mainline capacity and intermodal facilities.
- **Freight Fee/National Freight Program** – A national freight program was approved as part of the FAST Act. Federal formula for funding the national freight network was developed for discretionary programs throughout the nation.
- **Bond Proceeds from Local Sales Tax Measures** – Issuance of debt against existing sales tax revenues in Kern County.
- **E-Commerce Tax** – Although these are existing revenue sources, they generally have not been collected. Potentially, e-commerce tax revenue could be used for transportation purposes, given the relationship between e-commerce and the delivery of goods to California purchasers.
- **State Bond Proceeds, Federal Grants, and Other Financing for California High-Speed Rail Program** – State general obligation bonds authorized under the Bond Act approved by California voters as Proposition 1A in 2008; federal grants authorized under the American Recovery and Reinvestment

Act and High-Speed Intercity Passenger Rail Program; potential use of qualified tax credit bonds; and private sources.

### REVENUE SOURCES

Revenues identified in the 2018 RTP financial forecast are those that have been provided for the construction, operation, and maintenance of the current roadway, transit, and airport systems in the Kern region. Baseline revenues include existing local, state, and federal transportation funding sources. As Table 6-1 and Figure 6-1 summarize, revenue forecasts for the Kern region are estimated to be approximately \$13.3 billion for the RTP period. Revenue levels identified in Table 6-1 reflect reasonably available funding and include estimates for funding programs used over the last several years.

Approximately \$5.3 billion of the \$13.3 billion in expected revenue is for the operation and maintenance of the countywide transportation system. The remaining \$8 billion is dedicated to capital improvements for all modes over the 24-year period of this plan.



### Local Revenue

Funding from local sources contributes nearly one-half of the revenues to this RTP. Major contributions to local revenue include Local Transportation Funds (9%), bus transit fare box (1%), and other local funding such as developer fees and general funds (23%).

One potential source of local funding for Kern County is a transportation impact fee (TIF). Outside Metropolitan Bakersfield, most developments currently do not pay a fare-share impact fee to offset the costs of constructing regional street or highway improvements. The impact fee is designed to collect the difference between the cost of the new roads attributable to new development and the amount of gas tax revenues that the new development will produce for the County or cities to use in road construction. Kern COG has undertaken a series of studies to assess the potential for future TIF programs within unincorporated county areas and small cities. Several small cities have implemented new TIFs, including Tehachapi, McFarland, Delano, Shafter, and Wasco. The County of Kern has adopted a new TIF for the

## CHAPTER 6 FINANCING TRANSPORTATION

greater Tehachapi area, and the County will continue to review growing unincorporated areas and develop identical programs when appropriate.

**Table 6-1: Revenue Forecast 2018-2042 (\$ X 1,000)**

Table 6-1 Revenue Forecast 2018-2042 (\$ X 1,000)								
Funding Source	Total Revenue	Overall Percent	Transit, HOV, Aviation & Other		Roads & Highways		Pedestrian & Bicycle	
			Capital	O & M	Capital	O & M	Capital	O & M
Local Sources								
Cal Vans - Private Funds	\$ 192,000	1.44%	\$ 48,000	\$ 144,000	\$ -	\$ -	\$ -	\$ -
Local - General Funds - streets and roads maintenance	\$ 400,000	3.00%	\$ -	\$ -	\$ -	\$ 320,000	\$ -	\$ 80,000
Local Transportation Funds	\$ 1,205,000	9.03%	\$ 301,000	\$ 904,000	\$ -	\$ -	\$ -	\$ -
Bus Farebox	\$ 171,000	1.28%	\$ -	\$ 171,000	\$ -	\$ -	\$ -	\$ -
Local Agency Funds/Developer Fees/Regional Fees/Other	\$ 3,109,000	23.30%	\$ 37,000	\$ -	\$2,937,275	\$ -	\$ 134,725	\$ -
Local Subtotal	\$ 5,077,000	38.05%	\$ 386,000	\$1,219,000	\$2,937,275	\$ 320,000	\$ 134,725	\$ 80,000
State Sources								
SB 1	\$ 546,000	4.09%	\$ -	\$ 80,000	\$ -	\$ 438,000	\$ 28,000	\$ -
STIP (Regional and Interregional)	\$ 1,125,000	8.43%	\$ 140,000		\$ 885,000	\$ -	\$ 100,000	\$ -
State Transit Assistance (STA)	\$ 566,000	4.24%	\$ 166,000	\$ 400,000	\$ -	\$ -	\$ -	\$ -
State Highway Operation and Protection Program (SHOPP)	\$ 1,326,000	9.94%	\$ -	\$ -	\$ -	\$1,196,000	\$ -	\$ 130,000
State Aid to Airports	\$ 3,000	0.02%	\$ 3,000	\$ -	\$ -	\$ -	\$ -	\$ -
State Subtotal	\$ 3,566,000	26.73%	\$ 309,000	\$ 480,000	\$ 885,000	\$1,634,000	\$ 128,000	\$ 130,000
Federal Sources								
Regional Surface Transportation Program	\$ 210,000	1.57%	\$ -	\$ -	\$ -	\$ 190,000	\$ -	\$ 20,000
Pedestrian and Bicycle Programs	\$ 75,000	0.56%	\$ -	\$ -	\$ -	\$ -	\$ 75,000	\$ -
Congestion Mitigation and Air Quality Program	\$ 197,500	1.48%	\$ 60,000		\$ 40,000	\$ 48,750	\$ 48,750	
Local Assistance (HES, HBRR, Sec.130, Emergency Relief)	\$ 82,000	0.61%			\$ -	\$ 82,000	\$ -	\$ -
Federal Aid to Airports	\$ 45,000	0.34%	\$ 22,500	\$ 22,500	\$ -	\$ -	\$ -	\$ -
FTA Section 5307 (Transit – metro)	\$ 97,500	0.73%	\$ 24,375	\$ 73,125	\$ -	\$ -	\$ -	\$ -
FTA Section 5310 and 5311 (Transit – senior/disabled/rural)	\$ 22,500	0.17%	\$ 5,625	\$ 16,875	\$ -	\$ -	\$ -	\$ -
Recovery Act - High Speed Rail	\$ 1,500,000	11.24%	\$1,500,000	\$ -	\$ -	\$ -	\$ -	\$ -
State/Federal Demonstration / Other	\$ 669,686	5.02%	\$ 9,600	\$ -	\$ 630,086	\$ -	\$ 30,000	\$ -
Federal Subtotal	\$ 2,899,186	21.73%	\$1,622,100	\$ 112,500	\$ 670,086	\$ 320,750	\$ 153,750	\$ 20,000
Total Local, State, Federal Funding Sources								
Other Sources - Revenue Streams during life of RTP								
May be derived from the following: Cap and Trade Revenue E-Commerce Freight Fee / National Freight Program Future State Bond Proceeds Odometer-based user fee Self-help sales tax State Federal Excise Tax on Fuel	\$ 1,800,000	13.49%	\$ 72,000	\$ 72,000	\$ 694,000	\$ 818,000	\$ 72,000	\$ 72,000
Mass Transportation - expansion of transit system	\$ 144,000	1.08%	\$ 72,000	\$ 72,000				
Highway Safety; Streets and Roads and Maintenance	\$ 1,512,000	11.33%			\$ 694,000	\$ 818,000		
Non-motorized system Countywide Capital & Maintenance	\$ 144,000	1.08%					\$ 72,000	\$ 72,000
Other Sources Subtotal	\$ 1,800,000	13.49%	\$ 72,000	\$ 72,000	\$ 694,000	\$ 818,000	\$ 72,000	\$ 72,000
TOTAL	\$13,342,186	100.00%	\$2,389,100	\$1,883,500	\$5,186,361	\$3,092,750	\$ 488,475	\$ 302,000
Total Capital Revenue	\$ 8,063,936	100%	18%	14%	39%	23%	4%	2%
Total Operations and Maintenance	\$ 5,278,250		32%		62%		6%	

## **State Revenue**

State funding sources constitute about 26% of the total 24-year transportation budget. Most of these monies come from the State Transportation Improvement Program (8%) and the State Highway Operation and Protection Program (10%). State Transit Assistance funds make up 4% while the newly introduced SB 1 funding adds an additional 4%.

In April 2017, Senate Bill 1 the Road Repair and Accountability Act was signed into law. The administration estimates this legislation will increase state revenues for California's transportation system by an average of \$5.2 billion annually over the next decade. Kern County is estimated to receive over \$546 million over the life of this RTP, a 4% increase in total transportation funding. Two thirds of the funding is slated for road repairs while the rest is focused on transit, freight, bike and pedestrian improvements. The program is primarily funded by a 12-cent per gallon gas tax increase as well as other tax and fee increases. Assuming the legislation survives a November 2018 ballot initiative to undo the tax increase, the funding mechanism will bring in less revenue over time. As the state goals to increase low and zero emission vehicles are implemented, the amount of annual revenue from gas tax is anticipated to decrease significantly after the first 20 years. A portion of the SB 1 includes a fee on electric vehicles but only accounts for about 3% of the total revenue from the act. Still, in the near and mid-term of this plan the act provides a much needed source of transportation funding.

## **Federal Revenue**

Approximately 22% of the transportation funds for the 2018 RTP program of projects come from federal funding sources. For purposes of discussion in this document, the STIP and SHOPP programs were considered as state revenue programs; however, their funding is approximately 80% federal highway funds or 40% of the estimated state revenues discussed above. Federal Transit Administration dollars constitute approximately 1% of all RTP funds. These funds are generally used to support transit capital and operating needs. Federal sources also include flexible funding programs such as the Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement (CMAQ) Program, and Transportation Alternatives (TA). In the 2018 RTP, STP, CMAQ, and TA programs total approximately 4% of anticipated funds. The remaining programs are for safety projects and aviation funding.

Federal revenue estimates in Table 6-1 are consistent with federal fund estimates resulting from the passage of the Fast Act. Project programming of regionally significant projects and revenue estimate information is consistent with the latest four-year STIP fund estimate adopted by the California Transportation Commission (CTC) for use in the development of the 2018 STIP.

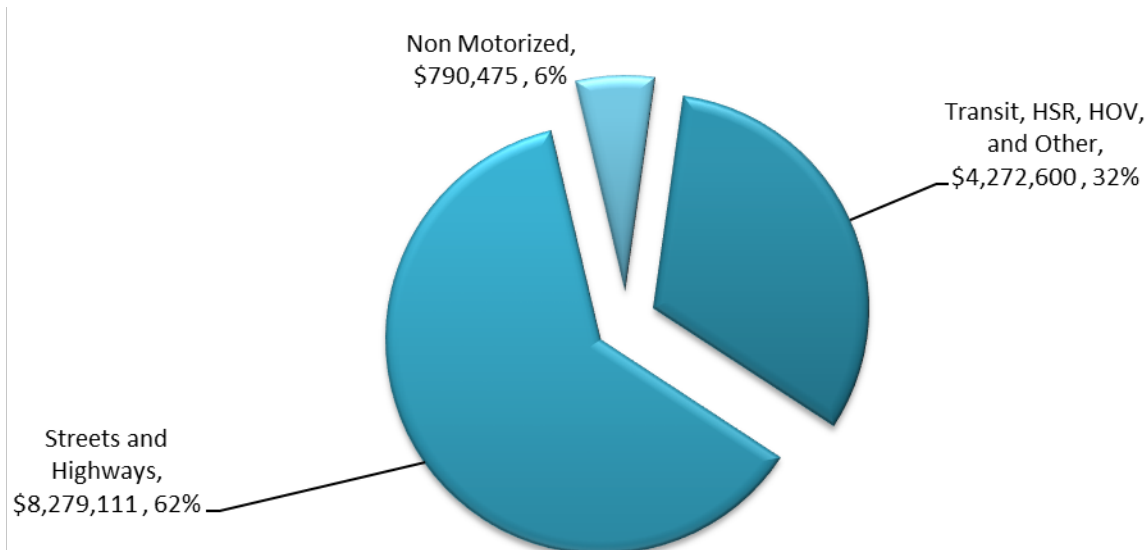
Since its enactment, Caltrans has distributed information with regard to annual estimates for use in the programming of new transportation projects. Also included in the table are SAFETEA-LU federal earmarks from Sections 1301, Projects of National and Regional Significance; Section 1302 – National Corridor Infrastructure Improvement Program; and Section 1701 – High Priority Projects Programming, totaling \$720 million. These earmarks are considered a one-time revenue opportunity and are not extended throughout the 24-year life of this document.

## **BASELINE EXPENDITURES**

Given the 2018 RTP's baseline cost estimate of \$13.3 billion, Figure 6-2 illustrates the mode split for the region. The data show that about 56% of the region's baseline costs are dedicated to street and highway improvements and maintenance. Thirty seven percent (37%) of expenditures are for transit, HOV and rail capital needs, operations and maintenance. The remaining 7% of RTP expenditures are for transportation improvements including active transportation projects, complete streets, aviation capital improvements and maintenance.

## CHAPTER 6 FINANCING TRANSPORTATION

**Figure 6-2: Investments by Mode 2018-2042 (\$ x 1,000)**



### Financial Constraint Demonstration

Kern COG has assembled a comprehensive inventory of the transportation revenue programs currently in use by all governmental entities (federal, state, and local) and has projected these revenues primarily based on historical averages over the life of the RTP. Financial revenue projections are based on the best available data from existing sources (i.e., Federal Highway Administration, Caltrans, Kern COG historical programming data, member agency information). Table 5-1 reflects capital projects that are constrained to revenue estimates in Table 6-1.

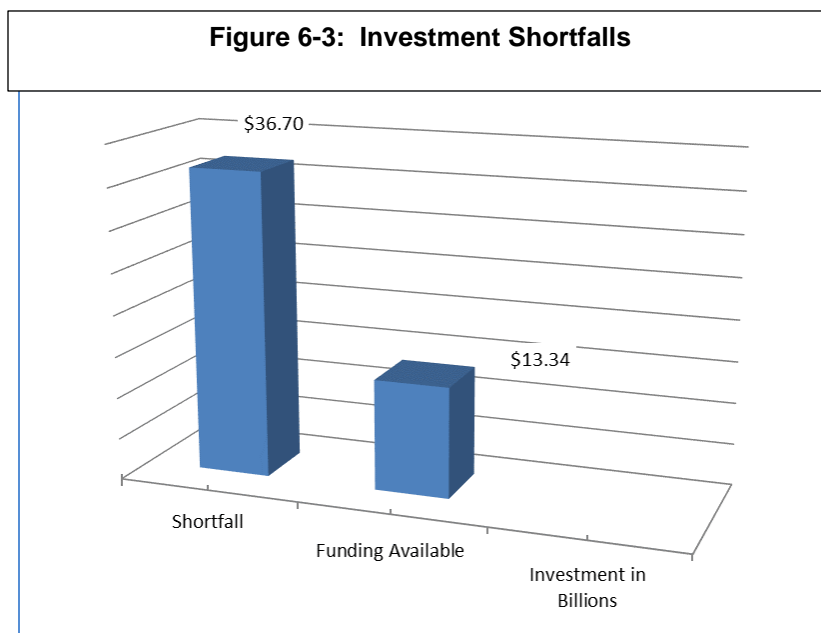
### Funding Shortfall of \$36.7 Billion

To further assess the region's financial outlook, baseline revenues were matched against a program of projects that have been divided into two groups: constrained and unconstrained. The Unconstrained Program of Projects (Table 5-2) lists projects considered necessary for development of Kern County's transportation infrastructure but for which funding cannot be reasonably expected within the time frame of this RTP. This comparison clearly indicated that the Kern region will experience funding deficits to operate, maintain, and rehabilitate its existing transportation system over the 2018 RTP time frame. While the shortfall is shown as approximately \$36.7 billion, it is actually much greater because some projects do not as yet have actual cost estimates. Such projects as high-speed rail improvements and grade-separation projects (over- and under-crossings) do not have identified funding. Some grade separations have been included as components of street widening projects, while others are stand-alone projects. Costs will vary based on right-of-way purchase in addition to construction costs. A baseline cost estimate on the order of an additional \$8 million per project for grade separation projects could be added to the \$6.8 billion identified shortfall.

The extensive list of unconstrained projects, including regionally significant highway improvements, interchanges, regional roadway improvements, rail and bus service, railroad grade crossings, transportation control measures, and deferred roadway maintenance, paints a vivid picture of Kern County's need for



additional revenue. Funds to support operations and maintenance—whether it be street and highway, bus and rail, or transportation demand management programs—are the most difficult to find. Historically, the Kern region has relied heavily on local monies for these operating funds.



Operating funds for streets and road maintenance have been available traditionally through gas taxes, Transportation Development Act (TDA) funds, and flexible federal transportation funds; however, TDA funds in support of street and road maintenance projects are not expected to continue. With increasingly fuel-efficient vehicles and the rising cost of gasoline, revenues from gas taxes are not expected to increase at more than a nominal rate.

For transit, some relief is available in the form of operating subsidies, which the FAST Act has increased moderately. No alternative funding source has been identified to augment these funds. Thus, the Kern region's shortfall could easily double over the amount of constrained funding.

### **Future Revenue Shortfalls for Transportation Maintenance and Expansion**

**Problem: Federal Energy/Environmental Policies Impact Transportation Funding for Maintenance and Expansion** – The recent increase of supplemental gas tax funding sources, such as toll roads in Southern California, sales tax measures, and transportation impact fees on new development, may be symptomatic of a much larger issue. Federal transportation, energy, and environmental policies are linked by the use of federal tax law involving motor fuels to advance national objectives. However, these tax policies are often debated and decided on separately, resulting in policies that sometimes contradict goals and objectives in other policy areas.

In 1956, the federal Highway Trust Fund was established to ensure that America would have a “pay-as-you-go” system for funding needed highway and bridge improvements. The principle was: The more you drive or use the roads, the more you pay to build and maintain them. Congress, in its 2004 transportation-funding bill, reaffirmed this principle. However, current public investment in road, bridge, and mass transit improvements financed by highway user fees is not sufficient to maintain the system's physical condition and has left local governments scrambling to find alternative funding sources to fund their transportation

## CHAPTER 6 FINANCING TRANSPORTATION

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infrastructure. Two specific issues exacerbate this funding situation: less tax revenue generated as a result of improved fuel economy and gas tax revenues allocated to promotion of alternative fuels.

**Cause: Improved Fuel Economy Reduces Highway Trust Fund Revenue** – Since the 1970s, vehicle manufacturers have struggled to meet federal requirements for fuel economy. While improvements to fuel economy allow more travel on the overall transportation system, lower tax revenues generated per mile of travel result in increased wear and tear on the system. From 1970 to 2000, the average vehicle fuel economy (for all cars and trucks) has improved 42% (from 12 miles per gallon (mpg) to 17 mpg). If today's vehicle fleet had remained at 12 mpg, gas tax revenues would be \$46 billion higher than the recent rate of \$110 billion per year (federal, state, and local). If this trend continues over the next 30 years, the potential loss in gas tax revenue per vehicle mile traveled could drop by a third, furthering problems in maintaining the system. The vehicle manufacturers' commitment toward providing more fuel-efficient gasoline-electric hybrids, the promise of hydrogen fuel cell technology, and increased fuel costs that motivate consumers to purchase these vehicles will likely accelerate this trend. A more fuel-efficient national vehicle fleet is a worthy national policy to reduce dependence on foreign oil, but a mechanism is needed to preserve the nation's transportation infrastructure investment.

**Cause: Use of Gas Tax Revenue to Promote Alternative Fuels/Modes** – In addition to highway maintenance and expansion, small portions of the gas tax are used for programs like deficit reduction and improved air quality. The Congestion Mitigation and Air Quality Improvement (CMAQ) Program uses 3% of federal gas tax funds to reduce transportation-related emissions in areas that do not attain federal clean air standards. Projects using CMAQ funds are required to demonstrate a reduction in emissions, usually by reducing gasoline/diesel fuel consumption through the use of alternative fuels. Many of the projects result in a reduction in gas sales and subsequent loss of tax revenue. CMAQ is an effective program that provides funds to help clean the air in nonattainment areas and has only a relatively minor impact on gas tax revenue; however, it is one of many instances of federal energy and environmental policies affecting the "pay-as-you-go" policy of the transportation systems.

### **Possible Solution: Toll-based System and Congestion Pricing**

Many revenue mechanisms are being considered to augment the gas tax. They include gas tax increases, sales tax measures, transportation impact fees on new development, and tolls. One system to consider for augmenting or replacing the current flat rate gas tax system has been implemented for trucking in Europe. The Swiss version of the system uses satellite global positioning systems (GPS) technology and tachometer data that is uploaded to the Internet to create a travel log for calculating a toll fee based on where the vehicle has traveled. Alternative transportation funding mechanisms would provide incentives to carry out national policies for cleaning the air and conserving fuel while reducing deterioration of the existing transportation infrastructure and providing increased capacity where needed. A variable toll rate based on weight per tire is an example of an incentive that would promote the reduction of wear and tear on the highway system. With such a variable rate, trucking companies might consider adding more axles to reduce per tire weight (and subsequent road wear) to reduce their toll fees.

With a toll-based system, congestion pricing also becomes an option. Trips in heavily congested areas during peak hours could also be billed a higher toll to fund increased transportation capacity and provide an incentive for drivers to seek alternative modes at these times.

Implementing a toll-based system would have some significant hurdles. The public often views tolls as double taxation; that is, tolls being paid in addition to the gas tax. In addition, toll plazas are not viewed as convenient. However, a toll-based system for trucks could eliminate the passenger vehicle subsidy for maintenance of highways created by truck travel. Eighty percent of the wear and tear on the nation's roads is attributed to heavy trucks while they only account for approximately 20% of the total fuel tax revenue and 8% of the total vehicle miles traveled. Despite this, in Southern California, the trucking industry is advocating incentives such as using the toll funds to build commercial "all-truck" toll facilities. The advantage to the

trucking industry is that the lanes could be built to allow heavier loads and longer train sets (triple trailers) that cannot currently operate in California. In the interim, local governments will have to focus more on local funding sources to make up the funding shortfall in the face of ever-increasing vehicle use and congestion.

### **Possible Solution: Mileage-Based User Fee (or Equivalent Fuel Tax Adjustment)**

Another possible solution is mileage-based user fees could be implemented to replace existing gas taxes. Analysis assumed \$0.05 (2011 dollars) per mile starting in 2025 and indexed at a rate of 2.5%.

Advancements in technologies enabling greater use of electric or alternative fuel vehicles will continue to impact gas tax revenues. The US Energy Information Agency forecasts that fuel efficiency for all light-duty vehicles will steadily increase, from an average weighted mpg of just over 20 in 2008 to nearly 29 in 2030. The fuel efficiency of freight trucks also is expected to improve, although at a slower rate, from an average weighted mpg of about 6 in 2008 to nearly 7 in 2030. These forecasts assume there is no major paradigm shift in vehicle fuel technology, such as affordable electric cars or hybrid heavy-duty trucks. It also assumes no shift will occur in public policy or public attitudes that encourage people to reduce their long-term travel habits or shift to more efficient vehicles more quickly. Given the growing concern about climate protection and fuel price volatility, however, such changes are likely to compromise the long-term viability of the current fuel tax.

Southern California Association of Governments (SCAG) projections indicate that the total number of vehicle miles traveled in the SCAG region will increase by about 16% by 2035. The National Surface Transportation Infrastructure Financing Commission also predicts an increase in vehicle miles traveled (VMT) nationwide. The Financing Commission evaluated a combination of short- and long-term factors, identifying that short-term motor fuel price volatility combined with a weak economy could have a considerable negative impact. They indicate that despite a recent national decline in VMT, travel growth nationally will resume a trajectory of about 1.5% to 1.8% per year for the foreseeable future due to factors such as population growth, economic growth, and land use patterns. Accordingly, the Financing Commission's findings and recommendations indicate that the most viable approach to efficiently fund investments in transportation in the medium to long run will be a user charge system based more directly on miles driven (and potentially on factors such as time of day, type of road, vehicle weight, and fuel economy) rather than indirectly on fuel consumed. Additionally, the National Surface Transportation Policy and Revenue Study Commission identified consistent findings and recommendations.

Numerous studies in the United States have tested approaches to charging drivers on a use basis - including in Oregon and the Puget Sound region of Washington State. A nationwide survey was conducted by the University of Iowa for the US Department of Transportation that focused on equipment for monitoring travel and methods of billing. The study involved about 2,700 vehicles in 12 locations. Participants were surveyed on their reactions to receiving two types of monthly bills: one providing aggregate data only and the other showing detailed information that included routes of travel. The study included the installation of on-board systems in six regions across the country (San Diego, Baltimore, Austin, Boise, Research Triangle in North Carolina, and eastern Iowa). The aim of the study is to design a prototype road pricing system that is reliable, secure, flexible, user-friendly, and cost-effective and to assess vehicle operators' reactions to the system.

## CHAPTER 6 FINANCING TRANSPORTATION

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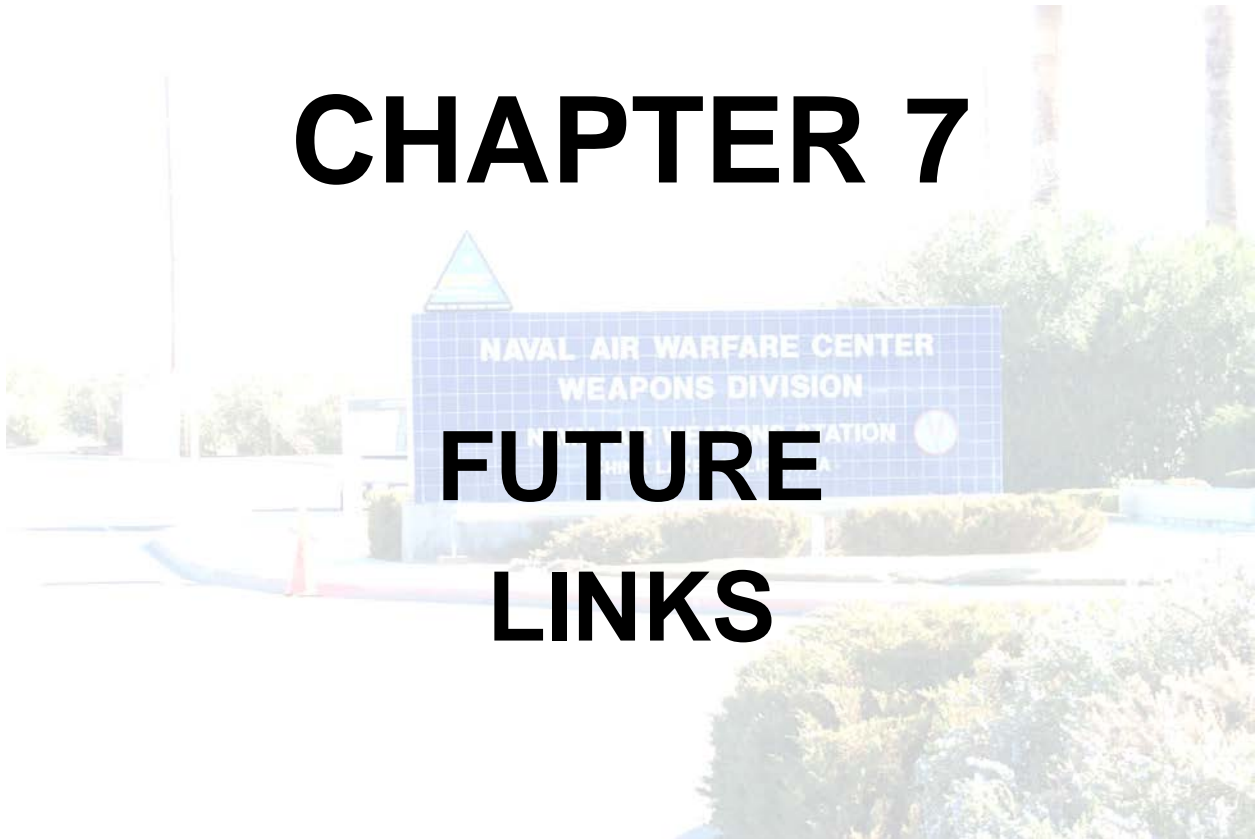
For the SCAG region, revenue from mileage-based fees totals \$148.2 billion from FY 2025 to FY 2035. This analysis assumes that mileage-based fees would replace existing state and federal gas taxes. As such, the incremental increase in revenue resulting from the transition to a more direct mileage-based charge system would generate an additional \$110.3 billion, from FY 2025 to FY 2035.

- Base Year: FY 2025.
- Data Source: SCAG travel demand forecast for 2014 RTP.
- Real Growth Rate: 0.5% annually. Revenue Total: \$110.3 billion (nominal dollars) - estimated incremental revenue only.

*From Appendix B: Details about Revenue Sources, SCAG 2012–2035 RTP/SCS, Adopted April 2012*

# CHAPTER 7

## FUTURE LINKS







### CHAPTER 7 FUTURE LINKS

This Chapter deals with key future trends that may affect the RTP in future cycles. Forecasting for more than 5 years can be problematic and should be updated regularly. The Future Links Chapter discusses some major game changers that need to be watched closely with each update of the RTP including:

- Corridor Preservation
- Needed Unfunded Projects and Financial Mechanisms
- Adaptive Cruise Control/Autonomous Vehicle Technology
- High Speed Rail
- Air Quality Contingencies
- Valleywide Chapter

#### CORRIDOR PRESERVATION

It is important to identify and preserve transportation corridors needed to expand or enhance transportation for Kern County's future. The Kern region's local governments will find it difficult to obtain optimal locations for these corridors unless efforts to preserve them are made early.

The American Association of State Highway and Transportation Officials (AASHTO) Report on corridor preservation states that early efforts provide the following benefits:

- Prevent inconsistent development;
- Minimize or avoid environmental, social, and economic impacts;
- Prevent loss of desirable corridor locations;
- Allow for orderly assessment of impacts;
- Permit orderly project development; and
- Reduce costs.

Ideally, planners and policymakers will begin preparing strategies for preserving corridors now as part of the long-range planning process. Planning prevents losing right-of-way that will become necessary for transportation beyond 2035. The county and cities can adopt a specific plan line to preserve open land in undeveloped and rural areas. More opportunities to capitalize on preservation are available in less urban areas, where local governments have an opportunity to obtain available land for new transportation facilities.

The first step to identify potential long-range corridors and determine that a need exists to preserve them is in the development of the General Plan's circulation element. Usually prepared as part of an environmental document, a transportation study using traffic modeling as appropriate can be performed on the ultimate buildout of a General Plan's land use element. The study would determine the need and size

## CHAPTER 7 FUTURE LINKS

of the facility that would be identified in the circulation element. The process can be performed for vehicle, transit, bike, and pedestrian facilities, as well.

On state highways, a project initiation document is developed for major projects. The next step often is to preserve the right-of-way for the transportation corridor using a specific plan line adoption by the local governments involved. An environmental document and funding component is developed at that time.

The following High Emphasis Interregional Routes are identified by Kern Council of Governments (Kern COG) and the California Department of Transportation (Caltrans) as high priority corridors. These corridors are also identified as future circulation needs in the respective city or county General Plan circulation elements.

**Table 7-1: High Emphasis Interregional Routes**

Post-2042 Long-Range Corridors	
Corridor	Source
Interregional Corridors	
SR 58 Centennial Corridor/Westside Parkway (SR99 to I-5)	City of Bakersfield; Kern County; Kern COG
Route 58 (New Alignment – Route 99 west to I-5)	Caltrans; Kern COG
Route 46	City of Wasco; Caltrans; Kern COG
Transit/Passenger Rail Corridors	
Link to Mammoth/Reno	Eastern Sierra Planning Partnership
Palmdale/Rosamond/Edwards AFB Commuter Rail	2012 Commuter Rail Study
Wasco/Bakersfield/SW Bakersfield Commuter Rail	2012 Commuter Rail Study
Delano/Bakersfield/Arvin Commuter Rail	2012 Commuter Rail Study
California High-Speed Train Los Angeles to SFO Bay Area	CAHSR Authority 2012 Revised Business Plan
Kern County	
South Beltway	City of Bakersfield; Kern County; Kern COG
East Beltway	City of Bakersfield; Kern County; Kern COG; City of Bakersfield; Kern County; Kern COG
Willow Springs Expressway North Beltway	Rosamond TIF; Kern COG; Caltrans; City of Shafter; Kern County; Kern COG
Intermodal Corridors	
Seventh Standard Road/North Beltway Intermodal Corridors	City of Bakersfield; City of Shafter; Kern County; Kern COG
West Beltway	City of Bakersfield, City of Shafter; Kern County; Kern COG
Route 58 (Bakersfield to Tehachapi) Seventh Standard Road/North Beltway	Caltrans; Kern COG; City of Bakersfield; City of Shafter; Kern County; Kern COG
UP/BNSF Rail Corridor (Bakersfield to Tehachapi) Route 58 (Bakersfield to Tehachapi)	Caltrans; Kern COG

## NEEDED UNFUNDED PROJECTS AND FUNDING MECHANISMS

Under current federal surface transportation legislation, regional transportation plans must demonstrate all proposed projects are capable of being fully funded within the RTP's time frame. This requirement has

constrained regions to spotlight and prioritize high performing, cost-effective projects. This approach enables the Kern region to focus on immediate transportation priorities.

Beyond the RTP horizon year of 2042, an estimated \$36.7 billion in unmet transportation needs within the Kern region for capital improvements, operation, and maintenance remain unfunded because of lack of federal, state, and local monies. Over half, \$20 billion, is unfunded high speed rail construction in the Kern region. Kern COG, in cooperation and coordination with its stakeholders, maintains a list of capital projects that are financially unconstrained (see Table 5-2). Conceivably, as the future funding picture changes, some of these projects could be advanced to constrained status in future RTP updates.

Kern County is forecasted to continue experiencing strong growth, which will add more traffic and tax the capacities of the street and highway system. In an effort to expand needed transportation facilities before traffic congestion causes the road system to fail, Kern COG has proposed that the cities and County of Kern implement a transportation impact fee (TIF) to pay for needed transportation facility improvements. Kern COG is developing a series of sub-regional traffic impact fee studies throughout the county. At this time, only Metropolitan Bakersfield, Wasco, Shafter, Delano, McFarland, Tehachapi, greater Tehachapi, and Rosamond (unincorporated) have adopted TIFs. All communities require developer funded traffic mitigation as part of their approval process.

Adopting a new transportation impact fee will require working closely with both the local development community and the Kern community at large to gain acceptance to fund needed rights-of-way and widening improvements to transportation facilities that are deemed deficient.

Issuance of bonds to finance and deliver projects more rapidly is a common practice. Under a Federal Highway Administration program, GARVEE Bonds are being considered for some of the larger corridor projects within the Kern region. The minimum needed for GARVEE Bond projects is such that only the largest corridor projects would be eligible.

### ADAPTIVE CRUISE CONTROL AND AUTONOMOUS VEHICLE TECHNOLOGY

An emerging new technology that may extend the life of the transportation system, is an adaptive cruise control system. The technology is considered the first step toward driverless cars, and automatically adjusts the vehicle's speed to keep a safe distance from the vehicle ahead. If 40% of the vehicles on the road have the technology, throughput could double, delaying the need to add lanes to existing facilities, as well as reducing emissions at traffic signals by more than 1/3<sup>rd</sup>. In an October 2013 FHWA report (<http://www.fhwa.dot.gov/publications/research/safety/13045/13045.pdf>) the technology still has numerous human factor issues that need to be resolved before the technology can be implemented successfully. The first cars on the market with driverless technology may be out in 2018. As the price goes down and the technology demonstrates acceptance, regions will need to update the highway capacities in the regional travel models. It is important to note that the Kern travel model uses a congestion feedback loop that accounts for latent demand caused when throughput capacity is increased. Corridors that are congested today may not see complete elimination of congestion if capacity were to double. For example, peak period weekend and holiday travel to southern California will likely continue to see congestion even if capacity were doubled. High volume alternative modes such as passenger rail, transit and air service are anticipated to still be needed to handle travel demands during peak periods.

### HIGH-SPEED RAIL

The California High-Speed Rail Authority (CHSRA) is statutorily required to adopt a Business Plan every two years. The most recent, as of the writing of this document, is the 2016 Business Plan. With the passage of Senate Bill (SB) 862, the Legislature and Governor approved an annual appropriation of 25% of the

## CHAPTER 7 FUTURE LINKS

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annual Cap and Trade proceeds on a continuous basis to fund high-speed rail. The 2016 Business Plan focuses on achieving the following:

- Lays out an approach to sequencing the Phase 1 system that will ultimately connect the San Francisco Bay Area to Los Angeles Basin via the Central Valley;
- Describes the plan to deliver high-speed rail service connecting the Silicon Valley to the Central Valley, and offer high-speed rail passenger service between these two important economic regions within the next ten years;
- Provides a clear path for making concurrent investments in concert with regional partners and delivering early, tangible mobility and safety benefits in southern California, while building a solid foundation for the critically important passenger rail corridor that links Burbank, Los Angeles and Anaheim;
- Commits to completing environmental clearance, and selecting alignments and station locations for the remaining sections in order to position the entire system to be ready for immediate construction as funds become available; and
- Provides updated capital cost estimates, showing that the projected cost of the entire system has been revised downward by \$5.5 billion. This lower cost estimate comes about mainly through value engineering efforts, better operational and technical approaches to design, and the favorable bidding environment.

The overall Phase 1 cost estimate for the same scope of work reflect an 8% reduction in costs, down to \$62.1 billion in year of expenditure dollars compared to the \$67.6 billion estimate presented in the 2014 Business Plan.

With the goal of getting a high-speed passenger rail line into operations as quickly as possible, the CHSRA evaluated how best to sequence the program. Analysis shows that the line that can be funded and built within projected sources, and initiate revenue producing operations quickly, connects the Silicon Valley (San Jose) to the Central Valley north of Bakersfield.

The CHSRA is also adopted a goal of completing a connection between the City of Merced and San Jose as part of the initial Silicon Valley to Central Valley line. Connecting the cities of the northern San Joaquin Valley will create economic opportunities for residents of the Valley, alleviate the jobs-housing imbalance in the Bay Area that has created 2 to 3 hour commute trips, and at the same time relieve air quality concerns from vehicle miles traveled (VMT) by cars and light duty trucks.

Table 7-2 shows the ridership forecast for the high-speed rail on Phase 1 of the Silicon Valley to Central Valley Line from 2029 to 2050.

Table 7-2 High-Speed Rail Ridership Forecast						
RIDERSHIP: SAN JOSE - NORTH OF BAKERSFIELD (SILICON VALLEY TO CENTRAL VALLEY LINE) PHASE 1 (in millions of riders)						
	2029 Phase 1	2030 Phase 1	2035 Phase 1	2040 Phase 1	2045 Phase 1	2050 Phase 1
High Ridership	26.0	32.2	53.2	56.8	59.7	62.7
Medium Ridership	19.3	24.1	40.1	42.8	45.0	47.3
Low Ridership	14.9	18.6	31.1	33.2	34.9	36.7

Table 7-2 illustrates the future potential that HSR has in coalescing emerging megaregions. Megaregions are large-scale economic units of multiple large cities and their surrounding areas. The Regional Plan Association ([www.america2050.org](http://www.america2050.org)) has identified emerging megaregions in North America, with California currently depicted as having two separate megaregions: northern and southern. Kern County is assigned to southern California, the largest and fastest growing megaregion in the United States with over half of the west Coast's population. As HSR segments are completed, travel times between the megaregions will decrease, increasing the economic links allowing them to coalesce into a single market area, expanding economic opportunities. A 2-hour, 37-minute train ride between northern and southern California will allow businesses to have one office in both regions. Kern County, located at the center of the emerging southwest megaregion, stands to benefit significantly from high-speed rail because of its location at the center of the system.

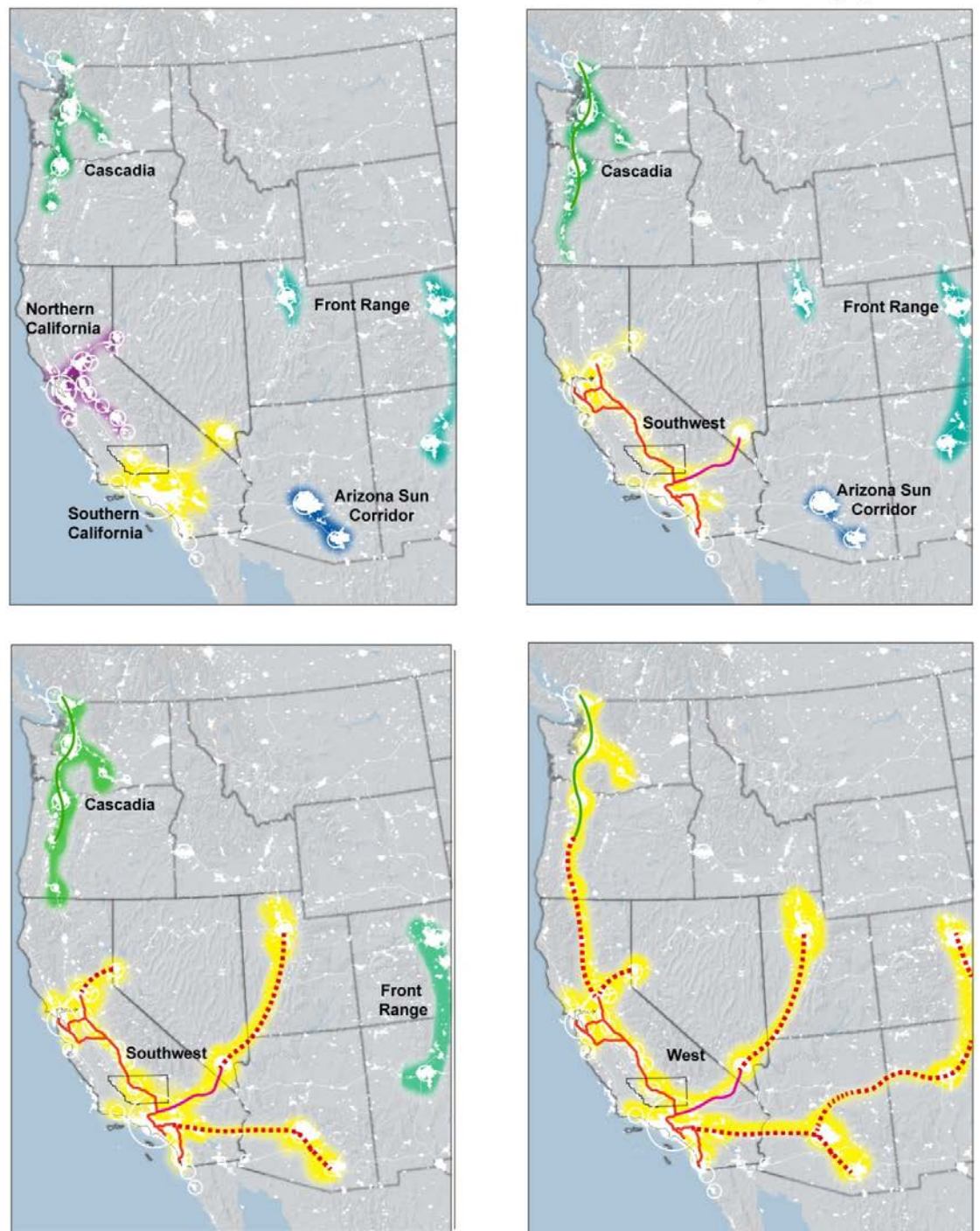
Experience in implementing HSR in other countries has found that HSR competes best at 200 to 300 mile distances. Shorter than that and automobile travel is more competitive, longer than that and airline travel is more competitive. Megaregions in the west are conveniently spaced about 300 miles apart, driving expansion of the system to connect to the largest megaregion (southern California). Other countries have also found that opening day ridership exceeded forecasts in every instance.



## CHAPTER 7 FUTURE LINKS

Figure 7-1

### US Megaregions & High Speed Rail



\*Adapted from *The Emerging Megaregions* 2008 by Regional Plan Association



## **Terminal Impact Analysis**

The City of Bakersfield, in partnership with and funding from the CHSRA, is developing a High-Speed Rail Station Area Plan (Plan) for downtown Bakersfield. The study area includes the approximate boundaries of the Kern River and 38th Street to the north, California Avenue to the south, Union Avenue to the east, and F Street to the west.

During the Station Area planning process, the City will identify and analyze opportunities and challenges in order to develop an urban design, multi-modal (pedestrian, bicycle, automobile, transit) transportation, and economic development strategy that optimizes future growth in downtown. It will also address jobs, housing, retail, entertainment, art, cultural amenities, pedestrian and bicycle access, parking, streetscape improvements, lighting, wayfinding, open space and recreation, and sustainability.

When complete, the Plan will serve as a vision document that will guide the future development of the HSR station area and greater downtown Bakersfield. The vision plan will be used to pursue and leverage public and private sector funding for implementation actions, as well as create a baseline document for future planning efforts.

The public comment period for the Draft Vision Plan and Draft Environmental Impact Report ended on February 19, 2018.

The downtown Bakersfield High-Speed Rail Station Area Plan, will act as a vision document that will:

1. Increase population and economic density in the urban core;
2. Support residential and commercial activity;
3. Develop under-utilized or vacant properties;
4. Connect existing activity and cultural centers;
5. Create an efficient, reliable and effective multi-modal transportation system;
6. Enhance sustainability, livability and a unique sense of place; and
7. Secure funding for identified implementation actions.

Golden Empire Transit, Kern Transit and Greyhound have existing facilities near the Plan area. The Amtrak station is also less than 2 miles away, facilitating passenger transfer connections.

## **Potential Commuter Rail Feeder System**

The State of California has invested \$393 million in track and signal improvements to the San Joaquin Valley BNSF line, in exchange for permission to run six passenger trains per day. These existing slots could be used for a commuter rail service to connect the proposed High-Speed Rail Heavy Maintenance Facility with the Bakersfield High-Speed Rail Station. If 10% of the Heavy Maintenance Facility employees use the commuter service, that would provide 150 regular riders per shift. The Wasco/Metro Bakersfield commuter rail corridor will have one million residents by 2035 and would provide a feeder rail service that could increase ridership and profitability of the high-speed rail system. Future expansion of the system to east

## CHAPTER 7 FUTURE LINKS

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Bakersfield, Lamont, and Arvin, as well as to Meadows Field Airport, McFarland, and Delano, was suggested in the 1997 Major Transportation Investment Study and the 2012 Kern Commuter Rail Study.

### Heavy Maintenance Facility

The California High-Speed Rail Authority (Authority) issued a Request for Expression of Interest (RFEI) identifying potential sites for planned Heavy Maintenance Facilities (HMF) in January 2010. The Authority specified in the RFEI that a HMF site be located in the Central Valley along the proposed route between Merced and Bakersfield. The site would require approximately 154 acres, building footprints would encompass 631,000 to 840,000 sq. ft., and up to 1,500 employees would be needed during peak shifts.

Kern COG on behalf of the County of Kern, cities of Wasco and Shafter submitted proposals for a HMF site in Wasco south of Hwy 46 and east of the existing BNSF tracks, and two sites in Shafter north of Seventh Standard Road on both the east and west sides of the BNSF tracks. The proposed sites in Kern were recommended for continued study in the Authority's Fresno-Bakersfield Section Supplemental Alternative Analysis (May 2011), and carried forward in the Revised Fresno to Bakersfield Section EIR-EIS (November 2013). There were over ten proposals originally accepted by the Authority. Three of the five proposed sites being carried forward are located in Kern County. One of these sites is proposed to be provided to the project at no cost.

The location of the HMF could become the center for a new industry cluster related to passenger rail manufacturing that could see rail related industries relocate to that facility providing benefits well beyond the 1,500 jobs needed to operate the HMF and the HSR system.

### AIR QUALITY CONTINGENCIES

Air quality uncertainties could play a critical role in future funding linkages. In areas such as the San Joaquin Valley that may fail to attain federal clean air standards by the mandated deadlines, the federal Clean Air Act Amendments of 1990 (CAAA) can require withholding funding for capacity-increasing transportation projects, including projects funded from non-federal sources. In the San Joaquin Valley, up to \$2 billion in transportation funds could be at stake. A variety of mechanisms in the CAAA can require withholding transportation funds, including highway sanctions, conformity lapses, and conformity freezes.<sup>1</sup> Should one of these occur, Kern COG may be required to amend its TIP and RTP to fund additional projects that are proven to reduce emissions and/or improve safety. With federal highway sanctions, the US Environmental Protection Agency would prepare a Federal Implementation Plan (FIP) that would reprogram TIP funding to projects that improve air quality and allow the region to demonstrate attainment of federal clean air standards.

Transit improvements, intermodal freight facilities, transportation-related air quality control measures, and safety projects can be exempt from federal highway sanctions, lapses, and freezes. It is prudent to consider studying these types of projects as funding becomes available, to provide local policymakers with a complete range of options should funding interruptions become imminent. Many of these project types are already funded through a mix of resources. Every effort is made to attain federal standards by identifying and implementing cost-effective methods that reduce transportation-related emissions from single-occupant vehicles.

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<sup>1</sup> Highway sanctions, conformity lapses, and conformity freezes are mechanisms in the federal Clean Air Act Amendments of 1990 that are triggered when a region fails to demonstrate attainment of federal clean air standards by required deadlines.

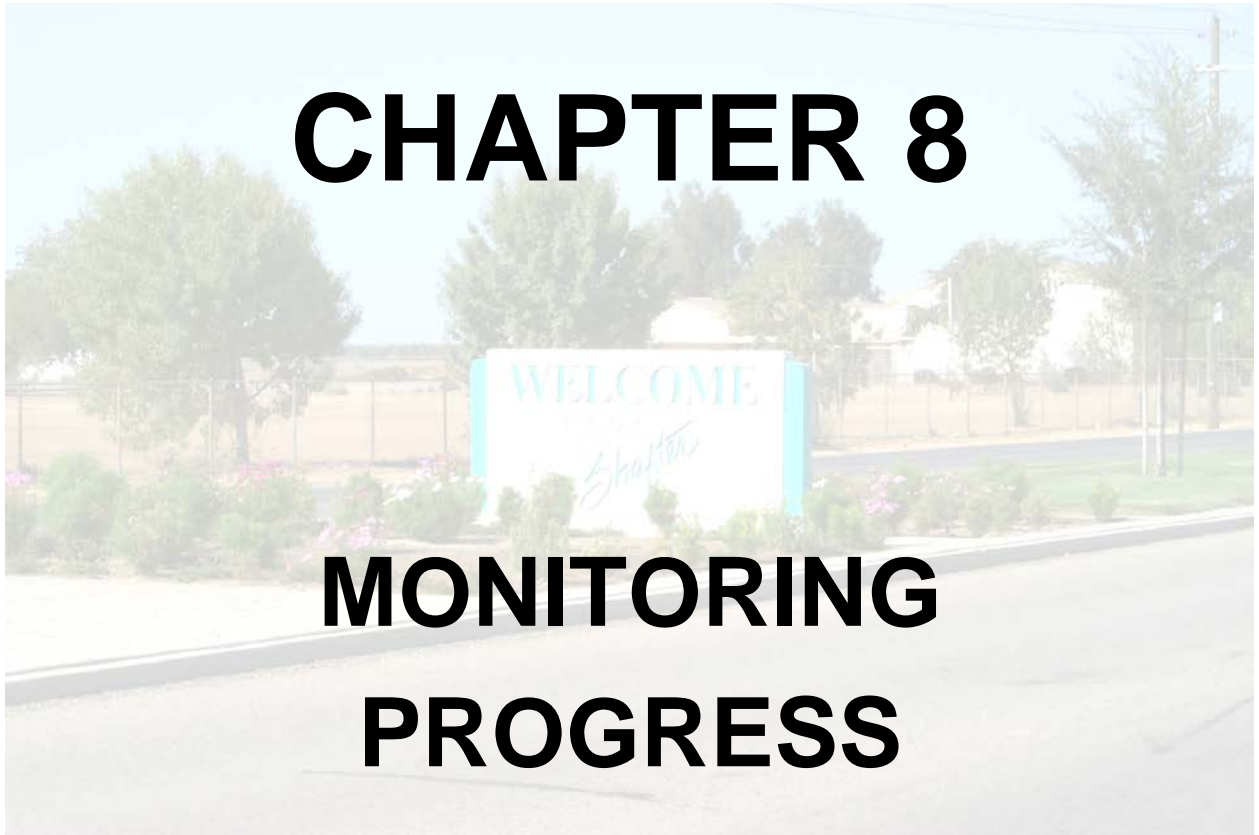
## Valleywide Chapter

Included as Appendix F, the San Joaquin Valley Regional Overview provides an interregional perspective for transportation planning throughout the San Joaquin Valley. It presents an overview of cross-jurisdictional issues facing the eight related counties and regional transportation planning agencies within Central California.



# **CHAPTER 8**

## **MONITORING PROGRESS**







### CHAPTER 8 MONITORING PROGRESS

As the designated Metropolitan Planning Organization (MPO) for the Kern region, Kern Council of Governments (Kern COG) monitors transportation plans, projects, and programs for consistency with regional plans. Kern COG also monitors the performance of the transportation system. This performance monitoring is especially important to inform the planning process for future Regional Transportation Plans (RTPs). Regional transportation problems cannot be solved until they are identified and measured.

Kern COG is required to prepare the RTP using performance-based measures that allow public officials to better analyze transportation options and trade-offs. By examining performance of the existing system over time, the MPO can monitor trends and identify regional transportation needs that may be considered in the RTP. Performance measurement helps to clarify the link between transportation decisions and eventual outcomes, thereby improving discussion of planning options and communication with the public. This may also help determine which improvements provide the best means for maximizing the system's performance within cost and other constraints.

Kern COG has developed performance measures (see Chapter 2, Transportation Planning Policies (Policy Element)) for the regional transportation system. In addition, new tools are being developed that will help Kern COG to monitor system performance over time. The Freeway Performance Measurement System (PeMS), developed by UC Berkeley in cooperation with the California Department of Transportation (Caltrans), has the ability to measure and track freeway speeds, delay, and reliability for the regional freeway system.

Transportation planning for the Kern region requires continually improved information on the condition and use of the transportation system. Special reports are prepared periodically by Kern COG to demonstrate highway infrastructure conditions and to monitor the Kern region's overall traffic movement. The Highway Performance Monitoring System (HPMS) is a federally mandated program designed by the Federal Highway Administration (FHWA) to assess the performance of the nation's highway system. Also, under the Clean Air Act Amendments of 1990, Kern COG and its member agencies are required to report periodically on vehicle miles traveled in each air basin to determine whether traffic growth is consistent with the projections on which the State Implementation Plans (SIPs) are based.

The following sections outline several significant tools used by Kern COG to monitor regional progress in advancing the 2018 RTP goals.

#### FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM (FTIP)

As the designated MPO, Kern COG is charged with developing and maintaining the FTIP. The FTIP is a financially constrained (i.e., budgeted) multimodal transportation planning program, developed by the MPO through its member agencies and in cooperation with state and federal agencies. The basic premise of a FTIP is that it is the incremental implementation of the long-range RTP. The FTIP presents federal funding agencies with manageable components for funding long-range plans.

The FTIP is a compilation of project lists from the State Transportation Improvement Program (STIP), State Highway Operations and Protection Program (SHOPP), and other federal-aid programs. The FTIP is composed of two parts: (1) a priority list of projects and project segments to be carried out in a three-year period; and (2) a financial plan that demonstrates how the FTIP can be implemented. The financial plan is also required to indicate all public and private resources and financing techniques that are expected to carry out the program.

## CHAPTER 8 MONITORING PROGRESS

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### REGIONAL TRANSPORTATION IMPROVEMENT PROGRAM (RTIP)

Every odd-numbered year, Kern COG prepares a Regional Transportation Improvement Program (RTIP), the short-term implementation tool for transportation goals described in this 2018 RTP.

The RTIP provides a listing of projects proposed for implementation within the Kern region during its four-year period. Transportation projects are described in detail, with funding allocated by source and fiscal year. RTIP projects are categorized according to the transportation system to which they apply, i.e., state highways, local highways/expressways, or local streets and roads. Although eligible, transit projects are not included in the RTIP, they are funded by other federal aid programs and included in the FTIP.

During each RTIP development cycle, Kern COG provides member agencies with adopted RTIP Policies and Procedures in order that Caltrans, as well as local agencies, can initiate project delivery. The policies and procedures manual defines the prioritized project candidates, which are then incorporated as the RTP's Capital Improvement Program (CIP) (see Chapter 5, Strategic Investments, Tables 5-1 and 5-2). Only after projects are included in the CIP can they then be funded and advanced as part of the RTIP.

### TRANSPORTATION IMPROVEMENT PROGRAM (TIP) DATABASE MANAGEMENT

Kern COG maintains its own database in order to track project status. TIP data for the Kern region is entered directly into the California Transportation Improvement Program System (CTIPS), which allows an efficient and accurate record of current programming needs. The monitoring process compares project needs with current programming as it advances. When the need arises to modify a project, or when delays are anticipated, Kern COG can recommend amendments to CTIPS.

The 2012 update to the Kern COG policy for the project selection process incorporates additional growth management and SB 375 SCS framework concepts into the project selection process.

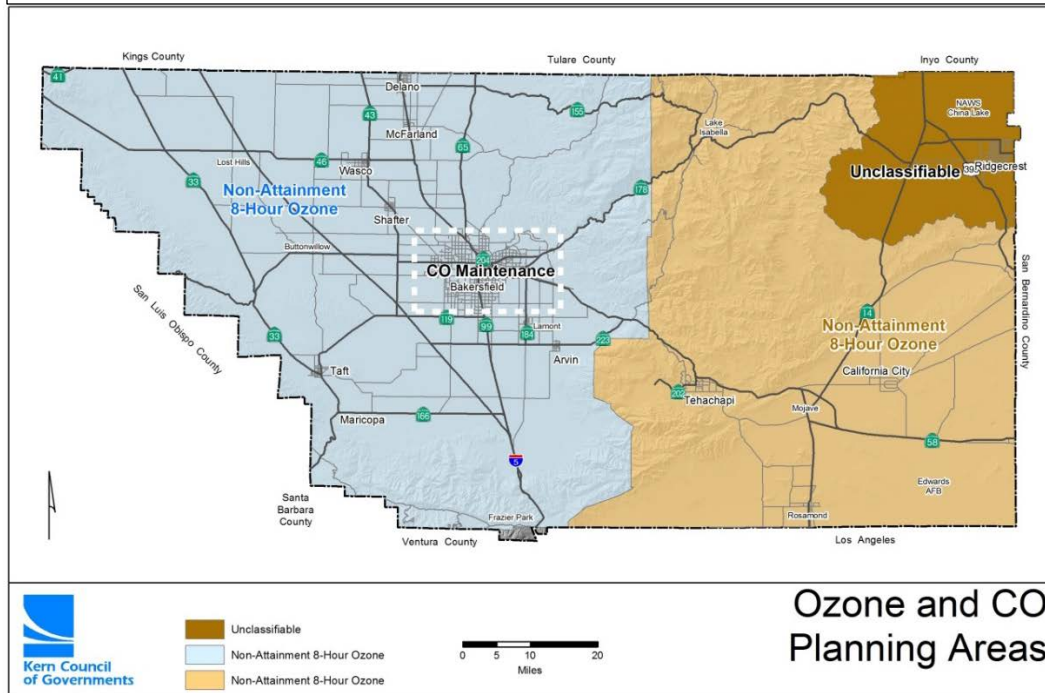
*For more information refer to Chapter 4 Sustainable Communities Strategy.*

### AIR QUALITY CONFORMITY MONITORING

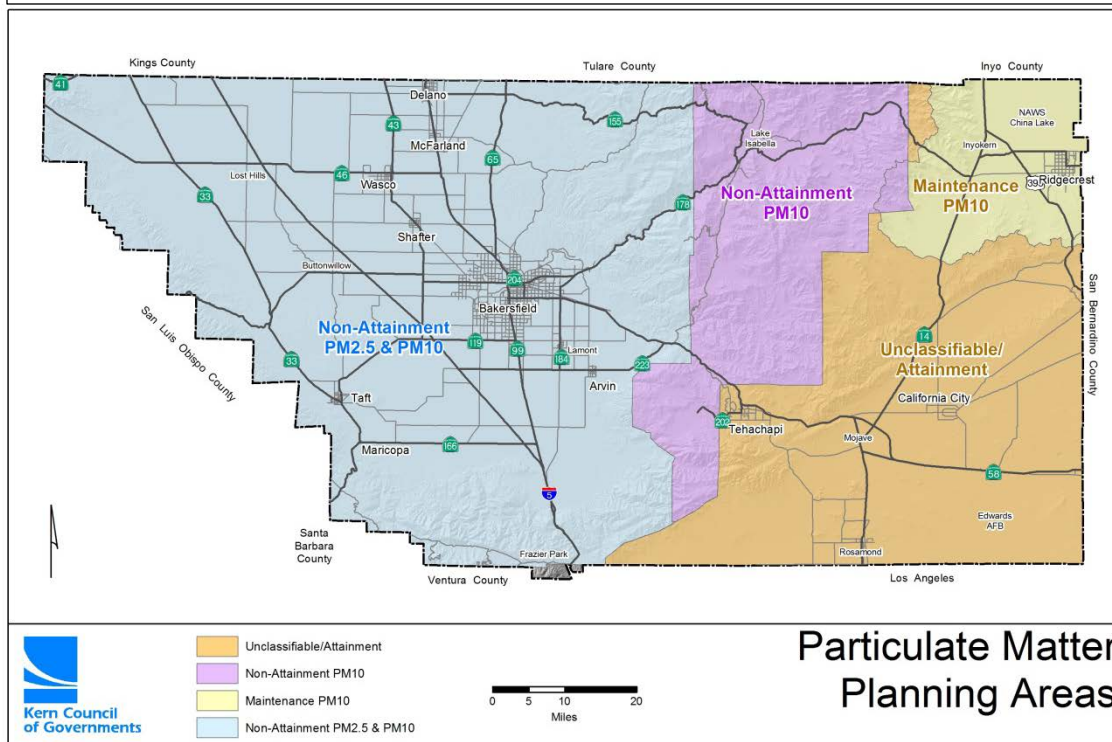
Before federal approval of the RTP and FTIP, the federal Clean Air Act Amendments of 1990 require Kern COG to make a finding of the documents' conformity with the State Implementation Plan's air quality goals as established by the responsible air district. The Conformity Analysis for the 2018 RTP and FTIP are hereby included by reference; the relevant resolution adopting the 2018 RTP will be included in the final document. This analysis demonstrates that the criteria specified in the federal transportation conformity determination rules are satisfied by the FTIP and RTP.

Air quality conformity analysis for each pollutant was conducted for those years required by federal regulations. All analyses were conducted using the latest planning assumptions and emissions models as documented in the Conformity Analysis. The Conformity Analysis covers the planning areas illustrated on Figures 8-1 and 8-2. The local air districts monitor air quality levels in these planning areas with an extensive monitoring network. Recently, the San Joaquin Valley Air District has performed a saturation monitoring study around the Arvin monitoring site, employing 20 temporary air monitors for one season. The study was so successful that the air district is considering similar studies around all of its permanent air monitoring locations. The two air districts in Kern County are shown on Figure 8-3.

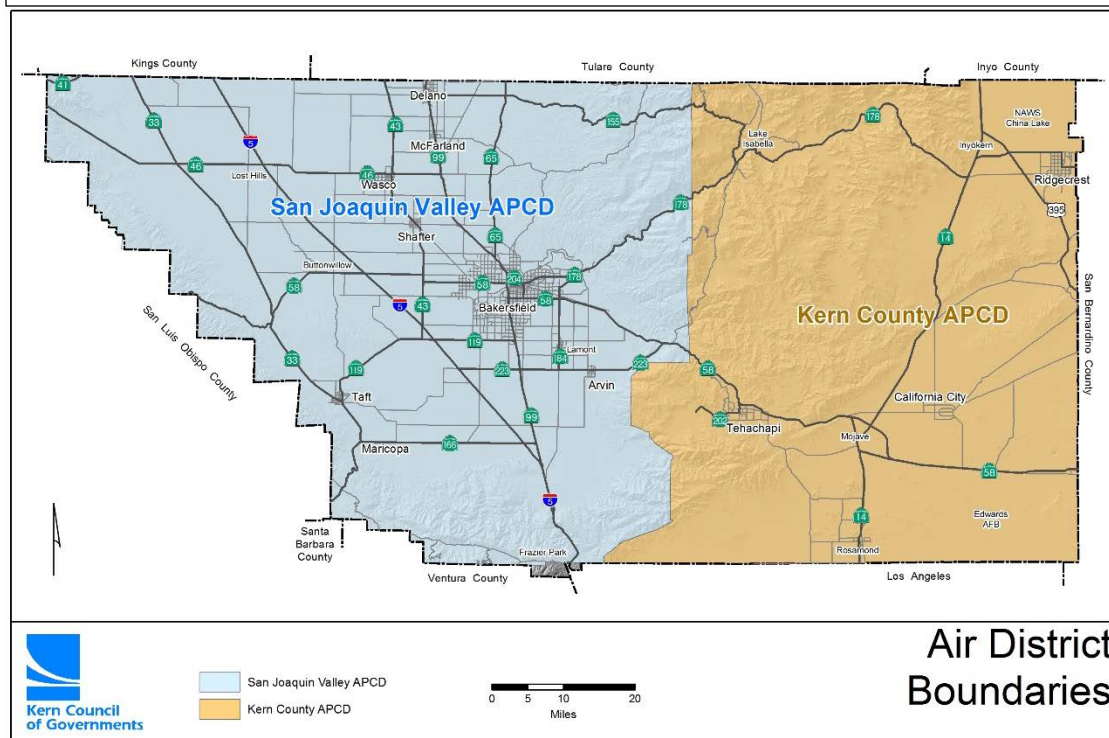
**Figure 8-1: Ozone and CO Planning Areas**



**Figure 8-2: Particulate Matter Planning Areas**



**Figure 8-3: Air Pollution Control Districts that Monitor Air Quality**



# CALIFORNIA CLEAN AIR ACT TRANSPORTATION PERFORMANCE STANDARDS

The California Clean Air Act provides the basis for air quality planning and regulation independent of federal regulations. The act specifically requires that local air districts in violation of the California Ambient Air Quality Standards prepare attainment plans. The plans must identify air quality problems, causes, trends and actions to be taken to attain and maintain California's air quality standards by the earliest practicable date. Implementation of Transportation Control Measures (TCMs) in the 2018 RTP help to further progress toward attainment of these standards and require that they continue and expand even after all federal standards are met.

*See Chapter 5, Strategic Investments, Transportation Control Measures Action Element for further information on TCMs.*

# HIGHWAY PERFORMANCE MONITORING SYSTEM (HPMS) AND REGIONAL TRAFFIC COUNT PROGRAM

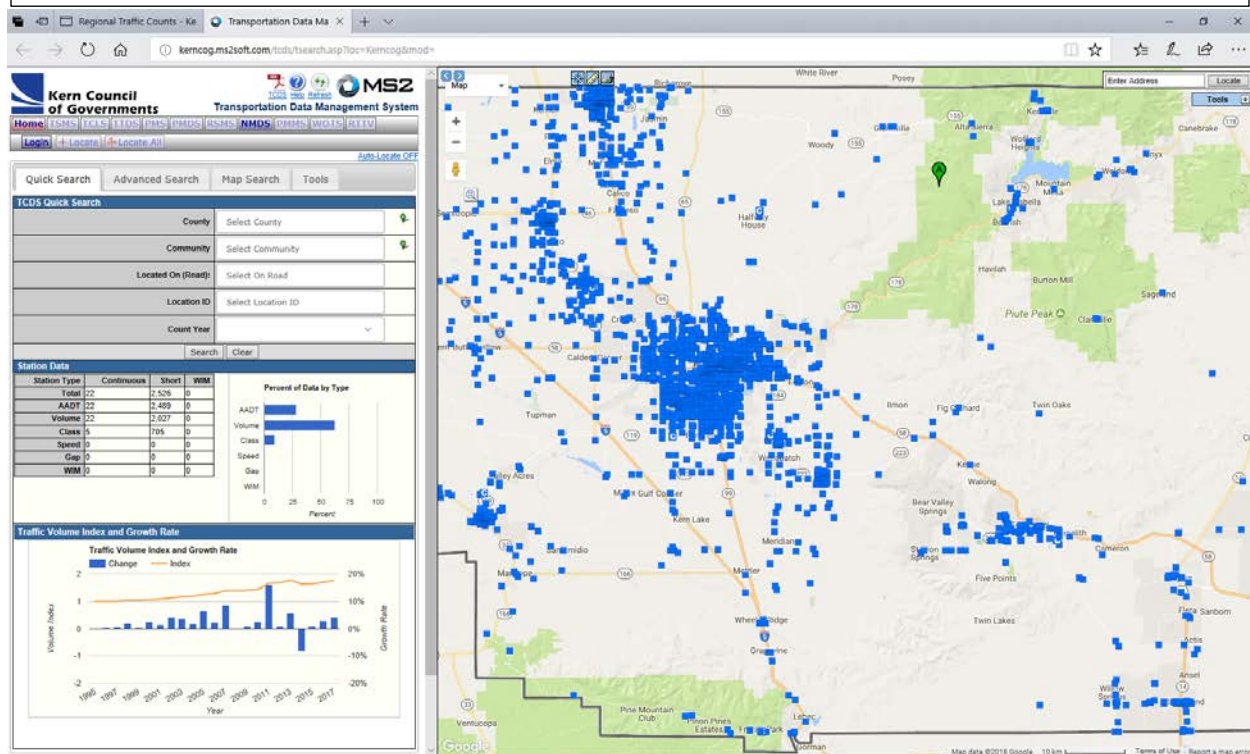
The HPMS is used as a transportation monitoring and management tool to determine the allocation of federal aid funds, to assist in setting policies, and to forecast future transportation needs as it analyzes the transportation system's length, condition, and performance. Additionally, the HPMS provides data to the US Environmental Protection Agency (EPA) to assist in monitoring air quality conformity and to support the *Biennial Report to Congress on the Status of the Nation's Highways*.

In California, the HPMS program is implemented annually by Caltrans. Kern COG's responsibility is to assist Caltrans in collecting data from local jurisdictions. Kern COG's responsibility also includes distribution, collection and administration of all HPMS survey packages in the Kern region.



To facilitate the HPMS program locally, Kern COG has developed an extensive regional traffic monitoring program accessible via an online map interface providing access to over 1000 count locations (Figure 8-4). The program provides regular traffic counts and Bicycle/Pedestrian counts across all jurisdictions in the region. The collected data assists in setting policies, forecasting future transportation needs, and monitoring air quality conformity. In addition to traffic counts, Kern COG is partner in the National and State Household Travel Surveys, with responses from over 2000 households in the region, and has performed truck origin and destination surveys garnering input from over 20,000 truckers.

**Figure 8-4: Regional Traffic Count Program Locations**



## REGIONAL TRAVEL DEMAND MODEL

Kern COG maintains a regional travel demand forecast model for the Kern region consistent with the California Transportation Commission 2017 RTP Guidelines for type D regions with a population over 200,000 that are nonattainment for ozone. The model is used to forecast the demand for future transportation infrastructure by predicting future travel patterns based on such factors as locally approved General Plan land use entitlements, input from local planning departments on socioeconomic growth areas, and state and federal data sources. Some of the forecast input variables include observed and forecasted population, households, employment, school enrollment, income, traffic counts, speeds, intersection configuration, household travel characteristics, existing and planned transportation networks, etc. The model's accuracy is measured by how well it replicates the observed data. These variables are maintained for approximately 2,000 transportation analysis zones covering the 8,200-square-mile Kern region. The model underwent a major update called the Valley Model Improvement Program 2 (VMIP2), standardizing the eight COG models in the San Joaquin Valley. Considered a modified 4-step mode choice model, the model includes a congestion feedback loop along with new improvements that make the model more sensitive to trips by housing type and vehicle availability. The 2017 model was calibrated and validated to observed data by DKS Associates under the supervision of a registered civil engineer. Full model documentation is available online at <http://www.kerncog.org/category/data-center/transportation-modeling/>.

## CHAPTER 8 MONITORING PROGRESS

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One of the primary purposes of the model is to demonstrate conformity with the federal Clean Air Act amendments of 1990 requiring substantial reductions from all pollution sources, including transportation-related mobile source emissions. Travel Demand Forecast Modeling is also used in the RTP/TIP processes, Congestion Management Program (CMP), Sustainable Communities Strategy and numerous environmental documents for locally identified projects. The CMP process provides important monitoring of any change in congested roadways in the region and the VMT tracking program also uses the model to provide communities feedback on progress toward implementing SB 375 goals. Kern COG's Regional Transportation Model provides a savings to its member agencies by avoiding duplicate, overlapping, and potentially conflicting transportation forecasts. Furthermore, the model is updated every 4 years, providing new results based on the latest observed information.

Kern COG has an open process for review and use of the travel model. This was exhibited during the development of the 2014 RTP where Kern COG provided copies of the model to stakeholder groups. Oversight for the model is provided by the Kern Regional Transportation Modeling Committee, a sub-committee of the Regional Planning Advisory Committee made up of local government representatives and stakeholders which operates under a Memorandum of Understanding (MOU) signed by the City of Bakersfield, Caltrans District 6, the County of Kern, and Kern COG. Kern COG has adopted the following policies and procedures for maintaining the model consistent with the MOU:

- 1) Model Base Year Validation – Network-based travel models must be validated against observed counts for a base year from which future projections will be made:
  - i. Observed counts used in base year validation shall not be more than 10 years prior to the date of a conformity determination.
  - ii. Base year validation shall take place after the release of the decennial Federal Bureau of Transportation Statistics, Census Transportation Planning Package (CTPP), which is approximately four years after the date of the most recent decennial Census.
  - iii. Revalidations prior to release of the next CTPP should be spaced a minimum of three years apart to allow conformity review agencies time to complete state and federal review processes and develop air quality budgets using the modeling results. A minimum of three years between revalidations is also needed to allow responsible state and federal agencies to complete their review of large environmental documents without major changes to transportation circulation modeling results.
- 2) Land Use Data – General Plan land use capacity data or “build-out capacity” is used to distribute the forecast county totals, and may be updated as new information becomes available, and is revised in regular consultation with local planning departments.
- 3) Socioeconomic Forecast Data – Countywide forecasts for households, employment, and other socioeconomic data shall be updated not less than three years from the time of the socioeconomic forecast. A minimum of three years between countywide forecast revisions is needed to allow responsible state and federal agencies time to complete their review of large environmental documents without major changes to transportation circulation modeling results. Redistribution of forecasts for sub-county areas may be made on an as-needed basis to better reflect existing General Plan land entitlements as long as countywide forecast totals remain unchanged.
- 4) HPMS data collection and reporting shall be performed annually in the spring and submitted to the California Department of Transportation prior to June 15.



- 5) Network Updates – Added as needed to the model existing, planned, and proposed future transportation facilities.
- 6) Transportation Analysis Zone Updates – Added as needed in response to additional networks to allow appropriate loading of trips on the network.
- 7) Local Scenario Modeling – Due to the scale and complexity of a countywide model, not all network links can be validated and calibrated adequately. For links that are not calibrated, an adjustment factor may be applied to future years based on how far off the model assigns trips in comparison to the actual count. In addition, alternative models may be developed for community and site specific analysis on behalf of a member agency. Local scenario models may not be used for determining air quality conformity of a project, or FTIP/RTIP and RTP project rankings.

### CONGESTION MANAGEMENT PROGRAM (CMP)

State Proposition 111, passed by voters in 1990, requires urbanized areas to prepare and regularly update a CMP. Fixing America's Surface Transportation Act (FAST) updated the requirements for Transportation Management Areas. The plan shall

- Develop regional goals to reduce vehicle miles traveled during peak commuting hours and improve transportation connections between areas with high job concentration and areas with high concentrations of low-income households;
- Identify existing public transportation services, employer-based commuter programs, and other existing transportation services that support access to jobs in the region; and
- Identify proposed projects and programs to reduce congestion and increase job access opportunities.

As the designated Congestion Management Agency, Kern COG must establish a system of roadways that will be monitored in relation to established level of service standards. The goal of the CMP is to identify a regional network and work toward maintenance of level of service E or better on the highways and roads that are identified in this network.

The CMP requirement was born of the realization that large capital projects alone cannot solve congestion problems and that local land use decisions contribute to roadway congestion. Kern COG, as the designated Congestion Management Agency (CMA) for the Kern region, adopts and updates the CMP. In 2011 Kern COG added new policies in the CMP process for considering multimodal LOS and Complete Streets techniques to address existing congested areas. The CMP provides an important mechanism to monitor and ensure that growth induced congestion is addressed in a way that advances the goals of the RTP. The program is provided as a separate action element of Chapter 5, Strategic Investments.

### COMMUNITY PROGRESS TRACKING AND ASSISTANCE PROGRAM

In 2014, Kern COG formalized a program designed to help local jurisdictions track their progress toward reducing vehicle miles traveled (VMT), and provide planning assistance and resources to make progress toward that goal. The program provides local communities with regular feedback on how they are doing in reducing VMT per capita to help meet our region's air quality and SB-375 goals. The program has already provided over \$400,000 in planning funds to local jurisdictions so they can develop projects that qualify better under the new performance-based Project Delivery Policy and Procedures. Other resources being provided to local planners include the San Joaquin Valley Planners Toolkit available online at <http://www.valleyblueprint.org/planners-toolkit.html>.

## CHAPTER 8 MONITORING PROGRESS

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### INTERGOVERNMENTAL REVIEW

Under federal law, Kern COG is designated as the Area-wide Clearinghouse for review of all submitted plans, projects, and programs for consistency with adopted regional plans and policies. Regionally significant transportation projects reviewed for consistency with regional plans are defined as construction or expansion of freeways; state highways; principal arterials; and routes that provide primary access to major activity centers, such as amusement parks, regional shopping centers, military bases, and airports, as well as the potential high-speed rail. Any project involving transportation improvements is reviewed to determine whether such improvements are included in the regional planning process.

### CONCLUSION

Monitoring progress is critical to achieving the RTP goals. As discussed above, Kern COG continues to expand its monitoring efforts through its air quality conformity monitoring, HPMS and regional traffic count program, regional travel demand model, CMP, and community progress tracking and assistance program. In addition, to these monitoring efforts, Kern COG annually performs a statistically valid quality of life phone survey of 1,200 adults to assess community priorities (as discussed in the outreach Appendix). Kern COG also performs periodic bike surveys as part of local bike plan updates. Future monitoring efforts may include pedestrian surveys and possibly railroad traffic use studies. The data and feedback obtained through these efforts provide our policy makers the tools to adjust plans in response to changing information and trends, enhancing the likelihood of attaining the RTP goals.

# **CHAPTER 9**

## **GLOSSARY & ACRONYMS**



### CHAPTER 9 GLOSSARY

**Alternatives Analysis (AA)** – Analysis of the engineering and financial feasibility of alternatives under consideration for major transit construction projects; this step is required before federal monies can be allocated to a project.

**Accessibility** – The extent to which facilities are barrier free and usable by persons with disabilities, including wheelchair users.

**Active Transportation** – The human-powered methods of travel, such as walking, bicycling or rolling to get from one place to another.

**Air Pollution Control District (APCD)** - Also referenced as the Air Quality Management District (AQMD), the APCD is responsible for emissions regulations and attainment of federal and state air quality standards in a predefined region. The APCD deals with issues such as the Employer Trip Reduction Program.

**Air Quality Attainment Plan (AQAP)** - Plan for attainment of the state air quality standards, as required by the California Clean Air Act of 1988. It is adopted by APCDs and AQMDs and is subject to approval by the California Air Resources Board.

**Alternative Fuels** - Low-polluting fuels that are used to propel a vehicle instead of high-sulfur diesel or gasoline. Examples include methanol, ethanol, propane or compressed natural gas, liquid natural gas, low-sulfur or “clean” diesel, and electricity.

**Americans with Disabilities Act (ADA)** - Federal civil rights legislation that prohibits discrimination against all individuals with disabilities. With certain statutory exceptions, public and private entities providing fixed route or demand responsive transportation services must acquire accessible vehicles or provide equivalent service to individuals with disabilities.

**Apportionment** – Federal budgetary term that refers to a statutorily prescribed division or assignment of funds. It is based on prescribed formulas in the law and consist of dividing authorized obligation authority for a specific program among transit systems.

**Appropriation** - Legislation that allocates budgeted funds from general revenue to programs that have been previously authorized by other legislation. The amount of money appropriated may be less than the amount authorized.

**Authorization** - Federal legislation that creates the policy and structure of a program including formulas and guidelines for awarding funds. Authorizing legislation may set an upper limit on program spending or may be open ended. General revenue funds to be spent under an authorization must be appropriated by separate legislation.

**Automatic Vehicle Location System (AVLS)** – This computerized system employs satellites and other technologies to track vehicles, such as truck fleets

## **Chapter 9 Glossary & Acronyms**

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**Best Available Control Measures -** ( See Reasonably Available Control Measures (RACM))

**Bus Rapid Transit** – Bus-based public transport system designed to improve capacity and reliability relative to a conventional bus system.

**California Alliance for Advanced Transportation Systems (CAATS)** – Public/private partnership formed to foster the development and deployment of Intelligent Transportation Systems.

**California Air Resources Board (CARB)** - Designated by EPA as having responsibility for the implementation of the federal Clean Air Act, State Implementation Plan, and approving air quality attainment plans as required by the State Clean Air Act of 1988. Under State law, CARB establishes state air quality standards and vehicle emissions requirements.

**California Clean Air Act (CCAA) (AB 2595, Sher)** - Enacted in 1988, the Act: (1) established a legal mandate to achieve California's ambient air quality standards by the earliest practicable date; (2) prescribes a number of emission reduction strategies and requires annual progress in cleaning up the air; and (3) grants authority to the state's local air pollution control districts to adopt and enforce transportation control measures (TCMs).

**California Energy Commission (CEC)** - Established by the State Legislature in 1974, the CEC is the State's principal energy planning and policy making organization. The CEC is charged with ensuring a reliable and affordable energy supply for the State. CEC policies are consistent with protecting the State's environment and its public health, safety, and general welfare.

**California Environmental Quality Act (CEQA)** - Enacted in 1970, CEQA provides the State's environmental guidelines on which land use development and management decisions are premised. CEQA specifies the State's environmental review process and applicable environmental policies.

**California Highway Patrol (CHP)** - Agency responsible for enforcing the State's traffic and safety laws on State highways and by contract, county roads. The CHP also jointly operates Traffic Operation Centers with Caltrans.

**California Public Utilities Commission (CPUC)** - Regulator of utility and transportation companies in the state that are privately owned and operated. The CPUC sets rates, regulates service standards, and monitors utility operations for safety; it does not regulate municipal or district-owned utilities. The CPUC also develops policies promoting competition among utilities and acts as an intermediary between the public and private utilities.

**California State Department of Transportation (Caltrans)** - As owner/operator of the state highway system, responsible for its safe operation and maintenance. Proposed



projects for Intercity Rail, Interregional Roads, and soundwalls in the PSTIP. Caltrans is also responsible for the HSOPP, Toll Bridge, and Aeronautics programs. The TSM and State/Local Partnership Programs are administered by Caltrans. Caltrans is the implementing agency for most state highway projects regardless of program, and for the Intercity Rail program.

**California Transportation Commission (CTC)** - Nine-member board appointed by the Governor and confirmed by the Legislature that reviews Regional Transportation Improvement Programs (RTIPs) and the PSTIP, and forwards some transportation projects from these programs into the State Transportation Improvement Program (STIP); this qualifies the projects for state funding. The CTC also has financial oversight of the major programs authorized by Propositions 111 and 108.

**California Transportation Plan (CTP)** - Long-range framework for the planning, development, operation, and maintenance of California's statewide transportation system that proposes an intermodal system which is integrated, both in form and function, and which offers mobility while supporting economic and environmental goals. The plan is multimodal, addressing all transportation modes. It outlines a series of goals, policies, strategies and recommendations drawn from State and federal transportation law.

**Capital Improvement Program (CIP)** - An element of the Congestion Management Program (CMP), the CIP is a seven year program of projects to maintain or improve traffic level of service and transit performance standards developed by the CMP, as well as the regional transportation impacts identified by the CMP Land Use Analysis Program, which conforms to transportation-related vehicle emissions air quality mitigation measures.

**Changeable Message Signs (CMS)** – Electronic signs that can change the message displayed. Often used on highways to warn and redirect traffic. Also referred to as variable or electronic message signs.

**Commuter Rail** - Form of passenger transportation characterized by medium distance home-to-work passenger travel, multiple ride ticketing, recurring peak-hour travel and use of high-density seating. Commuter rail uses diesel electric or overhead electrically powered locomotives. Examples are the Caltrains operated by Caltrans from San Jose to San Francisco, and GO Transit in Toronto.

**Conformity** – Ongoing process that ensures the planning for highway and transit systems, as a whole and over the long term, is consistent with the state air quality plans for attaining and maintaining health-based air quality standards; conformity is determined by metropolitan planning organizations (**MPOs**) and the **U.S. DOT**, and is based on whether transportation plans and programs meet the provisions of a State Implementation Plan (SIP). The conformity determination must be based on recent estimates of emissions, and such estimates must be based on the most recent population, employment, travel and congestion estimates as determined by the MPO.

## **Chapter 9 Glossary & Acronyms**

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**Congestion Management Agency (CMA)** – Kern COG serves as the countywide organization responsible for preparing and implementing the CMP. CMAs came into existence as a result of State legislation and voters' approval of Proposition 111 in 1990.

**Congestion Management Program (CMP)** - Multi-jurisdictional program with the goals of reducing traffic congestion, researching land use decision impacts, and improving air quality. State law requires the RTPA of every county with an urbanized area of at least 50,000 people to prepare and maintain this program.

**Congestion Mitigation/Air Quality Improvement Program (CMAQ)** - Funding program established by ISTEA specifically for projects and programs that will contribute to the attainment of a national ambient air quality standard. Funds are available to non-attainment areas for ozone and carbon monoxide based on population and pollution severity. The approved State Implementation Program (SIP) defines eligible projects.

**Consolidated Transportation Services Agency (CTSA)** - AB 120, the Social Services Transportation Improvement Act, allows county or regional transportation planning agencies to designate one or more organizations within their areas as Consolidated Transportation Service Agencies (CTSAs). The goal was to promote the coordination of social service transportation for the benefit of human service clients, including the elderly, disabled individuals, and persons of low income.

**Corridor** - Any major transportation route including various modes such as parallel limited access highways, major arterials, or transit lines that, while not necessarily adjacent to each other, connect significant activity centers. With regard to traffic incident management, a corridor may include more distant transportation routes that can serve as viable alternatives in the event of traffic incidents.

**Council of Governments (COG)** – Regional planning agency that serves a specific geographic area (e.g., Kern County) and addresses issues such as transportation, air quality, and land use. Council membership is drawn from the county, city and other government bodies within its area.

**Deadhead** – The movement of a transit vehicle without passengers aboard; often to and from a garage or to and from one route to another.

**Demand-Responsive Transit** – Non-fixed-route service using vans or buses with passengers boarding and disembarking at pre-arranged times at any location within the system's service area. Also called Dial-A-Ride (DAR).

**Department of Transportation (DOT)** - Federal department that includes the Federal Highway Administration (FHWA), Federal Transit Administration (FTA), and the Federal Aviation Administration (FAA). DOT is headed by the Secretary of Transportation, a cabinet-level post. Most states also have DOTs; California's is referred to as Caltrans.

**Dial-A-Ride (DAR)** – See Demand-Responsive Transit.

**Environmental Justice** – Identifying and addressing disproportionately high and adverse effects of the agency’s programs, policies, and activities on minority and low-income populations to achieve an equitable distribution of benefits and burdens. This includes the full and fair participation by all potentially affected communities in the transportation decision-making process.

**Environmental Protection Agency (EPA)** - Federal agency, the mission of which is to “protect human health and the natural environment.” It is the source agency for air quality control regulations affecting transportation.

**Environmental Impact Report / Environmental Impact Statement (EIR/EIS)** – Analysis of the environmental impacts of proposed land development and transportation projects. An EIR is conducted in response to the California Environmental Quality Act (CEQA) and an EIS is conducted for federally funded or approved projects per the National Environmental Policy Act (NEPA). A draft EIR or EIS (often they are prepared simultaneously) is circulated to the public and agencies with approval authority for comment. A final document is certified after public comment has been solicited and mitigations have been developed for adverse impacts.

**Farebox Recovery Ratio** – Measure of the proportion of operating expenses covered by passenger fares; found by dividing farebox revenue by total operating expenses for each mode, and/or systemwide.

**Farebox Revenue** – Value of cash, tickets, tokens and pass receipts given by passengers as payment for rides; excludes charter revenue.

**Fare Structure** – System set up to determine how much is to be paid by various passengers using a transit vehicle at any given time.

**Federal Clean Air Act Amendments of 1990 (FCAAA)** - Legislation that renews the Federal Clean Air Act and makes significant program changes. For the transportation sector, significant changes included a definition of conformity and requirement for the formulation by EPA and DOT of regulations regarding conformity, and requirements for the use and development of alternative fuels and vehicles.

**Federal Highway Administration (FHWA)** - Agency responsible for the approval of transportation projects that affect the federal highway system. Administratively, it is under DOT and is the sister agency of FTA.

**Federal Transit Administration (FTA)** - Federal Department of Mass Transportation (formerly UMTA), which is under DOT, and is the sister agency of FHWA.

**Fixed Route** – Transit service provided on a repetitive, fixed-schedule basis along a specific route with vehicles stopping to pick up and deliver passengers to specific locations; each fixed-route trip serves the same origins and destinations, unlike demand responsive and taxicabs.

## Chapter 9 Glossary & Acronyms

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**Flexible Congestion Relief (FCR)** - State funding programs for local or regional transportation projects to reduce congestion. State highway projects, local roads, and rail guideway projects are all eligible.

**Flexible Funds** – Federal funds that can be used for highway, transit or other transportation projects, as determined by regional MPOs and state governments. Examples of such funds are the Surface Transportation Program (STP) and the Congestion Mitigation and Air Quality (CMAQ) fund.

**Fund Estimate** - The STIP cycle begins with the development of a State Fund Estimate by Caltrans, which compares existing commitments against total estimated revenue expected from state and federal sources. Caltrans estimates state and federal funds "reasonably expected" in annual increments for five years (the STIP period). The calculation of existing capital program commitments is based on Caltrans' Project Delivery Report, while non-capital expenditures of operation and administration costs are estimated based on current spending and projected needs. This comparison of revenues to commitments results in an estimate of total uncommitted funds that are available for programming and prorated to each program category. The Fund Estimate is required by law to be submitted by July 15 of odd-numbered years, and to be adopted by the CTC within thirty days after submittal. CTC adopts a "Fund Estimate Methodology" to guide Caltrans in formulating the Fund Estimate.

**Headway** – Time interval between transit vehicles moving in the same direction on a particular route.

**Heavy Rail** - Heavy rail vehicles cannot operate on surface streets but must have exclusive grade protected guideways, such as subway, at surface or aerial configuration. Heavy rail vehicles can operate in pairs or trained up to ten cars and powered by third rail or overhead catenary. Heavy rail systems must have platforms for boarding passengers. A heavy rail system can carry up to 40,000 passengers per hour in each direction.

**Intelligent Transportation Systems (ITS)** - ISTEA established an IVHS (Intelligent Vehicle and Highway System) Program, which was subsequently modified to ITS. The program's function is to enhance the capacity, efficiency, and safety of the federal-aid highway system and to serve as an alternative to additional physical capacity. Automated highways and vehicles are one component of this approach. ITS includes development of application of electronics, communications or information processing (including advanced traffic management systems, commercial vehicle operations, advanced traveler information systems, commercial and advanced vehicle control systems, advanced public transportation systems, satellite vehicle tracking systems, and advanced vehicle communications systems) used singly or in combination to improve the efficiency and safety of surface transportation systems.

**Intercity Rail** - Operated by common carriers and uses fixed guideways. The service is characterized by inter-regional passenger travel provision for personal carry-on baggage,

and possible use of specialized cars for food service, sleeping accommodations, checked baggage, and package express.

**Intermodal** - A unifying, integrated national network of travel modes emphasizing connections between modes, choices among them, and coordination and cooperation among transportation interests.

**Level of Service (LOS)** - A measure of congestion that compares actual or projected traffic volume with the maximum capacity of the intersection or road in question.

**Light Rail** - Light rail vehicles can operate as single vehicles or can be trained and frequently do operate on surface streets as well as on exclusive rights-of-way, and draw electric power from an overhead catenary system. Light rail systems can have passenger boarding at surface as in San Diego and Sacramento or from elevated platforms as in Los Angeles. Maximum capacity of a light rail system is generally regarded as 10,000 passengers in each direction.

**Long-Range Transit Plan** - This plan represents a long-range evaluation of transit needs and proposes recommendations for implementing long-range objectives over a 20-year timeframe. The Plan provides direction for coordinating implementation of goals and policies identified in the Plan.

**Metropolitan Planning Organizations (MPOs)** - Federally designated organizations for urbanized areas of greater than 50,000 population mandated to carry out transportation planning as required by ISTEA and its subsequent legislations. Kern COG is the MPO for Kern County.

**Model** – An analytical tool (often mathematical) used by transportation planners to assist in making forecasts of land use, economic activity, travel activity and their effects on the quality of resources such as land, air and water.

**Multimodal** – Refers to the availability of multiple transportation options, especially within a system or corridor. A concept embraced by TEA-21, a multimodal approach to transportation planning focuses on the most efficient way of getting people or goods from place to place, be it truck, train, bicycle, automobile, airplane, bus, boat, foot, or even a computer modem.

**National Environmental Policy Act (NEPA)** - Passed by Congress in 1969, NEPA established the Council on Environmental Quality and required the preparation of environmental impact statements for federal projects. NEPA requires that an Environmental Impact Assessment (EIA) describe current conditions, identify alternative means of accomplishing the objective, enumerate the likely impacts of each alternative, identify the preferred alternative and the method used to select it, describe the impact of the selected alternative in detail, and list possible actions to minimize negative impacts of the selected alternative. See also Environmental Impact Report/Environmental Impact Statement.



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**National Highway System (NHS)** - ISTEA established a 155,000-mile NHS to provide an interconnected system of principal arterial routes to serve major travel destinations and population centers, international border crossings, as well as ports, airports, public transportation facilities, and other intermodal transportation facilities. The NHS must also meet national defense requirements and serve interstate and interregional travel. Eligible projects include new construction, reconstruction, and rehabilitation of highways, operational improvements, mass transit projects in an NHS corridor, safety improvements, transportation planning, traffic management and control, parking facilities, carpool projects, and bicycle and pedestrian projects. In areas not meeting federal clean air standards, up to 100 percent of NHS funding is transferable to the STP upon request of the State.

**Nonattainment Area** – Any geographic region of the U.S. that the U.S. EPA has designated as not attaining the federal air quality standards for one or more air pollutants, such as ozone and carbon monoxide. This includes the San Joaquin Valley, the Mojave Desert Air Basin, and the Indian Wells Valley/Searles Air Basin.

**Off-Peak Period** – Non-rush periods of the day when travel activity is generally lower.

**Operational Improvement** - A capital improvement for installation of traffic surveillance and control equipment, computerized signal systems, motorist information systems, integrated traffic control systems, incident management programs, and transportation demand management facilities, strategies, and programs and such other capital improvements to public roads as the Secretary may designate, by regulation. The term does not include resurfacing, restoring, or rehabilitating improvements, construction of additional lanes, interchanges, grade separation, or the construction of a new facility at a new location.

**Operating Assistance** – Financial assistance for transit operating expenses (not capital costs); such aid may originate with federal, local or state governments.

**Paratransit** – Comparable transportation service required by the Americans with Disabilities Act (ADA) of 1990 for individuals with disabilities who are unable to use fixed-route transportation systems.

**Pavement Management System (PMS)** - Required by Section 2108.1 of the Streets and Highways Code, any jurisdiction that wishes to qualify for funding under the STIP must have a PMS that is in conformance with the criteria adopted by the Joint City/County/State Cooperation Committee. At a minimum, the PMS must contain: (1) An inventory of the arterial and collector routes in the jurisdiction that is reviewed and updated at least biennially; (2) An assessment of pavement condition for all routes in the system, updated biennially; (3) An identification of all sections of pavement needing rehabilitation or replacement; and (4) A determination of budget needs for rehabilitation or replacement of deficient pavement sections for the current and upcoming biennial periods.

**Peak Period** – Morning and afternoon time periods when all modes of travel are highest.



**Principal Arterial** - The functional classification system at the federal level defines principal arterials for rural areas, urbanized areas, and small urban areas. In urbanized areas, the principal arterial system can be identified as unusually significant to the area in which it lies in terms of the nature and composition of travel. Principal arterials derive their importance from service to rural oriented traffic and/or from service for major movements within the urbanized area. The principal arterial system should carry the major portion of trips entering and leaving the urban area, as well as the majority of through movements desiring to bypass the central city. Frequently, the principal arterial system will carry important intra-urban as well as intercity bus routes. In small urban and urbanized areas, this system should provide continuity for all rural arterials which intercept the urban boundary. Because of the nature of the principal arterial system, almost all fully and partially controlled access facilities will be part of this functional system; however, it is not restricted to controlled access routes. The spacing of urban principal arterials will be closely related to the trip-end density characteristics of particular portions of the urban areas.

**Program** – (1) verb: to assign funds to a project that has been approved by Kern COG, the state or other agency; (2) noun: a system of funding for implementing transportation projects or policies, such as through the State Transportation Improvement Program (STIP).

**Program of Projects (POP)** – Defines projects to benefit from federal transit funding provided to Kern County agencies by formula for each fiscal year from FTA Section 5311 and Congestion Mitigation/Air Quality (CMAQ) program. Kern COG, as the RTPA, and its member agencies work together to ensure that the funds listed in the POP are programmed and included in the Federal Transportation Improvement Program (FTIP).

**Project Study Report (PSR)** - Chapter 878 of 1987 Statutes requires that any capacity-increasing project on the state highway system have a completed PSR prior to programming the STIP. The PSR must include a detailed description of the project scope and estimated costs. This legislation's intent is to improve the accuracy of the schedule and costs shown in the STIP, and thus improve the overall accuracy of the STIP delivery and cost estimates.

**Public Transportation** – Transportation by bus, rail or other conveyance, either publicly- or privately- owned, that provides to the public general or special service on a regular and continuing basis. Also known as “mass transportation,” “mass transit,” and “transit”.

**Quality Transit Area** – Areas within one-half mile of fixed route transit service based on planned transit expenditures.

**Regional Transportation Improvement Program (RTIP)** - List of proposed transportation projects submitted to the CTC by the RTPA as a request for state funding. Individual projects are first proposed by local jurisdictions, then evaluated and prioritized by the regional agency for submission to the CTC. The RTIP has a five-year planning horizon and is updated every two years.

## Chapter 9 Glossary & Acronyms

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**Regional Transportation Plan (RTP)** - A comprehensive 20-plus year blueprint for the region, updated every two years by the regional transportation planning agency. The RTP includes goals, objectives, and policies, and recommends specific transportation improvements.

**Regional Transportation Planning Agency (RTPA)** - Agencies responsible for the preparation of RTPs and RTIPs and designated by the State Business, Transportation and Housing Agency to allocate transit funds. RTPAs can be local transportation commissions, COGs, MPOs, or statutorily created agencies. Kern COG is the RTPA for Kern County.

**Reverse Commuting** – Travel in a direction opposite the main flow of traffic, such as from the central city to a suburb during the morning peak period.

**Ridesharing** – A form of transportation, other than public transit, in which more than one person shares the use of the vehicle, such as a van or car, to make a trip. Also known as “carpooling” or “vanpooling”.

**Short-Range Transit Plans (SRTP)** - A nine-year comprehensive plan required of all transit operators by federal and regional transportation funding agencies. The plans must define the operator's mission, analyze past and current performance, and plan specific operational and capital improvements to realize short-term objectives.

**Shuttle** – A public or private vehicle that travels back and forth over a particular route, especially a short route or one that provides connections between transportation systems, employment centers, and the like.

**Single-Occupant Vehicle (SOV)** – A vehicle with one occupant, the driver, who is sometimes referred to as a “drive-alone”.

**Southern California Association of Governments (SCAG)** – A six-county planning and coordinating agency, similar to Kern COG, that deals with transportation, water quality, housing and land use. Also reviews and comments on applications for a variety of federal and state assistance programs.

**State Highway Account** - references the State Highway Account in the State transportation Fund. The State Highway Account supports many state transportation highway capital and safety programs and is first primarily used to match federal transportation funding that is directed to California.

**State Highway Operations and Protection Plan (SHOPP)** - A program created by state legislation that includes state highway safety and rehabilitation projects, seismic retrofit projects, land and buildings projects, landscaping, some operational improvements, and bridge replacement. Unlike STIP projects, SHOPP projects may not increase roadway capacity. SHOPP is a four-year program of projects, adopted separately from the STIP cycle. The recent State gas tax increase partially funds the program, but it is primarily

funded through the "old" nine-cent State gas tax and from federal funds. To be compatible with the Fund Estimate, a formula based on pavement condition and safety concerns is used to estimate an additional three years of the SHOPP program.

**State Implementation Plan (SIP)** - State plan required by the Federal Clean Air Act to attain and maintain national ambient air quality standards. It is adopted by local air quality districts and the State Air Resources Board.

**State Transit Assistance (STA)** - This program provides funding for mass transit and transportation planning. With half of the revenues transferred to the TP&D Account and appropriated to STA. STA apportionments to regional transportation planning agencies are determined by two formulas: 50 percent by populations and 50 percent by the amount of operator revenues (fares, sales tax, etc.) for the prior year. STA funds may be used for transit capital or operating expenditures. Passage of Proposition 116 disallows use of STA funds for streets and roads in non-urban counties.

**State Transportation Improvement Program (STIP)** - A list of transportation projects, proposed in RTIPs and the PSTIP, which are approved for funding by the CTC.

**Surface Transportation Program (STP)** - Funding program established by ISTEA, and continued under subsequent federal transportation legislation that is very flexible, in that many types of mass transit and highway projects are eligible for funding under this program. Ten percent of the projects funded under this program must be transportation enhancement activities and 10 percent for safety projects.

**Sustainable Communities Strategy (SCS)** - The SCS strives to reduce air emissions from passenger vehicle and light duty truck travel by better coordinating transportation expenditures with forecasted development patterns and, if feasible, help meet California Air Resources Board (CARB) greenhouse gas targets for the region.

**Traffic Operations Centers (TOC)** – Computer-based traffic signal control system that monitors traffic conditions and system performance, selects appropriate signal timing (control) strategies, and performs equipment diagnostics and alert functions. Sensors in the signals detect the passage of vehicles, vehicle speed, and congestion levels. Kern County's TOC is located within the Bakersfield City Hall.

**Transportation Control Measures (TCMs)** – Strategies to reduce driving or smooth traffic flows in order to cut auto emissions and resulting air pollution. Examples of TCMs include roving tow truck patrols to clear stalled vehicles and accidents from congested roadways, new or increased transit service, or a program to promote carpools and vanpools.

**Transportation Demand Management (TDM)** - "Demand-based" techniques for reducing traffic congestion, such as ridesharing programs and flexible work schedules that enable employees to commute to and from work outside of peak hours.

## **Chapter 9 Glossary & Acronyms**

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**Transportation Improvement Program (TIP)** - A federally required document produced by the regional transportation planning agency that states the investment priorities for transit and transit-related improvements, mass transit guideways, general aviation and highways. The State is also required to produce a federal TIP which includes all projects proposed for federal funding.

**Urbanized Area** - An area with a population of 50,000 or more designated by the U.S. Census Bureau, within boundaries to be fixed by responsible state and local officials, subject to approval by the Secretary of Transportation.

**Vanpool** – An arrangement in which a group of passengers share the use and cost of a van in traveling to and from pre-arranged destinations together.

**Vehicle Miles Traveled (VMT)** - Travel demand forecasting (modeling) is used to generate the average trip lengths for a region. The average trip length measure can then be used in estimating vehicle miles of travel, which in turn is used in estimating gasoline usage or mobile source emissions of air pollutants. Reducing VMT can help ease traffic congestion and improve air quality.

### ACRONYMS

**AA** - Alternatives Analysis

**AADT** – Annual Average Daily Traffic

**AASHTO** - American Association of State Highway & Transportation Officials

**ADA** - Americans with Disabilities Act

**APCD** - Air Pollution Control District

**AQAP** - Air Quality Attainment Plan

**AQMD** – Air Quality Management District

**ASR** - Airport Surveillance Radar

**AT** – Active Transportation

**AVLS** – Automatic Vehicle Location System

**AVR** - Average Vehicle Ridership

**AVTTAC** - Aviation Transportation Technical Advisory Committee

**BACM** – Best Available Control Measure

**BARCT** - Best Available Retrofit Control Technology

**BRT** – Bus Rapid Transit

**BSC** - Bakersfield Senior Center

**CAATS** – California Alliance for Advanced Transportation Systems

**CALTRANS** - California Department of Transportation

**CARB** - California Air Resources Board

**CCAA** - California Clean Air Act

**CEC** – California Energy Commission

**CEQA** - California Environmental Quality Act

**CHP** – California Highway Patrol

**CIP** - Capital Improvement Program

**CMA** – Congestion Management Agency

## **Chapter 9 Glossary & Acronyms**

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**CMAQ** - Congestion Management/Air Quality (funding program)

**CMP** - Congestion Management Program

**CMS** – Changeable Message Signs; Congestion Management System

**COG** – Council of Governments

**CPUC** – California Public Utilities Commission

**CTC** - California Transportation Commission

**CTP** – California Transportation Plan

**CTSA** Consolidated Transportation Services Agency

**CVWP** – Central Valley Water Project

**DAR** – Dial-A-Ride

**DOE** - Department of Energy (federal)

**DOT** - Department of Transportation (federal)

**DTIM** - Demand Travel Impact Model

**EAFB** - Edward Air Force Base

**EIR/EIS** – Environmental Impact Report (state)/Environmental Impact Statement (federal)

**EJ** – Environmental Justice

**EMM** - Environmental Enhancement and Mitigation Program

**EPA** - Environmental Protection Agency (federal)

**ETC** – Electronic Toll Collection

**FAA** - Federal Aviation Administration

**FCAAA** - Federal Clean Air Act Amendments of 1990

**FCR** - Flexible Congestion Relief Program

**FETSIM** – Fuel Efficient Traffic Signal Management

**FHWA** - Federal Highway Administration



**FIP** - Federal Implementation Plan

**FRA** – Federal Railroad Administration

**FSTIP** - Federal Statewide Transportation Improvement Program

**FTA** - Federal Transit Administration

**FTIP** - Federal Transportation Improvement Program

**FTZ** - Foreign Trade Zone

**FY** - Fiscal Year

**GET** - Golden Empire Transit District

**GIS** – Geographic Information Systems

**GPA** - General Plan Amendment

**GPS** – Global Positioning Systems

**HOV** – High Occupancy Vehicle

**HPMS** - Highway Performance Monitoring Systems

**HSGT** – High Speed Ground Transportation

**HSR** - High Speed Rail

**HOV** - High Occupancy Vehicle

**ILS** - Instrument Landing System

**ISR** - Indirect Source Review

**ISTEA** – Intermodal Surface Transportation Efficiency Act of 1991

**ITS** - Intelligent Transportation Systems (replaces Intelligent Vehicle Highway Systems)

**Kern COG** - Kern Council of Governments

**KT** - Kern Transit

**LOS** - Level of Service

**LTF** - Local Transportation Fund

## **Chapter 9 Glossary & Acronyms**

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**MMTI** - Major Metropolitan Transportation Investments

**MPG** – Miles per gallon

**MPO** - Metropolitan Planning Organization

**MTS** – Metropolitan Transportation System

**NAFTA** – North American Free Trade Agreement

**NAHC** - Native American Heritage Commission

**NAWS** - (China Lake) Naval Air Weapons Station

**NEPA** - National Environmental Policy Act

**NIMBY** – Not In My Back Yard

**NHS** - National Highway System

**NTS** – National Transportation System

**NO** - nitric oxide

**NO<sub>2</sub>** - nitrogen dioxide

**NOP** - Notice of Preparation

**OAA** - Older Americans Act

**OPR** – Office of Planning and Research

**OWP** – Overall Work Program

**O<sub>3</sub>** – ozone

**PAC** - Project Advisory Committee

**PAPI** - Precision Approach Path Indicator

**PM<sub>10</sub>** - Particulate Matter (less than 10 microns in size); **PM<sub>2.5</sub>** (less than 2.5 microns)

**PMS** – Pavement Management System

**POP** – Program of Projects

**PPHM** - parts per hundred million

**PSR** – Project Study Report

**PTA** – Public Transportation Account

**PUC** - Public Utilities Commission

**QTA** – Quality Transit Areas

**ROC** - Reactive Organic Compounds

**ROW** – Right(s)-of-Way

**RSTP** - Regional Surface Transportation Program

**RTIP** - Regional Transportation Improvement Program

**RTP** - Regional Transportation Plan

**RTPA** - Regional Transportation Planning Agency

**SB** - Senate Bill

**SHA** - State Highway Account

**SHOPP** – State Highway Operations and Protection Plan

**SHPO** - State Historic Preservation Office

**SHRP** - Strategic Highway Research Program

**SIP** - State Implementation Plan

**SLTPP** - State and Local Transportation Partnership Program

**SJVAB** - San Joaquin Valley Air Basin

**SJVAPCD** - San Joaquin Valley Air Pollution Control District

**SR** - State Route

**SCS** – Sustainable Communities Strategy

**STA** – State Transit Assistance

**STAA** - Surface Transportation Assistance Act

## **Chapter 9 Glossary & Acronyms**

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**STAF** - State Transit Assistance Fund

**STIP** - State Transportation Improvement Program

**STP** - Surface Transportation Program

**TAC** - Technical Advisory Committee

**TAZ** - Traffic Analysis Zone

**TCI** – Transit Capital Improvement Program

**TCM** - Transportation Control Measure

**TDA** - Transportation Development Act

**TDM** - Transportation Demand Management

**TEA** - Transportation Enhancement

**TEA-21** – Transportation Enhancement Act for the 21<sup>st</sup> Century

**TIF** – Transportation Impact Fee

**TMA** - Transportation Management Area and/or Association

**TOG** - Total Organic Gases

**TPPC** - Transportation Planning Policy Committee

**TTAC** - Transportation Technical Advisory Committee

**US DOT** - Department of Transportation (federal)

**USTIP** - Updated State Transportation Improvement Program

**VMT** - Vehicle Miles Traveled

**VT** - Vehicle Trip