KERN COUNCIL OF GOVERNMENTS (KERN COG)
2014 PRELIMINARY REGIONAL TRANSPORTATION PLAN (RTP)

Prepared for:

KERN COUNCIL OF GOVERNMENTS (KERN COG)
1401 19TH STREET, SUITE 300
BAKERSFIELD, CALIFORNIA 93301

Prepared by:

2729 PROSPECT PARK DRIVE, SUITE 220
RANCHO CORDOVA, CA 95670

DECEMBER 2012

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PMC
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CHAPTER 1 INTRODUCTION

The 2014 Regional Transportation Plan (RTP) is a 26-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.

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 Board plus ex officio members from Caltrans, Kern County's military bases, and the Golden Empire Transit District. The Transportation Technical Advisory Committee (TTAC), comprising technical staff from member agencies, other interested agencies, public members, Caltrans, and the San Joaquin Valley and Kern County air districts, 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 (RPAC) comprises representatives from local jurisdictions, the public transit agency (Golden Empire Transit), and community members. Kern COG worked with the RPAC to develop a broad structure of Senate Bill 375 implementation as well as the Directions to 2050 community engagement process.

REGIONAL PLANNING PROCESS

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 (currently SAFETEA-LU, with its successor anticipated in fall 2013. Each component will be studied and modified consistent with RTP priorities as Kern County moves toward an integrated and multimodal transportation system.

Public participation is encouraged at every stage of the planning process, and all meetings are open to the public. A discussion of Kern COG's public participation activities is provided in Chapter 2, while the Community Engagement Strategy for the 2014 RTP and summary of findings is documented in Appendix #.

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).

Kern COG has prepared this RTP to include the Sustainable Communities Strategy (SCS) within Chapter 4 and the Congestion Management Program (CMP) within Chapter 5, Strategic Investments. Incorporated by reference are the EIR sections. As a regional transportation planning agency, Kern COG is mandated by California Government Code Section 65080 to prepare and periodically update the RTP. This code section also specifies that actions by transportation agencies, such as Caltrans, the County of Kern, incorporated cities, 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. 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.

Based on the 2011 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 Air Districts, and other agencies, will implement transportation projects or transportation demand management (TDM) strategies consistent with the goals and policies set forth in the 2011 RTP. The RTP supports maintaining the existing multimodal transportation system, improving the safety of the system, and increasing the system's capacity.

The Constrained Program of Projects, a complete list of planned improvements by mode, is provided in Table 4-1 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 4-2 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 (SAFETEA-LU AND ITS SUCCESSOR)

On August 10, 2005, President George W. Bush signed into law the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). SAFETEA-LU follows the 1998 Transportation Equity Act for the 21st Century and the 1991 Intermodal Surface Transportation Equity Act (ISTEA).

In addition to reauthorizing the funding levels for the various federal transportation programs, SAFETEA-LU also established new transportation planning and programming requirements that impact the Regional Transportation Plan and Federal Transportation Improvement Program.

A consensus by members of Congress indicates that major revisions will be required to revise existing (SAFETEA-LU) transportation funding mechanisms. Traffic congestion has increased, and while transit passenger numbers have increased, services are being cut because of funding shortfalls. Freight delays, both along highways and via rail, are costly. In addition, a significant amount of the nation's infrastructure has aged beyond its intended life, with highways, bridges, and tunnels in substantial disrepair.

The federal government also recently authorized MAP-21. Starting October 1, 2012, the existing National Highway System (NHS) has been expanded to include all Principal Arterials (i.e., Functional Classifications 1, 2, and 3) to the new Enhanced NHS. The additional Principal Arterials will be eligible for National Highway Performance Programming funding.

The RTP must comply with Section 176 of the federal Clean Air Act.

OVERVIEW OF STATE REQUIREMENTS

Metropolitan Planning Organizations 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

modified and adopted 2010 Regional Transportation Plan guidelines, under the auspices of the California Transportation Commission, have been used to prepare this document.

In 2006, Assembly Bill 32 (AB 32) was signed into law. It requires California to lower statewide greenhouse gas emissions (emissions) to 1990 levels by 2020. Passed in 2008, Senate Bill (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 Sustainable Communities Strategy 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).

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 2010 RTP Guidelines, was used to ensure internal consistency in this 2014 RTP.

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 2014 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).[1] 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).

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, which was updated in 2005, 2007, 2010, and 2011. (See Appendix # for the complete Public Participation Program) 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, seek 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 planning process.

Kern COG has used a combination of methods to stimulate public involvement. For the development of the 2014 RTP, Kern COG undertook a comprehensive community engagement process, Directions to 2050. Community engagement and outreach was fundamental to the development of the 2014 RTP. The

1 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).

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.
- RTP-specific stakeholder roundtable meetings with representatives from the business, industry, environmental justice advocacy, and social services communities.
- RTP-specific community workshops throughout the Kern region.
- RTP-specific community events throughout the Kern region.
- RTP-specific interactive project website, which included online activities and a survey, community workshop public meeting notices, background information, public outreach summaries, and the latest written information on the RTP.
- Posting of all public outreach events on the Kern COG Directions to 2050 project website (www.directionsto2050.com) and Kern COG Facebook page.
- Direct outreach to limited-English-proficiency, minority, senior, and low-income populations.
- Written 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 2014 RTP.
- Outreach to media, including frequent 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 2014 RTP. (See Appendix # for complete 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, 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.

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.

CHAPTER 2
TRANSPORTATION PLANNING POLICIES

CHAPTER 2 TRANSPORTATION PLANNING POLICIES

INTRODUCTION

The 2014 Regional Transportation Plan is Kern County's blueprint to address the mobility challenges created by the region's growth. This long-range plan contains an integrated set of public policies, strategies, and investments to maintain, manage, and improve Kern's transportation system through 2035.

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 foreclosed 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.

The policies of the RTP by goal and transportation mode are provided in Table 2-1. This table is followed by a Performance Monitoring section containing a system-wide set of measures to monitor progress toward these goals. A description of the issues, needs, and actions is included in Chapter 5, Strategic Investments, for each transportation mode.

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.

In accordance with Government Code 65080(b)(1), all policies/objectives 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.

The following 2014 RTP goals, policies, and objectives were derived from other Kern COG transportation plans. This 2014 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 2014 RTP are seven goals:

1) **Mobility** – Improve the mobility of people and freight.

2) **Accessibility** – Improve accessibility to, and the economic well-being 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.

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

TABLE 2-1 REGIONAL TRANSPORTATION PLAN GOALS AND POLICIES

	Goal(s)	Policy	Investment Category (Ch. 5))
1	Mobility, Accessibility	Encourage additional air carrier service at Meadows Field and Inyokern Airport.	Aviation
2	Mobility, Accessibility	Assist Kern County Airports in expanding facilities to meet growing general aviation demands.	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
4	Mobility, Accessibility	Identify opportunities for truck-to-rail and truck-to-intermodal mode shifts, and evaluate the contributions of truck traffic on regional air quality.	Freight, Highways
5	Mobility, Accessibility, Sustainability	Seek additional funding to help maintain existing bikeways.	Bicycle, TCM
6	Mobility, Accessibility, Sustainability	Seek funding for new bicycle projects from local, state, and federal sources.	Bicycle, TCM
7	Mobility, Sustainability	Upgrade the present highway maintenance system whenever feasible.	Highways
8	Mobility, Sustainability	Investigate new federal, state, and local funding opportunities to maintain the current transportation system and promote future transportation development.	Highways
9	Mobility, Accessibility	Encourage Kern COG member jurisdictions to implement their adopted local bicycle plans and to incorporate bicycle facilities into local transportation projects.	Bicycle, TCM
10	Mobility, Accessibility	Periodically update the Kern Regional Bicycle Plan.	Bicycle, TCM
11	Mobility, Accessibility	Provide technical and planning assistance to local jurisdictions for industrial and commercial land use and transportation planning.	Freight, Highways
12	Mobility, Accessibility	Encourage the use of rail and air for goods movement to reduce impacts to state and intercounty routes and lessen air quality impacts.	Freight, Highways

	Goal(s)	Policy	Investment Category (Ch. 5))
13	Mobility, Accessibility	Encourage coordination and consultation between the public and private sectors to explore innovative and efficient goods movement strategies.	Freight, Highways
14	Mobility, Accessibility	Identify additions and alternatives that would improve the overall quality of transit service in Kern County.	Transit, TCM
15	Mobility, Accessibility	Identify alternatives to traditional transit that address Kern County's regional rural mobility needs.	Transit, TCM
16	Mobility, Accessibility	Develop coordination alternatives that would realize improvements over current transit operations.	Transit, TCM
17	Mobility, Accessibility	Review, identify, and discuss alternative administrative and oversight models for transit services in Kern County.	Transit, TCM
18	Mobility, Accessibility	Create strategies to increase the visibility and importance of transit in Kern County.	Transit, TCM
19	Mobility, Accessibility	Create partnerships between transit and social services agencies in addressing Kern County's transit needs.	Transit, TCM
20	Mobility, Accessibility	Improve intercity connections and provide new services to expand the transportation alternatives in the Eastern Sierra region.	Transit, TCM
22	Mobility, Accessibility, Efficiency	Advocate programs and projects for the intermodal linkage of all freight transportation.	Freight, Highways
23	Mobility, Accessibility, Efficiency, Livability	Coordinate planning efforts to ensure efficient, economical, and environmentally sound movement of goods.	Freight, Highways
24	Mobility, Accessibility, Equity	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
25	Mobility, Accessibility, Livability	Review and analyze available rest areas, layover lots, and truck stops to determine needs for additional parking related to long-distance travel.	Freight, Highways, TCM
26	Mobility, Accessibility, Reliability	Support a higher safety level requirement for hazardous material transport on interstates, state highways, and local roads.	Freight, Highways
27	Mobility, Accessibility, Sustainability	Maintain existing roadway infrastructure and provide for its efficient use.	Highways
28	Mobility, Accessibility, Sustainability	Work with Caltrans, COG member agencies, and other interested parties to prepare environmental studies and design engineering plans.	Highways
29	Mobility, Accessibility, Sustainability	Provide input to neighboring counties conducting Corridor Studies for those routes with significance to the Kern region.	Highways
30	Mobility, Accessibility, Sustainability, Livability	Oppose higher axle load limits for the trucking industry on general purpose roadways.	Freight, Highways,
31	Mobility, Efficiency	Build upon the momentum and stakeholder coalition generated through the San Joaquin Valley Goods Movement Study to pursue ITS commercial vehicle projects.	ITS

	Goal(s)	Policy	Investment Category (Ch. 5))
32	Mobility, Efficiency	Investigate how ITS can support efforts to improve east/ west travel between the inland areas and coastal communities.	ITS
33	Mobility, Efficiency	Use momentum from the valley-wide ITS planning effort in conjunction with federal rules (ITS architecture and standards conformity and statewide and metropolitan planning) to expand ITS actions.	ITS
34	Mobility, Efficiency	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, TCM
35	Mobility, Efficiency	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, TCM
36	Mobility, Efficiency	Build upon lessons learned from past and current transit ITS deployment experience in the San Joaquin Valley (Fresno Area Express, Golden Empire Transit, San Joaquin Regional Transit).	ITS, TCM
37	Mobility, Efficiency	Build upon Caltrans District 6 experience with sharing facilities, equipment, and information between traffic management and California Highway Patrol staff.	ITS, TCM
38	Mobility, Efficiency	Provide traveler information for commercial vehicle operators at truck rest stops.	ITS, TCM
39	Mobility, Efficiency	Improve visibility and access to existing Caltrans' valley-wide alternate route plans.	ITS, TCM
40	Mobility, Efficiency	Coordinate the Bakersfield area Transportation Management Center with Caltrans' District 6 Transportation Management Center via satellite.	ITS, TCM
41	Mobility, Efficiency	Integrate the ITS capabilities being implemented at Golden Empire Transit (GET) with Bakersfield's traffic management system, including sharing information between the two centers during emergencies.	ITS, TCM
42	Mobility, Efficiency	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, TCM
43	Mobility, Efficiency	Expand the accident reduction campaigns on Kern's rural highways.	ITS, TCM
44	Mobility, Reliability, Livability	Provide heavy truck access planning guidance, including a review of the current Surface Transportation Assistance 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, TCM
45	Accessibility, Efficiency, Livability, Sustainability	Encourage land use decisions by local government member agencies that promote the Kern Regional Blueprint Program (see Table 2-2 Kern Regional Blueprint Matrix).	Land Use, TCM
46	Accessibility, Efficiency, Livability, Sustainability	Promote land use patterns that support current and future investments in public transit and that might support future commuter- and high-speed rail alternatives.	Land Use, TCM
47	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, TCM
48	Livability	Support goals contained in city and county general plans that strive to enhance urban and community centers, promote the environmentally sensitive use of lands in Kern County, revitalize distressed areas, and ensure that new growth areas are planned in a well-balanced manner.	TCM

	Goal(s)	Policy	Investment Category (Ch. 5))
49	Livability	Achieve national and state air quality standards for healthy air by the mandated deadlines.	TCM
50	Livability	Coordinate with all necessary responsible agencies to implement easible transportation control measures that limit harmful air emissions.	TCM
51	Livability	Delay the need for future increases in highway capacity and congestion through the implementation of transportation control measures.	TCM, Highways
52	Livability	Promote sustainable community design that supports transit use and increases nonmotorized transportation while still meeting the mobility needs of residents and employees.	Transit, Bike, TCM
53	Equity	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
54	Equity	Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.	Environ. Justice
55	Equity	Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.	Environ. Justice

Relationship of RTP Goals to Directions to 2050

In preparation of the 2014 RTP, Kern COG undertook Directions to 2050, a comprehensive community engagement program that solicited input from over 5,000 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.

Directions to 2050 community workshop 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.

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

- Enhance economic vitality
- Provide adequate and equitable services
- Conserve energy and natural resources, and develop alternatives

Principle prioritization varied slightly by valley, mountain, and desert sub-regions as follows:

- Valley sub-region participants prioritized:
    - Conserve energy and natural resources, and develop alternatives
    - Provide adequate and equitable services
    - Provide a variety of transportation choices

- Mountain sub-region participants prioritized:
    - Enhance economic vitality
    - Conserve undeveloped land and spaces
- Desert sub-region participants prioritized:
    - Enhance economic vitality
    - Provide adequate and equitable services

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.

See Chapter 4, Sustainable Communities Strategy, for further information on Directions to 2050.

TABLE 2-2 DIRECTIONS TO 2050 PRINCIPLES FOR GROWTH/ RTP GOALS COMPARISON MATRIX

LINKS BETWEEN DIRECTIONS TO 2050 PRINCIPLES FOR GROWTH AND RTP GOALS	RTP 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.**	**7. Equity – Ensure an equitable distribution of the benefits among various demographic and user groups.**
Directions to 2050 Principles for Growth							
A. Conserve energy and natural resources, and develop alternatives	☐1G	☐2G	☐3G	☐–	☐5G	☐–	☐7G
B. Provide adequate and equitable public services	☐1C	☐2C	☐3C	☐4C	☐–	☐6C	☐–
C. Enhance economic vitality	☐1F	☐2F	☐3F	☐4F	☐5F	☐6F	☐7F
D. Provide a variety of housing choices				☐4B	☐–	☐6B	☐–
E. Use and improve existing community assets and infrastructure	☐1D	☐2D	☐3D	☐–	☐6D	☐6D	☐7D
F. Use compact, efficient development and/or mixed land uses	☐1A	☐2A	☐3A	☐–	☐5A	☐–	☐7A
G. Provide a variety of transportation choices	☐–	☐–	☐–	☐–	☐6E	☐6E	☐7E
H. H. Preserve undeveloped land and spaces				☐4H	☐–	☐–	☐7H
I. Increase civic and public engagement			☐8I		☐5I		☐–

Notes:
[1A] Improving mobility can include reducing the distances required to travel between destinations created by more compact development patterns and providing adequate housing in close proximity to jobs, shopping and amenities.
[1C] Improving mobility by reducing travel distances can improve the efficiency and cost for providing public services. For example, one fire station can service more households, reducing the cost per household for providing fire protection.
[1D] Improving mobility can include maximizing the use of existing infrastructure such as freeway or parking lot capacity.
[1F] Improving mobility will reduce the cost of doing business in the region, enhancing economic vitality.
[1G] Improving mobility can include the addition of alternative fuels and modes that would help conserve energy and natural resources.
[2A] Improving accessibility can include providing a balanced mix of compact land uses that make walking and other alternative travel modes more accessible to get to regional/neighborhood shopping and employment areas. Additionally, it includes providing a balanced mix of affordable workforce housing, shopping, and amenities in outlying communities closer to strategic resource employment areas such as wind/solar/bio/hydrogen/oil energy resource areas, farming, military, prisons, travel/recreation, aerospace testing, warehousing/distribution centers, etc.
[2C] Improving accessibility to regional employment centers can make it more efficient to access and provide public services to these areas.
[2D] Improving accessibility to existing community assets and infrastructure in major employment areas and regional centers can help ensure more efficient use of those areas and maximize the use of existing infrastructure.
[2F] Improving accessibility to major employment and regional centers will make it more convenient to do business in Kern, enhancing our region's economic vitality.
[2G] Improving accessibility to regional and rural activity areas can help develop natural resources and alternative resource opportunities.
[3A] Improving reliability by creating compact/mixed developments that can support and have access to transit/HOV, ensure alternative modes when getting around when traveling by car is slowed by congestion, making travel more reliable.
[3C] Improving reliability and safety of the transportation system can increase the efficiency of transportation infrastructure by reducing delays caused by accidents and congestion.
[3D] Improving reliability and safety of the existing transportation system through safety retrofits can greatly improve existing community transportation infrastructure assets.
[3F] 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.
[3G] Improving reliability and safety to regional and rural activity areas can help develop natural resources and alternative resource opportunities.
[3I] Improving reliability and safety by providing public education on safe travel habits can increase civic and public involvement.
[4B] 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.
[4C] Maximizing efficiency by reducing travel distances can improve the efficiency and cost of providing public services. For example, one fire station can service more households, reducing the cost per household for providing fire protection.
[4F] Maximizing efficiency of the transportation system will reduce the cost of doing business in the region, enhancing economic vitality.
[4H] Maximizing efficiency of the transportation system by providing alternative modes requires more compact development patterns that can preserve undeveloped land and spaces.
[5A] Promoting more livable communities can be assisted by providing a locally appropriate, self-policing mix of traditional and more compact, walkable, transit-oriented developments that promote investment, jobs, and vibrant community cohesion better than walled, auto-dependent subdivisions.
[5D] Promoting livability can be assisted by building on a community's historic assets.
[5E] Promoting livability can be assisted by promoting alternative transportation modes such as walking, biking, and transit.
[5F] Promoting livability can increase investment and the community and the retention of jobs.
[5G] Promoting livability can including providing more efficient housing and transportation infrastructure that conserves energy.
[5I] Promoting livability can create increase sense of ownership in a community that increases civic and public participation.
[6B] Promoting sustainability can include providing a mix of housing that can absorb changes in demand over the long term.
[6C] Promoting sustainability by reducing travel distances can improve the efficiency and cost for providing public services.
[6D] Promoting sustainability can include improving and enhancing existing developed areas and assets.
[6E] Promoting sustainability can be assisted by promoting alternative transportation modes such as walking, biking, and transit that reduce energy consumption, dependence on foreign oil, and impact to the environment.
[6F] Promoting sustainability can reduce long-term operating costs, enhancing the economic viability of a region.
[7A] Ensuring equity can be assisted by providing a mix of housing that is affordable.
[7D] Ensuring equity can be assisted by building and improving existing assets in disadvantaged areas.
[7E] Ensuring equity can be assisted by providing affordable transportation options such as biking, walking, and transit.
[7F] Ensuring equity can be assisted by providing job opportunities for all in a vibrant economy.
[7G] Ensuring equity can be assisted by lowering costs through efficient and affordable energy use.
[7H] Ensuring equity can be assisted by promoting development in disadvantaged areas rather than on undeveloped land and spaces.

Measuring Performance

Performance measures: (1) provide information on how well the transportation system is performing compared to the base year and/or future no-build scenario; (2) identify opportunities for system improvements to meet the plan's goals; and (3) assess the system-wide impacts of future improvements.

System-wide performance measures should not be applied unilaterally, but should only be used as an indicator that the plan's policies and actions are headed in the same direction as the goals. Often progress shown in one performance measure can show a negative effect in another area.

Demonstrating improvements in all performance measures may be nearly impossible to achieve. For example, improvements in congestion may increase travel speeds and negatively affect air quality. In addition, improvements under a specific performance measure may take several planning cycles to achieve. The existing activity in the plan has a certain level of inertia created by previously adopted RTPs. Projects that have completed environmental_review need to move to right-of-way acquisition and construction fairly quickly, before the environmental work is out of date and more resources are needed to update the environmental work. The performance measure process is designed to provide feedback in areas upon which the region should focus the subsequent plan update, while minimizing disruptions to the project delivery process.

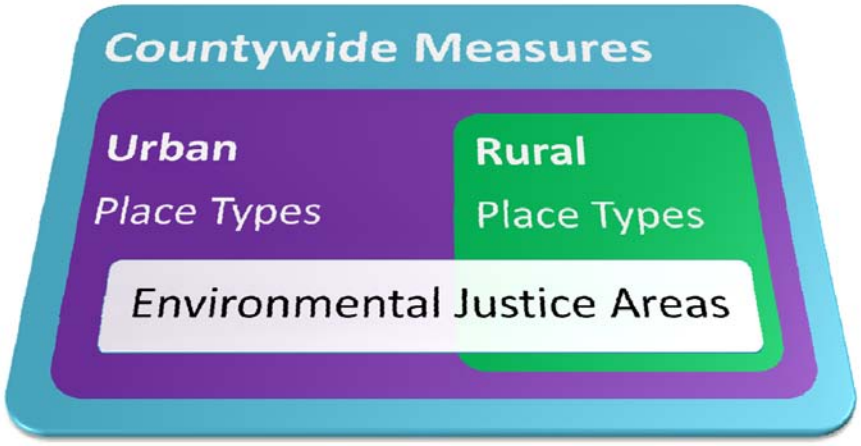
The Kern Regional Transportation Model is the primary tool for measuring system-level performance of the plan. Kern COG uses an integrated one-model approach for its performance measures analysis. The model uses monitoring data and growth assumptions to compare the performance measures for the Regional Transportation Plan and Sustainable Communities Strategy. The two primary categories of performance measures used are the Smart Mobility Framework and Environmental Justice. The Environmental Justice measures have been in place since 2001 and have been adapted for use with the Smart Mobility Framework performance measure category.

The State of California prepares an annual Regional Progress Report. This RTP includes measures that are coordinated with the measures in the statewide progress report. In February 2010, the California Department of Transportation (Caltrans) released *Smart Mobility 2010: A Call to Action for the New Decade* that establishes performance measures based on place type in recognition of a "one-size does NOT fit all" philosophy. Kern County has been split into two broad place types. The first is the Metropolitan Bakersfield or urban place type. The second is made up of the outlying communities or rural place type. The RTP performance measure analysis differs somewhat for these two place types. The performance measure for sustainability/environment uses a slightly different modeling method to analyze air quality on a per-capita basis. This measure differs from the other performance measures in that a second model, EMFAC, developed by the California Air Resources Board, uses the output vehicle travel from the Regional Transportation Model to generate nitrogen oxide (NOx) by air basin analysis areas rather than urban and rural. NOx is a precursor gas that contributes to ozone and particulate matter, Kern's two worst pollutants that violate federal standards.

Performance Measures Analysis Methodology

Kern COG has developed an integrated framework for nine performance measures to demonstrate consistency of the Regional Transportation Plan and Sustainable Communities Strategy with its seven established goals.

FIGURE 2-1 INTEGRATED PERFORMANCE MEASURES FRAMEWORK



This figure illustrates the overlap among the nine performance measures used for countywide analysis, the two smart mobility framework place types, and environmental justice 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 a breakdown of which measure applies to which categories and goals.

TABLE 2-3 RTP GOALS, PERFORMANCE MEASURES, AND SMART MOBILITY FRAMEWORK PLACE TYPES ADAPTED FOR KERN COUNTY

	RTP Goal(s)	Measure Description	Applicability by Place Types
1	Mobility, livability, sustainability, congestion	Average Travel Time – Peak Highway Trips, Peak Transit Trips	EJ, Urban
2	Accessibility, livability, sustainability, congestion	Average Travel Time to Job Centers – Highway Trips, Transit Trips	EJ, Urban
3	Reliability, livability, congestion	Average Level of Congestion in Hours	EJ, Urban, Countywide
4	Reliability, safety, livability	Annualized Accident Statistics for Annual Average Daily Traffic	EJ, Urban/Rural, Countywide
5	Efficiency, cost effectiveness, sustainability	Average Daily Investment per Passenger Mile Traveled – Highways, Transit	EJ, Urban/Rural, Countywide
6	Livability, customer satisfaction, sustainability, congestion	Average Trip Delay Time in Hours	EJ, Urban/Rural, Countywide
7	Sustainability, environment	Percentage Change NOx/PM by air basin	Air Basins
8	Sustainability, preservation	Percentage Change in Maintenance Dollars Per Lane Mile	Countywide
9	Equity	Percentage of Expenditures versus Passenger Miles Traveled in 2035 – Highways, Transit	EJ, Urban/Rural, Countywide

The above table demonstrates that some of the performance measures comply with as many as five goals. The geographic area of analysis varies for the environmental justice and smart mobility framework place type performance measures, while the environmental justice analysis uses all seven measures and compares countywide performance with performance in environmental justice areas. The Smart Mobility Framework establishes the use of different performance measures based on place type. The Kern region has been divided into two place types, with different performance measures for each. The urban place type uses all the performance measures, while the rural place type excludes the measures related to

congestion. Although congestion occurs in the county's rural areas, other factors such as safety are primary concerns.

Performance Measure Results

As part of the Directions to 2050 outreach process, Kern COG held Environment and Social Equity Roundtable stakeholder meetings. These meetings built on the federally recognized best practices effort began by Kern COG in 2000. The Environment and Social Equity Roundtable identified low-income, minority, elderly, and disabled people as the target populations for analyzing federal Title VI environmental justice (EJ) efforts. Areas with higher than average concentrations of the target populations were identified and mapped by census block groups. Kern COG used the transportation model output stratified by EJ areas and the urban and rural place types to determine whether the goals of the RTP were being met. The following is a more detailed description of the Performance Measures.

- **Mobility** – Calculates average trip time by mode (auto and transit) from environmental justice Traffic Analysis Zones (TAZs) and countywide.

- **Accessibility/Economic Well-Being** – Calculates average trip time by mode (auto and transit) to major job centers from a group of approximately 1,700 TAZs. Accessibility also provides an economic measure by indicating the level of congestion around major job centers that may affect freight movement.

- **Reliability/Congestion** – Calculates the distance of level of service D through F links inside environmental justice TAZs and countywide.

- **Reliability/Safety** – Calculates the percentage increase between property damage, injury, and fatal accident rates between base year 2006 and 2035.

- **Efficiency/Cost-Effectiveness** – Calculates the planned expenditure per passenger miles traveled. Calculates passenger miles traveled by both vehicle and transit networks for current and planned transit projects (increased headway, new routes) and capacity-increasing road projects links in future years, inside EJ TAZs and countywide. These figures are divided by the total investment in these projects and used to calculate their cost-effectiveness.

- **Livability/Consumer Satisfaction** – Calculates the average trip delay after feedback between constrained and unconstrained roadways on links inside EJ TAZs and countywide.[1]

- **Sustainability/Environment** – Vehicle emissions of NOx per person for the valley and mountain/desert portions of Kern.

- **Sustainability/Preservation** – Provides for maintenance as the system expands.

- **Equity** – Calculates the passenger miles traveled and compares to the percentage of investment in EJ areas and urban and rural place types.

1 Delay refers to the amount of additional time a vehicle spends on the road because of congestion. Constrained and unconstrained roads refer to those streets, highways, or freeways where congestion is either typical or atypical.

The RTP Guidelines also recommend including goals on transportation system preservation. Preservation was not included in the model because it is not a component the model can measure readily. A detailed description of maintenance and preservation funding can be found in the Financial Element.

The model generated several factors, including travel times, vehicle miles traveled, passenger miles traveled, transit boardings, transit trip hours, transit trip distance, and road miles of LOS C or worse for 2006 (base year), 2035 build scenario, and 2035 no-build scenario. The 2035 build scenario assumes all projects listed in Table 4-1 of the 2011 Regional Transportation Plan will have been completed, whereas the No-Build scenario assumes 2035 traffic levels on the same network used in 2006. An additional assumption was that funding sources and technology will remain constant. The model also stratified its factors along three separate lines: All of Metropolitan Bakersfield (urban); all other areas of Kern County, including the ten other incorporated cities (rural); and countywide. Kern COG paid particular attention to the accessibility and mobility criteria because they represented overall system performance now and in the future.

Mobility

Mobility is defined as the ability to move throughout the region and the time it takes to reach desired destinations; it is considered to be the most informative performance measure in the RTP. The criterion is measured by calculating average travel times during the base year 2006, in 2035 when all RTP projects are completed, and in a 2035 no-build scenario where none of the RTP projects are completed. The goal for mobility is to demonstrate that EJ TAZs perform better, or at least no worse, than the countywide average. Peak highway and transit trip periods (evening commute times) were used to demonstrate the worst-case scenario.

Metropolitan Bakersfield's average travel time in 2006 for all trips was 12.67 minutes, compared to a rural time of 20.58, for a countywide average of 16.26 minutes. In considering just Metro Bakersfield's EJ TAZs, the average travel time was 12.40, versus rural EJ TAZs at 20.31, for a countywide average of 14.14 minutes. During the 2006 base year, EJ TAZs throughout the county enjoyed shorter average travel times than in the county as a whole. As depicted in the table below, that trend is maintained over both the 2035 build and the 2035 no-build scenario. On the whole, people living in EJ TAZs will have shorter average travel times anywhere within the county than the county will have as a whole.

TABLE 2-4 AVERAGE TRAVEL TIME – PEAK HIGHWAY TRIPS (IN MINUTES)

Place Type	2006	2035 Build	2035 No Build
Urban/Metro	12.67	13.39	14.47
Rural Areas	20.58	20.78	21.37
Countywide	16.26	16.94	18.75

TABLE 2-5 EJ TAZS AVERAGE TRAVEL TIME – PEAK HIGHWAY TRIPS

Place Type	2006	2035 Build	2035 No Build
Urban/Metro	12.40	13.00	13.51
Rural Areas	20.31	20.69	21.34
Countywide	14.14	14.71	15.23

Because rural transit ridership comprises such a small percentage of trips in the model, and because no data is being forecasted by rural transit agencies regarding trip lengths and travel times, staff is unable to compare the rural transit network to the Golden Empire Transit system in Metro Bakersfield. However, in

judging average travel times for transit trips between EJ TAZs in Metro and the rest of Metro as a whole, EJ TAZs also continue to fare better in this category. In 2006, the average peak hour transit trip took 44.77 minutes in Bakersfield. However, transit trips emanating from EJ TAZs were clocked at 43.86 minutes. In 2035, the model estimates the difference to increase from 46.10 minutes in Bakersfield as a whole to 45.38 minutes in Bakersfield EJ TAZs.

TABLE 2-6 AVERAGE TRAVEL TIME – PEAK TRANSIT TRIPS[2]

Place Type	2006	2035 Build	2035 No Build
Urban/Metro	44.77	46.10	45.50
Rural Areas	N/A	N/A	N/A
Countywide*	47.54	47.98	49.07

** includes portions of trips outside of Metro that drive to use metro transit*

TABLE 2-7 EJ TAZS AVERAGE TRAVEL TIME – PEAK TRANSIT TRIPS

Place Type	2006	2035 Build	2035 No Build
Urban/Metro	43.86	45.38	44.14
Rural Areas	N/A	N/A	N/A
Countywide*	48.63	45.65	44.73

** includes portions of trips outside of Metro that drive to use metro transit*

Accessibility/Economic Well Being

Accessibility differs from mobility in that it is measured by commuter trip times to major job centers rather than overall trip times. Major job centers are defined as those TAZs containing employment sites with 75 or more workers. Specifically, accessibility is defined as the ease of reaching destinations as measured by the percentage of commuters who can get to work within a given period of time. As with mobility, the goal is to ensure that commuters in EJ TAZs throughout the county have average trip times that are shorter, or at least no longer, than in the county as a whole. The measure on highways also provides an indicator of the ability of freight to get to major employment sites, providing a measure of economic well-being for the region.

In 2006, the average trip length from anywhere in Bakersfield to a major job center was 12.13 minutes. For areas outside Bakersfield, the time was approximately 15 minutes longer at 27.26 minutes. The average commute time to a major job center in Kern County was 19.69 minutes in 2006. This compares to 14.8 minutes for all commutes from EJ TAZs to major job centers throughout the county in 2006.

EJ TAZs generally fare better across the board against urban, rural, and countywide averages for commutes to major job centers under the 2035 build and 2035 no-build scenarios. This is true for both private vehicle trips countywide and transit trips in Bakersfield. Rural transit data are unavailable.

2No data are maintained on average travel times for rural fixed-route and dial-a-ride services. The countywide average listed under Average Travel Time – Peak Transit Trips and EJ TAZs Average Travel Time – Peak Transit Trips reflects statistics on the Golden Empire Transit network only. Rural transit ridership is a small percentage of countywide and would result in a negligible increase.

TABLE 2-8 AVERAGE TRAVEL TIME TO MAJOR JOB CENTERS – HIGHWAY

Place Type	2006	2035 Build	2035 No Build
Urban/Metro	12.13	12.12	13.24
Rural Areas	27.26	27.16	27.73
Countywide	19.69	19.39	21.55

TABLE 2-9 AVERAGE TRAVEL TIME FROM EJ TAZS TO MAJOR JOB CENTERS – HIGHWAY

Place Type	2006	2035 Build	2035 No Build
Urban/Metro	11.85	11.78	12.20
Rural Areas	25.31	24.73	25.27
Countywide	14.80	14.65	15.08

TABLE 2-10 AVERAGE TRAVEL TIME TO MAJOR JOB CENTERS – TRANSIT [3]

Place Type	2006	2035 Build	2035 No Build
Urban/Metro	43.98	46.23	44.91
Rural Areas	N/A	N/A	N/A
Countywide*	47.07	49.35	49.02

** includes portions of trips outside of Metro for those who drive to use metro transit*

TABLE 2-11 AVERAGE TRAVEL TIME FROM EJ TAZS TO MAJOR JOB CENTERS – TRANSIT

Place Type	2006	2035 Build	2035 No Build
Urban/Metro	43.88	45.29	44.73
Rural Areas	N/A	N/A	N/A
Countywide*	44.42	45.62	17.1

** includes portions of trips outside of Metro for those who drive to use metro transit*

Reliability/Congestion

Reliability is the percentage of on-time arrivals for both transit and highway trips. For highways, it is measured by the number of hours daily that passengers spend in congested traffic. Congestion on roadways is measured by levels of service (LOS) on roadways and also by the amount of time in hours that a vehicle is not able to reach the speed limit on a given roadway segment. LOS also affects the reliability of transit service in Metropolitan Bakersfield. The Metro transit system lacks any facilities immune to congestion such as carpool lanes, bus lanes, or rail. The level of congestion is not a significant measure for rural place type areas based on the smart mobility framework analysis; however, the numbers are provided for comparison purposes.

3 No data are maintained on average travel times for rural fixed-route and dial-a-ride services. The countywide average listed under Average Travel Time – Peak Transit Trips and EJ TAZs Average Travel Time – Peak Transit Trips reflects statistics on the Golden Empire Transit network only.

For transit, reliability is judged by the percentage of on-time arrivals for each operator. Golden Empire Transit District has developed its own environmental justice analysis, "Title VI Update," last produced in March 2010. Based on observations through February 2004, GET estimated its on-time arrival rate for July 2009 through February 2010 was 76% of all trips. The report does not stratify by EJ TAZ.

Metropolitan Bakersfield residents will see the number of hours spent in congested traffic rise from 284,056 in 2006 to 500,661 in 2035. Relative to increases regionally, EJ TAZs will be 6% more congested than other areas countywide.

TABLE 2-12 AVERAGE LEVEL OF CONGESTION IN HOURS

Place Type	2006	2035	Percentage Increase
Urban/Metro	284,056	500,661	76
Rural Areas	276,468	503,753	82
Countywide	560,524	1,004,414	79

TABLE 2-13 AVERAGE LEVEL OF CONGESTION IN HOURS – EJ TAZS

Place Type	2006	2035	Percentage Increase
Urban/Metro	122,791	183,661	50
Rural Areas	64,257	116,046	81
Countywide	187,048	299,896	60

Reliability/Safety

For Kern COG's environmental justice policy purposes, safety is considered to be the minimal risk of accident or injury as measured by reduced accidents. While the model does make predictions regarding the number of accidents that cause property damage, injury, and fatalities, it cannot stratify that information specifically by project, as the environmental justice safety goal requires. On new facilities within environmental justice TAZs, projects outlined in the 2014 RTP will demonstrate no more accidents than the countywide average.

Despite the model's inability to predict accident rates on specific projects, it does provide an aggregate look at annual accidents in 2006 compared to 2035. Results show that injury accidents will rise sharply throughout the county by 2035. Meanwhile, EJ TAZs will see a slower increase for injury accidents than the region as a whole. For example, in Metro Bakersfield, the injury accident rate is predicted to rise from 879 in 2006 to 1,636 in 2035, an 86% increase. In urban EJ TAZs, however, the rate for the same type of accident will go from 370 to 572, a 55% rise.

Using the Smart Mobility 2010 philosophy, safety is a higher concern in rural place type areas than congestion. Based on this plan's funded project list, accidents in rural areas are forecast to rise at a slightly lower rate than the countywide average as travel increases on Kern's roadway network.

TABLE 2-14 ANNUALIZED ACCIDENT STATISTICS FOR ANNUAL AVERAGE DAILY TRAFFIC

Place Type	2006	2035	Percentage Increase
Urban/Metro			
Property damage	1,537	2,862	86
Injury	879	1,636	86
Fatality	55	103	87
Rural			
Property damage	2,239	4,092	83
Injury	1,279	2,338	83
Fatality	81	147	81
Countywide			
Property damage	3,776	6,954	84
Injury	2,158	3,974	84
Fatality	136	250	84

TABLE 2-15 ANNUALIZED ACCIDENT STATISTICS FOR ANNUAL AVERAGE DAILY TRAFFIC – EJ TAZS

Place Type	2006	2035	Percentage Increase
Urban/Metro			
Property damage	647	1,001	55
Injury	370	572	55
Fatality	23	36	57
Rural			
Property damage	490	911	86
Injury	280	521	86
Fatality	18	33	83
Countywide			
Property damage	1,137	1,912	68
Injury	650	1,093	68
Fatality	41	69	68

Efficiency/Cost-Effectiveness

Efficiency and cost-effectiveness can be measured by maximized returns on transportation investments. This criterion was measured by dividing the average daily investment from 2014 RTP projects through 2035 by the average number of daily passenger miles traveled (PMT) on the transportation network, both inside and outside of EJ TAZs for urban and rural place types.

In the Metropolitan Bakersfield area, the average daily investment in highways will amount to $.009 per PMT versus $.015 per PMT in Bakersfield EJ TAZs. In rural areas outside Bakersfield, the cost is $.004 versus $.006 in rural EJ TAZs. For transit service in Bakersfield, the daily investment per PMT is $.11 versus $.07 in Bakersfield EJ TAZs While the daily investment per PMT for roads indicates that the

transportation system will meet the goal of spending more money per PMT in EJ areas than in the county as a whole, the transit system does not measure up to that criterion, with all factors constant. However, more funding will be spent per PMT in EJ TAZs than in the county as a whole, and mobility and accessibility for EJ TAZs will also be higher.

Because the cost-effectiveness criterion assumes that RTP projects will be built, the no-build scenario is not displayed.

TABLE 2-16 AVERAGE DAILY INVESTMENT PER PASSENGER MILE TRAVELED – HIGHWAYS

Place Type	2035 Build
Urban/Metro	$.009
Rural Areas	$.004
Countywide	$.007

TABLE 2-17 AVERAGE DAILY INVESTMENT PER PASSENGER MILE TRAVELED – HIGHWAYS – EJ TAZS

Place Type	2035 Build
Urban/Metro	$.015
Rural Areas	$.006
Countywide	$.0105

TABLE 2-18 AVERAGE DAILY INVESTMENT PER PASSENGER MILE TRAVELED – TRANSIT[4]

Place Type	2035
Urban/Metro	$.11
Rural Areas	N/A
Countywide	$.13

TABLE 2-19 AVERAGE DAILY INVESTMENT PER PASSENGER MILE TRAVELED – TRANSIT – EJ TAZS

Place Type	2030
Urban/Metro	$.0723
Rural Areas	N/A
Countywide	$.06

Livability/Consumer Satisfaction

Consumer satisfaction is one potential measure of livability and is defined as the condition where consumers can largely agree that their transportation needs are being met in a safe, reliable, efficient, and cost-effective manner. The criterion is measured by the daily amount of trip delay in hours. On

4 Because Kern COG's regional transportation model cannot estimate passenger miles traveled for rural transit services, estimates for daily investment per PMT countywide are unable to be calculated.

roadways, trip delay refers to the difference between the time a trip should take and the time it actually requires, or the difference between free-flow traffic and some level of congestion. Traffic congestion also affects the on-time performance of transit operations, limiting alternative transportation choices during peak periods and impacting the region's livability.

For example, between 2006 and 2035, Kern COG's traffic model estimates the number of daily trip delay hours in the urban metro area will rise from 61,929 to 105,837, a 71% increase. However, in Metro Bakersfield's EJ TAZs, the number would increase from 27,134 to 43,190, a 59% rise. While neither scenario is desirable, EJ TAZs within Metropolitan Bakersfield increase 12 percentage points less than the area as a whole. In rural areas, travel delay grows a little faster than in the county as a whole.

TABLE 2-20 AVERAGE TRIP DELAY TIME IN HOURS

Place Type	2006	2035	Percentage Increase
Urban/Metro	61,929	105,837	71
Rural Areas	24,703	48,163	95
Countywide	86,632	154,000	78

TABLE 2-21 AVERAGE TRIP DELAY TIME IN HOURS FOR EJ TAZS

Place Type	2006	2035	Percentage Increase
Urban/Metro	27,134	43,190	59
Rural Areas	8,905	15,344	72
Countywide	36,039	58,534	62

Sustainability/Environment

This measure is defined as enhancing the existing transportation system while improving the environment. It is the one factor in Kern COG's environmental justice criteria set that the transportation model currently cannot measure. Environmental effects vary among different transportation projects and can only be determined meaningfully on a project-by-project basis. The goal is for projects in the 2014 RTP to demonstrate no difference in unmitigated impacts between environmental justice populations and the region as a whole. This goal is measured through conformity with the Clean Air Act Amendments of 1990 according to measures of certain pollutants such as nitrous oxide and particulate matter.

A greenhouse gas (GHG) measure is currently under development as part of efforts to implement AB 32 and SB 375, and should be available in time for the next major RTP update. In the meantime, measuring current federal criteria pollutants offer an adequate surrogate for GHG because the strategies used to reduce one usually help reduce the other.

Both Kern COG's long-term 2014 RTP and the short-term Federal Transportation Improvement Program (FTIP) require a demonstration of air quality "conformity" prior to being adopted by Kern COG and the federal government. This conformity process is necessary because the San Joaquin Valley Air Basin is nonattainment for ozone and particulate matter. The process ensures that new transportation projects will either benefit or at least have no negative effect on air quality. Kern COG's conformity analysis for its most recent FTIP amendment was approved by the US Department of Transportation on November 3, 2009. A revised conformity analysis has been undertaken to support the 2014 RTP and the 2011 FTIP.

TABLE 2-22 VEHICLE NOX/PM_{10} EMISSIONS DECREASE

Air Basin (portion of Kern)	Base 2008/11	Horizon 2030/35	Percentage Decrease	Air Standard Met?
San Joaquin Valley	75.5	22.9	70	YES
Mojave Desert	14.6	4.2	71	YES
Indian Wells Valley*	1.3	1.1	15	YES

**Indian Wells Valley totals are for all particulate matter 10 microns or smaller, not just the NOx precursor.*

For a more detailed discussion of air quality, see the 2011 Conformity Analysis for simultaneous adoption with the 2014 RTP and FTIP.

Sustainability/Preservation

Sustaining and preserving the transportation system can be measured by the total annualized amount of maintenance funding divided by the number of lane miles in the model. Countywide maintained lane miles are calculated from the transportation model. In November 2008, an initiative with 56% voter approval failed to garner the two-thirds vote required to pass. Had it passed, approximately 40% of the funding would have been reserved for maintenance. The following tables illustrate the growing problem of maintaining an expanding system and underscore the need for rapid action to provide new funding sources to maintain the system.

TABLE 2-23 MAINTENANCE DOLLARS PER LANE MILE FOR THE TRANSPORTATION SYSTEM

Countywide	Base 2006	Horizon 2035	Percentage Change
Lane Miles	7,349	9,474	29
Annual Maintenance	$96,000,000	$96,000,000	0
Maintenance per Mile	$13,063	$10,133	-22

TABLE 2-24 MAINTENANCE DOLLARS PER LANE MILE FOR THE TRANSPORTATION SYSTEM IF THE 2008 TRANSPORTATION MEASURE HAD PASSED

Countywide	Base 2006	Horizon 2035	Percentage Change
Lane Miles	7,349	9,474	29
Annual Maintenance	$96,000,000	$124,000,000	29
Maintenance per Mile	$13,063	$13,088	0

Equity

Equity is defined as a fair and reasonable distribution of transportation investment benefits (as a share of benefits). Kern COG took a similar approach to equity as with cost-effectiveness, comparing the total investment in roads and transit through 2035 with total passenger miles traveled in Bakersfield, rural areas, and the county as a whole. All numbers were converted to percentages for simplicity.

In 2035, Urban/Metro Bakersfield EJ TAZs will account for 52% of all passenger miles traveled in the region. However, approximately 73% of transportation expenditures will go directly into the metropolitan EJ TAZs. Rural EJ TAZs will represent 13% of countywide PMT, and 13% of all highway funding will be spent in those areas. Countywide, approximately 28% of all passenger miles traveled will occur in EJ TAZs, which will collect 47% of funding and projects.

Although Kern COG cannot reliably project the number of passenger miles traveled by rural transit agencies in 2035, the model does predict that EJ TAZs in the Metro Bakersfield region will make up approximately 68% of transit PMT. Those same TAZs, however, will receive 90% of all transit funding attributable to the metropolitan area. Stratification between metro and rural transit services is impractical because of the rural transit PMT variable. The model currently excludes rural transit because the extremely low volumes are difficult to calibrate.

TABLE 2-25 PERCENTAGE OF EXPENDITURES VERSUS PASSENGER MILES TRAVELED IN 2035 – HIGHWAYS

Place Type	2035 PMT	Total Investment	PMT (percentage)	Investment (percentage)
Urban/Metro	23,381,541	$2,403,140,132	41	63
Rural Areas	33,427,754	$1,435,741,868	59	37
Countywide	56,809,295	$3,838,882,000	100	100

TABLE 2-26 PERCENTAGE OF EXPENDITURES VERSUS PASSENGER MILES TRAVELED IN EJ TAZS BY 2035 – HIGHWAYS

Place Type	2035 PMT	Total Investment	PMT (percentage)	Investment (percentage)
Urban/Metro	8,179,260	$1,303,108,495	52	73
Rural Areas	7,443,927	$481,971,635	48	27
Countywide	15,623,187	$1,785,080,130	100	100

TABLE 2-27 PERCENTAGE OF EXPENDITURES VERSUS PASSENGER MILES TRAVELED IN 2035 – TRANSIT

Place Type	2035 PMT	Total Investment	PMT (percentage)	Investment (percentage)
Urban/Metro	95,045	$96,000,000	100	85
Rural Areas	N/A	$16,800,000	N/A	15
Countywide	N/A	$112,800,000	100	100

TABLE 2-28 PERCENTAGE OF EXPENDITURES VERSUS PASSENGER MILES TRAVELED IN EJ TAZS BY 2035 – TRANSIT

Place Type	2035 PMT	Total Investment	PMT (percentage)	Investment (percentage)
Urban/Metro	64,610	$46,944,000	N/A	90
Rural Areas	N/A	$5,410,000	N/A	10
Countywide	N/A	$52,354,000	100	100

Environmental Justice Conclusions

Ideally, transportation projects not only achieve immediate transportation goals (such as congestion relief) but contribute to the betterment of our physical and socioeconomic environment. It is inevitable, however, that some transportation projects generate negative impacts as well. This chapter identifies the methodology used to determine the 2014 RTP projects' equitability and their overall cost and benefit to the residents of Kern County, including traditionally disadvantaged neighborhoods.

From a public information perspective, Kern COG's commitment to environmental justice and both rural and urban community types is demonstrable through its efforts at gathering public input. These efforts include broadcasting its monthly meetings on television, using display advertising and electronic notices to announce workshops and public hearings, and developing radio advertisements for long-range planning efforts. Kern COG has been visible in every community over the last three years during city council meetings, street fairs, and community festivals. Press releases are generated at project milestones. Kern COG's quarterly newsletter is distributed to over 2,000 organizations and individuals.

From a planning standpoint, the transportation model indicates that, with few exceptions, Kern COG has and will continue to divide its resources equitably, with no single population group suffering disproportionate and adverse effects from agency activity. Analyses demonstrated some shortcomings that will be addressed, however. For example, Metropolitan Bakersfield will see the number of hours spent in congested traffic rise from 284,056 in 2006 to 500,661 in 2035, a 76% increase. But metro area EJ TAZs will experience a 50% rise in congestion levels over the same period.

Kern COG's position that it is meeting the rigors of environmental justice is based largely on averages, and in some cases predicated on a worst-case scenario for every portion of the Kern region. The fact that delay times will rise by only 62% in EJ areas versus 78% for the region as a whole over the long term is nothing to trumpet; however, it does demonstrate that despite substantial financial commitments, and with all issues remaining constant, the Kern region's transportation network will continue to deteriorate for every segment of the population. The model shows that, generally speaking, the transportation network will not deteriorate in EJ areas as quickly as in the county as a whole.

Kern COG re-evaluated its environmental justice policies and procedures with the release of the federal 2010 Census results. In its initial analysis, Kern COG determined that several of the criteria were measured redundantly. This redundancy is intended to provide additional internal checks should a performance measure have an unusual result.

Similarly, cost-effectiveness and equity both attempt to determine how expenditures are being divided between EJ areas and the region as a whole. While each measure uses a different analysis method, the conclusions appear to be the same. Because environmental issues such as noise, air quality, wildlife disturbances, and context-sensitive design must be addressed through the mitigation process on a project-by-project basis, no substantive means are available to measure these environmental effects as a system-wide criterion in this analysis.

Considering all the analyses as a whole, it is fair to conclude that the 2014 RTP meets the Federal Title VI environment justice requirements by ensuring that all of the population is subject to proportionate benefits and detriments. It also must be understood that environmental justice does not create an entitlement; however, it does attempt to assure that transportation projects do not have discriminatory effects or disparate impacts on any segment of the population, especially those traditionally disadvantaged groups such as racial minorities and low-income communities. The above analyses demonstrate that the 2014 RTP has met those expectations.

Smart Mobility Conclusions

The smart mobility method divided the performance measures into two place types—urban and rural. The measures reveal that a relatively even distribution of resources addresses mobility and accessibility. For example, the greatest improvement in accessibility to job centers is found in rural areas were average travel times are reduced by about six seconds compared to one second in urban areas, despite 63% of the highway investment in the metro/urban area. Trip delay and congestion increases in rural areas at a faster rate than in metro; however, congestion is not considered as important a factor as safety where rural place types see a 3–6% reduction in accidents. This is primarily because projects in outlying rural areas are focused less on relieving congestion and more on safety improvements.

The performance measures look at all funding sources, and not just those subject to the 60–40 guideline policy adopted by the Kern COG board. It is interesting to note that more passenger miles are traveled outside of Metropolitan Bakersfield than within. That is because the metro area makes up less than 10% of the total area of the county, and through-county trips make up about 25% of all travel in Kern County.

System-wide Conclusions

System-wide, the performance measures indicate that the Kern region is losing ground in its battle with congestion while improving the economy by providing better accessibility to major job centers. Accessibility to major job centers countywide improved by 18 seconds between 2006 and 2035. However, even with the influx of more than $640 million in federal demonstration funds to the region, and a recent increase in traffic impact fees on housing in Metropolitan Bakersfield are forecast to see an 80% increase in congestion over the next 25 years. With the current housing downturn, it is not likely that another increase in impact fees can absorb the costs needed to accommodate the growth for the region. In addition, many of these future improvements are becoming more expensive. The cheap, easy fixes are no longer available. Changing a six-lane arterial to eight or ten lanes can be costly. Not only does the congestion affect the reliability of our transportation system, it affects transit operations as well.

Transit can only provide a relief for congestion if the express bus service is not stuck in the same traffic as single-occupant vehicles. Investment in carpool and bus lanes on freeways, ramps, and arterial streets is not much more expensive than adding free-flow lanes; however, they can provide a vital relief valve during peak travel times. The ability to get around during peak periods is important to ensure the economic vitality of the region and can stretch the effectiveness of Kern's transportation dollar.

One of the worst performing indicators is the Sustainability/Preservation measure.

Recent polling for both the 2008 local transportation sales tax measure and the Kern Blueprint ranked maintenance of the existing system as the highest priority for transportation funding. However, federal, state, and local efforts have failed to provide the funding necessary to maintain the infrastructure that Kern County is building. The 2008 sales tax measure would have provided sufficient funding to maintain the system at current levels to 2030.

Some local successes have occurred for new funding sources. Recently, the City of Bakersfield passed a utility tax for transportation maintenance, and the City of Delano has approved a 1-cent general fund measure that can be used for road maintenance. The national American Recovery and Reinvestment Act (ARRA) has provided a one-time influx of funding to catch up on maintenance backlogs for more than 80 projects in Kern County. ARRA II may provide additional funding; however, deficit stimulus spending is not a permanent solution. The state and federal highway trust funds are insolvent and must be fixed as part of the federal surface transportation act reauthorization now under way. Innovative long-term pay-as-you-go solutions, such as a phased-in odometer-based gas tax, should be seriously considered.

Monitoring Performance

Performance measures are often driven more by the tools available to measure than by the policies that need to be tracked. Performance measures can be divided into two types. The first includes future performance measures that are used in modeling to compare scenarios such as the ones in this chapter. A second type is a monitoring indicator that measures real-world data, such as traffic counts and air quality.

The following variables are already tracked annually and may be enhanced:

- Traffic count information
- Truck origin-destination studies along key corridors
- Traffic speed survey program
- Transit ridership travel survey;
- Bicyclist survey;
- Air Quality Monitoring System

These datasets are incorporated into the base year validation of the regional transportation model and provide the basis for forecasting future performance measures and tracking progress toward the goals.

CHAPTER 3
PLANNING ASSUMPTIONS

CHAPTER 3 PLANNING ASSUMPTIONS

The Kern Council of Governments (Kern COG) 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.

GROWTH TRENDS

Population in the 8,200-square-mile County of Kern has surpassed 830,000, and Kern County was in the top four fastest growing counties in California from 2000 to 2010. About one in every 44 people in California lives in Kern County. The Kern region grew by nearly 180,000 persons from 2000 to 2010 and is California's eleventh most populated of 58 counties.

Figure 3-2, Growth Trends for Kern County, illustrates anticipated population and housing forecasts for the county and its incorporated cities through 2040.

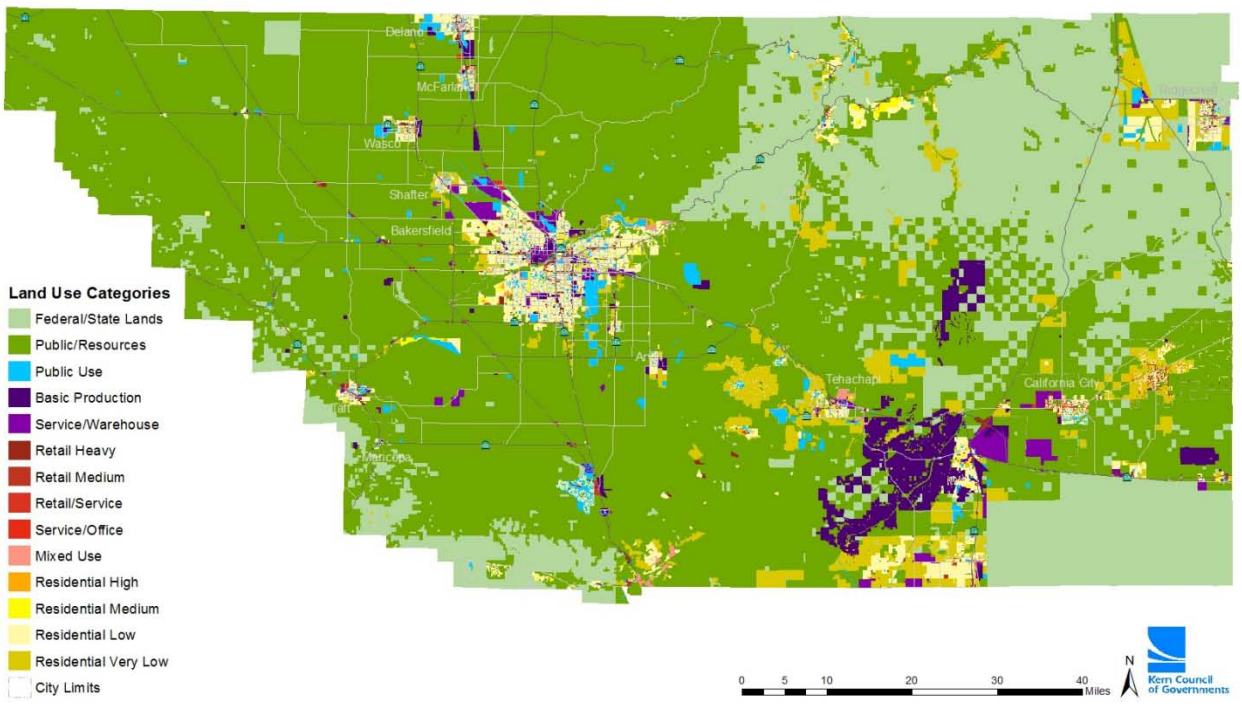
Over the past decade, growth has concentrated in Metropolitan Bakersfield and the communities of Delano, Wasco, Ridgecrest, California City, Arvin, and Tehachapi, and the unincorporated communities around Tehachapi, Rosamond, and Frazier Park.

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. The northeast has begun to see activity with completion of a new water delivery system. Over the past decade, Kern workers commuting to Los Angeles County (3%) have kept pace with the county's growth rate. Most of the Los Angeles commuters are in communities along the southern edge of the county, such as Rosamond, Tehachapi, and Frazier Park. However, more commuters work in Kern and live in Los Angeles County than the reverse. Most of the imported workers commute to Edwards AFB, Kern's largest employer with over 20,000 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 and food processing facilities, warehousing, oil fields, prisons, power plants, and government installations. This reverse commute creates a centrifugal force on Metropolitan Bakersfield's housing development where purchasing housing on the urban fringe often reduces a commuter's trip. 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. This centrifugal growth fuels the conversion of farmland to urban uses and affects both the region's air quality and the economic base. It also creates hotspots of traffic congestion in outlying areas.

1401 19th Street, Suite 300, Bakersfield, California 93301

FIGURE 3-1 KERN COUNTY REGIONAL LAND USE MAP



Regional Population, Jobs, and Housing Forecasts

The California Department of Finance (DOF) estimated that population in the Kern region increased at an average compounded annual rate of 2.4% between July 2000 and July 2010, nearly three times the rate for California as a whole (0.9%). Even with the economic slowdown beginning in 2007, the region gained 17,700 people annually, up from 12,000 annually during the 1990s. Kern County has gained 44,700 jobs since 2000 and has experienced an increase in per capita income. However, the unemployment rate in the Kern region in 2010 (15.9 %percent) was significantly higher than the state average (12% percent).

TABLE 3-2 GROWTH TRENDS

								1980–2010 Historic/ Growth		2010–2035 Forecast Growth	
	Census	Census	Census	Census	Forecast	Forecast	Forecast	Average Annual		Average Annual	
Year	1980	1990	2000	2010	2020	2030	2035	Rate	Increase	Rate	Increase
Kern County											
Population	403,089	543,477	661,653	845,600	1,010,800	1,208,200	1,321,000	2.4%	14,750	1.8%	19,016
Households	139,881	181,480	208,655	271,327	319,200	381,600	417,200	2.2%	4,382	1.7%	5,835
Metro Bakersfield											

								1980–2010 Historic/ Growth		2010–2035 Forecast Growth	
	Census	Census	Census	Census	Forecast	Forecast	Forecast	Average Annual		Average Annual	
Population	228,000	329,100	409,800	533,461	640,536	764,941	848,487	2.8%	10,182	1.8%	12,601
Households	89,500	120,000	134,100	172,970	203,753	244,722	269,840	2.2%	2,782	1.8%	3,875

Sources: 1980-2010 (April) data from US Bureau of the Census; 2010–35 (July) Kern COG growth forecast by Regional Statistical Areas (RSA), adopted October 2009; Note: City trends subject to periodic annexation and de-annexation activity, population includes prisons.

Over the next 26 years, growth in the Kern region could vary widely based on a host of factors, including spillover from Southern California, water availability, employment opportunities, housing costs, interest rates, high-speed rail, air quality regulations, and land availability. The combined general plans within the Kern region designate sufficient land to absorb growth at twice the rate forecasted by 2035, assuming water and urban services are available. Past growth in the region and in Southern California as a whole would indicate that the question is not "if" but "when" Kern's population will double.

Kern COG's policy is to revise the regional growth forecast every 3 to 5 years to adjust for major changes in regional growth trends. The most recently adopted growth forecast from October 2009 expects population to increase conservatively by approximately 500,000 by 2035, and doubling to 1.7 million by 2050.

In the near term, children of existing residents will fuel this population growth; soon, Kern's population will consist of more than 50% Hispanic ethnicity. At the same time, a huge "baby boomer" population group is retiring and has set the stage for conversion of existing second and vacation homes in the mountain areas to become primary residences. The increase of telecommuting workers will also allow more remote locations to become primary residences. At some point, significant spillover from the Southland will be felt first in the Rosamond and Frazier Park areas. Centennial -- —a new proposed community on Tejon Ranch of 30,000 housing units in northern Los Angeles County -- —may siphon some of the anticipated growth from southern Kern in the near term; however, this project will likely have growth-inducing effects. The most recent forecast assumes that growth's positive and negative factors will ultimately cancel each other out, causing long-term growth to reflect historic boom/bust trends.

Demographics

The Kern region will soon have no racial or ethnic majority. In 2010, non-Hispanic Whites accounted for 39% of the population, down from 50% in 2000. During the same decade, Hispanics grew from 38% to 49%. 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 each experienced less than a 1% change. This population growth mirrors the rest of the state, which is one of the most diverse in the nation. Population growth resulted 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% of the population gain. Natural increase—births minus deaths—accounted for 45%. Nearly 30% of the net migration was the result of immigration from outside the United States. *See Chapter 4, Sustainable Communities Strategy for further discussion on demographics.*

Housing, Households, and Group Quarters

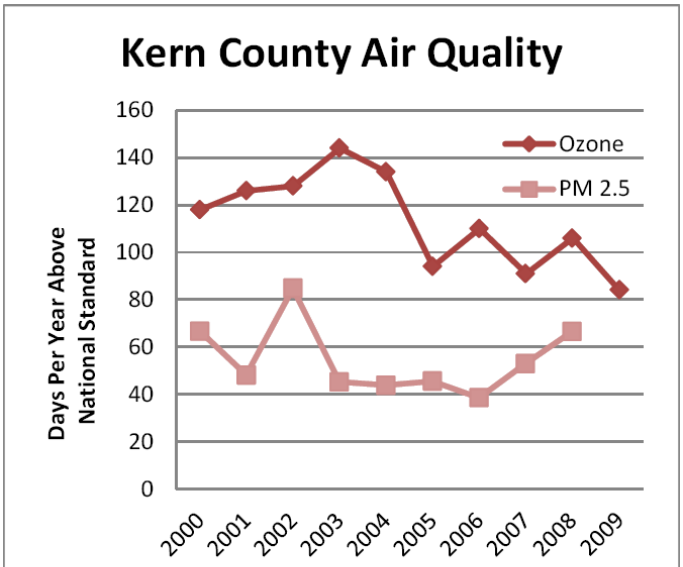
Nearly 52,800 housing units were added between 2000 and 2010. This brought the housing stock in the Kern region up to 280,400 units. Population growth exceeded household growth, and the average persons per unit increased from 3.03 in 2000 to 3.15 in 2010. This was in sharp contrast to a decade-to-decade drop in household size experienced by the nation overall. In addition, housing construction gains outpaced the net job increase in the region, while 44,700 jobs were added from 2000 to 2010. The jobs-to-household ratio dropped from 1.3 jobs per household in 1990 to 1.14 jobs per household by 2010.

Contrary to a decreasing trend at the national level, the percentage of housing considered crowded increased in the Kern region over the past decade. Almost 9% of the households lived in crowded housing in 2006–08, compared to only 8% in 1990. Nationally, overcrowding was at 3% in 2006–08. Kern still maintains the most affordable housing stock for any Metropolitan Statistical Area in California; however, high unemployment and relatively low-paying jobs appear to be fueling an increase in overcrowded conditions.

Eleven percent of Kern's population growth was in group quarters between 2000 and 2010. This growth was fueled by the opening and/or expansion of eight federal, state, and privately operated prisons in the outlying communities of Delano, California City, McFarland, Shafter, Taft, Tehachapi, and Wasco. Group-quartered residents grew from 3% to nearly 5% of Kern's total population. Even with this population increase in the outlying communities, the Metropolitan Bakersfield planning area grew from 60% to 62% of the total county population during the same period. Also included in group quarters growth is an increased nursing home and dormitory population.

Mobility and Air Quality

From 1998 to 2009, the region's congestion as measured by passenger vehicle travel has increased at a faster rate (40%) than the population (25%) and maintained road miles (6.8%). During the same period, the average annual growth in passenger vehicle travel increased from 500,000 miles traveled per year to 580,000 miles traveled per year. In 2006–2008, transit commuters averaged a modest 1.1% of all workers, a decrease from 1.4% in the 2000 Census. The overall mode choice to work revealed a 1% increase in those who commuted alone to work.



Note: In this air quality graph, lower $PM_{2.5}$ and ozone numbers are equivalent to better air quality.

Since the 1990s, the Kern region achieved consistent improvements in the number of days exceeding federal or state standards for ozone and particulate matter, generally defined as "fine dust." The San Joaquin Valley Air Basin exceeded the federal one-hour ozone standard for 37 days in 2003, dropping to 13 days in 2007. While the Air Basin exceeded the federal PM_{10} standard for 60 days in 1990, it dropped to 8 days in 2002. A region cannot have more than three exceedances per year for three consecutive years to comply with the standard. New 8-hour ozone and $PM_{2.5}$ standards were released by the federal government that will be more difficult for the Valley to achieve in light of the

current growth forecast. These new standards will be a problem for the mountain and desert areas of the region as well.

On-road mobile sources create approximately 30% of the ozone-precursor emissions and 40% of the PM_{10} emissions in Kern County. Cleaner-burning fuels and zero-emission vehicles will likely solve the ozone emission problems from mobile sources, but not for several decades. PM_{10} and $PM_{2.5}$, however, are more problematic. As passenger vehicle travel increases, so does on-road dust, especially after a rainstorm when dirt is washed onto the roadway, then subsequently dries. One of Kern's long-range air quality challenges will be to sustain the forecast population and employment growth while controlling fine dust particles in order to meet the evolving federal standards.

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.

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.

Sustainable Communities Strategy

The Kern Region's Sustainable Communities Strategy (SCS) establishes the desired land use pattern and corresponding transportation network that encourages 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. For additional discussion, see Chapter 4, Sustainable Communities Strategy.

CHAPTER 4
SUSTAINABLE COMMUNITIES STRATEGY

PRELIMINARY SUSTAINABLE COMMUNITIES STRATEGY

I. A SUSTAINABLE COMMUNITIES STRATEGY FOR THE KERN REGION

This 2014 Regional Transportation Plan (2014 RTP) seeks to guide the Kern region toward a stronger economy, healthier environment, and safer 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 2014 RTP. The following section describes what an SCS is and key lessons learned in 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 is a growth strategy for the region which, in combination with transportation policies and programs, strives to reduce emissions and, if feasible, helps meet California Air Resources Board (CARB) targets for the region. Under California law, an SCS must:

- 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 (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 Government Code 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 Government Code Section 65080.01 (GC Section 65080(b)(2)(B)(v)).
- Consider the state housing goals (GC Section 65080(b)(2)(B)(vi)).
- Set forth a forecast development pattern for the region which, when integrated with the 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)).
- 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)) also places certain limits on the regulatory authority of an SCS. Specifically, an SCS does not regulate 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 regional land use pattern established by local agency plans that responds to projected growth, 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 land use pattern to accommodate the region's future transportation, employment, and housing needs, while protecting 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.

Why Have a Sustainable Communities Strategy?

The intent of the SCS is to implement 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 SCS seeks to:

Improve economic vitality

Our transportation system will be increasingly efficient and cost-effective in the future. The 2014 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

This SCS seeks to improve air quality in the Kern region by reducing emissions. We will achieve our emissions reduction target set by CARB by achieving a [placeholder for percentage reduction by 2020 and by 2035] compared to the [placeholder for baseline year] level on a per capita basis. This SCS [placeholder: meets/does not meet] criteria pollutant emission budgets set by the Environmental Protection Agency. 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_{2.5}$) attainment plan goals. With each passing year, Kern region community members should expect to breathe cleaner air and live healthier lives.

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

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. This SCS seeks to lower accident rates on highways and local streets and roads, giving our residents the peace of mind to travel safely.

Improve communities' health

Our region's bicycle and pedestrian facilities will expand, providing more opportunities to bike and walk to work, the store, school, and home. In the future, Kern region residents will be able to live closer to where they work and play. The share of households living in centers will [placeholder: from RHNA – what percentage of new houses will be in centers areas] before 2035, 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.

Conserve natural resources and undeveloped land

Our military air space, recreation, and agricultural lands will be preserved into the future. Our economic resource areas are an important part of the region's economic base. This SCS protects resource areas from urbanization and supports Kern's agricultural sector by maintain existing streets and roads and focusing appropriate compact development in center areas.

Increase access to community services

Kern region residents will have more access to comprehensive community services for health, education, safety, and recreation in the future. 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 easier.

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 protect our natural resources and open spaces, providing opportunities to invest in renewable energy production and distribution.

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.

Lessons Learned from Other California Regions

Exemplifying California's strength in diversity, Kern is unlike any other region in the state. The Kern region's agricultural and oil-based economies, large and diverse geographic areas, dispersed employment centers, and major interstate transportation routes contribute to its uniqueness. Strategies that may work in other regions are considerably different from the strategies that work in Kern. For example, industries located in Kern County, such as agriculture, oil production, renewable energy facilities, aerospace, and defense exploration, are major economic engines, but they cannot be located close to urban areas.

However, studying the experience of other regions that have successfully adopted an SCS can provide some insights. To learn from the experiences of other California regional planning agencies, comments from the Office of the Attorney General, the California Governor's Office of Planning and Research, and the California Air Resources Board on other RTP/SCS efforts were collected and reviewed. In addition to comments from the Office of the Attorney General, the Office of Planning and Research, and CARB, independent studies regarding other RTP efforts were collected and reviewed.

Based on this extensive review, it was clear that several factors were present in the regional plans that received approval from the State of California and other agencies and which were supported by local stakeholders. These include:

- Regional Targets: Ensure accountability to identifiable and consistent regional emissions targets specified by CARB.
- Land Use and Transportation: Include strategies that support multimodal transportation options and ensure land use scenarios take emissions reduction targets and economic feasibility into consideration.
- Inclusive, Transparent Modeling: Validate the modeling approach through an inclusive, transparent process and ensure consistency with other MPOs.
- Long-Term Monitoring: Implement, monitor, and measure the effectiveness of the RTP over time.
- Innovative Funding: Explore innovation in sustainable funding, financing, and phasing of RTP projects and partner with local governments.
- Social Equity and Environmental Justice: Consider social equity and environmental justice in the RTP environmental impact report.

II. 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 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 grassroots values of local communities. The 2014 RTP presents goals and policies to achieve the region's mutual vision of a stronger economy, healthier environment, and safer quality of life for everyone, while ensuring each community's independence to determine the best path to that future.

This SCS chapter of the 2014 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 Regional Blueprint (2009), and Kern SB 375 Framework (2012) laid much of the groundwork for the Kern COG 2014 RTP.

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

Kern Regional Blueprint

Adopted in November 2008, the Kern Regional Blueprint established a grassroots vision, guiding principles, and an alternative growth scenario for the region in 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 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 when the economy fared considerably better than it does in 2014 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 economy and diverse employment opportunities.

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- 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 2014 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.

Since the initial Blueprint process, Kern COG has completed statistically valid, quality-of-life phone surveys annually to track changes in public opinion. The most recent survey (2012) found that providing job opportunities is now the highest ranking issue on which local governments should be focused.

See Chapter 2, Transportation Planning Policies, for further information on Directions to 2050.

San Joaquin 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, the San Joaquin Valley Regional Blueprint effort included the 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
- Reserve 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 this SCS. Kern COG's Regional Planning Advisory Committee (RPAC), a committee comprising local government, agency, and stakeholder representatives, worked together to develop the framework. The framework's purpose is to guide the development and implementation of this 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.

2) The Sustainable Communities Strategy shall not hinder the local land use authority of Kern County and its eleven (11) incorporated cities and their ability to create new planned land use designations to respond to local/regional needs and promote economic prosperity.

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.

See Chapter 7, Future Links, for further discussion on the SB 375 Framework, including the core actions.

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.

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 established targets 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 requirement 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 mixture of direct regulations, alternative compliance 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.

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.

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 hoped that vehicle congestion and travel can be reduced and emissions can be reduced. SB 375 directed CARB to set regional targets to reduce emissions; regional and local plans are required to identify how they will meet these targets.

SB 375 has three major components:

- 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 a growth 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 more detailed 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 will not delay attainment of the federal air quality standards in each air basin. In addition, GC Section 65584.01(i)(1) states that it is the intent of the legislature that housing planning be coordinated and integrated with the RTP. To achieve this goal, the 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 SCS scenario does not delay attainment of federal air quality standards.

Greenhouse Gas Emissions Inventory, Projections, Targets

[Placeholder: Kern COG to insert discussion of existing per capita emissions from cars and light-duty trucks, as well as forecast current trends (without SCS) per capita emissions from these sources in 2020, 2035.]

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 2014 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. Based on the information presented above, this means the region must reduce per capita emissions by approximately X over the next 20 years. [Placeholder: Kern COG to insert number.]

Affordable Housing – Regional Housing Needs Allocation

SB 375 combines 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 house an eight-year projection of the regional housing need and consider the state housing goals specified in GC Sections 65580 and 65581. Kern COG has been engaged in the RHNA process concurrently with the development of the 2014 RTP. This process requires 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.

III. 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 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)).
- Consultation with congestion management agencies, transportation agencies, and transportation commissions (GC Section 65080(b)(2)(F)(ii)).
- 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)).
- Preparation and circulation of a draft SCS and 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)).
- 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)).
- 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)).

Agency Input and Consultation with Local Elected Officials

As a result of SB 375, the consultation requirement has been expanded, which includes the following:

- During the development of the SCS (and APS if applicable), 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.

- The meeting (or meetings) shall be to discuss the SCS (and APS if applicable), 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).

- 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).

- Additionally, pursuant to the 2010 California Regional Transportation Plan Guidelines, Kern COG should consider consultation with school districts within their region during development of the RTP. School-related trips constitute a significant portion of all vehicle trips.

- Based on the 2010 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.

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)). It is encouraged that Kern COG communicate with CARB as early in the RTP development as possible to obtain input. Following adoption, the MPO shall submit a SCS to the state board for review (GC Section 65080(b)(2)(J)(ii)).

Following SB 375, Kern COG will need to coordinate with CARB and the California Department of Housing and Community Development. CARB must review the SCS and possibly an APS after the documents are prepared. In summary, early communication and coordination with all appropriate levels of government, elected officials, and the public is very important to avoid delays that may impede the final federal air quality conformity determination, the determination by CARB whether the SCS or APS, if implemented, would achieve the regional emissions reduction target, or successful coordination of the RHNA with the SCS.

Kern COG Public Involvement Procedure

Kern COG updated its public involvement procedure in September 2011 to reflect SB 375 legal outreach and review period requirements. The plan 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, 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 for which the Kern COG Board of Directors determines.

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.
- 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 this 2014 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 Assessment.
- Land use and population projections.
- Studies related to the environment (air, water, greenprint, habitat conservation).
- Rural-urban connections strategy.

- Appropriate studies for inclusion in the annual Overall Work Program.

- 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 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. Representatives from the regional air districts, the San Joaquin Valley Air Pollution Control District (APCD) and the Eastern Kern APCD, participate in most RPAC meetings.

The RPAC formulated a SB 375 SCS Framework with values and actions that were approved by the Board of Directors in November 2011. 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.

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 future. Directions to 2050 extended from September 2011 to December 2012. [Placeholder: Kern COG to confirm final participant number] Approximately 5,000 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:

- Stakeholder roundtable meetings with the RPAC and business and industry, environmental, social services, and equity stakeholders.

- Community workshops hosted in 16 different local jurisdictions with small group discussions and interactive strategy prioritization exercise. 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.

- Community event interactive and educational booths at the Great Kern County Fair, the Tehachapi Mountain Festival, and the Desert Empire Fair.

- Presentations and discussions with existing community-based organizations: [Placeholder: Kern COG to complete after these have been finalized]

- Interactive and educational booth at community colleges throughout the Kern region: [Placeholder: Kern COG to complete after these have been finalized]

- An interactive project website (www.directionsto2050.com) served as a communication and education tool and included interactive online prioritization and resource allocation activities, a survey, and project resources.

- Statistically valid phone surveys of residents of Kern County 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.

Brief Summary of Community Input

[Placeholder: Kern COG to complete. Pull from overall Directions to 2050 outreach Cycle 1 and 2 summaries]

Consider Social Equity

[Placeholder: Kern COG to complete. Pull from Stakeholder Roundtable Meeting Environmental and Social Equity summaries and policies in Chapter 4.]

IV. SUSTAINABLE DEVELOPMENT PATTERN ("LAND USE")

One of the key components of the SCS is a sustainable regional land use pattern that enables the region to accommodate future growth in a manner that reduces passenger vehicle emissions, enhances economic vitality, promotes housing affordability, and preserves resource lands. This land use pattern is the basis for development of the regional transportation system described throughout the 2014 RTP and summarized in this SCS. This section describes:

- Current land uses, residential densities, and building intensities in the Kern region.

- Anticipated future population, jobs, and housing in the region.

- A forecast regional Town Centers development pattern based on the Kern Regional Blueprint and accounting for regional affordable housing needs.

- Regional housing needs.

- Strategies to protect 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 a foundation to begin planning for more sustainable communities.

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 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. As the crow flies, Kern County is 159 miles in length from the northwestern boundary to the southeastern boundary. The population is currently 850,000 and is expected to grow by 55% over the next 20 years and nearly double 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 are not conducive to urban development.

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

Value-Added Agriculture is the leading employment cluster with the bulk of the state's agricultural operations concentrated throughout the Valley. The cluster builds on Kern's historic role as a leading center for crop production, particularly vegetables, nuts, citrus, dairy, and cotton. The cluster also benefits from the food processing component, particularly carrot and tomato processing.

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 interstates 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 76% of California's total oil. If Kern County were a state, it would be the third largest oil-producing state in the U.S., behind Alaska and Texas. Kern County has four giant oil fields (greater than 1 billion barrels of cumulative production) and as a whole produces 445,000 barrels per day. In terms of future production, Kern County is leading the state in development and production of renewable energy. Over 7,000 megawatts of renewable energy in the form of wind, solar, geothermal, biogas, and gasification production have been permitted countywide. The county's dependence on energy and natural resource production as part of our economic structure is reflective in the fact that all 10 of the county's top tax payers are either oil-producing and/or processing companies or renewable energy producers. For the year 2010–2011, these companies made up an overall assessed value of nearly 28% of all general taxes owed and paid to the county.

Aerospace and Defense remains a leading industry cluster for the county and particularly for eastern Kern County where the economy of most of the communities is dependent on the strength of the aerospace and defense industries. The county has some of the best natural assets in the western United States for continued expansion in aerospace and defense. The 2005 Base Realignment and Closure process resulted in the decision to consolidate naval weapons and armament research development and testing at the US Naval Air Weapons Station at China Lake, resulting in a projected 1,400 new direct jobs. The potential for space tourism continues to be great, through 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 as well as those from large metro areas in Southern California seeking a close weekend get-away destination.

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. In addition, the general growth in healthcare spending has served as the catalyst for the recent or planned expansion of several regional facilities.

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

Land Use Pattern: Centers Concept Strategy

In 2008, Kern COG adopted the Kern Regional Blueprint consisting of nine principles. A conceptual map was developed that de-emphasized where future development might take place by 2050 to focus on how development might look if the voluntary principles were applied. As part of the *Directions to 2050* process the map was updated and depicted village centers, town centers, community centers, and a metro center as well as employment centers (Figures 4-1 and 4-2 and Table 4-1). The map reflects existing general plans consistent with Kern COG's adopted SB 375 Framework. For example, the centers concept was jointly adopted by the City and County into the Metropolitan Bakersfield General Plan in 1982 and is found in the community plans for most of the outlying communities.

FIGURE 4-1. LAND USE PATTERN MAP – KERN REGION 2035

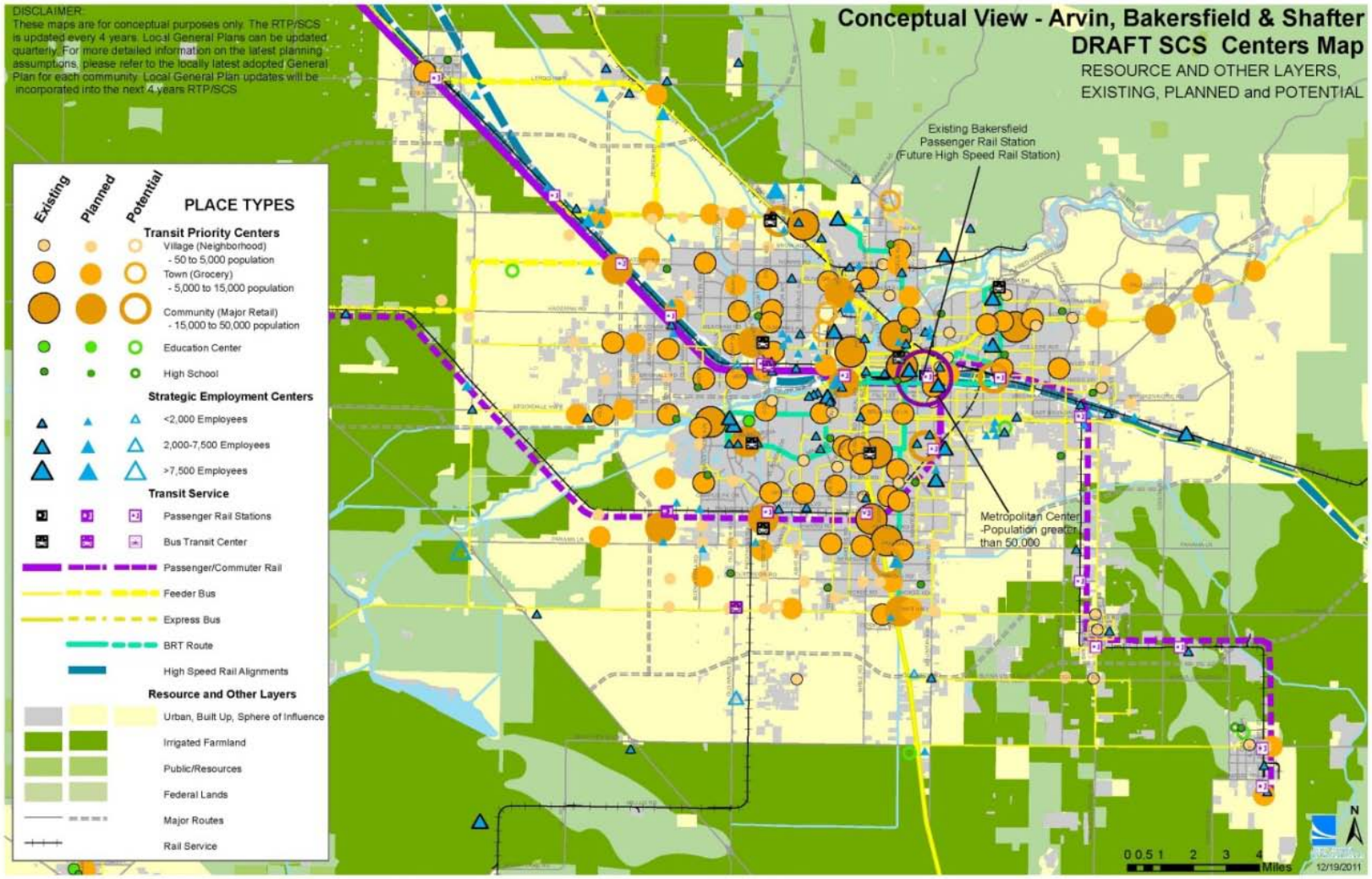
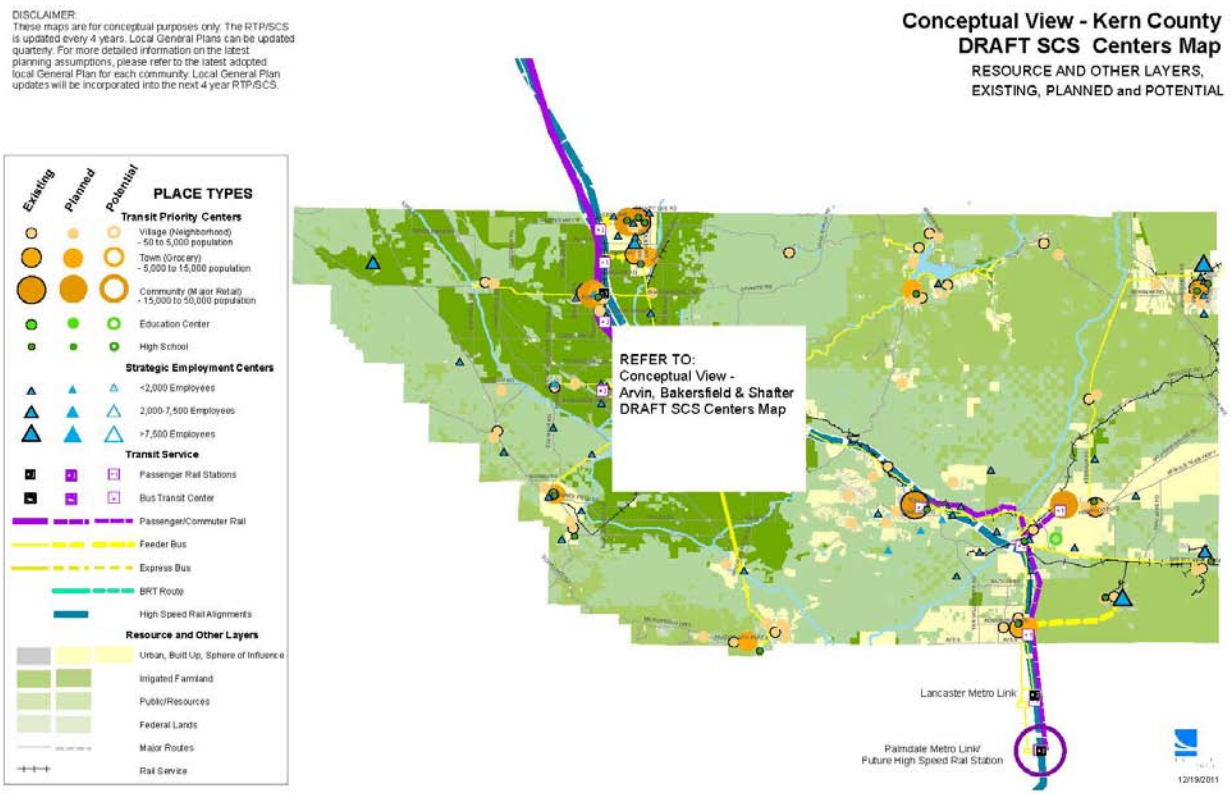


TABLE 4-1. CENTERS CONCEPT PLACE TYPES

TRANSIT PRIORITY CENTERS

Metropolitan Center
• A metropolitan center has a population greater than 50,000 • The region's primary business, civic, commercial, and cultural center • Mid- to high-density residential, office, and commercial development • High levels of employment • Draws activity throughout the region • Served by numerous transportation services • Future enhancements • Mid- to high-rise-story mixed-use (residential, office, and commercial) buildings • Walkable design, improved public transit service, tourism • High-speed rail station
Community Center
• A community center has a population of 15,000 to 50,000 • Subregional business, civic, commercial, and cultural centers • Mid- to low-density residential, office, and commercial development • Medium levels of employment • Draws activity from subregional areas • Future enhancements • Multistory mixed-use (residential, office, and commercial) buildings • Walkable design, improved transit service, tourism
Town Center
• A town center has a population of 5,000 to 15,000 • Town center for business activity, may include civic and cultural activities areas • Mid- to low-density residential, office, and commercial development • Low levels of employment • Draws activity from the town and immediate areas • Future enhancements • Two-story mixed-use (residential, office, and commercial) buildings • Walkable design, improved public transit service, tourism
Village Center
• A village center has a population of 50 to 5,000 • Village center for business activity and essential local services • Low-density residential, office, and commercial development • Low levels of employment; draws activity from the immediate area • Provides essential services to surrounding rural areas • Future enhancements • Mixed-use (residential, office, and commercial) buildings • Walkable design, improved public transit service, tourism
Education Center
Education centers represent existing and planned college campuses
High School
Existing and planned high school campuses
Strategic Employment Centers
Strategic employment centers are based on employee average within an area and there are three levels: fewer than 2,000; 2,000–7,000; and more than 7,500. These strategic employment centers are based on locations of workplaces and input received from city staff.

FIGURE 4-2. CENTERS CONCEPT MAPS



[Placeholder: Kern COG to supplement/enhance this discussion with comparison maps showing existing v. proposed housing density, employment density, proximity to transit. Refer to Transit Priorities Map]

Transit Priority Areas

The Golden Empire Transit (GET) Long Range Transit Plan, adopted in June 2012, was developed in cooperation with Kern COG's SCS. The plan provides for gradual phasing of near-, mid- and long-term improvements. The plan supports the centers concept by providing improved service to Transit Priority Areas in Metropolitan Bakersfield. The red line on the map indicates the new rapid bus service, which will provide 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 4-3, 4-4, and 4-5 illustrate phased improvements to regional transit service.

[Placeholder: include maps and detailed discussion on the Kern Regional Transit Program]

FIGURE 4-3. 2012 METRO BAKERSFIELD SHORT-TERM TRANSIT IMPROVEMENTS

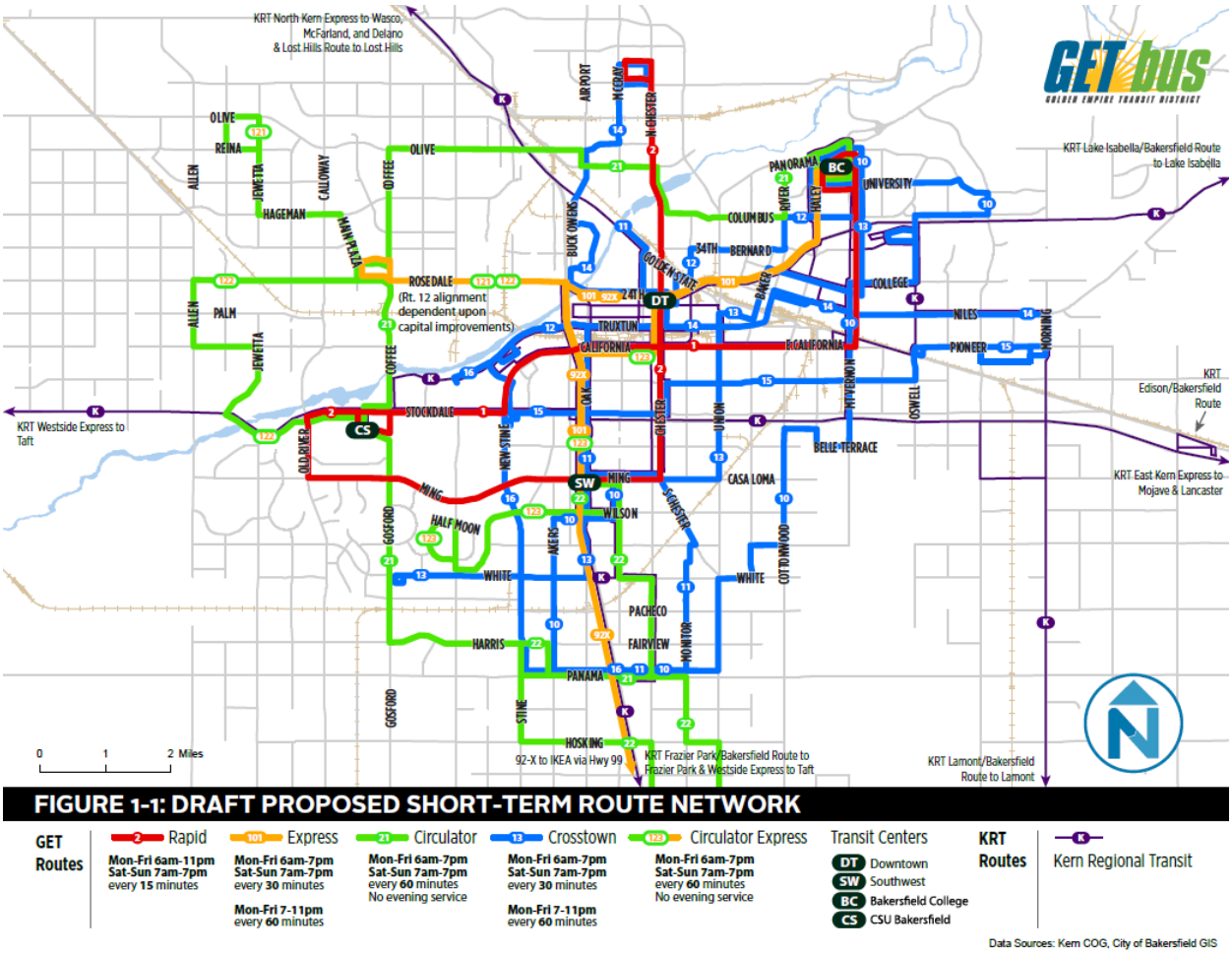
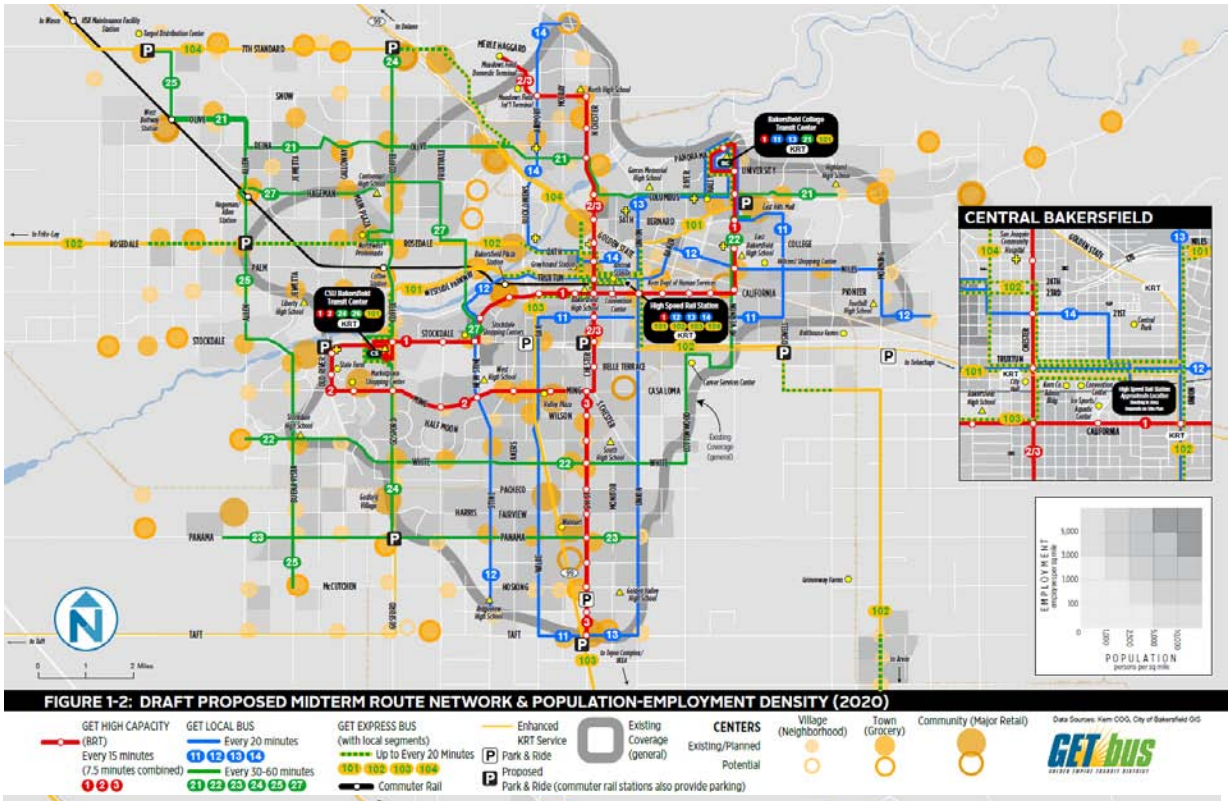
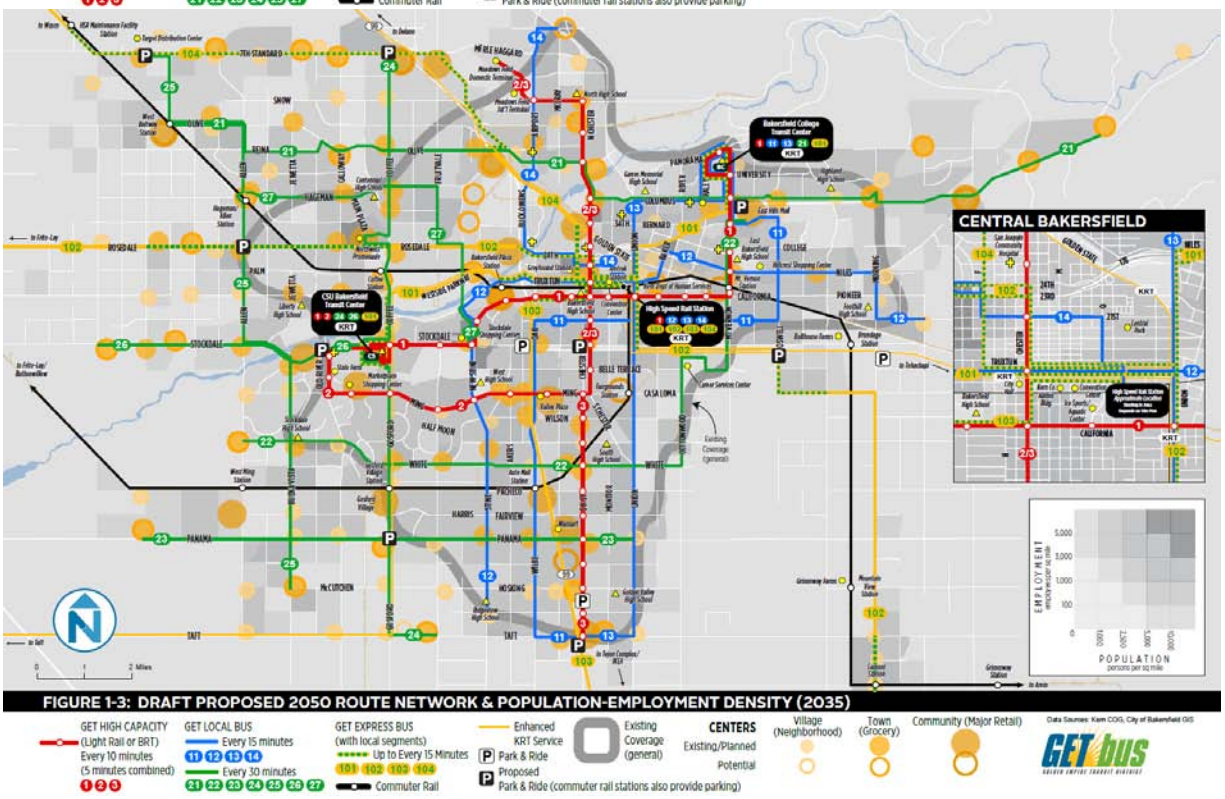


FIGURE 4-4. 2020/2035 MID/LONG-TERM TRANSIT IMPROVEMENTS





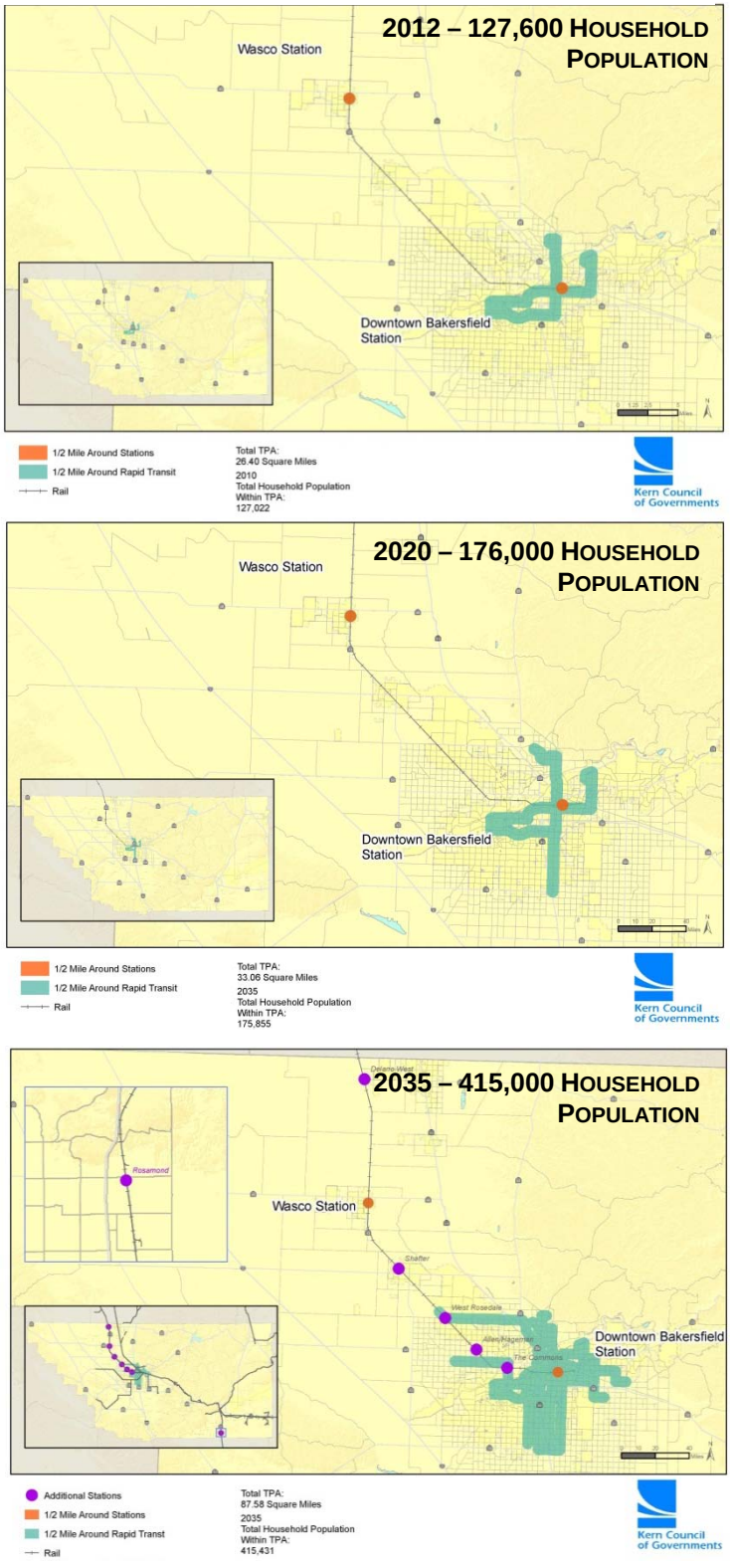
The Long-Range Transit Plan provides for an expansion of transit priority areas that are eligible for environmental streamlining provisions under SB 375. The maps in Figure 4-5 illustrate the expansion of areas within one-half mile of passenger rail service or rapid bus service (15-minute headways), 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 2010. 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.

The Long-Range Transit Plan also analyzed improvements to the Kern Regional Transit (KRT) express bus system that services outlying communities. The plan found that KRT 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 (BNSF) 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 land use centers concept in local general plans. In addition, other factors include

FIGURE 4-5. EXPANDING TRANSIT PRIORITY AREAS TO POPULATIONS WITHIN ONE-HALF MILE OF HIGH QUALITY



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.

[Placeholder: Kern COG include discussion of rural patterns of growth and rural transit issues]

Local Agency Formation Commissions' Spheres of Influence

MPOs are required by GC Section 65080(b)(2)(G) to consider spheres of influence that have been adopted by the LAFCos within the region during development of the SCS. MPOs should consult with LAFCos within the region 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 preservation 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.

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

[Placeholder: Kern COG to provide brief summaries of key SOIs/future annexation areas and describe how they are considered in the SCS land use pattern. Refer to spheres of influence at the time of adoption.]

Regional Housing Needs

Accommodating Eight-Year Regional Housing Needs

[Placeholder: Kern COG to modify following text to incorporate Kern RHNA numbers and 2023 Plan run.] Kern COG prepares an RHNA of low- and very low-income housing for each jurisdiction in the region that must be approved by the California Department of Housing and Community Development. Each jurisdiction is assigned a forecast of housing need that is used in local general plan housing elements. SB 375 requires 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 forecast 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 *Market Demand Analyses for Higher Density Housing in the San Joaquin Valley* indicates a growing demand for higher-density housing in smaller communities and interest in mixed-use development. With enough land to accommodate twice the current forecast growth, Kern County has had little difficulty in providing adequate acreage for low-income housing. Coastal communities have the greater challenge of accommodating their growth within their city limits using infill and compact growth techniques.

The Kern region's official regional housing need from the California Department of Housing and Community Development for the planning period 2014–2021 is [Placeholder: Kern COG to fill in] housing units. Of these, approximately [Placeholder: Kern COG to fill in] are expected to be in the very low- and low-income category (affordable to those who make less than 80% of area median income), [Placeholder: Kern COG to fill in] are expected to be in the moderate-income category (affordable to those who make between 80% and 120% of median income) and [Placeholder: Kern COG to fill in] are expected to be offered at the above moderate-income category. The SCS incorporates the overall RHNA target for the Kern region and provides a land use pattern that shows where new housing growth can be accommodated in the future.

[Placeholder: Kern COG to update this paragraph with Kern COG's RHNA methodology in December 2012] The RHNA allocation was developed with reliance on local input on projected household growth and responses to local surveys. Results from the surveys support consistency with the state housing goals by encompassing a variety of planning factors that identify opportunities and constraints for jurisdictions to plan for housing at all income levels. These factors include the availability of suitable land, market demand for housing, distribution of household growth along transit corridors, and replacement need. To address increasing concerns regarding affordability, each jurisdiction's future housing need is adjusted to balance the proportion of affordable housing by county across the region. This adjustment considers areas that have a high proportion of certain income groups and adjusts future household growth toward a goal of social equity. This mitigates overconcentration of income groups and encourages planning for affordable housing in areas with limited opportunities in affordable housing.

Estimated Housing Capacity by Jurisdiction and Subregion

[Placeholder: Kern COG to describe anticipated RHNA distribution by jurisdiction and subregion or center, and describe how it is determined by/consistent with the land use strategy.]

Protecting Resource Areas and Farmland

[Placeholder: Kern COG to describe Fresno COG/SJ Valley Greenprint project and summarize relevant data from the project. In the description, identify sources of scientific information underlying the Greenprint. Consider using the simplified subsection outline/text from p. 152-165 of SACOG SCS below as a guide. Kern COG may consider adding additional discussion of key issues (e.g., water resources, energy production, relationship of habitat to agricultural land preservation)]

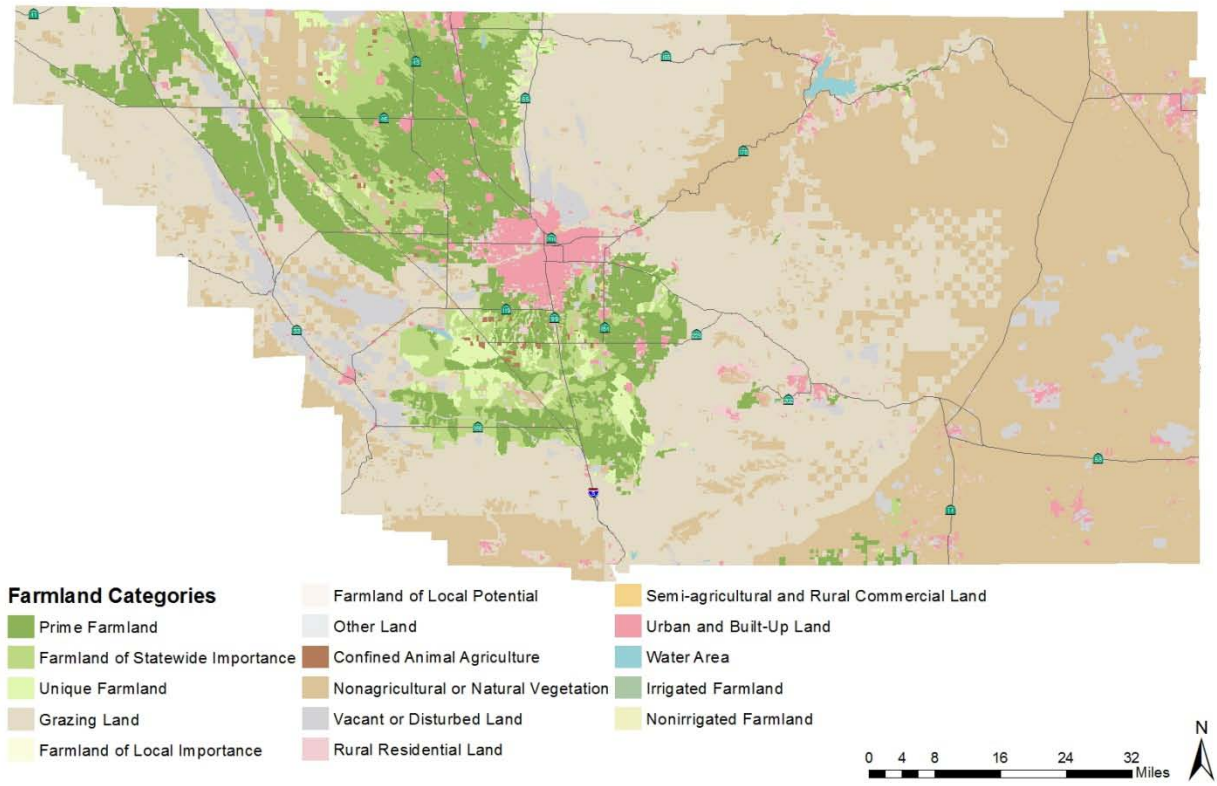
The 2014 RTP land use forecast and transportation system attempt to minimize negative impacts on various natural and manmade resources, building on local policies and strategies related to conservation and protection of these resources. There is acknowledgement around the region of the need to maintain a balance between the need to urbanize and the need to conserve rural lands and their uses.

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. [Placeholder: Kern COG to insert language describing economic value of agriculture in the region from latest Agricultural Commissioner's annual report.] 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 2014 RTP land use forecast and transportation system, Kern COG relied on San Joaquin Valley Greenprint research and the policies of local governments to develop urbanization assumptions based on the most recent information available. [Placeholder: include brief description of research provided by the San Joaquin Valley Greenprint Program] Local land use policies related to agricultural protection and 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 4-6 shows a 2010 FMMP map of these farmlands in Kern County. Table 4-2 [Insert table] presents an acreage summary of the FMMP mapping categories. As the table shows, [summarize conversion trends geographically and by farmland type]. According to FMMP data, only X% of the region is currently urbanized. [Summarize past agricultural land conversion trends.] From [placeholder for year span], a period of [placeholder for number of years] years, the region grew by approximately [placeholder for number of people] people. In that same time, approximately [placeholder for number of acres] acres of farmland were converted to urban and rural development (over [placeholder for percentage of total]% of total farmland, much of which was high quality). This is the impact the SCS strives to minimize.

FIGURE 4-6. KERN COUNTY IMPORTANT FARMLAND 2010



For the 2014–2035 planning period (21 years), this RTP forecasts the addition of [placeholder for current population number] people and the conversion of [placeholder for current acreage] acres of farmland. This significantly lower rate of conversion is due largely to local and regional efforts to balance urban expansion with the protection of economically viable farmland. [Summarize conversion trends geographically and by farmland type.] 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 can help to maintain the approximately [placeholder for amount of money] per year economic output related to agriculture in the Kern region and protect employment of over [placeholder for current number] people in the agricultural industry.

The number of acres held under Williamson Act contracts is another mechanism that describes the viability of farmland. Enacted in 1965, the Williamson Act allows farmland owners to enter into a contract with a county to keep land in agricultural use over a 10-year period in return for a lower property tax rate

based on agricultural production value rather than potential urban development value. This prevents or postpones conversion of farmlands to urban uses when landowners want to keep farming. Table 4-3 [Placeholder: Kern COG to add table.] shows the amount of agricultural land under Williamson Act contract in Kern County. As of [placeholder for current date], Kern County contained a total of [placeholder for current acreage] acres of land contracted under the Williamson Act. Of those acres, over [placeholder for current acreage] acres were prime farmland and about [placeholder for current acreage] acres were nonprime. 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. Of the [placeholder for current acreage] acres under Williamson Act contract in placeholder for current date, only [placeholder for current acreage] acres ([placeholder for percentage]% of contract acres) are impacted by the RTP.

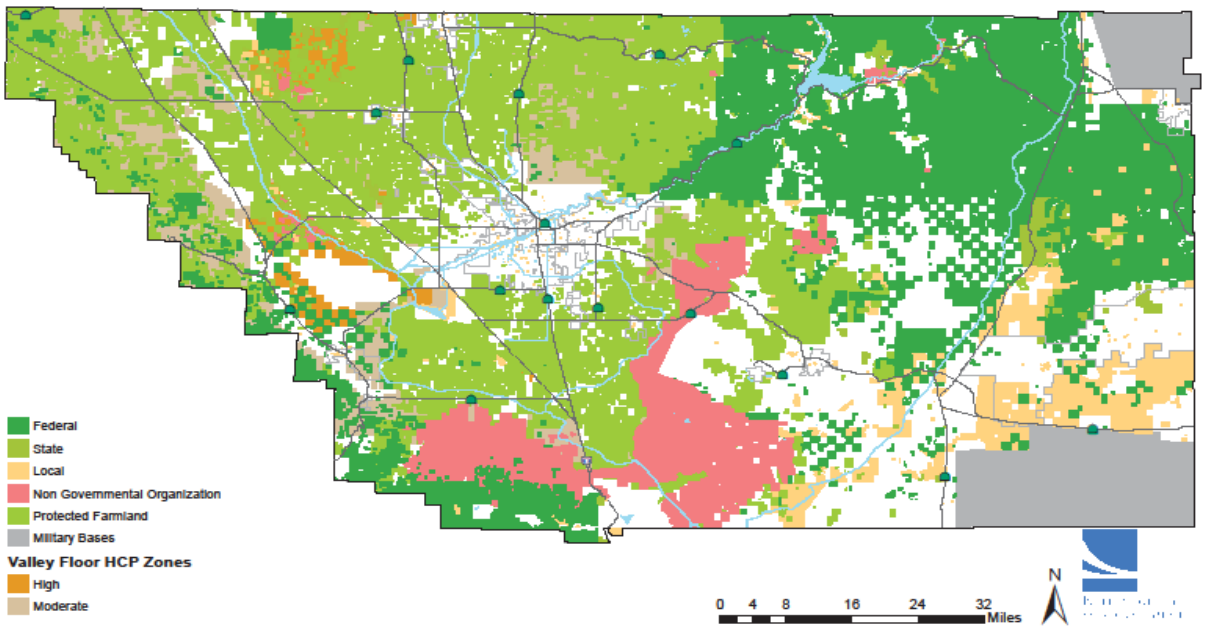
[Placeholder: Kern COG to summarize additional key policy components of the San Joaquin Greenprint, similar to SACOG discussion of the Rural-Urban Connections Strategy.]

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 between built and natural environments. Kern COG's inventory of these lands currently accounts for roughly [placeholder for current acreage] acres of parks and conservation lands, including [placeholder for current acreage] acres in urban areas (Table 4-4 and Figure 4-7) [Add Table 4-4].

[Placeholder: include proposed and approved HCP programs; include nature of planned land use and conservation programs]

FIGURE 4-7. FARMLAND, HABITAT, OPEN SPACE, AND GOVERNMENT LANDS 2010



[Placeholder: Similar to discussion above, Kern COG to describe any potential impact of the RTP on recreation and open space areas]

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 been developing habitat conservation plans (HCPs) and natural communities conservation plans (NCCPs). This section provides a summary of the status of HCPs and NCCPs in the region, although not all of these plans have been adopted or fully implemented. These plans include [Placeholder: Kern COG to confirm titles and status of each as HCP/NCCP] the Kern County Valley Floor HCP, the Metropolitan Bakersfield HCP, the West Mojave HCP/NCCP, [Placeholder for Kern COG to add additional 26 HCPs here]. The boundaries of each of these 29 plans are depicted in Figure X-X.

[Placeholder: Kern COG insert map of HCPs]

During implementation of specific projects, an activity subject to Section 10 of the Endangered Species Act (ESA) 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 considers impacts on or conservation of areas that have biological resources and/or provide habitat for species covered by the federal and California Endangered Species Acts and the Native Plant Protection Act. [Placeholder: Kern COG to expand on their role related to private property and the endangered species law]

The ultimate resolution of the many ongoing natural resources planning efforts will have a major influence on future growth patterns in the region. The land use forecast 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.

[Placeholder: Kern COG to add brief summary of 29 HCPs and their various stages in the process, similar to discussion in SACOG SCS. If possible, summarize likely impacts of RTP on HCPs, similar to discussions for agriculture and recreation.]

V. 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 regional land use planning objectives 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 2035.

- 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.

Revenue-Constrained Network

Important parts of the revenue-constrained transportation network, which is described more fully in Chapter 5, Strategic Investments, include an emphasis on 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—particularly in connecting centers that are planned for more compact and mixed-use development. 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 2014 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 2014 RTP (see Chapter 5) include:

- 120 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
- [List other Rail/Public Transit measures]

Bicycles and Pedestrians

Investments that promote bicycling and walking also are an important part of the revenue-constrained transportation network. In 2012, Kern COG completed the 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. The plan calls for an additional 751 miles of new bikeways in the Kern region as well as other improvements to get the bike mode share up to 5% by 2035.

Bicycle and pedestrian measures identified in the 2012 Bicycle Master 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

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

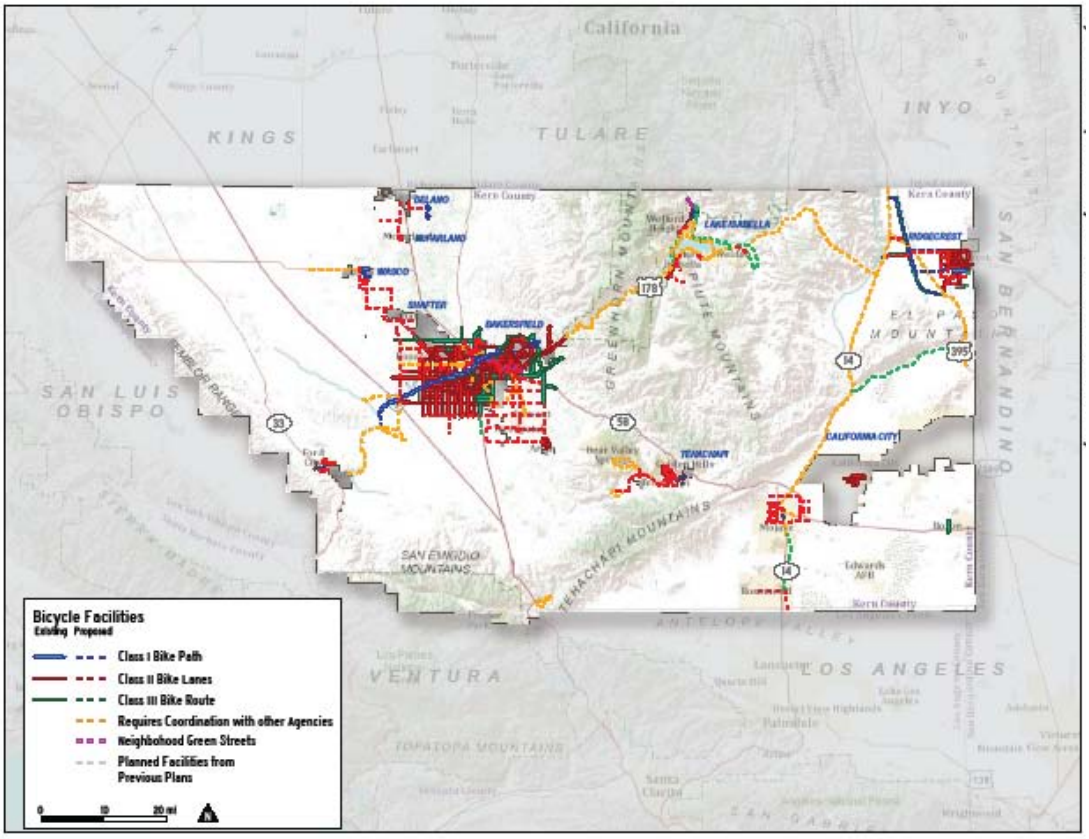
TABLE 4-5. BICYCLE TRAVEL FACILITY MILEAGE IN KERN COUNTY

	Existing	Planned
Unincorporated County	107.5	751
Arvin	6.5	22.5
Bakersfield	171	360
California City	7.5	26
Delano	0	25
Maricopa	0	0
McFarland	0	0
Ridgecrest	27	55
Shafter	6	0
Taft	7	15
Tehachapi	4.5	22
Wasco	2	12
Total	339	1,288.5

Bicycle and pedestrian measures identified in the 2014 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 an updated Bicycle Facilities Plan for the County of Kern as well as incorporated cities.

FIGURE 4-8. PROPOSED BICYCLE FACILITIES IN KERN COUNTY



[Placeholder: Kern COG to summarize regional and local bicycle and pedestrian plans described in Chapter 2 and included as part of constrained network.]

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 2014 RTP (see Chapter 5) include:

- As roads are maintained, bikeways should be implemented and upgraded per local development standards.

- [List other Highway/Road Facilities and Complete Streets measures]

Transportation Demand Management Measures

[Placeholder: Kern COG to modify the following text] 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 2014 RTP (see Chapter 5) include:

- [List TDM measures]

Transportation System Management Measures

[Placeholder: Kern COG to modify the following text**]** 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 our system better, and improve efficiency.

TSM measures identified in the 2014 RTP (see Chapter 5) include:

- [List TSM measures]

Pricing Measures

Pricing strategies also are 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 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 2014 RTP (see Chapter 5) include:

- Assume 50% increase in fuel and vehicle operating costs in the base run by 2025.
- Assume increase in downtown parking costs.
- [List/update pricing measures]

VI. 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:

- 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).

- Quantifies the effect of policies and programs in the RTP that reduce transportation-related emissions in the region.

- Compares the emissions reductions anticipated with implementation of the SCS with the regional targets.

Sources of Emissions

[Placeholder: Kern COG to modify the following text**.]** On September 23, 2010, CARB set targets for lowering emissions in the San Joaquin Valley. 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.

[Placeholder: Kern COG to describe anticipated future emission trends between current year and 2035.]

Modeling

The process to develop the 2014 RTP and Kern region SCS was based upon modeling and the use of smart growth and sustainable development principles that have been standard planning practice in the region for some time along with an extensive public outreach process.

[Placeholder: Kern COG to describe transportation and emissions modeling process briefly. Can refer to Chapter 7 of the RTP.]

State-Level Strategies

[Placeholder: Kern COG to describe state-level strategies that supplement regional efforts to reduce transportation sectors. Include discussion of Pavley and low carbon fuel standard.]

Regional Strategies

[Placeholder: Kern COG to describe existing and proposed regional strategies that supplement SCS transportation sector efforts in other sectors—wind energy, solar energy. Discuss Kern Energy Watch regional energy efficiency planning efforts. Discuss non-passenger vehicle strategies]

Policies and Programs to Reduce Major Sources of Emissions

[Placeholder: Kern COG to identify each strategy/action item from the RTP that is used in the quantification of emissions, and identify the amount of emissions reduction attributable to each strategy/item. Suggest preparing a table, and sorting the table by measure type (land use/transportation) and sub-type (e.g., for transportation, constrained network, TDM, TSM, Pricing). Total emission reduction should be compared to target in next section.]

Comparison to Reduction Targets

[Placeholder: If SCS meets targets, Kern COG to modify the following.] The Kern region will meet established CARB targets, as shown in Table 4-6. Targets will be met by focusing housing and employment growth in urbanized areas, protecting sensitive habitat and open space, and investing in a transportation system that provides residents and workers with transportation options.

[Placeholder: Kern COG to complete Table 4-6 when data is available]

TABLE 4-6. RESULTS OF GREENHOUSE GAS EMISSIONS AND VEHICLE TRIPS REDUCTIONS

Vehicle Trips – Miles Per Capita				
	Region-Wide Projections		Change from [baseline year]	
	SB 375 (cars and light-duty trucks only)	All Vehicles	SB 375 (cars and light-duty trucks only)	All Vehicles
[baseline year]				
2020				
2035				
2040				
Carbon Dioxide (CO_2) – Tons per Capita				
	Region-Wide Projections		Change from [baseline year]	
	SB 375 (cars and light-duty trucks only)	All Vehicles	SB 375 (cars and light-duty trucks only)	All Vehicles
[baseline year]				
2020				
2035				
2040				

In addition to the emissions reductions per capita, Kern COG has prepared an analysis of travel by subareas of the county, as summarized in Table 4-7..

TABLE 4-7. ANALYSIS OF TRAVEL BY COUNTY SUBAREA

Subarea	Vehicle Trips (in miles)	Percentage of Region-Wide Vehicle Trips (in miles)	Population	Per-Capita Vehicle Trips (in miles)
Delano	793,276	3.2%	68,124	11.64
Wasco	1,797,255	7.3%	36,858	48.76
Taft	1,298,015	5.3%	26,526	48.93
Frazier Park/Tehachapi	2,060,086	8.4%	76,952	26.77
Metro Bakersfield	15,739,254	64.2%	905,860	17.37
Southeast Kern	1,801,465	7.4%	75,196	23.96

Subarea	Vehicle Trips (in miles)	Percentage of Region-Wide Vehicle Trips (in miles)	Population	Per-Capita Vehicle Trips (in miles)
Lake Isabella	570,955	2.3%	29,807	19.16
Kern River Valley	449,367	1.8%	44,777	10.04
Kern County	24,509,672	100.0%	1,264,100	19.39

[Placeholder: Kern COG to include an explanation of Table 4.3 Analysis of Travel by County Sub-Area following table.]

VII. IMPLEMENTATION: MAKING THE PLAN A REALITY

Successful partnerships between Kern COG and local agencies within the region will be needed to carry out the vision of the Kern Blueprint and provisions of the SCS, and move the region toward a more sustainable future. This section:

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

Promoting Sustainability through Incentives and Collaboration

The 2014 RTP is first and foremost a transportation plan. However, the transportation network and growth 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 land use policies 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. Lead agencies (including local jurisdictions) maintain the discretion and will be solely responsible for determining consistency of any future project with the SCS. 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 2014 RTP, public agencies at all levels of government may implement a wide range of strategies that focus on four key areas:

- A land use and development pattern that accommodates the region's future employment and housing needs and protects sensitive habitat and natural resource areas.
- 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.

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

[Placeholder: Kern COG to develop tables similar to SCAG SCS Tables 4.3-4.6 (p. 152-156), with one table tied to each of the bullet points listed above. Tables should identify proposed SCS Actions and responsible party(ies) for implementation.]

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 that are consistent with the SCS qualify for streamlined CEQA review if at least 75% of the total building square footage consists of residential use (or a project that is a TPP). If a project meets these requirements and is consistent with the use designation, density, building intensity, and applicable policy of the SCS, 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 upon its completion on climate change or the regional transportation network, or a reduced-density alternative.

Transit Priority Projects

A TPP is eligible for CEQA streamlining if it is consistent with the 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. A map depicting areas in Kern County meeting these criteria is provided as Figure 4-4.

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.

Kern COG staff may provide a lead agency at the time of its request readily available data and documentation to help support its finding upon request.

Project Selection Criteria

[Placeholder: Kern COG to incorporate revised project selection criteria into RTP policies, ensuring that project selection criteria consider reprioritizing project delivery to align with emissions reduction targets.]

VIII. A GREAT START: SUSTAINABLE COMMUNITY SUCCESS STORIES

In order to help demonstrate our region's extensive efforts to comply with state climate change goals, Kern COG has identified activities that demonstrate the progress our member agencies have made toward achieving SB 375 goals. The following is a compilation of these success stories:

- Tehachapi General Plan (Form-Based Code, Mobility Element, Town Form Element, Transect Zone)
- Transportation Impact Fee Core Area (City of Bakersfield and City of Tehachapi)
- City of Ridgecrest General Plan and Circulation Element
- City of Ridgecrest Park and Ride Facility
- City of Ridgecrest Street Signalization
- Metropolitan Bakersfield General Plan Sewer Policies
- City of Bakersfield Minimum Lot Area Zoning
- San Joaquin Valley Air District's Indirect Source Review
- City of Bakersfield Redevelopment Projects
- Transit Priority Areas
- Metropolitan Bakersfield General Plan Centers Concept
- Commuter Rail Feasibility Study
- Rideshare Program
- Park and Ride Lots
- GET Short-Term Service Plan (2012–2020)
- GET X-92 Route Commute Kern – Dial-A-Ride and Local Transportation Services
- Kern County Bicycle Master Plan & Complete Streets Recommendations/City of Tehachapi Bicycle Master Plan
- City of Bakersfield Bicycle Facilities
- Kern County 511
- Cal Vans
- San Joaquin Valley Blueprint Integration Project
- Caltrans Vehicle Detection System
- California Highway Patrol's Safety Corridors
- Kern County Wind Farm Area
- Purchase of CNG Buses
- The Electric Cab Company of Delano
- Intermodal Rail Facility Expansion
- Downtown Elementary School Expansion (Bakersfield)
- Intersection Signalization
- Traffic Control Devices
- Kern Regional Energy Action 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 must be consistent with the goals and policies of the plan 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.

Forecasting methods in this Regional Transportation Plan primarily use the "market-based approach" based on demographic data and economic trends. This plan also uses the "buildout" method, providing the best estimates for growth in all areas of the county. Within each element, assumptions are made that guide the goals, policies, and actions. Those assumptions include demographic projections, land use forecasts, air quality models, performance indicators, capital/operations costs, cost of alternatives, time frame (short- and long-term), environmental resources, and methodology.

Alternative scenarios are not addressed in this document; they are, however, addressed and analyzed for their feasibility in the Environmental Impact Report prepared for the 2014 Regional Transportation Plan, as required by the California Environmental Quality Act (State CEQA Guidelines Sections 15126(f) and 15126.6(a)). From this point, the alternatives have been predetermined and projects that would deliver the most benefit were selected.

The 2014 Regional Transportation Plan promotes a "balanced" transportation system that calls for increased investments in alternative transportation modes, while accommodating a necessary amount of new highway capacity. Heavier emphasis on alternative modes, above and beyond those already incorporated in this plan, may be desired or preferred but because of financial constraints, alternative mode additions are not financially feasible in the time frame of this plan.

The Constrained Program of Projects (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 Program of Projects (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. The 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 Program of Projects 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

improvement alternatives. Performance measures will also be used to help evaluate how the 2014 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.

REGIONAL STREETS AND HIGHWAYS ACTION ELEMENT

See the Sustainable Land Use Action Element – Sustainable Highway/Road Facilities and Connectivity section below 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.

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 incorporate livable community strategies into the prioritization elements for projects of regional significance. This is an important first step for the region. Additionally, complete streets elements were incorporated into 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 2014 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)

Figure 1-1 (Chapter 1, Introduction) illustrates the streets and highways system. It includes interstate and state highway routes as well as some of the major arterials and regionally significant roadways.

Accomplishments Since 2000

Achievements related to the region's network of highways, streets, and roads are listed below.

The following major state highway projects have been completed:

- Hageman Road grade separation at Santa Fe Way
- Seventh Standard Road widening from Santa Fe Way to State Route 99
- Seventh Standard Road grade separation at Santa Fe Way
- State Route 46 – widening west of Interstate 5 to the county line
- State Route 58 – Mojave Freeway
- State Route 99 – widening in Bakersfield
- State Route 99 – widening near Delano
- State Route 202 – new bridge near Route 58 at Tehachapi
- State Route 58 (Mojave Freeway) – frontage road
- White Lane – bridge widening in Bakersfield
- State Route 14 – widening from Mojave to California City
- State Route 178 at Fairfax Road – new interchange
- Calloway Drive grade separation – Bakersfield
- Coffee Road grade separation – Bakersfield
- Seventh Standard Road widening – three segments in Shafter, Bakersfield, and the county

The following regionally significant roadway projects are programmed for construction and/or are under construction:

- Westside Parkway – Bakersfield
- Morning Drive improvements – Bakersfield
- Challenger Drive Extension – Tehachapi
- State Route 46 – west Kern County
- West Ridgecrest Boulevard – widening
- State Route 58 widening – Cottonwood Road to State Route 99
- State Route 178 – widening near Oak Street – Bakersfield
- State Route 178 widening – Vineland Road to east of Miramonte Drive – Bakersfield
- 24th Street improvement – State Route 178 from State Route 99 to M Street – Bakersfield
- State Route 99 widening – Wilson Road to State Route 119

The following regionally significant roadway projects are undergoing necessary environmental review, right-of-way acquisition, and/or design work:

- State Route 14 – west of Ridgecrest
- Hageman Road extension – Bakersfield
- Centennial Corridor – Bakersfield

Needs and Issues

Deferred Local Maintenance Needs

Maintaining the local transportation infrastructure is of critical importance for the entire region. Deferred maintenance costs are estimated to exceed $488 million over the RTP period. Failure to attend to these deferred needs will result in costly repairs when the facility fails; 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 state 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.

Given ongoing concern regarding deferred maintenance, the Policy Element recognizes the need to maintain and upgrade the present system whenever feasible. Also included is a policy to investigate federal, state, and local funding opportunities that would maintain the current transportation system and promote future transportation development.

Maintenance of state 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 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 6-6 provides a general overview of financial resources expected for local road rehabilitation, state highway rehabilitation, and transit operations and maintenance.

Bakersfield Beltway System

The foundation for planning the Metropolitan Bakersfield transportation network is the Bakersfield Beltway System, as shown on Figure 5-1. 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 SR 58 Gap Closure will widen SR 58 to a six-lane facility between Cottonwood Road and east of SR 99. Currently, this four-lane section is located between a six-lane facility east of Cottonwood Road and a six-lane facility at the SR 99/SR 58 interchange. As a gap closure, this project has independent utility and also provides a logical terminus and network continuity for the Central System.

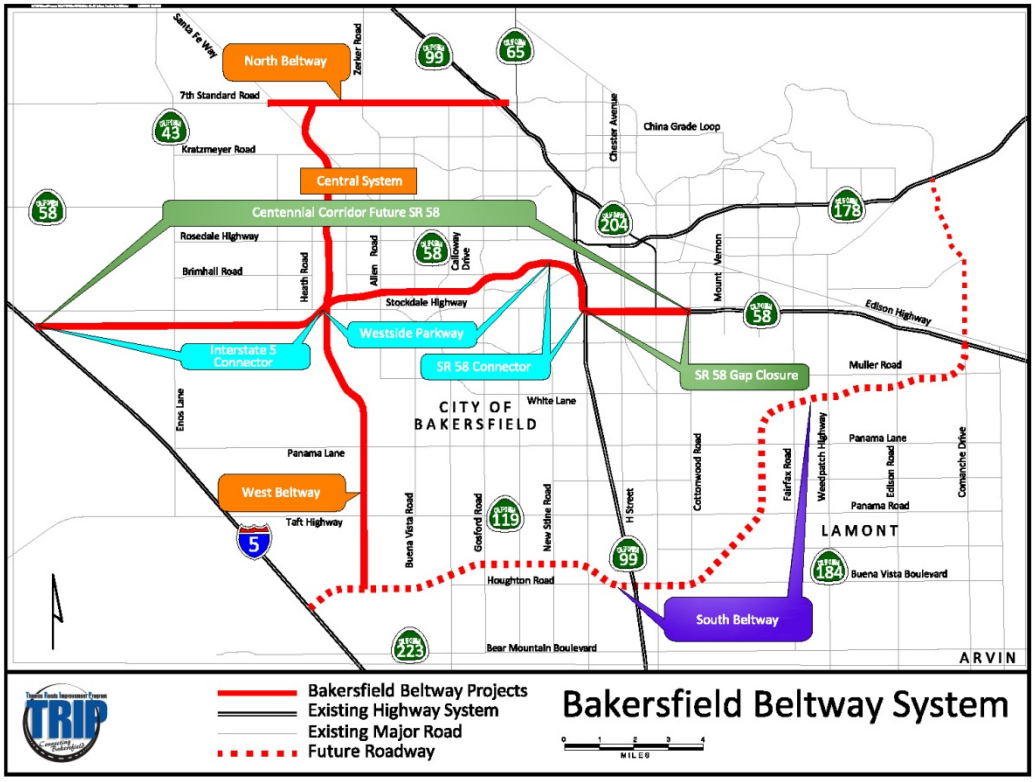
The SR 58 Connector will include operational improvements from Cottonwood Road to SR 99, and a new freeway will extend from the western terminus of the SR 58 Gap Closure to Westside Parkway. Westside Parkway begins about 1 mile east of SR 99, extends across the Kern River at Truxtun Avenue, and continues 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), SR 99, California Avenue, and other existing east/west 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.

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. 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 northern Metropolitan Bakersfield. This facility initially would be built as an expressway, providing access for the northern Metropolitan Bakersfield area while connecting SR 99 with Interstate 5.

FIGURE 5-1 BAKERSFIELD BELTWAY SYSTEM



Level of Service

Implementation of the 2014 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 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 5-2 and 5-3 reflect "build" scenario LOS values because the network includes the Constrained Program of Projects. Figures 5-4 and 5-5 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.

Regional Transportation Impact Fees (TIFs)

Kern COG is continuing its studies regarding the possibility of raising the fees levied on new development to maintain transportation infrastructure. Continued funding shortfalls are highlighting the need to investigate all possible revenue sources. Several transportation impact fee (TIF) programs are already in place within Kern County. [Placeholder for Kern COG: confirm fee amounts] The Rosamond TIF is $1,461 per new housing unit, while Wasco's is $685. Tehachapi has recently adopted a fee of $4,772 per residential unit. The Metropolitan Bakersfield TIF assesses nearly $13,000 on every new housing unit built within the city or unincorporated areas. The Metropolitan Bakersfield fee has been raised several times since its inception. A recent revision to the ordinance created a core area with a fee half the normal rate, the intent of which is to encourage infill development.

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. The City of Tehachapi and county areas comprising Greater Tehachapi have adopted a fee program resulting from that study. Similar studies will be performed for other sub-regions of the county to establish the relationship between increased travel demand associated with new development and the transportation infrastructure improvements necessary to meet this demand at an acceptable level of service.

Interregional Partnership Planning

Kern COG has embarked on an interregional partnership effort with the regional planning agencies of 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.

FIGURE 5-2 KERN COUNTY TRAFFIC CONGESTION – 2035 BUILD SCENARIO

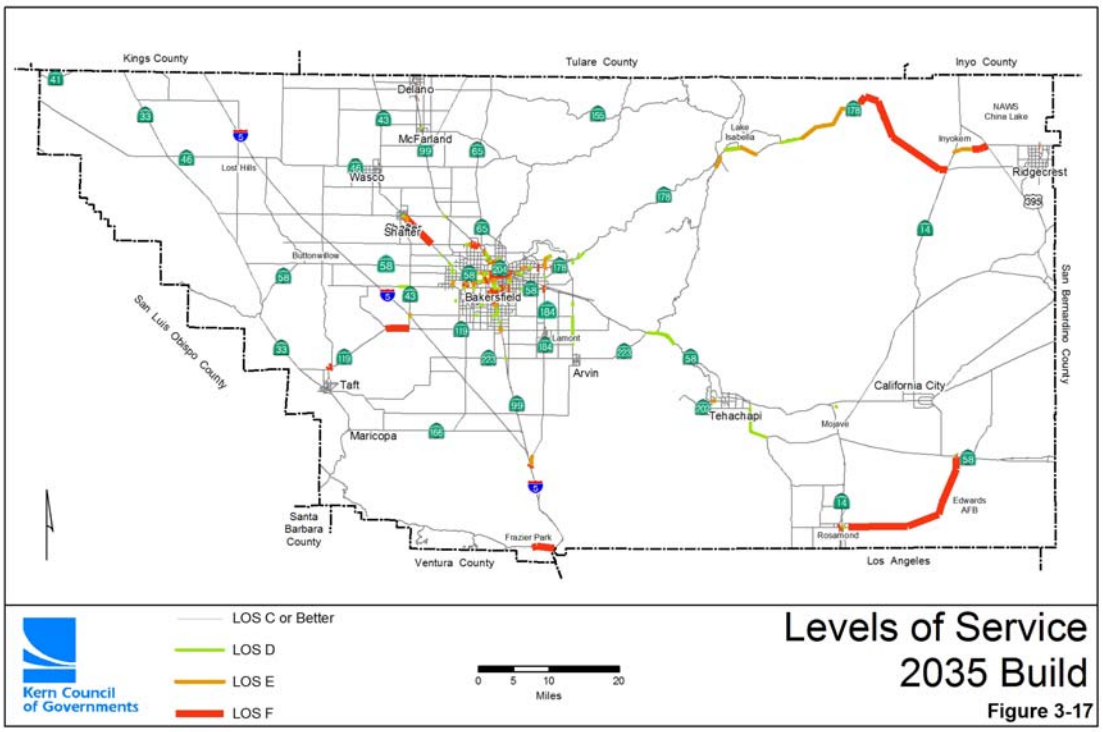


FIGURE 5-3 METRO BAKERSFIELD TRAFFIC CONGESTION – 2035 BUILD SCENARIO

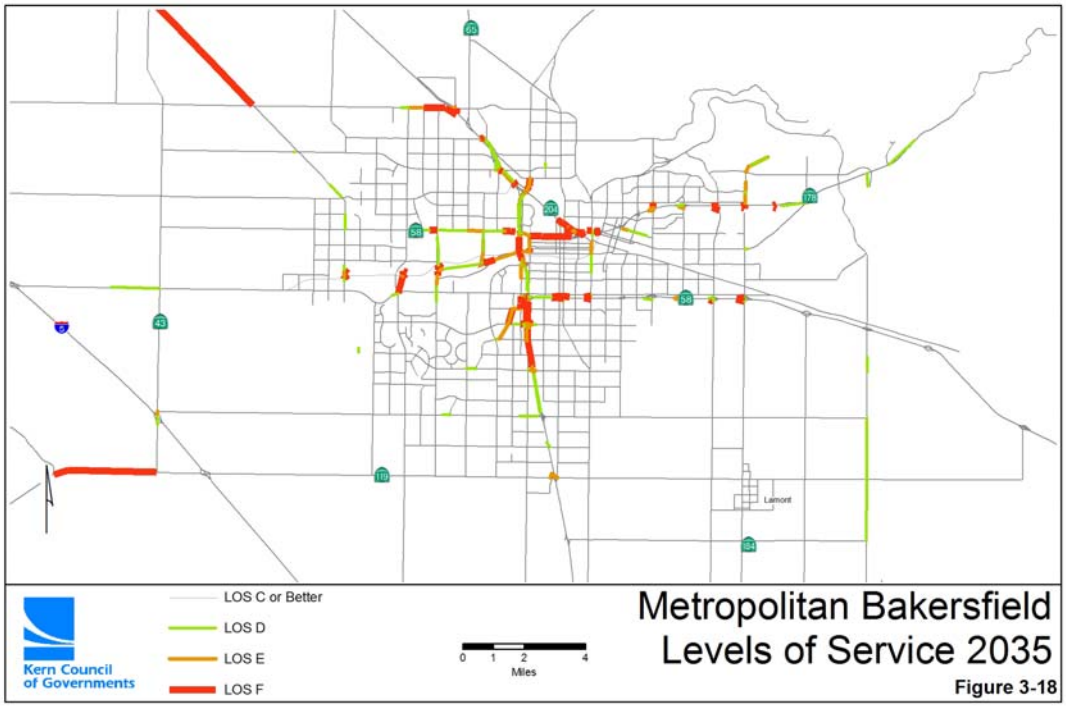


FIGURE 5-4 KERN COUNTY TRAFFIC CONGESTION – 2035 NO BUILD SCENARIO

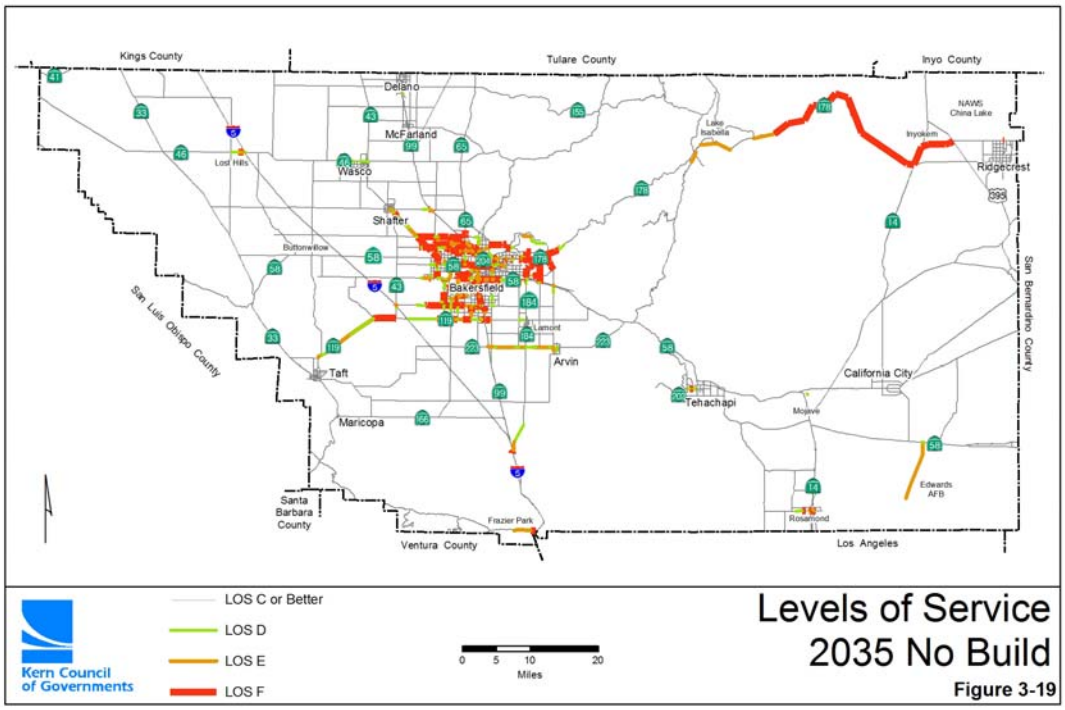
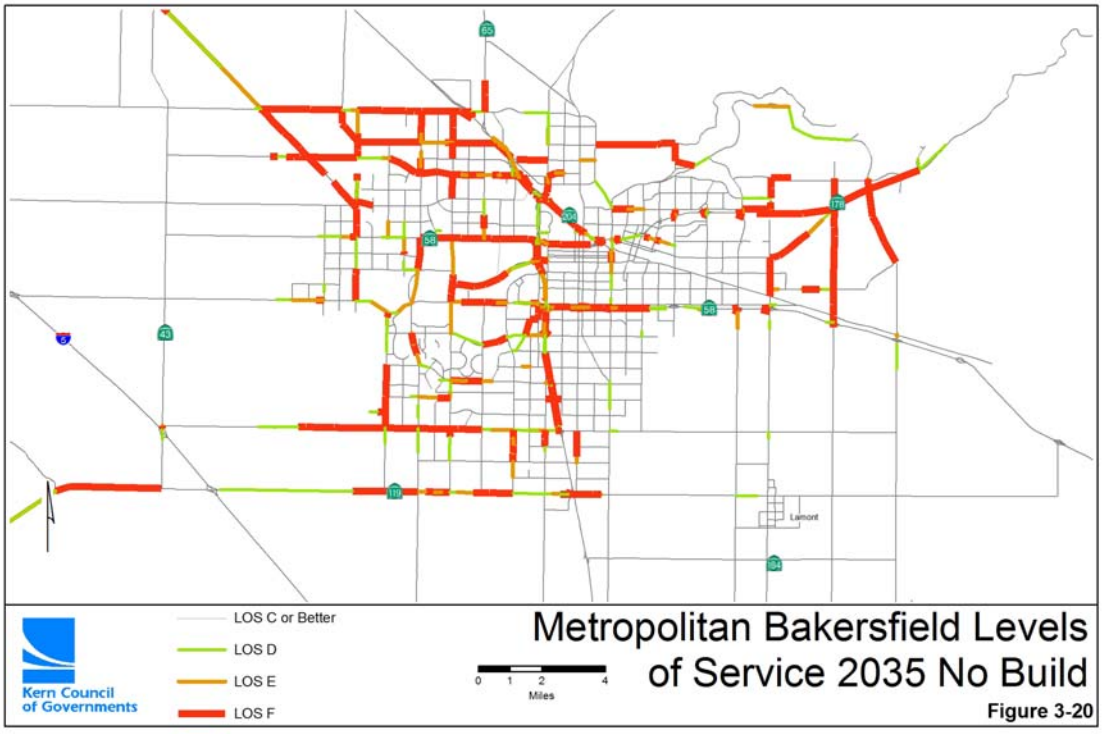


FIGURE 5-5 METRO BAKERSFIELD TRAFFIC CONGESTION – 2035 NO BUILD SCENARIO



Roads and Streets Monitoring

On an ongoing basis, Kern COG collects data collection 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. In addition to highway performance monitoring, Kern COG will undertake an analysis of Pavement Management Systems for each jurisdiction 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 2014 RTP includes all of the Metropolitan Bakersfield transportation impact fee (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 and 10.

Proposed Regional Streets and Highways Actions

Near Term, 2014–2020

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.
- Widen State Route 14 near Freeman Gulch/Inyokern.
- 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.
  - 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.
- Pursue a permanent regional funding source via a regional traffic mitigation fee, and/or transportation impact fees by individual communities.
- Implement the capital improvements for highways, regional roads, and interchanges for this time period.

Long Term, 2021–2040

- 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.
- Review and revise countywide transportation impact fees.

In the following Constrained Program of Projects, 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.

PROJECT LISTING

TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS

2014 through 2020 - Major Highway Improvements					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
Route 14	Inyokern	Redrock/Inyokern Rd to Rt 178 - widen to four lanes (Phase1)	42,000,000	KER08RTP006	2016
Route 46	Lost Hills	Brown Material Rd to I-5 - interchange upgrade at I-5 - Phase 4A	27,000,000	KER14RTP001	2016
Route 99	Metro Bkfd	Hosking Ave - construct interchange	31,000,000	KER08RTP009	2016
Route 99	Bakersfield	Olive Drive - construct interchange upgrades	6,100,000	KER08RTP091	2016
Route 99	Bakersfield	Rt 204 to 7th Standard Rd - widen to eight lanes	12,000,000	KER08RTP104	2014
Hageman Flyover	Bakersfield	Knudsen Dr to Rt 204 - construct extension	68,900,000	KER08RTP013	2018
7th Standard Rd	Shafter/Bkfd	Rt 43 to Santa Fe Way - widen existing roadway	14,000,000	KER08RTP113	2018
Centennial Corridor	Bakersfield	I-5 to Rt-58/Cottonwood Rd - element of the Bakersfield Beltway System - construct new freeway and/or operational improvements	698,000,000	KER08RTP020	2016
	Subtotal		**$899,000,000**		

1401 19th Street, Suite 300, Bakersfield, California 93301

PROJECT LISTING

TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2021 through 2025 - Major Highway Improvements					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
Route 14	Inyokern	Redrock nyokern Rd to Rt 178 - widen to four lanes (Phase 2)	42,000,000	KER08RTP017	2021
Route 58	Bakersfield	Rosedale Hwy - Rt 43 to Allen Rd - widen existing highway	59,000,000	KER08RTP092	2025
Route 58	Metro Bkfd	Rosedale Hwy @ Minkler Spur/Landco - construct grade separation	27,000,000	KER08RTP118	2025
Route 58	Bakersfield	Rt 99 to Fairfax Rd - widen to eight lanes	47,400,000	KER08RTP093	2025
Route 65	Bakersfield	James Rd to Merle Haggard Dr - widen to four lanes	3,000,000	KER08RTP094	2021
Route 119	Taft	Cherry Ave to Elk Hills Rd (Phase 1, bypass) - widen to four lanes	115,000,000	KER08RTP022	2022
Route 178	Bakersfield	At Rt 204 - construct interchange	25,700,000	KER08RTP095	2025
Route 184	Bakersfield	At Union Pacific Railroad - construct grade separation	26,400,000	KER08RTP108	2025
7th Standard Rd	Shafter/Bkfd	Rt 43 to Santa Fe Way - widen existing roadway	14,000,000	KER08RTP113	2025
West Beltway	Metro Bkfd	Rosedale Hwy to 7th Standard Rd - construct new facility	115,793,000	KER08RTP102	2025
West Beltway	Metro Bkfd	Rosedale Hwy to Westside Parkway - construct new facility	93,500,000	KER08RTP016	2025
	Subtotal		**$568,793,000**		

PROJECT LISTING

TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2026 through 2030 - Major Highway Improvements					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
Route 14	Inyokern	Redrock/Inyokern Rd to Rt 178 - widen to four lanes (Phase 3)	32,000,000	KER08RTP024	2026
Route 119	Bakersfield	I-5 to Buena Vista - widen to four lanes	31,300,000	KER08RTP099	2026
Route 178	Metro Bkfd	West of Fairfax Rd to Vineland Rd - widen existing freeway	17,000,000	KER08RTP111	2028
Route 178	Bakersfield	Existing west terminus to Oswell St - widen to eight lanes (HOV)	140,500,000	KER08RTP026	2026
Route 184	Bakersfield	Panama Rd to Rt 58 - widen to four lanes	10,500,000	KER08RTP100	2029
Route 184	Bakersfield	Morning Dr to Rt 178 - widen to four lanes	5,000,000	KER08RTP101	2026
Route 184	Lamont	Rt 58 to Rt 178 - widen to four lanes	90,000,000	KER08RTP045	2028
Route 204	Bakersfield	Airport Drive to Rt 178 - widen existing highway	55,000,000	KER08RTP083	2030
Route 204	Bakersfield	F St - construct interchange	36,000,000	KER08RTP081	2030
US 395	Ridgecrest	Between Rt 178 and China Lake Blvd - construct passing lanes	20,000,000	KER08RTP089	2026
	Subtotal		**$437,300,000**		

PROJECT LISTING

TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2031 through 2035 - Major Highway Improvements					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
Route 46	Lost Hills	Brown Material Rd to I-5 - interchange upgrade at I-5 - Phase 4B	70,000,000	KER08RTP018	2035
Route 58	Bakersfield	At various locations - ramp improvements	32,600,000	KER08RTP103	2033
Route 99	Bakersfield	Rt 204 to 7th Standard Rd - widen to eight lanes (Phase 2)	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 (include ramp metering)	37,000,000	KER08RTP105	2033
Route 178	Metro Bkfd	Vineland to Miramonte - new interchange; widen existing freeway	119,000,000	KER08RTP025	2033
Route 178	Bakersfield	Miramonte to Rancheria - widen existing highway	19,800,000	KER08RTP084	2033
Route 178	Bakersfield	At Rt 204 and 178 - reconstruct freeway ramps	50,000,000	KER08RTP085	2033
Route 178	Bakersfield	At various locations - ramp improvements	37,000,000	KER08RTP106	2033
West Beltway	Metro Bkfd	Pacheco Rd to Westside Parkway - construct new facility	115,793,000	KER08RTP139	2033
West Beltway	Metro Bkfd	Taft Hwy to Pacheco Rd - construct new facillity	90,000,000	KER08RTP097	2033
	Subtotal		**$908,193,000**		
2036 through 2040 - Major Highway Improvements					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
Route 119	Taft	Elk Hills - County Rd to Tupman Ave - widen to four lanes (Phase 2)	48,000,000	KER08RTP086	2036
	Subtotal		**$48,000,000**		
	Total Major Highway Improvements		**$2,861,286,000**		

PROJECT LISTING

TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Local Streets and Roads					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
Various Locations	Metro Bkfd	Bridge and street widening; reconstruction	$600,000,000		
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	700,000,000		
	Sub-total		**$1,813,000,000**		
2014 through 2040 - Transit					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
	Metro Bkd	Full-size natural gas buses - 120 replacement buses	90,000,000		
	Metro Bkd	Full-size natural gas buses - 120 new buses	90,000,000		
	Various	Midsize natural gas buses - 120 replacement buses	12,000,000		
	Various	Midsize natural gas buses - 120 new buses	12,000,000		
	Various	Mini vans/buses - 45 replacement buses	3,200,000		
	Metro Bkfd	Two transfer stations	10,000,000		
	Metro Bkfd	ITS-related improvements/upgrades	3,000,000		
	Countywide	Vanpools - build and maintain fleet of 500 vans by 2040	48,000,000		
	Rosamond	Metrolink extension - Palmdale/Lancaster to Rosamond	112,000,000		
	Various	Park and ride lots (750 spaces)	3,000,000		
	Subtotal		**$383,200,000**		

PROJECT LISTING

TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Non-motorized					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	
Various locations	Metro Bkfd	Construct Class I or Class IIII bike path; striping; signage	$22,500,000		
Various locations	Metro Bkfd	Construct pedestrian enhancement improvements	22,500,000		
Various locations	Countywide	Construct Class I or Class IIII bike path; striping; signage	15,000,000		
Various locations	Countywide	Construct pedestrian enhancement improvements	15,000,000		
	Subtotal		**$75,000,000**		
2014 through 2040 - Freight Rail					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
Freight Rail	Tehachapi	Double-track sections from Bakersfield to Mojave	$111,700,000		In Progress
Freight Rail	Shafter	Shafter Intermodal Rail Facility	30,000,000		In Progress
	(Information only) Subtotal		**$141,700,000**		
2014 through 2040 - Passenger Rail*					
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**	**Start**
Passenger Rail	Bakersfield	High-Speed Rail Station - Bakersfield	50,000,000		2016
Passenger Rail	Region	High-Speed Rail Alignment and Facilities - Fresno to Bakersfield	1,500,000,000		2016
Passenger Rail	Shafter/Wasco	High-Speed Rail Heavy Maintenance Facility	450,000,000		2016
	Subtotal		**$2,000,000,000**		

** 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 4.2. $26 billion is the current cost estimate.*

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PROJECT LISTING

TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Summary of Constrained Projects	
Program Category	**Totals**
Major Highway Improvements 2014-2020	$899,000,000
Major Highway Improvements 2021-2040	1,962,286,000
Local Streets and Roads	1,813,000,000
Transit	383,200,000
Non-Motorized	75,000,000
Passenger/Freight Rail	2,000,000,000
Grand Total	**$7,132,486,000**

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MAJOR HIGHWAY IMPROVEMENT MAPS
(CONSTRAINED 2011–2035 AND UNCONSTRAINED, BEYOND 2035)
[KERN COG TO UPDATE MAPS TO 2014-2040 AND BEYOND 2040]

FIGURE 5-6 NEAR-TERM PROJECTS IN OUTLYING AREAS (2011–2015)

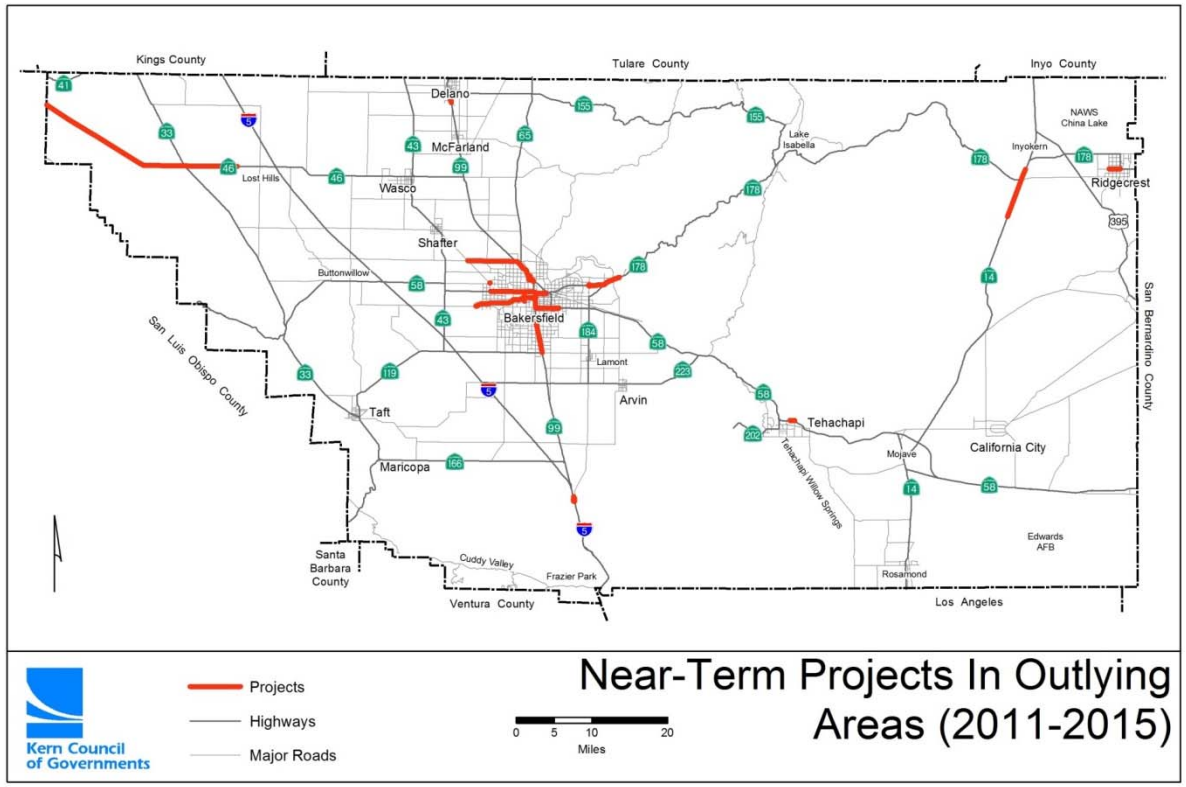

FIGURE 5-7 NEAR-TERM PROJECTS IN METROPOLITAN BAKERSFIELD (2011–2015)

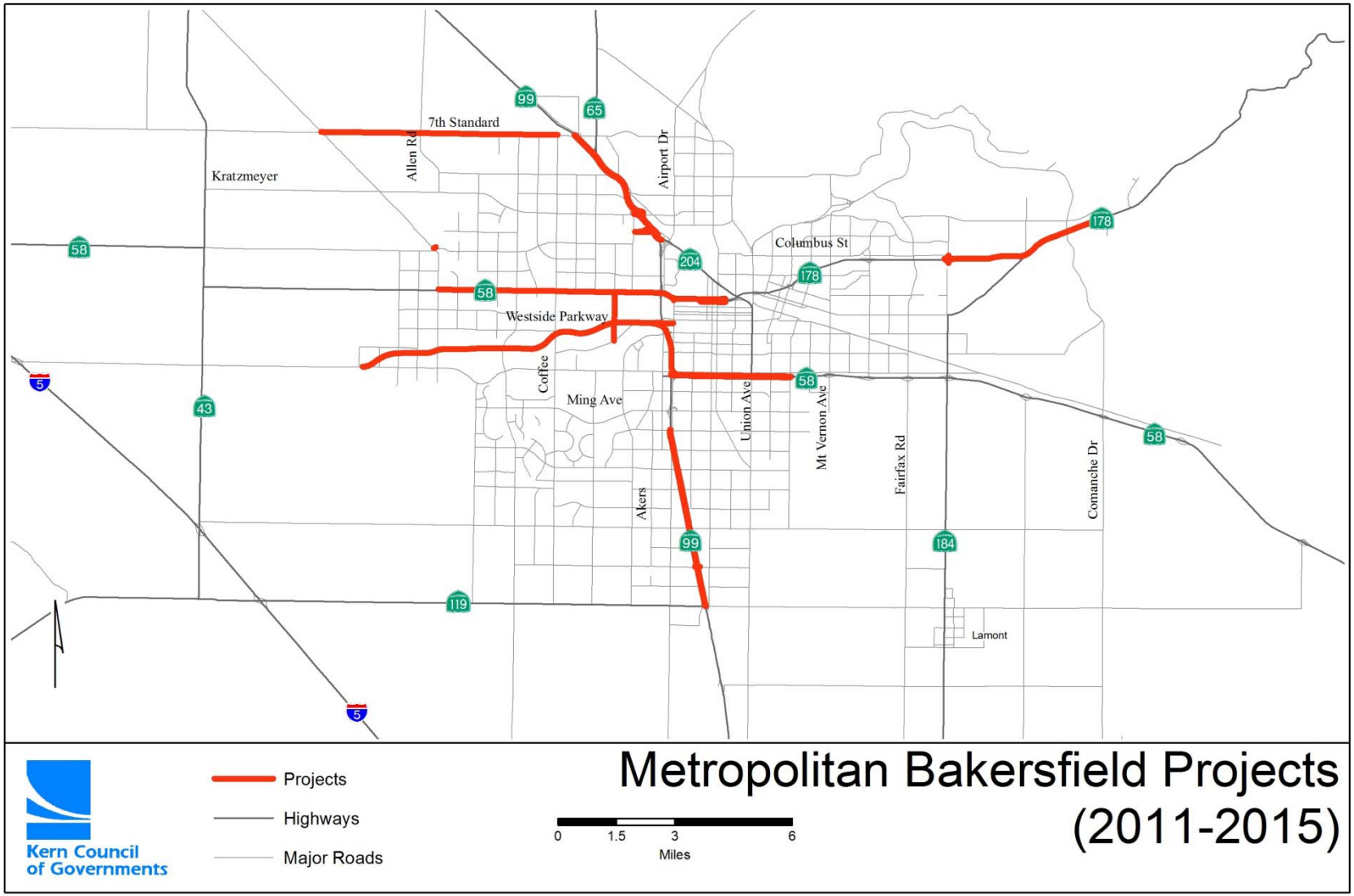

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FIGURE 5-8 LONG-TERM PROJECTS IN OUTLYING AREAS (2016–2035) [PLACEHOLHER: KERN COG TO ADJUST 2030 IN THE MAP TO SAY 2035]

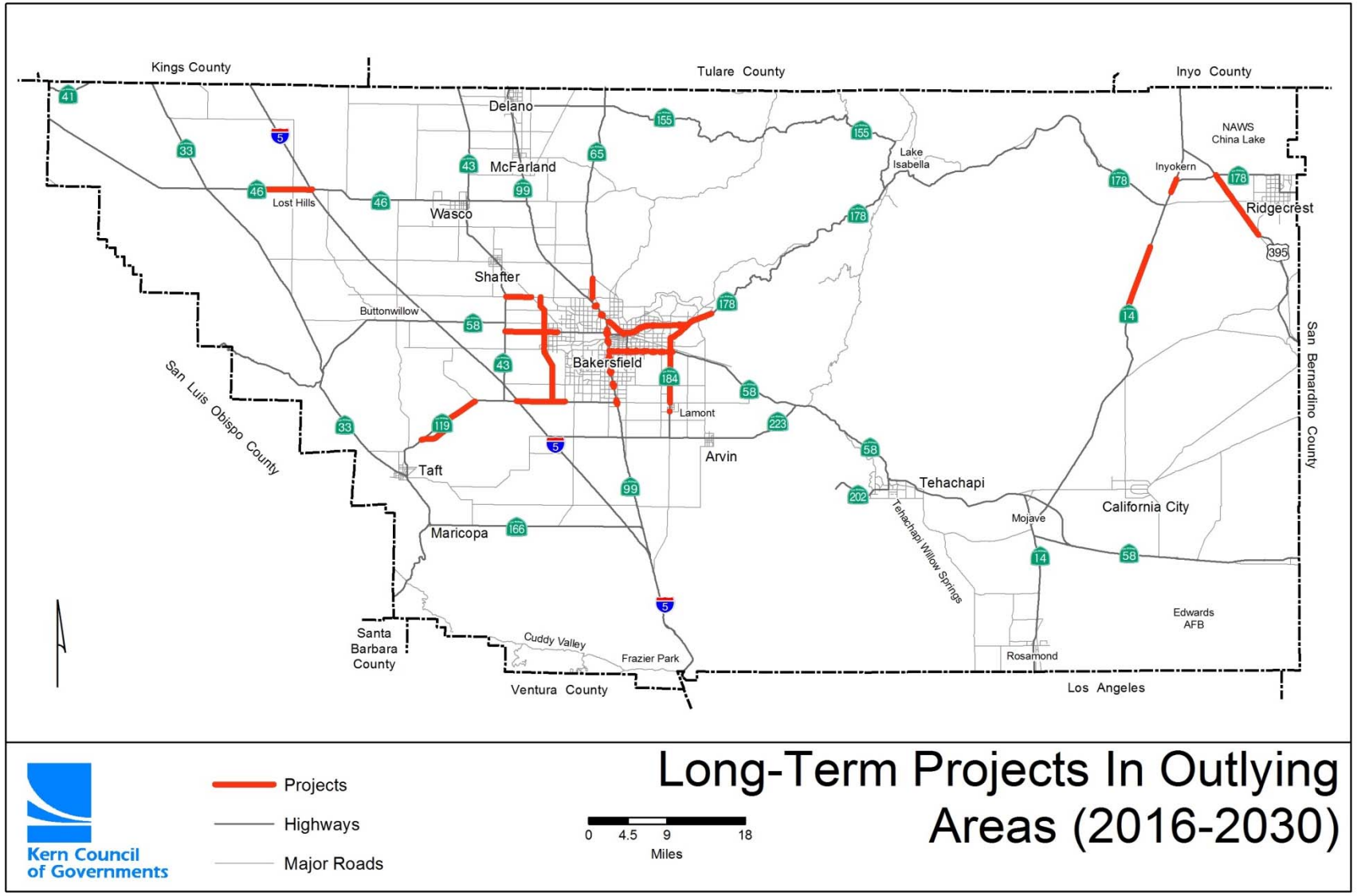

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FIGURE 5-9 NEAR-TERM PROJECTS IN OUTLYING AREAS (2011–2015)
[PLACEHOLDER: KERN COG TO REPLACE THIS FIGURE (LONG-TERM PROJECTS) WITH NEAR-TERM PROJECTS FIGURE]

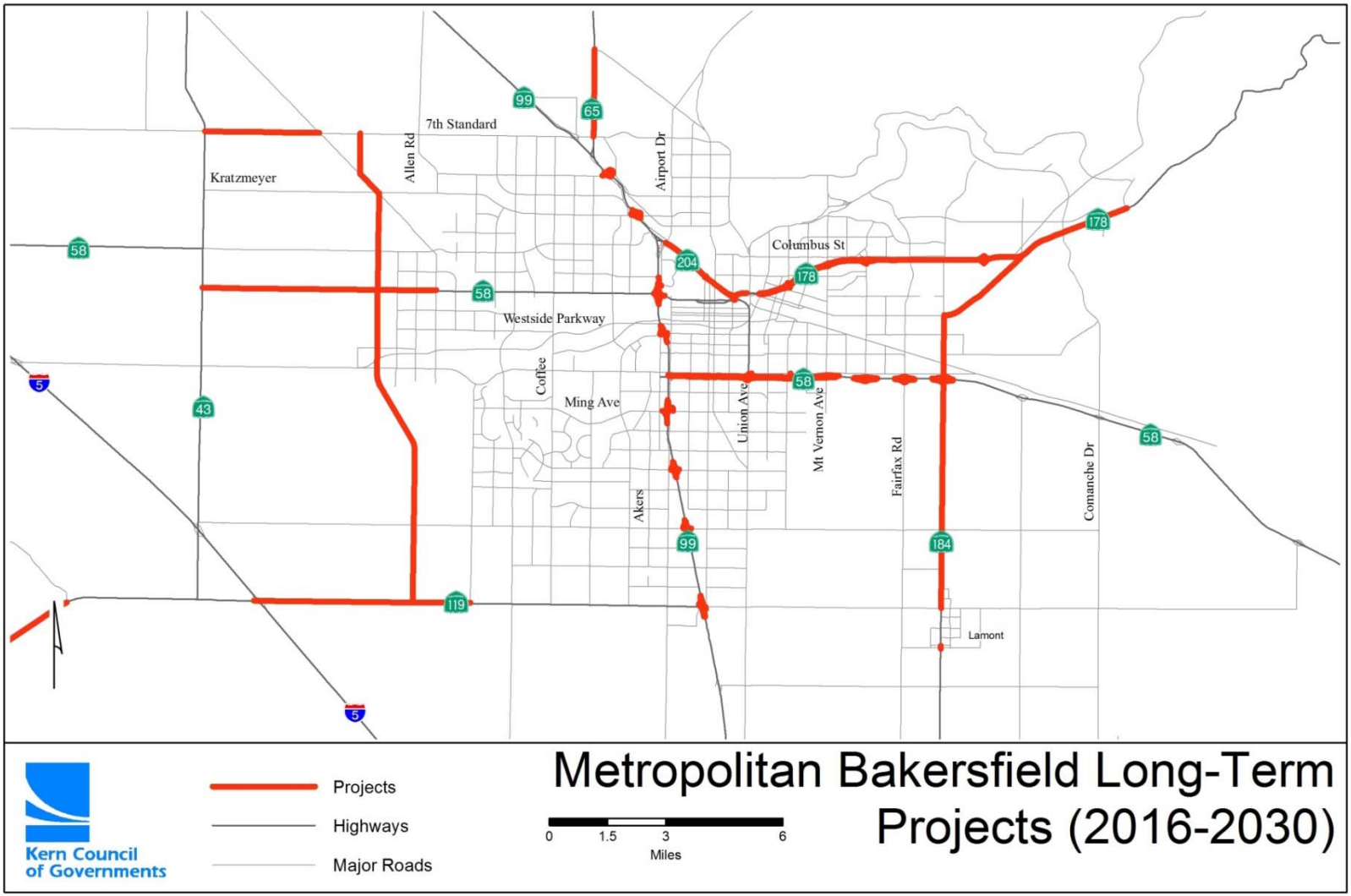

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FIGURE 5-10 FINANCIALLY UNCONSTRAINED HIGHWAY PROJECTS (BEYOND 2035)

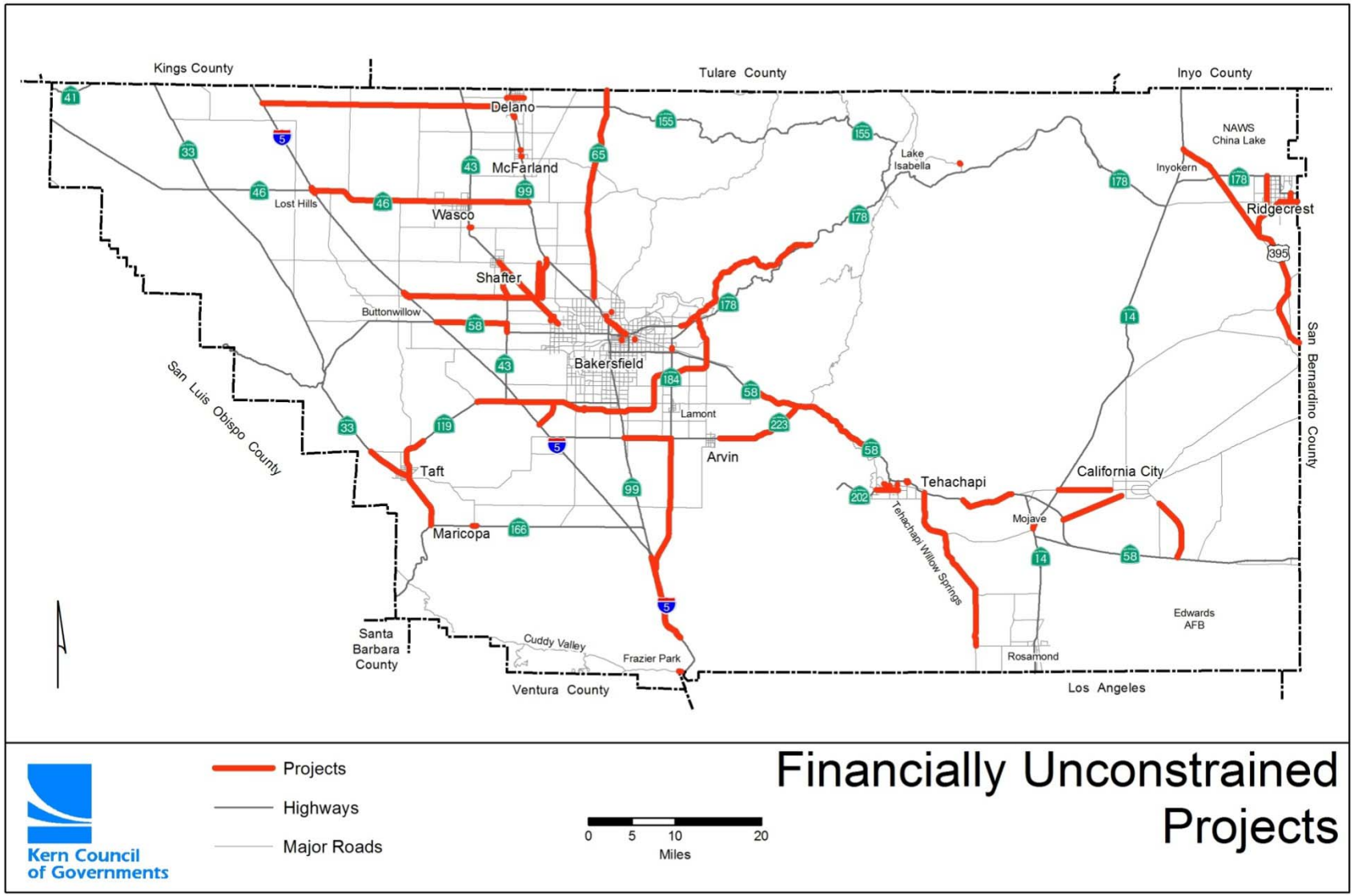

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS

Beyond 2040 - Major Highway Improvements				
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**
Interstate 5	Kern	From Fort Tejon to Rt 99 - widen to ten lanes	$86,000,000	KER08RTP027
Interstate 5	Kern	7th Standard Rd Interchange - reconstruct	54,000,000	KER08RTP028
Route 33	Maricopa	Welch St to Midway Rd - widen to four lanes	88,000,000	KER08RTP029
Route 43	Shafter	7th Standard Rd to Euclid Ave - widen to four lanes	37,000,000	KER08RTP030
Route 46	Wasco	I-5 to Juniper Ave - widen to four lanes	118,000,000	KER08RTP031
Route 46	Wasco	Juniper Ave (North) to Rt 43 - widen 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 widen interchange	130,000,000	KER08RTP033
Route 46	Wasco	Rt 43 to Rt 99 - widen to four lanes	70,000,000	KER08RTP032
Route 58	Kern	Rosedale Highway - I-5 to Rt 43 - widen 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 auxillary 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 - widen to four lanes	216,000,000	KER08RTP039
Route 99	County/Bkfd	Rt 99 @ Minkler Spur - construct grade separation	69,000,000	KER08RTP134
Route 119	Taft	Rt 33 to Cherry Ave - widen to four lanes	54,000,000	KER08RTP040
Route 119	Taft	Tupman Rd to I-5 - widen 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 184	Bakersfield	Rt 184/Morning Dr. @ UPRR - construct grade separation	69,000,000	KER08RTP122
Route 202	Tehachapi	Tucker to Woodford-Tehachapi Rd - widen to four lanes	9,704,661	KER08RTP047
Route 223	Near Arvin	Rt 99 to Rt 184 - widen to four lanes	69,010,921	KER08RTP048
Route 223	Arvin	East Arvin city limits to Rt 58 - widen to four lanes	64,697,738	KER08RTP049
US 395	Johannesburg	San Bdo County Line to Rt 14 - widen to four lanes	244,000,000	KER08RTP050

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TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS CONTINUED

Beyond 2040 - Major Highway Improvements				
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**
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

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Beyond 2040 - Major Highway Improvements				
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**
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

Beyond 2040 - Major Highway Improvements				
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**
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
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
	Subtotal		**$6,179,200,961**	

Beyond 2040 - Local Streets and Roads				
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**
Various Locations	Region	Bridge and street widening; reconstruction; signalization	$500,000,000	
		Subtotal	**$500,000,000**	

Beyond 2040 - Transit				
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**
All Transit Services	Region	80 new buses	$28,000,000	
All Transit Services	Region	15 replacement gas/diesel minibuses	1,000,000	
All Transit Services	Region	1 transfer station	1,000,000	
All Transit Services	Region	2 maintenance stations	10,000,000	
All Transit Services	Region	Park and ride lots (750 spaces)	3,000,000	
		Subtotal	**$43,000,000**	

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS CONTINUED

Beyond 2040 - Passenger and Freight Rail			
Project	**Scope**	**YOE Cost**	**Project ID**
Bakersfield Amtrak Station	Phase II Construction	$13,000,000	
	Subtotal	**$13,000,000**	

Beyond 2040 - Non-motorized				
Project	**Location**	**Scope**	**YOE Cost**	**Project ID**
Various locations	Region	Class II or Class III improvements; striping; signage	4,000,000	
		Subtotal	**$4,000,000**	

Beyond 2040 - Aviation			
Airport	**Scope**	**YOE Cost**	**Project ID**
Delano Municipal	Capital Improvements	$180,000	
Elk Hills - Buttonwillow	Capital Improvements	930,000	
Inyokern	Capital Improvements	2,651,000	
Kern Valley	Capital Improvements	3,672,000	
Lost Hills	Capital Improvements	1,300,000	
Meadows Field	Capital Improvements	7,250,000	
Mojave	Capital Improvements	3,388,000	
Poso	Capital Improvements	2,045,000	
Shafter - Minter Field	Capital Improvements	3,630,000	
Taft	Capital Improvements	5,498,000	
Tehachapi Municipal	Capital Improvements	6,212,000	
Wasco	Capital Improvements	1,315,000	
California City	Capital Improvements	6,607,000	
Subtotal		**$44,678,000**	

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS CONTINUED

Beyond 2040 - Summary of Unconstrained Projects	
Program Category	**Totals**
Major Highway Improvements	$6,179,200,961
Local Streets and Roads	500,000,000
Transit	43,000,000
Passenger Rail	13,000,000
Non-Motorized	4,000,000
Aviation	44,678,000
Grand Total	**$6,783,878,961**

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PUBLIC TRANSPORTATION ACTION ELEMENT

See the Sustainable Land Use Action Element – Sustainable Rail/Transit section below 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. In 2009–2010, public transit services carried over 7.84 million passengers in Kern County. Transit services include intercity, intracity, demand-responsive, and fixed-route operations.

The County of Kern operates **Kern Regional Transit (KRT)** that 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, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. Kern Regional Transit 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. [Placeholder: Kern COG to update with information regarding the KRT route between Taft and 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.

Golden Empire Transit (GET) has provided public transit service for the Metropolitan Bakersfield area since 1973. As of October 7, 2012, GET operates 16 fixed routes with a fleet of 59 buses in service. GET's service area covers 160 square miles and serves approximately 473,348 residents. GET-A-Lift provides complementary paratransit service within Metropolitan Bakersfield 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.

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

Transit ridership in Kern County showed a decline during FY 2010–2011 as shown in Table 5-4. Ridership for GET and KRT, however, has increased in more recent years as a result of service expansion and rising gasoline prices. An all-time record for ridership was achieved in 2009–2010.

[Placeholder: Kern COG to update following table.]

TABLE 5-3 PUBLIC TRANSIT OPERATORS WITHIN KERN COUNTY

Operator	Area Served	Service Type	Days of Service	Fare Structure	
				Regular	Discount
Arvin	Arvin, Lamont	Dial-a-ride	Mon-Fri	$1.00	$.50 seniors, disabled & youth 5–15
California City	California City	Dial-a-ride	Mon-Fri	$1.25	$0.75 seniors, disabled, ages 5–14
CTSA	Metro Bakersfield	Dial-a-ride	Mon-Fri	$2.00	–
Delano	Delano and adjacent unincorporated area	Fixed route Dial-a-ride	Mon-Sat	$0.75	$.35 seniors/disabled $.50 students 5–18
McFarland	McFarland	Dial-a-ride	Mon-Fri	$1.00	$.50 seniors, disabled, students
Ridgecrest	Ridgecrest and adjacent unincorporated area	Dial-a-ride	Mon-Sat	$2.00	$1 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	$1.00 (City-County trips)	$.75 seniors,disabled, children
Wasco	Wasco and adjacent unincorporated area	Dial-a-ride	Mon-Fri	$1.00	$.75 seniors $.65 disabled & youth
Kern Regional 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	
	N. Kern Express (Bkfd-Delano)	Intercity	Mon-Sun	Varies with origin and destination	
	Mojave-Cal City-Ridgecrest	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

Operator	Area Served	Service Type	Days of Service	Fare Structure	
				Regular	Discount
	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	$1.00	$.50 seniors & disabled
GET-A-Lift	Metro Bakersfield	Dial-a-ride	Daily	$2.00	--

TABLE 5-4 PASSENGERS TRANSPORTED BY KERN COUNTY TRANSIT OPERATORS

Operator	2008/09	2009/10	2010/11
Arvin	73,300	41,750	41,852
California City	12,889	14,215	14,621
CTSA	36,403	40,970	43,070
Delano	102,921	125,122	133,242
GET & GET-A-Lift	7,029,498	7,578,323	7,359,432
Kern Regional Transit	513,116	535,453	522,445
McFarland	9,968	9,417	7,756
Ridgecrest	35,595	27,478	12,977
Shafter	36,800	34,230	33,003
Taft	67,416	56,565	12,644
Tehachapi	5,332	5,288	5,826
Wasco	28,594	22,593	19,812
Totals	7,951,832	8,491,404	8,252,327

Sources: Annual Report of Financial Transaction-Transit, 2005/06–2008/09; Transit Operators State Controllers Report

Accomplishments Since 2000

Golden Empire Transit District

In 2009–2010, GET's fixed-route operation achieved its highest ridership level ever with 7,514,503 riders. Over the past two years, GET-A-Lift's ridership has decreased as riders have been transitioned to fixed routes. In 2000, Sunday and evening services were initiated. Day passes replaced transfers, headways were improved on several routes, and the first 40-foot buses were placed into service. GET has made a commitment to improving Kern County's air quality by purchasing compressed natural gas (CNG) buses. As of spring 2006, GET's entire fleet was CNG-fueled. GET has installed bike racks on all buses to facilitate intermodal trips, providing an ancillary improvement to air quality. 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.

Consolidated Transportation Service Agency

North Bakersfield 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, CTSA made several service improvements including wheelchair accessibility on 67% of its fleet and the hiring of additional drivers. Ridership dropped by approximately 20% in 2004 as a result of a fare increase to $1.50 in September 2003 and then to $2.00 in June 2004. However, ridership increased by 6.7% in 2005 and by 5.9% in 2006.

Kern Regional Transit

For over 30 years, Kern Regional Transit has provided a vital transportation link to the residents of Kern County. Through the services KRT provides—local demand response, fixed routes, and express routes—customers are able to travel to work, medical services, education, shopping, and social needs. In recent years, KRT has expanded service on many of its routes. These additions include evening classes at Bakersfield College and Sunday service on the East Kern express route and Lake Isabella/Bakersfield route.

In early 2002, KRT joined with Inyo Mono Transit (now called Eastern Sierra Transit Authority) to provide CREST (Carson Ridgecrest Eastern Sierra Transit), from which transit 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 Greyhound service.

CREST 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 counties of Kern, Los Angeles, Inyo, and Mono, including demand-response services operated by Ridgecrest, 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 Bus of Bakersfield; Amtrak; and connections to regional air service in Inyokern and Bakersfield.

KRT has implemented state and federal grants to acquire capital items such as replacement of diesel buses, replacement of CNG buses, a CNG fueling site, and bus shelters.

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 08–09, the Bakersfield station handled 395,354 passengers (boardings and alightings) and was second only to Sacramento as the busiest Amtrak station on the San Joaquin route. In FY 2010–2011, the San Joaquin route was the fifth busiest corridor in the country, with a record 1,067,441 riders.

Caltrans anticipates that demand will warrant eight round-trips on the San Joaquin Amtrak service by 2014. Start-up dates for service are based on projected service needs; demonstrated ridership demand, institutional barriers, availability of operating funding and equipment, availability of capital funding for capacity improvements requested by operating railroads, and technical issues outside Caltrans' control will affect when service improvements can be implemented.

Caltrans' proposed expansion of the San Joaquin Route includes:

- 2013–2014 Sacramento–Bakersfield, third train to extend from Stockton to Sacramento (seventh round-trip on route)

- 2014–2015 Oakland–Bakersfield, fifth train to extend from Stockton to Oakland (eighth round-trip on route)

This commitment to the San Joaquin route is well founded by the growth forecast for the Central Valley over the next two decades.

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 is 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 one quarter of 1% of the 8.25% 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 suspended the STAF, beginning in 2008–09 and expected to continue unless alternate financial means become available. Since 2008–2009, the State has partially funded the STAF program but only sporadically.

Currently, no local dedicated funding source is available for public transit. A one-half cent countywide sales tax ballot issue for highway and transit improvements failed in November 2006.

Short-Range Transportation Development Plans (TDPs)

Transportation Development Plans 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 is the District's primary planning document to guide 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 City of Arvin's transit services in early 2008. The plan recommended changing the demand-responsive service to a flex-route and that the City retain a full-time transit supervisor. The City of Ridgecrest has begun a new flex-route system that provides the cost effectiveness of a fixed-route system while maintaining the patron-oriented demand-responsive service.

Also in 2008, a TDP was prepared for the Arvin/Lamont/ Bakersfield corridor that looked at future service changes and improvements, concentrating on public transit services provided by Kern Regional Transit. The focus of the plan was to ensure that KRT's service to the area was coordinated as to meet transfers scheduled for Arvin Transit and Golden Empire Transit. Also discussed were various recommendations for improving marketing activities that target Spanish-speaking patrons.

In 2009, a TDP was prepared for the cities of Taft and Maricopa. The Taft Area TDP updated the transit system's goals and objectives, developed service alternatives, and includes the ability to:

- Implement all administrative recommendations.
- Transition from a general public demand-response to a traditional fixed-route service and ADA-complementary demand-response program.
- Limit demand-response ridership to seniors and ADA-certified individuals on weekdays.
- Eliminate service to Derby Acres, Fellows, and McKittrick; introduce fixed-route service to Maricopa.
- Install bus stop amenities (i.e., shelters, bus stops signs, schedules) at high-use locations
- Adopt the proposed Performance Measurement System for the fixed route.
- Implement a marketing plan to ensure community awareness and increase support for transit.

In 2012, a TDM was prepared for the City of Delano. The Delano TDP updated the transit system's goals and objectives and developed service alternatives and recommendations which maintain eligibility for funding. These recommendations include:

- Revising or restructuring the current route network and operating schedules.
- Modifying fixed-route alignments and headways.
- Active recruitment of qualified drivers.
- Investigating lower contract rates for regular maintenance.
- Contracting out for the operation of the city's transit service.

- Increasing fares.
- Conducting driver training and enforcement of fares and fare policy.
- Increasing on-time performance through policy enforcement.
- Other recommendations to improve and enhance customer service.

Also in 2012, TDPs were prepared for the cities of California City and Tehachapi. Recommendations to improve California City transit service included the following:

- Raising the fare for its service slightly to ensure farebox compliance could be met.
- Expanding operational hours to lure more choice riders and commuters to try the service.
- Purchasing three new buses and installing four bus shelters.
- Implementing a fixed-route service to improve cost efficiency and introduce service to the local community college.

Recommendations for Tehachapi include the following:

- Increase the fare structure to meet State-mandated requirements.
- Develop and implement an aggressive marketing plan.
- Reduce service hours to meet operating expense goals.
- Other ideas designed to improve and enhance the service within the community.

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. A countywide Consolidated Transportation Service Agency (CTSA) could be developed to incorporate all public operators of disabled and senior transportation. Expanding the CTSA would provide a means for coordination of services and efforts.

[Placeholder for Kern COG: potentially refer to the CTSA discussion on page 42]

Population Residing More Than One-Quarter Mile from Transit Route

Because of funding constraints, GET has struggled to keep up with the growth in population and service area over the last decade. Currently, GET serves about 70% of the population within one-quarter mile of an existing fixed route. Most of the unserved population is in the periphery of Metropolitan Bakersfield with some areas that form “holes” in the one-quarter-mile buffer around the routes.

Continued development around the urban fringe presents many difficulties in meeting route coverage standards. Much of the new development is low-density, middle- and upper-income housing that tends to generate little transit ridership. Furthermore, new development is not always contiguous to existing development causing transit services to cover unproductive miles in outlying areas. However, urban

fringe development may generate levels of transit ridership to justify express bus service, such as is offered by GET between Bakersfield College and Valley Plaza.

Recent Transit Planning Activities

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.

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, as well as the Niles and Monterey 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.

GET Public Transportation Services Plan

In 2005, GET submitted an application for a Caltrans Community-Based Transportation Planning grant to help plan transit service improvements within Metropolitan Bakersfield. Its purpose was to develop a service plan to provide more innovative and effective options to reach under-served and hard-to-serve neighborhoods and major destinations. The primary goals of the project were to engage GET's stakeholders in the planning process and to develop plans that improve mobility and increase transportation choices and usage given available resources. The study was completed in 2008 and several service improvements, including headway improvements and service extensions, have been implemented.

Kern Regional Transit Bakersfield Service Analysis

KRT recently 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 KRT service. The primary objectives of the KRT analysis were to determine whether KRT 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, and present a preliminary feasibility analysis of longer-term passenger rail service between Mammoth Lakes and the Los Angeles region.

The Eastern Sierra study area consists of numerous rural communities, resort towns, and a few urban centers clustered along the Highway 395 corridor in Inyo and Mono counties, and along SR 14 in Kern County. 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. Nelson\Nygaard consultants, working with Kern COG and a project advisory committee representing transit providers and social services throughout Kern County, inaugurated this effort, the Regional Rural Transit Strategy (RRTS), in spring 2002.

The first report of the RRTS inventoried existing public transit services in rural Kern County. The second report identifies possible alternatives to existing public transit service and the third report recommends strategies to improve the rural Kern County public transit system. The first report provided the following as areas of focus:

- To identify alternatives that would improve the overall quality of transit service in Kern County;
- To identify alternatives to traditional transit addressing Kern County's regional rural mobility needs;
- To develop coordination alternatives that realize an improvement over the way transit is currently operated;
- To review, identify, and discuss alternative administrative and oversight models for transit services in Kern County;
- To create a strategy for increasing the visibility and importance of transit in Kern County;
- To create partnerships between transit and non-transit organizations in addressing Kern County's transit needs.

The second report provided a series of alternatives for further consideration.

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 is necessary to fully assess which recommendations should be given priority.

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 2014 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.

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 forecast future demographic conditions within the county, as well as example commuter rail case studies throughout the United States presented 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 (COG), County of Los Angeles, Altamont Commuter Express, and Southern California Regional Rail Authority.

High-Speed Rail Authority

Established in 1996, the California High-Speed Rail Authority is charged with the 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 just under 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.

Proposed Actions

GET Long-Range Plan

Near Term, 2014–2020

- Decreased emphasis on timed connections at transit centers
- New transit center at CSU Bakersfield
- Increased service to CSU Bakersfield and Bakersfield College
- Faster crosstown trips
  - New Express routes
  - New "Rapid" routes
  - More direct routes

Mid Term, 2021–2025, and Long Term, 2026–2040

- Introduce "full" Bus Rapid Transit
- Crosstown service connecting one side of Bakersfield to the other
- Circulator services within neighborhoods or around outlying areas of Bakersfield
- Continuation of Express routes
- Introduce hybrid Circulator/Express service

KRT Bakersfield Service Analysis

- Refine scheduling practices
- Consider route reconfiguration within Downtown Bakersfield

- Analyze stop placement

HOV/BRT Study

Near Term, 2020

- Rapid bus improvements
- Introduce Express bus service along SR 178/24th Street/Rosedale Highway and SR 99
- Truck climbing lane along eastbound SR 58

Mid Term, 2035

- 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

Long Term, Post 2035

- Consider converting BRT corridors to light rail transit
- Consider additional peak period HOV lanes
- Consider truck climbing lane on southbound SR 166 south of Maricopa

Commuter Rail Feasibility Study

Near Term, 1–5 years

- Initiate 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
- Monitor advancement of the California High-Speed Rail (HSR) project

Mid Term, 5–15 years

- Continue pursuing extension of Metrolink from Lancaster to Rosamond
- If 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

Long Term, 15+ years

- Continue pursuing extension of Metrolink from Lancaster to Rosamond
- Reassess feasibility of commuter rail in various corridors

AVIATION ACTION ELEMENT

See the Sustainable Land Use Action Element – Sustainable Global Gateways section below 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.

Existing Aviation System

Kern County's regional airport system includes a diverse range of aviation facilities. It comprises 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 (Figure 5-9).

Scheduled air carrier and commuter airline service is provided at Meadows Field, which serves Metropolitan Bakersfield and surrounding communities. Scheduled commuter services are also provided at Inyokern Airport, which serves communities in the Mojave Desert and the Eastern Sierra.

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 Municipal Airport
- Delano Municipal Airport
- Tehachapi Municipal Airport
- Mojave Airport
- Inyokern Airport
- 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.

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. In 2009, Meadows Field experienced a significant decrease in passengers from previous years with 208,677 passengers. Passenger use increased again in 2010, and in 2011, 254,200 passengers used Meadows Field. Continental and US Airways provide non-stop passenger service to Denver, Houston, Los Angeles, 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 the 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 the 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 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 of 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 avigation 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 has 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 to begin construction in 2013.

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.

Indian Wells Airport District/Inyokern Airport serves the China Lake Naval Air Weapons Station, the community of Inyokern, and the City of Ridgecrest with scheduled airline service to Los Angeles International. 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.

Skywest operates a fleet of turbo-prop aircraft and provides air carrier service from Inyokern to Los Angeles International, currently three daily flights. Given the proximity to Reno and Las Vegas, service to these cities may be considered at some future date.

A fixed-base operator currently provides aircraft maintenance and flight instruction service. The airport provides both automated and full-service jet fueling. Federal Express 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. The airport is in the process of acquiring firefighting equipment for aircraft crash protection.

East Kern Airport District/Mojave Airport 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.

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 housing development and commercial area and campground to the south, 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 Kern Regional Transit.

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 and Air Force Plant 42 at Palmdale.

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 be also designed to maximize access to key intermodal passenger hubs such as regional airports, transit and rail. Existing transportation infrastructure includes two regional airports with passenger service in Kern County. Meadows Field is the primary regional facility for Metropolitan Bakersfield and the southern San Joaquin Valley. Inyokern Airport services the Ridgecrest/Indian Wells Valley in northeast Kern County.

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.

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 ALUC 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 northeast of the former terminal in February 2006. The building has been 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 also has 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 has been 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;

- 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 intends to meet 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 have constructed security fences and staffed security checkpoints to improve passenger-boarding security and reduce threats of terrorism.

Proposed Actions

Near Term, 2011–2015

- 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.
- 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, 2016–2035

- 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.
- Implement planning actions and strategies listed in the JLUS for R-2508.

FREIGHT MOVEMENT ACTION ELEMENT

See the Sustainable Land Use Action Element – Sustainable Highway/Road Facilities and Connectivity, Sustainable Land Use Action Element – Sustainable Rail/Transit, Sustainable Land Use Action Element – Global Gateways sections below 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. Not only is Kern County a leading agricultural producer, it is also a prominent producer of oil and other minerals. 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 a growing internal population. In addition, the manufacturing and employment base of the valley is increasing. All these factors contribute to increasing demand for freight transportation.

Existing System

Trucks

Trucking is the most commonly used mode for transporting freight; its popularity stems from its flexibility, timely delivery and efficiency for haul 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.

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.

FIGURE 5-11 TRUCK & RAIL DISTRIBUTION CENTER IN KERN

[Placeholder for Kern COG: The following paragraphs regarding the Freight Movement Action Plan to be updated with data from SJV inter-regional Goods Movement Plan: 2012/2013 or Kern Goods Movement Strategy 2012.]

Trucking is the dominant mode of freight transport, accounting for 87% of outbound tonnage and 81% of inbound tonnage (San Joaquin Valley Goods Movement Study, September 2000). Commodity movements by truck also indicate a strong relationship with the rest of the state with shipments to/from

Southern California and the Bay Area, constituting the greatest percentage of total tonnage to and from the San Joaquin Valley (18% and 14% of the total, respectively).

Major interregional highway corridors handle relatively high volumes of heavy (3- to 5-axle) truck traffic, usually between 16–24% of the annual average daily traffic (AADT). 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. While current legislation focuses on implementing Transportation Control Measures (TCMs) for passenger vehicles, TCMs do not specifically address trucking.

While the San Joaquin Valley's major trucking corridors (I-5 and SR 99) run north/south, 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

To prepare for the 2014 RTP, Kern COG commissioned three goods movement studies to analyze freight movement in and through Kern County. The Origins and Destinations Truck Study on 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, Fresno COG, and Caltrans. In addition, Kern COG commissioned the Origins and Destinations Truck Study on State Routes 228, 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 the 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 make 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%.

Completed in 2012, the Kern County Goods Movement Strategy was prepared using data from the three Origins and Destinations Truck Studies as well as from other transportation planning studies conducted regionally and throughout the state to inform future project development activities. A total of 55 project segments, based on an inventory of all planned highway and freeway capacity improvement projects, were evaluated and ranked to inform future project selection activities.

Cooperative efforts are needed between the trucking industry, the driving public, and local officials to assess the impacts that trucks have on local streets, and to create regulatory guidelines for trucks in urban areas. Alternative transportation modes for long-haul goods movement are being explored and supported. These include improved Intermodal freight transfer facilities and access at major airports and rail terminals.

Rail

[Placeholder for Kern COG: The following paragraphs regarding the Freight Movement Action Plan to be updated with data from SJV inter-regional Goods Movement Plan: 2012/2013 or Kern Goods Movement Strategy 2012.]

Trains provide an economical means of transporting bulk goods over long distances. Although these engines demand heavy fuel consumption, their ability to haul large amounts of cargo makes for an overall low energy requirement per unit of weight when compared to truck or air transport.

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 (San Joaquin Valley Goods Movement Study, 2000). UP and CSX Transportation have teamed with RailEx, a refrigerated railcar and warehousing service, to offer perishable goods transportation from the San Joaquin Valley to New York and Boston.

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, moving freight, primarily comprising agricultural and petroleum-based products, throughout the valley.

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 transport to move 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. An estimated 35 trains pass through the summit daily, with a forecast increase of up to 50 trains per day over the next five years with the completion of the Tehachapi Pass capacity improvement project jointly funded by the State of California and the BNSF.

Kern Rail Studies

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 concern about the abandonment of short-haul rail lines becoming a growing issue for the region. During the 1990s, the Eastern Sierra/Lone Pine subdivision connecting the rail spur with China Lake Naval Air Warfare 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 segme,nt 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 bare, 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 metals 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 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 bus express lanes.

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.

Rail Intermodal Facilities

Intermodal terminals are critical to the success of intermodal services. Terminals are the starting and ending points for trains, as well as the sites of crucial distribution between modes. Terminals also function as equipment storage, maintenance, and dispatching centers, and as focal points for the flow of information. Terminals vary widely in configuration, capacity, and operations, and only a few have been built from the ground up as intermodal facilities.

In the 1980s, railroads consolidated their intermodal service networks into fewer, larger hubs. Railroads saw an opportunity to consolidate facilities with mergers, and a need to consolidate sufficient volume in one location to justify lift machines. The forecast growth of intermodal traffic, double-stacked container trains, and the current entry and piggyback rail/truck trailer initiatives all raise questions about the adequacy of intermodal terminals to handle rail traffic increases efficiently and effectively.

In 2008, RailEx and 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 and less than truckloads are unloaded from trucks, then loaded into railcars instead of using containerized transfers. Other intermodal distribution facilities include locations for bulk shipping of agricultural products such as grains, coal, propane, and specialty oil products. The Shafter Intermodal Rail Facility (SIRF) will include a containerized intermodal facility that would provide rail shuttle service between Shafter and the ports. 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.

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 Meadows Field's expansion and 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. Pacific Gas and Electric Company (PG&E) is 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.

Hazardous Material Movement

Because more than 50% of all goods transported throughout the world are hazardous to some degree, human life and property is 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.

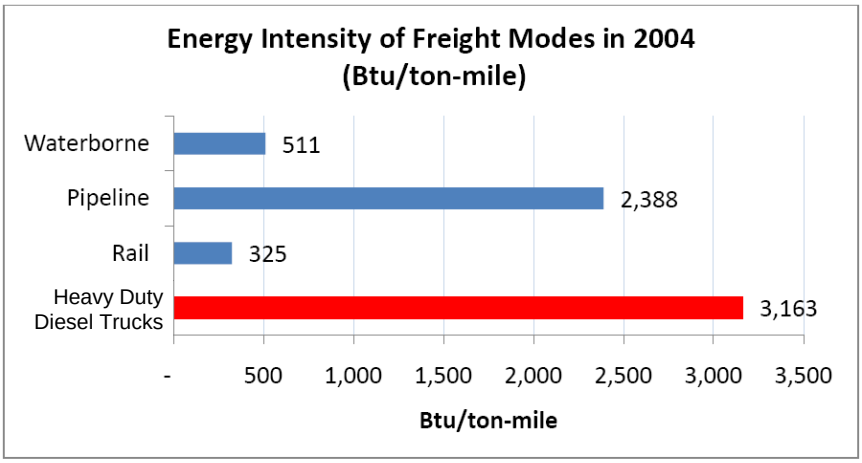
Kings County, northwest of Kern County, is the site of a Class 1 hazardous waste facility. The facility, located at Kettleman Hills, draws trucks carrying hazardous materials from all western states. The presence of these trucks on regionally significant routes increases the probability of dangerous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

Needs and Issues

Agriculture and the food processing industry provide a stable base to the economy of Kern County. Population and economic growth pressures have resulted not only in the loss of agricultural land, but also an increase in 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 creates unsafe travel conditions.

FIGURE 5-12 ENERGY EFFICIENCY BY TRANSPORT MODES



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

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 regional economy's growth and development.

Figure 5-12 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 preservation of businesses along the short rail lines to ensure continued use of the short haul rail system. New facilities such as RailEx in Delano are demonstrating that private capital is already investing in the regions rail infrastructure.

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 development of public/private partnerships for financing improvements.

Inland Port

An inland port would serve as a cargo facilitation center, where a number of import, export, manufacturing, packing, warehousing, forwarding, customs, and other activities (such as a Foreign Trade Zone and/or Enterprise Zone) 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.

The City of Shafter has proposed the SIRF at its International Trade and Transportation Center to foster inland port status. The facility's first phase would include a container hub allowing distributors to drop empty trailers at the site that other drivers can pick up. This has the potential of eliminating a large number of truck trips over the Grapevine and through the Los Angeles basin. The plan would benefit regional air quality in addition to creating jobs.

Proposed Actions

Near Term, 2014–2015

- 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 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 widening of Seventh Standard Road in response to proposed freight movement activities in the area.
- Continue development of Shafter Intermodal Rail Facility for intermodal freight transfer activities.

Long Term, 2016–2035

- 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.

BICYCLE AND PEDESTRIAN ACTION ELEMENT

See the Sustainable Land Use Action Element – Sustainable Highway Road/Facilities and Connectivity section below 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 bicycle facilities that make a meaningful contribution to the overall transportation system. The climate and terrain of the region is favorable for bicycling, with many clear, dry days and moderate temperatures. For short trips, the bicycle can serve as an alternative to the automobile. Because the bicycle is non-polluting and energy efficient, it is an element in the region's multimodal transportation system that leads to a more efficient transportation network.

While this section focuses on bicycle travel, walking is also a viable travel mode. 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. The County also has a Class III variation that provides a 4-foot delineated shoulder and bicycle route signage in rural areas.

Accomplishments Since 2011

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.

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. Providing alternatives to automobile travel is a central tenet for the Kern Regional Blueprint vision.

Both the Kern County Bicycle Master Plan and the Kern County Bicycle Master Plan and Complete Streets Recommendations documents are incorporated by reference as a part of the 2014 RTP. Table 5-5 summarizes existing and funded bikeways in Kern County by community. Table 5-6 summarizes existing bikeways in unincorporated Kern County by bikeway class.

TABLE 5-5. EXISTING AND FUNDED BIKEWAYS BY COMMUNITY

METRO BAKERSFIELD		
East-West Routes	**From**	**To**
Panorama Drive	Manor Street	Shiloh Ranch Road
Columbus Street	River Boulevard	Panorama Drive
University Street	Wenatchee Street	Columbus Street
21st Street	Oak Street	Chester Avenue
Planz Road	South Chester Avenue	Meadow View Drive
Stockdale Highway	Oak Street	Allen Road
Ming Avenue	New Stine Road	Buena Vista Road
White Lane	New Stine Road	Buena Vista Road
North-South Routes	**From**	**To**
Fairfax Road	Auburn Street	Paladino Drive
Q Street	4th Street	Golden State Highway
Chester/South Chester Avenue	Planz Road	34th Street
Oak Street	Planz Road	Kern River Bikeway
New Stine Road	White Lane	Marella Way
Gosford/Coffee Road	White Lane	Stockdale Highway
Ash Road	White Lane	Stockdale Highway
North Laurelglen Boulevard	Looping to	South Laurelglen Boulevard
Funded Facilities	**From**	**To**
Fairfax Road	Alfred Harrell Highway	Paladino Drive
Paladino Drive Extension	Fairfax Road	Morning Drive Extension
Morning Drive Extension	Alfred Harrell Highway	Paladino Drive Extension
Camino Media	CSUB	Stockdale Highway
CALIFORNIA CITY		
East-West Routes	**From**	**To**
California City Boulevard	Isabella Boulevard	Proctor Boulevard
North Loop Road	California City Boulevard	Randsburg-Mojave Road
South Loop Boulevard.	California City Boulevard	Hacienda Boulevard
Great Circle Boulevard	Neuralia Boulevard	South Loop Boulevard
Redwood Boulevard	Airway	Hacienda Boulevard
North-South Routes	**From**	**To**
Hacienda Boulevard	Redwood Boulevard	California City Boulevard
Randsburg-Mojave Road	North Loop	California City Boulevard
Airway	South Loop	Redwood Boulevard

RIDGECREST		
East-West Routes	**From**	**To**
Upjohn Avenue	Norma Street	Gateway Boulevard
California Avenue	City Hall	Richmond Street
Ridgecrest Boulevard	China Lake Boulevard	Gateway Boulevard
Las Flores Avenue	Mahan	French Avenue
Drummond Avenue	Downs Street	French Avenue
Ward Avenue	Mahan Street	China Lake Boulevard
Inyokern Road	Mahan Street	Lauristen Road
North-South Routes	**From**	**To**
Downs Street	China Lake Boulevard	Inyokern Road
Norma Street	Ridgecrest Boulevard	Inyokern Road
China Lake Boulevard	Intersection of Downs Street	Inyokern Road
College Heights Boulevard	Cerro Coso College	China Lake Boulevard
Sunland Drive	East Upjohn Avenue	Ridgecrest Boulevard
French Avenue	China Lake Boulevard	Drummond Street
Funded Facilities	**From**	**To**
South Norma Street	West Church Avenue	Ridgecrest Boulevard
Gateway Boulevard	Ridgecrest Boulevard	Gold Canyon Drive
Chelsea Lane	Vieweg School	China Lake Boulevard
Bowman Road	South Downs Street	China Lake Boulevard
Gold Canyon Drive	Pierce School	Gateway Boulevard
TAFT		
East-West Routes	**From**	**To**
Sunset Railway Rails to Trails	Hillard Street	South 2nd. Street
TEHACHAPI		
East-West Routes	**From**	**To**
[To be completed]		
North-South Routes	**From**	**To**
[To be completed]		
WASCO		
Looped Class I Bike Path	Around Westside Park	
South Side of Barker Park	Maple	Birch

TABLE 5-6. EXISTING BIKEWAYS IN UNINCORPORATED KERN COUNTY BY CLASSIFICATION

Bicycle Facilities by Type			
Class I Facilities	**From**	**To**	**Mileage**
Kern River Bike Path	Western Terminus	Eastern Terminus	3.0 (Not including 21.5 miles within Bakersfield City Limits)
Class II Facilities	**From**	**To**	**Mileage**
Alfred Harrell Highway	Hart Park	Fairfax Road	3.8
China Grade Loop	Airport Drive	Carrere Street	1.1
China Grade Loop	Manor Street	China Grade Loop/Round Mtn. Road	2.2
Cottonwood Road	Casa Loma	SR-58	0.9
Day Avenue	Airport Drive	North Chester Avenue	1
Manor Street	Kern River	China Grade Loop	1.3
North Chester Avenue	Kern River	Manor Street	2.9
Old Farm Road	Rosedale Highway	Palm Avenue	0.5
Roberts Lane	Sequoia Drive	North Chester Avenue	0.7
Burlando Road	Nellie Dent Drive	Kernville Rd/Burlando Road	3.4
Golden Hills Boulevard	Santa Barbara Drive	Woodford Tehachapi Road	0.9
Kernville Road	Burlando Road	Sierra Way	0.5
Lake Isabella Boulevard	Kilbreth Drive	Erskine Creek Road	1.5
Red Apple Avenue	Westwood Boulevard	SR 202	0.8
Westwood Boulevard	Golden Hills Boulevard	Woodford Tehachapi Road	2
Woodford-Tehachapi Road	White Pine	SR 202	2
Class III Facilities	**From**	**To**	**Mileage**
Alta Vista Drive	Panorama Drive	Bernard Street	1.1
Belle Terrace	South H Street	Wible Road	1
Brown Road	US 395	SR 14	20
China Grade Loop Bike Path	Crossing at China Grade Loop	Alfred Harrell Highway	0.5
Columbus Street	Alta Vista Drive	River Boulevard	0.5
Frontage Road M198G	Alfred Harrell Highway	Lake Ming Road	1.5
Inyokern Road (SR 178)	Brown Road	SR 14	4
McCray Street	Day Avenue	China Grade Loop	0.6
Norris Road	Calloway Drive	Coffee Road	1
Norris Road	North Chester	Manor Street	0.5
Pegasus Drive	Norris Road	7th Standard Road	1.8
River Drive	Thru Hart Park	Thru Hart Park	1.5
Borax Road	20 Mule Team Road	Suckow Road	1.9
Lake Isabella Boulevard	Turner Road	Erskine Creek Road	0.6
Sierra Way	Kernville Road	Kernville Airport	2
Total Unincorporated County Bikeways			**67.0**

Needs and Issues

Maintenance Issues

Maintaining bicycle 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 investment into new bicycle 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. Alternative and innovative measures will be studied in order to update the Bicycle Master Plan.

Public Support

For a number of reasons, bicycling has not realized its full potential as a transportation mode within the Kern region. Primarily, they are 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.
- 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 planning activities in the Kern region include implementing the existing Kern County Bicycle Facilities Plan and promoting more pedestrian and bike uses throughout the county as an alternative to driving.

Proposed capital bicycle and pedestrian projects for the 2014 Regional Transportation Plan are listed in Table 5-7. Specific projects include those that have recently received funding commitments as well as those that have been identified by COG member jurisdictions in their capital improvement plans.

TABLE 5-7. PROPOSED CAPITAL BICYCLE AND PEDESTRIAN PROJECTS

Location	Project
Arvin	Sycamore Bike Lanes Phase 1
Arvin	Sycamore Bike Lanes Phase 2
Bakersfield	Bike Bakersfield Safety Program
Bakersfield	Bike Lane on White Lane from Union Avenue to South "H" Street
Bakersfield	Bike Lane on Hughes Lane from White Lane to Wilson Road
Bakersfield	Bike Lane on Monitor Street from Hosking Avenue to East Pacheco Road
Bakersfield	Pedestrian Improvement on Columbus Street from Kern River to Haley Street (Phase I of II)
Bakersfield	Pedestrian Improvement on Brundage Lane from Oleander Avenue to "H" Street (Phase I of II)
California City	Bike Safety Program
California City	Hacienda Boulevard (Phase I of II)
California City	Hacienda Boulevard (Phase II of II)
Delano	No Projects
Kern County	Calloway Drive Pedestrian Project
Kern County	Lake Isabella Boulevard Pedestrian Project Phase 1
Kern County	Oswell Street Pedestrian Project Phase 1
Kern County	Lake Isabella Boulevard Pedestrian Project Phase 2
Kern County	Oswell Street Pedestrian Project Phase 2
Kern County	Oildale Bike Loop Phase 1
Kern County	Delano Browning Road Bike Lanes Phase 1
Kern County	Oildale Bike Loop Phase 2
Kern County	Delano Browning Road Bike Lanes Phase 2
Kern County	Woodford-Tehachapi Road Bike Path and Gold Hills Stripe
Kern County	Eastside SR 184 Pedestrian Path
Kern County	Oak Creek Bikepath from Koch Street to Deaver Lane (Phase I of II)
Kern County	West Side SR 184 Pedestrian Path from DiGiorgio Road to Collison Street (Phase I of III)
Kern County	Pedestrian Improvement on Niles Street from Virgina Avenue to Oswell Street (Phase I of III)
Kern County	Oak Creek Bikepath from Koch Street to Deaver Lane (Phase II of II)
Kern County	West Side SR 184 Pedestrian Path from DiGiorgio Road to Collison Street (Phase II of III)
Maricopa	Bike Safety Program
McFarland	Sidewalks at Various Locations (Phase I of III)
McFarland	Sidewalks at Various Locations (Phase II of III)
McFarland	Sidewalks at Various Locations (Phase III of III)
Ridgecrest	Drummond Avenue/Norma Street/Ward Avenue Sidewalks
Ridgecrest	Bowman Road Bikepath Rest Area
Ridgecrest	Bowman Road Bikepath on Richmond Road (Phase I of II)
Shafter	SR 43 Sidewalks from Meyer Avenue to Tulare Avenue (Phase I of III)

Shafter	SR 43 Sidewalks from Meyer Avenue to Tulare Avenue (Phase II of III)
Taft	Sunset Railway Rails-to-Trails Phase 2 (I of III)
Taft	Sunset Railway Rails-to-Trails Phase 2 (II of III)
Taft	Bike Rack at Oil Monument
Taft	Sunset Railway Rails-to-Trails Phase 2 (III of III)
Tehachapi	Bicycle Parking Rack
Tehachapi	Bicycle Safety Program
Tehachapi	Bike Rack at Manzanita Park
Tehachapi	Davis Street Sidewalk
Tehachapi	Bicycle Master Plan Implementation Phase I
Tehachapi	Bicycle Safety Program
Tehachapi	Bicycle Parking Rack
Wasco	Infill Sidewalks near Thomas Jefferson Middle School
Wasco	Infill Sidewalks on 9th Place
Wasco	Bike Safety Program
Wasco	Pedestrian Improvements on 7th Street
Wasco	Bike Safety Program

Proposed Actions

Near Term, 2014–2020

- 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 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 an updated bicycle plans for incorporated cities.
- Fund a Pedestrian Facilities Plan for the County of Kern as well as incorporated cities.

Long Term, 2021–2040

- Continue to periodically update the Bicycle Master Plan.
- Continue to seek funding for bicycle projects from local, state, and federal sources.
- Continue to seek funding to help maintain existing bikeways.

TRANSPORTATION CONTROL MEASURES ACTION ELEMENT

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 at least one harmful pollutant (see Chapter 8, Findings of Air Quality Conformity). 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. A goal of the 2014 RTP focuses on carrying out these requirements to achieve required standards for healthy air. *See Chapter 4, Sustainable Communities Strategy, for further information on Transportation Control Measures.*

Existing System

Kern COG's existing TCM activity has focused on four areas:

- Alternative Fuels
- Traffic Flow Improvements
- Paving Dirt Roads
- Transportation Demand Management

Kern COG's efforts in these areas, in combination with state and federal implementation of control measures, have been successful in reducing overall emission levels. These reductions have been realized, in part, by the following TCM accomplishments.

Accomplishments Since 2000

Alternative Fuels

Since 1990, Kern COG has allocated more than $20 million to replace over 120 transit vehicles with alternative fueled vehicles and create a network of alternative fueling stations, resulting in a one-third-ton reduction in daily ozone-related emissions. Golden Empire Transit, Kern's largest transit provider, will operate a 100% compressed natural gas (CNG) fixed-route fleet (65 buses) by 2005. Other alternative fueled transit fleets include Kern Regional Transit and Arvin.

Traffic Flow Improvements

Kern COG has invested significant resources in signalization of four-way stops, signal synchronization, traffic monitoring, and a metropolitan traffic operations center. Significant reductions in vehicle emissions resulting from unnecessary idling and acceleration have been realized.

Paving Dirt Roads

Kern COG's TIP/RTP has funded paving of dirt roads and shoulders in the Indian Wells Valley Air Basin, the San Joaquin Valley Air Basin, and the Mojave Desert Air Basin. The Indian Wells Valley Air Basin is an area in nonattainment for particulate matter. Paving of dirt roads and shoulders creates a buffer for particulate matter as well as providing for a potential bike lane.

Commute Kern/Public-Employer Outreach

Since the early 1980s, Kern COG has operated its rideshare program, now known as CommuteKern, and 832-RIDE phone line to promote vanpooling, telecommuting, ridesharing, walking, and biking to work. In 2009, the San Joaquin Valley Air Pollution Control District introduced Rule 9410, requiring businesses in the San Joaquin Valley with more than 100 employees to provide rideshare resources to their employees. Also known as the Employer Trip Reduction Implementation Plan, or eTRIP, the rule is intended to reduce vehicle miles traveled (VMT) by employees commuting alone to and from their worksites. This effort will reduce emissions of oxides of nitrogen (NO_x), volatile organic compounds (VOC), and particulate matter (PM). Kern COG began a public and employer educational rideshare campaign as part of its commitment to assisting the larger employer groups located in Kern County with implementing their eTRIP programs. CommuteKern participates in employer-based and community health fairs and outreach events throughout the year to help spread the word about the benefits of ridesharing. Employer groups are encouraged to use the CommuteKern marketing materials and free carpool and vanpool matching services to assist in their eTRIP compliance efforts. Kern COG also uses print, radio, and television advertising to help increase the awareness of ridesharing, particularly during Rideshare Week, which is a statewide campaign encouraging commuters to try ridesharing just one day during the first week of October each year.

Needs and Issues

[Placeholder: Kern COG to update following section.]

In response to the Kern Regional Blueprint activities and comments provided by the general public at Kern COG's workshops, reducing unhealthy air emissions is a primary goal of the 2014 RTP. Recent polls on issues facing Kern consistently rank air quality as the greatest concern for our region's residents. 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 – Limited funding exists to clean air emissions resulting directly or indirectly from transportation. Maximizing funding is a critical component to successfully achieve air quality goals.

- Alternative-fuel fleets – Between 2007 and 2010, California's clean diesel fuel standards will be implemented, reducing the effectiveness of CNG-fueled fleets from six times less polluting to half as polluting and requiring a systems approach for diesel vehicles to conform to the standards. This may reduce the need to fund alternative fuel fleets. However, diesel exhaust still has a toxicity component that may warrant continued conversion of fleets, especially school buses.

- Indirect source emissions from new development – 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 house 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, particulate matter in exhaust and fugitive dust kicked up by moving vehicles increases as passenger vehicle travel increases. New housing developments need to fully mitigate their indirect source impact to air quality, especially for particulate matter.

Current Activities

[Placeholder: Kern COG to update following section. Include employee trip reduction programs (i.e. APCD's e trips program.]

The following TCM-related activities are being promoted by Kern COG and its member agencies:

- Alternative-fuels station and fleet are being implemented by the Kern Superintendent of Schools and a consortium of school districts;
- GET's alternative-fuel transit fleet has replaced the diesel-fueled fleet, operating 100% of the fleet on CNG since 2006;
- Commuting alternatives are being promoted by public and employer outreach programs, such as Kern COG's CommuteKern;
- GET, the City of Bakersfield, and the County of Kern are coordinating signal preemption to improve on-time service for existing GET fixed routes;
- Traffic flow improvements, park and ride lots, public transit, bicycling, and walking are being added throughout the Kern region.

Proposed Actions

[Placeholder: Kern COG to update following section.]

Proposed actions for transportation control measures can be divided into three areas or policies:

- TCM Coordination – Coordinate with all responsible agencies necessary to implement all feasible measures that control harmful air emissions.
- TCM Implementation – Promote implementation of all feasible, cost-effective TCMs to achieve air quality emissions by mandated deadlines.
- TCM Education – Provide necessary support and education to member agencies on all feasible control measures.

In the San Joaquin Valley, the San Joaquin Valley Air Pollution Control District and the eight Regional Transportation Planning Agencies/Metropolitan Planning Organizations have jointly prepared TCMs as a part of the air district's State Implementation Plans for the pollutants ozone and particulate matter smaller than 10 microns in diameter (PM_{10}). These mutual efforts are the result of a Memorandum of Understanding signed by all of the agencies to coordinate air quality and transportation planning activities.

TCM Coordination

The following TCM coordination activities are being undertaken for the Kern region:

- Maintaining air quality coordination MOU with the San Joaquin Valley Metropolitan Planning Organizations, San Joaquin Valley Air Pollution Control District, and Caltrans Districts 6 and 10.
- Maintaining air quality coordination Memorandum of Understanding with the Kern County Air Pollution Control District.

TCM Implementation

TCMs generally fall into two categories:

- Transportation Demand Management (TDM) – Activities that will reduce the demand for the fossil-fueled, single-occupant vehicles as a mode of travel, such as ridesharing/vanpooling, increased parking fees, decreased parking supply, park and ride lots, bus transit, rail transit, and bicycle and pedestrian facilities

- Transportation System Management (TSM) – Activities that increase the efficiency of the existing transportation system without adding new travel lanes, thus reducing the amount of energy required to make the system function, such as traffic signalization, ramp metering, truck auxiliary lanes on major inclines, intersection turning lanes, railroad grade separations, and replacing four-way stop signs with traffic signals

TDMs and TSMs also benefit mobility and congestion relief by reducing demand and maintaining system efficiency, thereby delaying the need for capacity increasing highway projects.

The 2014 RTP discusses the air quality requirements faced by the Kern region (see Chapter 8, Findings of Air Quality Conformity), as well as demand management strategies, including bus and rail services (Chapter 4, Transit Action Element), bicycle facilities (Chapter 4, Bicycle and Pedestrian Action Element), and grade separation (Chapter 4, Freight Movement Action Element).

TCMs being implemented by the 2014 RTP and the 2013 Federal Transportation Improvement Program include the following strategies for reducing vehicle-related emissions:

- Public transit

- Alternative-fuel fleets

- Ridesharing and voluntary employer-based incentives

- Traffic flow improvements/railroad grade separations

- Park and ride lots

- Bicycle and pedestrian travel

- Controlling extended vehicle idling

- Smart growth and transit/pedestrian-oriented development

- Paving/controlling dust from streets and shoulders

- PM_{10} efficient street sweeping

- Funding options for Congestion Mitigation Air Quality Program (CMAQ), AB 2766 Motor Vehicle Emissions Reductions Program, and other sources that allow TCM allocations

The Emission Reduction Incentive Program Group of the San Joaquin Valley Air Pollution Control District is responsible for the development, implementation, and ongoing administration of all District grant and incentive programs, including the Heavy-Duty Engine Incentive and REMOVE II programs. These

incentive programs provide a positive impact on air quality and are highly successful because participation is voluntary.

The District has operated incentive programs since 1992. Over the years, the District has been willing to develop new programs such as the Clean Green Yard Machine Program that helped consumers purchase electric lawn mowers. This program will likely be continued in coming years if funding is available. Recent environmental mitigations at new truck stops and warehousing operations include electric hook-ups to reduce idling of heavy-duty diesel trucks and the resulting emissions.

In 1996, Kern COG prepared a study of HOV (high occupancy vehicle) lanes as a part of the Tier I EIR for the Kern River/Downtown Parkway (Centennial Corridor). The study found that an HOV lane during peak period would only carry 2 vehicles per minute. California currently allows single-occupant vehicles with a PZEV (Partial Zero Emissions Vehicle) emissions rating to use HOV lanes. Future studies should consider an HOV system that would include a beltway system and ramp metering.

TCM Education

The following educational activities are being undertaken in the Kern region:

- Identification of all Reasonably Available Control Measures (RACM) for ozone and all Best Available Control Measures (BACM) for PM_{10} 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.

- Media campaigns promoting the various TCMs listed above.

TCMs for Thomas Road Improvement Program (TRIP) Projects

In 2006, the City of Bakersfield and the County of Kern began the process of planning, designing, and constructing $1.3 billion in roadway improvements in the Metropolitan Bakersfield area. The Thomas Roads Improvement Program (TRIP) projects are intended to increase interregional connectivity, promote economic development, improve traffic safety, and reduce travel times.

The environmental documents prepared (and under preparation) for recent freeway projects within the Metropolitan Bakersfield area have considered the Transportation Control Measures (TCMs) listed below during the traffic report analysis phase. For freeway projects with completed environmental documents, most of these TCM alternatives were not implemented because they did not remove sufficient traffic to meet the project purpose and need. The main facility in the Metropolitan Bakersfield area considered for TCMs thus far has been the Westside Parkway. Since this is a new 8-mile roadway that will serve as a complete east/west transportation corridor, TCMs are more likely to have a measurable impact than on projects where improvements are to be constructed on a shorter section of roadway, such as the Morning Drive Interchange project.

TCM options considered for specific TRIP projects include the following:

1) Roadway Physical Improvements

    a. Roadway widening: Rosedale Highway: Two-lane additions from SR 99 to Allen Rd; SR 178 widening adds two lanes each direction

b. High Occupancy Vehicle (HOV) lane additions: Centennial Corridor provides room to accommodate HOV; SR 178 Morning Drive Interchange project includes an auxiliary lane to Fairfax Drive Interchange (not an HOV, but moves traffic); 24th Street widening project includes an auxiliary lane northbound on SR 99

c. Turn lane additions at congested intersections: Rosedale Highway intersection improvements could accommodate multiple left-turn lanes/pockets

d. Add "missing links" (streets) to roadway network: 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

e. Railroad/street grade separations: Rosedale Highway/Landco Drive grade separation

2) Roadway Operational Improvements

a. Signal Optimization: Rosedale Highway

3) Transit Improvements

a. 15% increase in bus service

b. Bus turnouts: 24th Street Improvement project will build bus turnouts on 23rd and 24th Streets

c. Park-and-Ride lots: 24th Street Improvement project

d. Lower transit fares or transit subsidies.

4) Traffic Demand Management (TDM) Improvements

a. Increased parking costs for central business district locations

b. Carpool program

c. Flextime program

As indicated in the discussion below, TCMs not deemed effective for the Westside Parkway at the current time will be reconsidered for implementation when the population and density of the metropolitan area is adequate to support these non-freeway alternatives.

Mass Transit Alternative

Available information indicates that the Mass Transit Alternative would remove a relatively minor number of vehicle trips from the transportation network and traffic congestion would remain high. Mass transit options would not significantly improve connectivity of the existing transportation network nor would it reduce traffic congestion over the planning period for the current projects (i.e., 2030–2035); therefore, they were withdrawn from further consideration as stand-alone alternatives.

Mass transit may become a more important component of the transportation network in future years. Transportation studies prepared by Golden Empire Transit recommend an expansion of the existing bus

system operating fleet for several key transportation corridors and the addition of new routes. For these reasons, construction of the highway project alternatives does not preclude future uses for mass transit. Sufficient right-of-way has been acquired on Westside Parkway to provide multimodal opportunities for future mass transit uses, including HOV lanes, dedicated busways, express bus, or bus rapid transit.

Bus System Improvements

Current ridership on Golden Empire Transit is approximately 7.3 million riders annually. The weekday system-wide ridership averages approximately 23,000 people per day. However, in the western Bakersfield metropolitan area, weekday ridership only averages approximately 3,000 people per day. Peak ridership is strongly correlated with school and drops significantly when school is not in session. Given the lack of strong Golden Empire Transit ridership in western Bakersfield, the ability of improvements to bus service alone to meet the purpose of the highway projects appears inadequate.

Although improvements to the bus system were rejected as a stand-alone alternative for the projects, planning of the proposed transportation corridor has been coordinated with Golden Empire Transit to ensure that sufficient right-of-way was available to allow future mass transit options.

Light Rail Transit

The effectiveness of light rail in the western Bakersfield metropolitan area was evaluated using (1) ridership trends for buses, and (2) an evaluation of the presence or absence of appropriate land and demographic characteristics in the Bakersfield metropolitan area.

Express bus service offers travel time savings and convenience that match light rail more closely than local bus service. Building ridership on express bus service is often viewed as a step toward the development of light rail. While Golden Empire Transit currently has two express bus routes, ridership trends and patterns do not indicate that light rail would attract sufficient riders away from automobiles to meet the objective of reducing traffic congestion on the local transportation network.

A direct relationship exists between population size and density and mass transit ridership. Within the planning horizon for the projects (2030–2035), the western Bakersfield metropolitan area would not have a demographic profile to support light rail service. However, if residential density within Metropolitan Bakersfield increases consistent with the policies adopted in the Kern Regional Blueprint, the result could be more viable transit service in the area.

SUSTAINABLE LAND USE ACTION ELEMENT

[Placeholder: Kern COG to update background information]

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 both the environmental process and the 2014 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 5-13 illustrates a potential hierarchy or priority for placing transportation facilities based on site opportunity. For example, the site opportunities for a seaport are probably the most limited of transportation-related land uses. Thus, it can be argued that seaports deserve the highest priority when making land use decisions that preserve the economy and environment by providing for efficient transportation investments. Roads, however, can be engineered and placed almost anywhere and can be moved to accommodate other land uses relatively easily. Seaports, airports, rail yards, and freeways must be carefully placed to avoid conflicts with existing and future sensitive receptors such as schools, hospitals, and residential areas. Locations that provide intermodal connectivity between seaports, airports, rail, and highways have limited site opportunities, requiring careful consideration when making land use decisions.

FIGURE 5-13 HIERARCHY FOR TRANSPORTATION-RELATED LAND USE DECISIONS

This element covers transportation planning priorities from a land use perspective. The discussion is organized using the suggested hierarchy in Figure 5-13, focusing on the uses with the least number of site opportunities first. Each transportation category discussed (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 and Kern Regional Blueprint Vision are met.

Sustaining Global Gateways

See the Aviation Action Element section above for further discussion on air travel.

Seaports/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, 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 Shafter Intermodal Rail Facility (SIRF) – Currently, all containerized goods movement within California destined to or from the ports must be trucked. A public/private partnership consisting of the State of California, Union Pacific, SSA Marine, Daewoo, Paramount Farming Co., the City of Shafter, and others is developing an inland port adjacent to SR 99. This port will provide a staging area for empties and to transload grain from the Midwest, as well as other products such as almonds from Kern County, that are destined for the ports.

The siting opportunities for this inland port are very limited. The SIRF site was chosen because it is situated near numerous warehouse distribution centers for Southern California that have a supply of empty containers needed for exporting products. In addition, issues such as space limitations at the ports and a weak dollar that increases demand for exports are driving the creation of an inland port in the southern San Joaquin Valley.

FIGURE 5-14 OAKLAND-SHAFTER INLAND PORT RAIL SHUTTLE

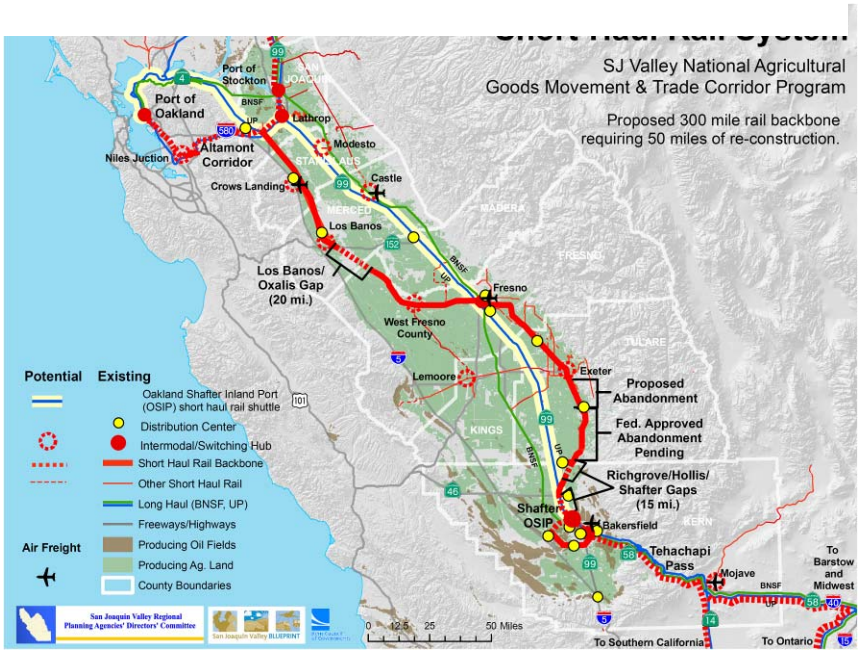


Figure 5-14 shows the SIRF as a pilot project for potential investment in a future short-haul rail backbone for the San Joaquin Valley, connecting to the Port of Oakland on the old Southern Pacific rail line (red line). The SIRF rail shuttle will use the Union Pacific main line (light yellow line) and be operated by the UP. If the SIRF proves viable, phased investment in short-haul rail may be warranted for shipping products to the ports or the main rail yards in the valley for transport out of state.

Rail access to the ports provides for 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 SIRF 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 in trucks, the facility would reduce 5 tons per day in nitrous oxides (NO_x) and 471 tons per day in carbon dioxide (CO_2) 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.

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, especially during the summer.

FIGURE 5-15 GREAT CIRCLE ROUTE BETWEEN SOUTHERN CALIFORNIA AND ASIA HTTP://GC.KLS2.COM/

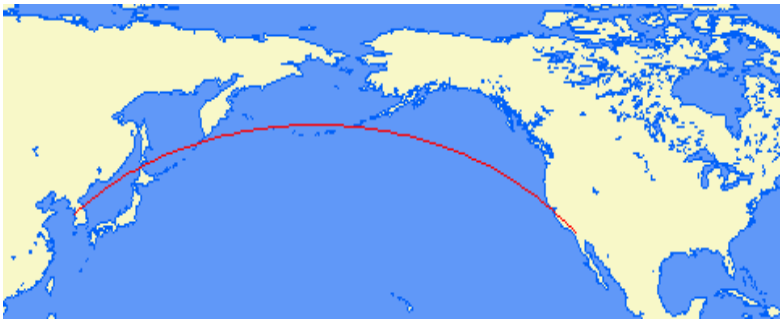
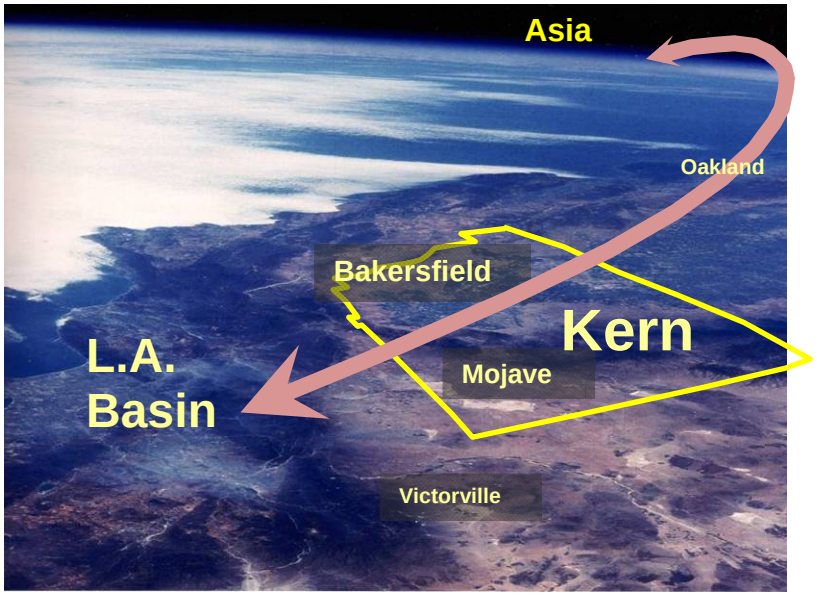


FIGURE 5-16 KERN COUNTY ON GREAT CIRCLE ROUTE BETWEEN SOUTHERN CALIFORNIA AND ASIA



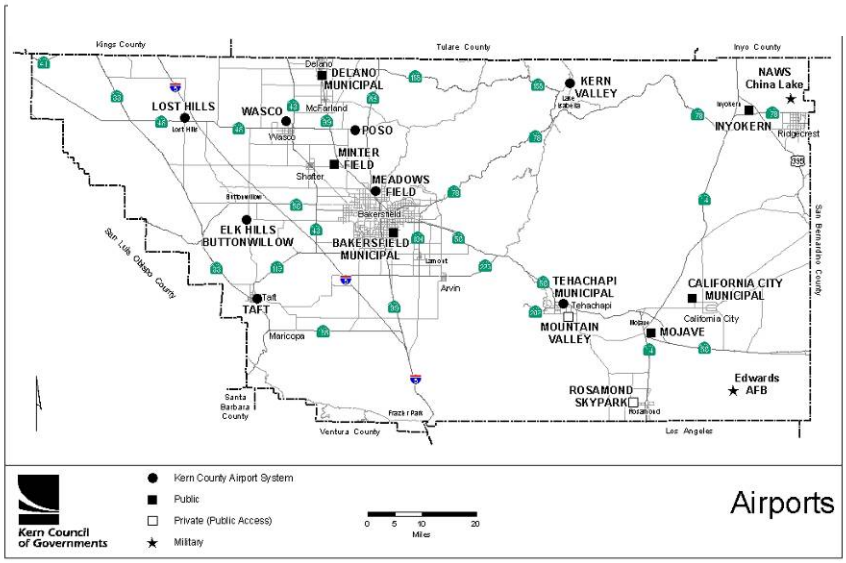
Kern County's main airport is Meadows Field, adjacent to the northern edge of Bakersfield. At 500 feet elevation, the facility requires less fuel to ascend with a full load and lies on the most direct path from Southern California to Asia (see Figures 5-15 and 5-16). Meadows Field has the fifth longest 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 connected by existing rail spurs to both Burlington Northern Santa Fe and Union Pacific railroads.

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

FIGURE 5-17 POTENTIAL AIR TAXI/JET CHARTER FACILITIES



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 a train and fly out of, or catch transit from, 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. A subway/light rail transit route between LAX and Union Station already exists. Similar transport between downtown Bakersfield and Meadows Field would 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. Direct international service to Mexico is likely to be the initial use of the old terminal. However, expansion as a connection from Southern California to Asia is possible in the near future even without high-speed rail links. 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 airports and seaports can greatly limit the use of such facilities and eventually force a closure of such facilities. Table 5-8 lists 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.)

TABLE 5-8 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

In addition to setbacks for land uses that are sensitive receptors for air pollution, noise sources should also require proper setbacks when siting future transportation facilities or when considering mitigation such as increased insulation and sound walls (see Table 5-9).

TABLE 5-9 NOISE RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES

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.

Source Category	Advisory Recommendations
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, 2014–2015

- Facilitate the Shafter Intermodal Rail Facility 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 Kern Regional Blueprint principles such as enhancing 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.
- 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, 2016–2035

- Monitor progress toward implementing regional principles developed by the Kern Regional Blueprint visioning process.
- Expand the role of the Transportation Technical Advisory Committee or create a new entity for collaboration on building and preserving regional transportation infrastructure for economic opportunities. Add ex-officio member representatives from military and civilian airports and air traffic stakeholders, as appropriate.
- Coordinate with the Kern County Department of Airports to establish intermodal connectivity for rail, trucking, transit, and passenger vehicles.
- Work with Kern Economic Development Corporation to promote logistics and aerospace job opportunities in Kern County.

Sustainable Rail/Transit

See the Freight Movement Action Element and Public Transportation Action Element sections for further discussion on rail freight transport and public transportation modes.

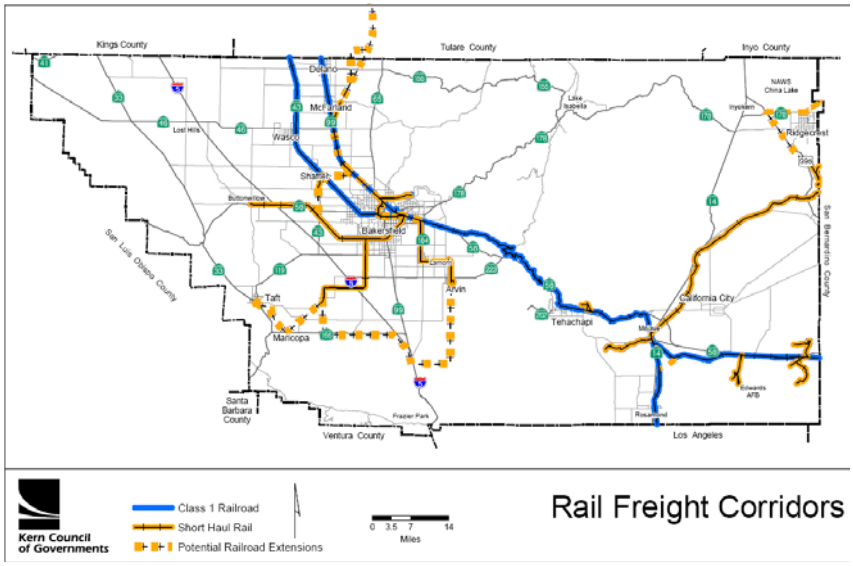
Rail and transit provide the highest-volume corridors for movement of goods and people in and through a region. These facilities require seamless connectivity. If these connections are degraded or broken by incompatible or competing land uses, the system can become less effective or even threatened with elimination. Preservation of rail and transit facilities is the next highest 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, the Rail-Ex 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 is already looking to expand.

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.

FIGURE 5-18 RAIL FREIGHT CORRIDORS



Along the national class 1 rail system, the Tehachapi Pass is a major chokepoint. Providing passage of goods between the Port of Oakland and the all-weather southern route through the Rockies, to Texas and Chicago, the Tehachapi Pass is scheduled for a $100 million expansion. These improvements will provide additional sidings along the grade, increasing capacity of the pass by 80%.

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. The U.S. Borax Company 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, U.S. Borax cannot 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 Kern Regional Blueprint and the sustainability of the region. Strategies such as public/private partnerships and leveraging passenger rail service to preserve the short-haul system must 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.

Passenger Rail/Public Transit

Transit Centers Land Use Concept – With more site opportunities than global gateways, passenger rail and transit are dependent on where the population is located. Figure 5-19 illustrates a centers concept. Rather than showing large areas of existing and future urban growth, the map shows existing and potential centers for development. This section covers rail's and transit's land use linkages, transit-oriented design, and carefully planned parking facilities that promote transit use and help implement the Blueprint Principles.

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 Metro Center was very walkable and accessible to 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 heavily subsidized, underused transit service.

In 2008, Kern COG adopted the Kern Regional Blueprint consisting of nine principles and a conceptual map (Figure 5-19). The map was developed to de-emphasize where future development might take place and to focus on how that development might look if all nine principles were implemented. The map depicts metro areas, community place types, town place types, village place types, and strategic employment (rural/urban) employment centers.. The Blueprint Principles are described in Chapter 2, Table 2-3.

FIGURE 5-19 ILLUSTRATING THE BLUEPRINT PRINCIPLES – EXISTING/POTENTIAL CENTERS

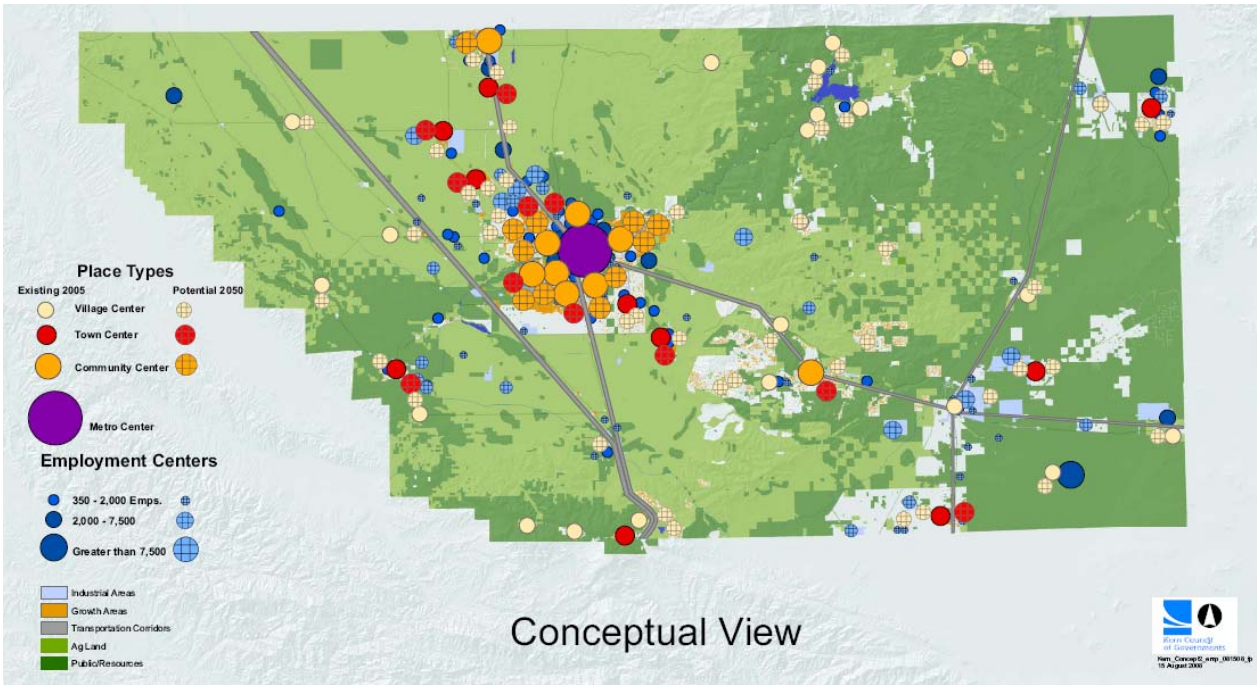


FIGURE 5-20 CONNECTING THE DOTS WITH HIGH-SPEED RAIL (HSR)

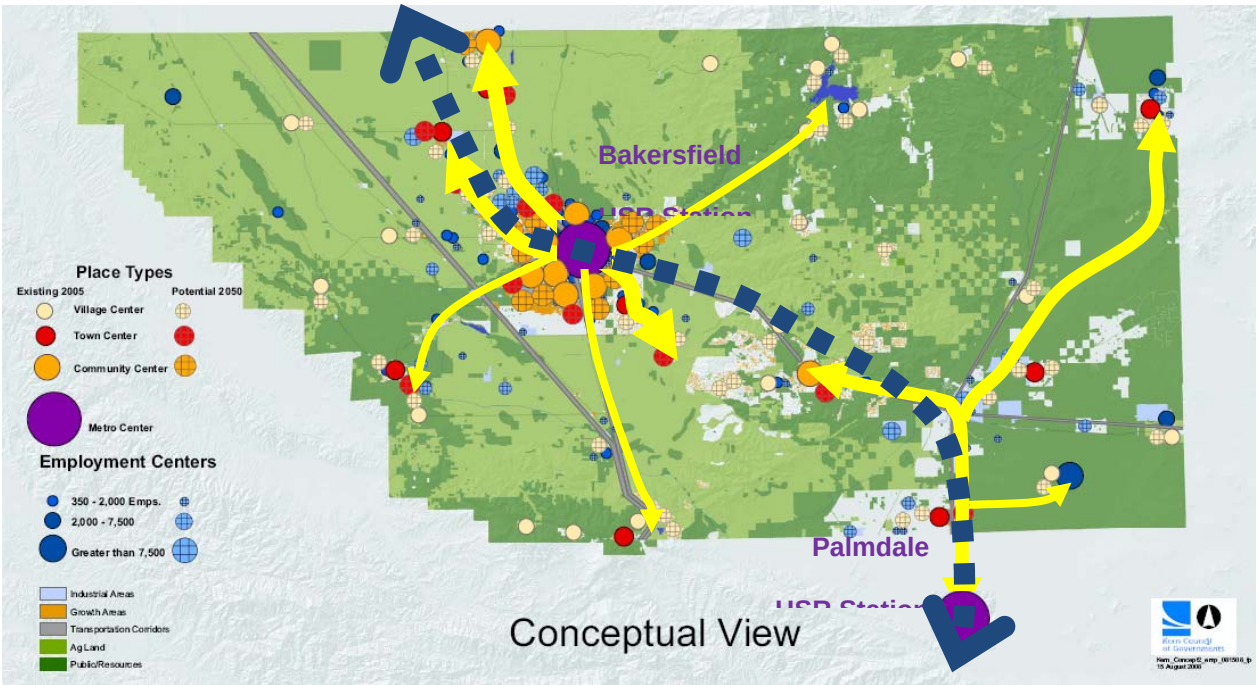


Figure 5-20 takes the Blueprint Conceptual View to the next step using a transportation perspective. The pattern and distribution of centers align into linear corridors (solid arrows) that may require future transportation improvements. These corridors can provide feeder connections to the California High-Speed Rail stations in Bakersfield and Palmdale (dashed line) in the eastern half of the county. Planning for connectivity using passenger rail and public transit to the statewide system is a priority for the region.

The California High-Speed Rail bond was approved in November 2008, providing the seed funding to match federal and private sector sources.

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 (Figure 5-21). 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. No north/south connections currently cross the river through this heavily industrialized area. 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

FIGURE 5-21 METROPOLITAN BAKERSFIELD GENERAL PLAN "CENTERS" CONCEPT

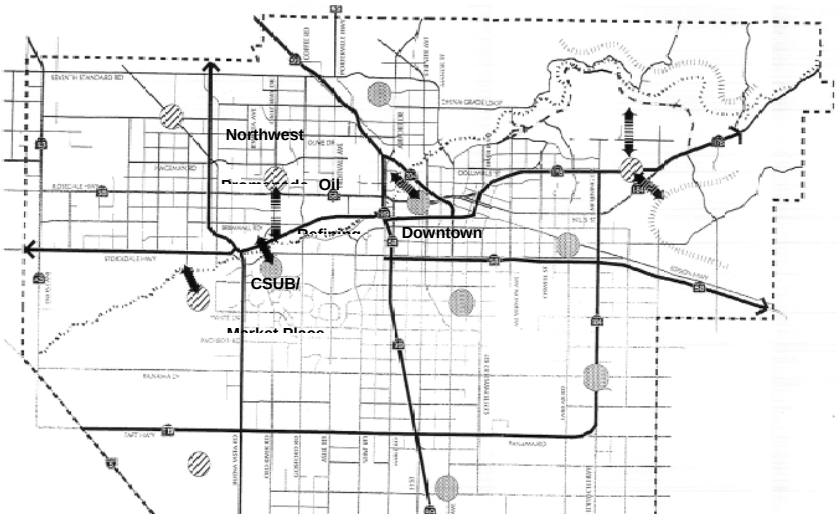
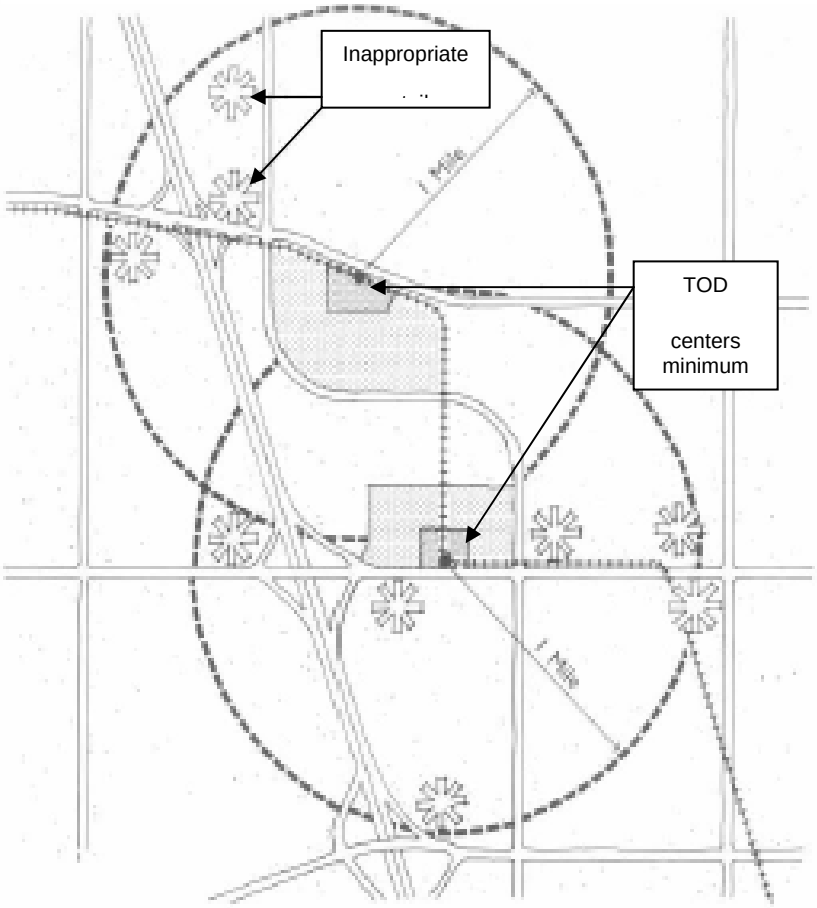


FIGURE 5-22 PROXIMITY OF COMPETING RETAIL

Source: Calthorpe, Peter, The Next American Metropolis: Ecology, Community,



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.

According to transit-oriented design guidelines developed for San Diego County by Peter Calthorpe, a planning design consultant, transit centers should be spaced no closer than 1 mile apart, with the majority of population activity within a quarter mile or ten-minute walking radius (see Figure 5-22). New developments on the periphery should properly space these concentrated activity centers to promote transit usage and avoid creating stops that are too frequent and make travel times via transit less competitive when compared with automobile travel.

In the outlying communities, developing the level of density around transit centers necessary for the minimum fixed bus transit routes is a challenge. The California Air Resources Board proposed the following minimum average densities for implementing fixed-route transit (Table 5-10). These rates are subject to multiple other factors, such as income and intensity of land use, and should only be used as a minimum guideline in planning higher densities around transit centers and corridors. Kern's outlying communities should consider developing regional transit access centers for eventual implementation of feeder bus and rail options for connecting to the HSR system, while the urban and suburban areas of Metropolitan Bakersfield can develop transit centers for possible future implementation of bus rapid transit, commuter, and light rail service.

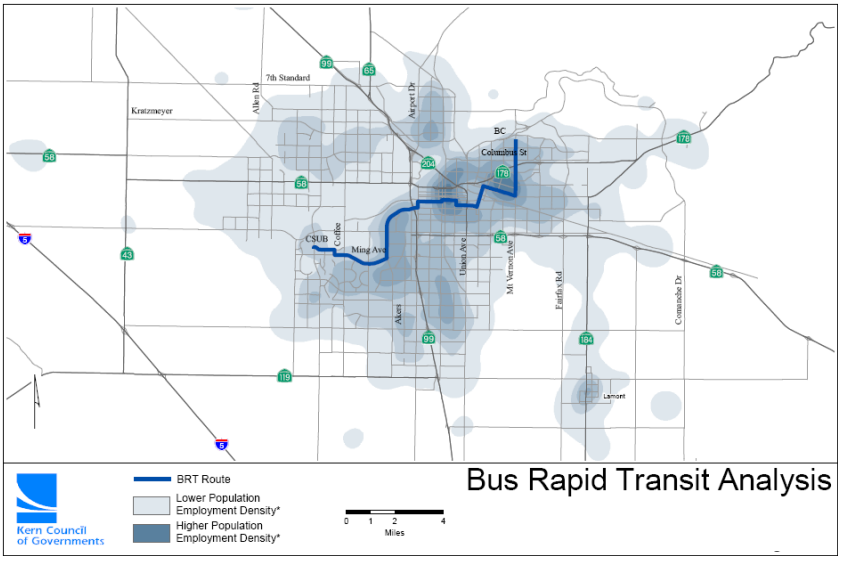
TABLE 5-10. MINIMUM AVERAGE DENSITIES TO SUPPORT VARIOUS LEVELS OF TRANSIT SERVICE

Type of Transit	Residential (DU/acre*)	Commercial/Industrial, Retail, Office (millions of sq. ft./transit center)
Minimum level of local bus service at 1 bus/hour	4–6	5–8
Minimum level of local bus service at 1 bus/half-hour	7–8	8–20
Light rail transit with feeder buses	9+	35–50

Source: California Air Resources Board, The Land Use – Air Quality Linkage http://www.arb.ca.gov/ch/programs/link97.pdf Note: DU/acre = dwelling units per acre.

Phased Transit-Oriented Development (TOD) – In 1997, Kern COG completed the Major Transportation Investment Study (MTIS) that analyzed transit alternatives, including a light-rail option. The study indicated that an initial light rail corridor linking the densest activity centers from Bakersfield College to Cal State Bakersfield would carry less than half the ridership needed to be economically feasible by 2015. The study recommended a focused transit investment that improved fixed bus route service, which could serve eventually as a feeder network for a light rail system as well as intensified land use along the corridor.

FIGURE 5-23 BUS RAPID TRANSIT CORRIDOR THROUGH THE HIGHEST-DENSITY AREAS OF BAKERSFIELD



1401 19th Street, Suite 300, Bakersfield, California 93301

In 2009, Kern COG updated its analysis of the MTIS light rail route and replaced it with a BRT system (Figure 5-23). The route performed by 2035 but still lacked the ridership necessary to operate primarily because the corridor is not sufficiently dense to support the route. Kern COG is working with Golden Empire Transit on a Long-Range Transit Study for Metropolitan Bakersfield to consider options that may result in a BRT system which operates more efficiently.

Securing additional funding to expand fixed-route transit operations has proven to be a roadblock in implementing the MTIS. In 2006, a transportation sales tax measure fell short of the two-thirds vote requirement, with only 56% in favor of the measure. Should a similar measure pass in the future, it could provide an additional $1 million per year to purchase buses and operate an expanded transit system. To maximize existing and future transit funding, however, two things must occur: (1) gradual, phased intensification of transit-oriented centers; (2) phased higher-capacity transit modes (from dial-a-ride to fixed route to express bus/BRT to light rail) are needed as centers gradually transform from rural to suburban to urban-level development densities.

Phased Intensification of Transit Centers – As recommend by the 1997 MTIS, the region is already working on gradually intensifying land uses around transit centers. Planning for future development and land uses with pedestrian access to the transit stop is key to facilitate phased intensification of the land uses at each center. This is true for infill areas, green field areas and outlying communities, villages, and towns. The following are strategies currently in place to promote the gradual intensification of land uses around transit centers.

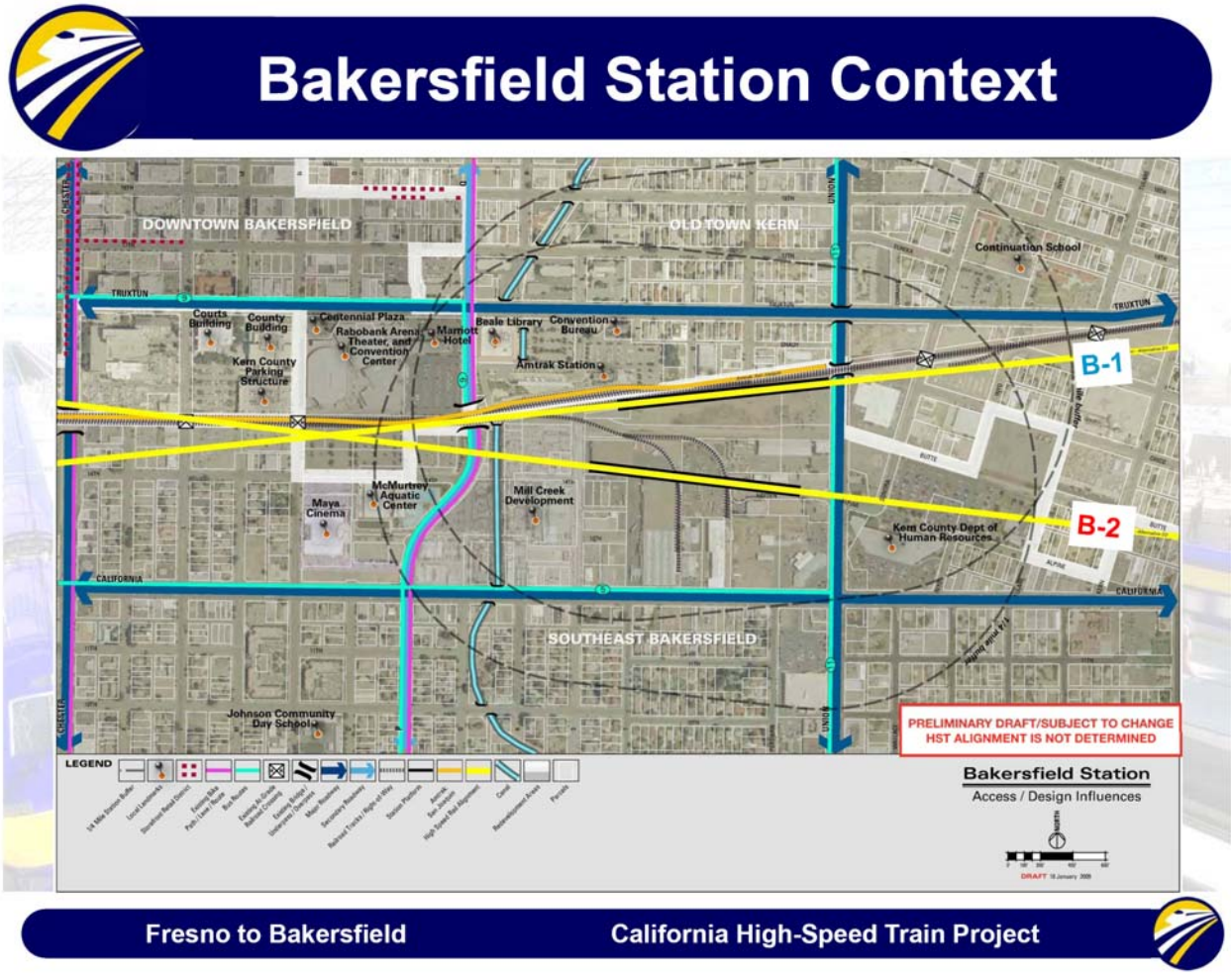
Reduced Impact Fees for Core Area Development – To encourage gradual infill development, in 2003 the City of Bakersfield and the County of Kern jointly adopted a two-tiered traffic impact fee for Metropolitan Bakersfield. The fee in the “core area” is nearly half of the $12,870 per house in the “non-core area.” 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.

Cumulative Transportation Impact Modeling – This voluntary strategy was developed in consultation with Kern COG’s member agencies and the region’s stakeholders to analyze the impact of traffic vehicle traffic as part of the cumulative effects analysis in an environmental document for a new development requiring a general plan amendment. Developers may request custom runs of the Kern Regional Transportation Model to analyze traffic impacts of a proposed development. The model is sensitive to travel-reducing strategies such as access transit, regional/central accessibility, and other balanced land development techniques that capture more trips locally. Developments with a balanced mix of housing, jobs, shopping, and amenities will show less of an impact than a simple housing tract.

High-Speed Rail Station – 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 high-speed rail station (Figure 5-24).

FIGURE 5-24 BAKERSFIELD HIGH-SPEED RAIL STATION ALTERNATIVES



Blueprint Principles in General Plan – The City of Maricopa has incorporated the Blueprint Principles into its General Plan such as enhancement of existing assets, and compact walkable development.

Healthy Communities – The City of Delano is incorporating healthy community concepts that promote walking and biking into its General Plan.

Climate Change Policies – The City of Taft is incorporating emission reduction policies that relate to climate change in its General Plan update.

Form-Based Code General Plan – The City of Tehachapi developed and recently 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.

Other laws are under consideration or being adopted that will help regions plan the gradual intensification of land use around transit centers. 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.

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.

Kern's local jurisdictions are already showing innovative strategies to implement more compact development around existing and future transit centers. 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 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 land use strategies are gradually implemented, transit-oriented developments would eventually provide sufficient density 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. Development of passenger rail service using existing spur lines to link with high-speed rail to Los Angeles and San Francisco was being studied as part of the Metro Bakersfield Long Range Transit Study completed in April 2012 (Figure 5-25). A gradually phased transit-capacity intensification needs to be brought online as land use intensifies. Table 5-11 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 rail transit modes. 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 Southern California Association of Governments offers the following definition of BRT in its Regional Transportation Plan:

> *Bus rapid transit (BRT) is designed to provide fast, high-quality bus service. BRT operates in mixed traffic or in dedicated guide-ways, utilizing low-floor buses, taking advantage of signal priority at intersections, boarding and alighting passengers through streamlined processes, and improving bus stop spacing at planned stations. BRT combines the routing flexibility of bus systems with some of the features of rail transit such as limited stops and streamlined boarding and alighting procedures. It uses specially identified buses stopping only at major intersections/destinations.*

TABLE 5-25 COMMUTER/FEEDER RAIL SERVICE FOR HIGH-SPEED RAIL – WASCO/BAKERSFIELD CORRIDOR

Leveraging Existing Passenger Rail Investment

The State of California has invested $393 million in track and signal improvements to the San Joaquin Valley BNSF line, in exchange for the permission to run six passenger trains per day. These existing slots could be used for a commuter rail service to connect the HMF with the Bakersfield HSR Station. If 10-percent of HMF employees use the commuter service that would provide 150 regular riders per shift. The Wasco/Metro Bakersfield commuter rail corridor will have 1 million people by 2035 and would provide a feeder rail service that could increase ridership and profitability of the HSR system. Since 2005, a similar commuter rail service in Albuquerque/Santa Fe, NM (pop. 900,000) continues to surpass ridership expectations by pricing tickets close to auto fuel travel costs.

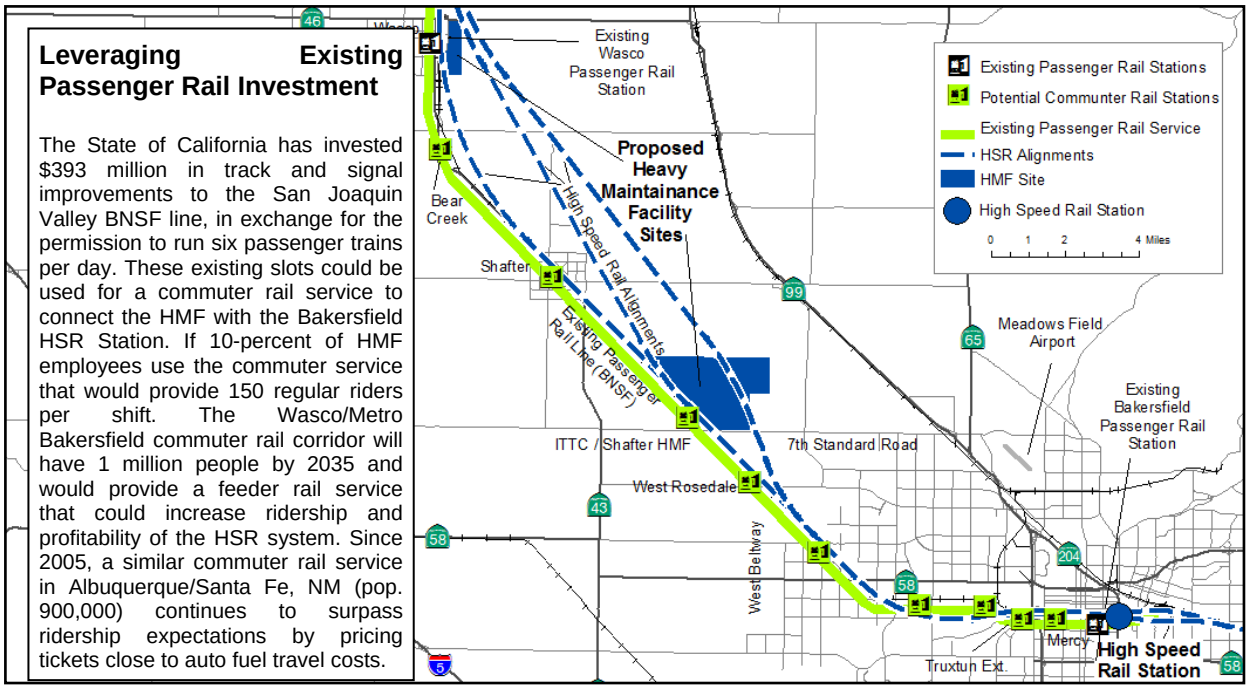


TABLE 5-11 PHASED TRANSIT CAPACITY INTENSIFICATION

Source: Adapted from the Transportation and Land Use Coalition (TALC)

Commuter Rail

Bus Rapid Transit

Fixed-Route Transit

High-Speed Rail

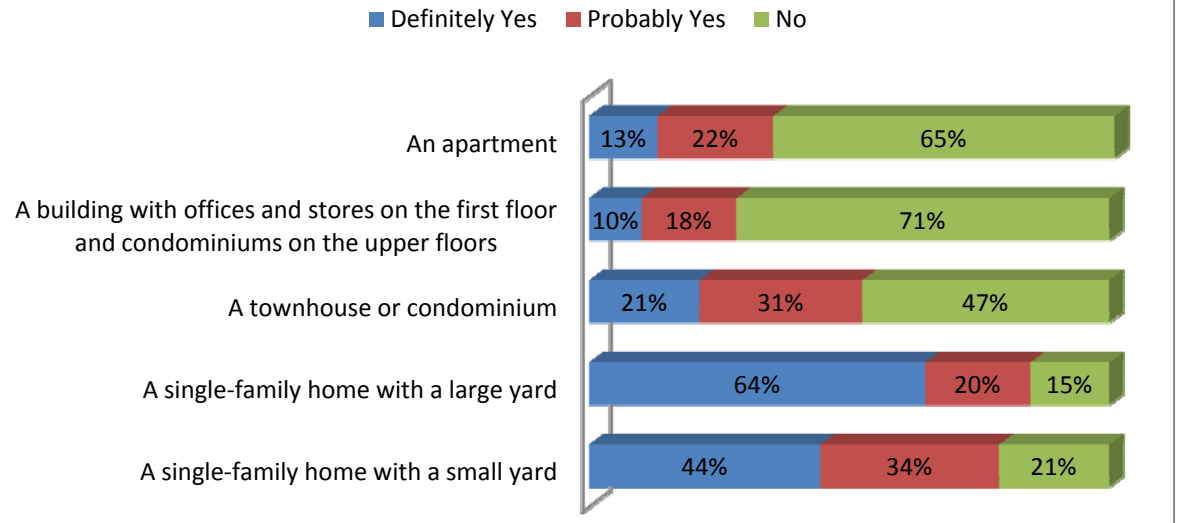
LOCAL	INTERCITY	INTERREGIONAL
Rural (Village) Transit Capacity Phase		
Dial-a-Ride/Senior Transit/Rideshare/Taxi/Vanpool	Regional Transit (KRT) /Senior Transit/Feeder Bus	Regional Transit (KRT) /Rail Feeder Bus/Greyhound
Suburban (Town/Community) Transit Capacity Phases		
Dial-a-Ride/Senior Transit/Taxi/etc.	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)		
Urban (Metro) Transit Capacity Phases		
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		
Commuter Rail/Light Rail (Metrolink)		

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 5-12 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.

In 2008, 2009, and 2012, statistically valid community surveys of 1,200 people each asked residents about their housing preferences (see Figure 5-26). The surveys indicated that in most Kern communities, somewhere between 10% and 40% of people would consider more compact housing choices rather than a traditional single-family home on a large lot. Local communities, however, should be careful not to exceed the market demand in providing compact housing choices. The survey shows that providing a minimum of 60% of housing as traditional low-density single-family, in a majority of the area between transit centers, is essential for higher-capacity transit service to be viable.

Figure 5-26 Kern Housing Preference 2012 Community Survey



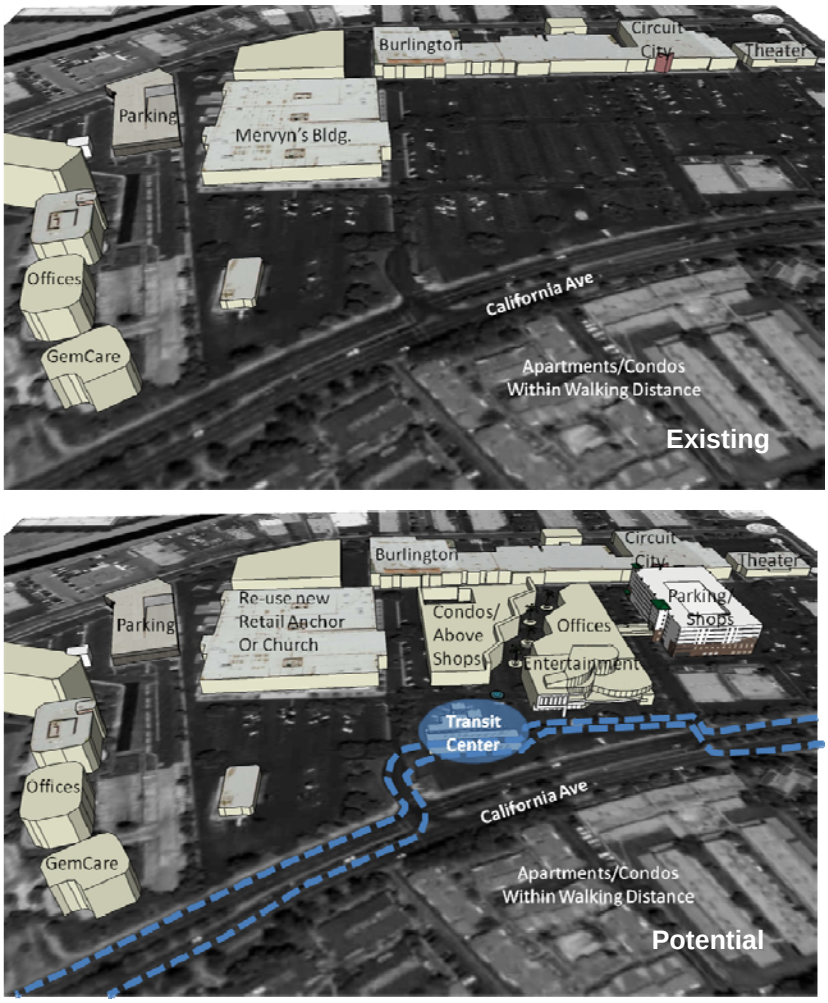
As mentioned previously, local general plans are increasingly addressing transit-oriented development in their policies. General plan circulation elements (as required by AB 1358) are becoming a tool to plan for transit corridors and centers. Adoption of specific plan lines for transit corridors and centers is another tool that could be used to phase implementation of a transit-oriented development. Preservation of existing rail spurs also can be used as a specific plan line tool.

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 5-27 is typical of many 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.

FIGURE 5-27 BAKERSFIELD MERVYNS PLAZA – EXISTING/POTENTIAL



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.

Proposed Rail/Transit-Related Land Use Actions

Near Term, 2014–2015

- Use the existing 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 Golden Empire Transit, Kern Regional Transit, and local transit providers to preserve existing and future transit opportunities from the encroachment of low-density land uses around transit-oriented development centers.

- Implement the long-range 2014 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.

- 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 Golden Empire Transit 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.

- Coordinate with Golden Empire Transit, Kern Regional Transit, and the Kern County Department of Airports to improve intermodal connectivity between transit systems and Meadows Field.

Long Term, 2015–2035

- Monitor progress toward implementing principles developed by the Blueprint visioning process.

- Expand the role of the Transportation Technical Advisory Committee or create a new entity for collaboration on building and preserving the region's transportation infrastructure toward ensuring economic opportunities. Add ex-officio member representatives for land use and transit stakeholders as appropriate.

- Promote more compact and mixed-use centers along major transit corridors to support more intense transit options such as Bus Rapid Transit and light rail.

- Land uses should be mixed both horizontally and vertically. 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 major activity centers. Activity centers have a strong impact on transportation patterns as the major destinations in the city. 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 complementary neighborhood-scale retail and employment uses to diversify the mix, creating an environment that maximizes transportation choice.

- Land use intensities should be at levels that will encourage use of transit and support pedestrian and bicycle activity. A general threshold for transit-supportive residential uses is 10 to 15 units per net acre for high-frequency bus transit. This density can be lower, however, if the urban environment supports pedestrian access to transit. Commercial and employment/education uses with high employment densities (e.g., CSUB and areas west of SR 99) support more transit use than do those with lower employment densities (e.g., industrial or warehousing). Extensive areas of retail tend to be auto-dominated if not scaled appropriately and mixed with other uses, such as the Stockdale Fashion Plaza or the Walmart supercenter. Nonresidential uses with a floor area ratio (FAR) of 0.5 provide a baseline that can support transit ridership. While there is little empirical research available to link employment density with transit ridership, the general rule of thumb is to maximize the intensity of development given market conditions and to make certain that the transit network provides high-quality service to areas with concentrations of employment uses and retail services.

- Parking requirements (and parking provision) should be 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.

Sustainable Highway/Road Facilities and Connectivity

See the Regional Streets and Highways Action Element, Public Transportation Action Element, Freight Movement Action Element, and Bicycle and Pedestrian Element sections above for further discussion on facilities and connectivity.

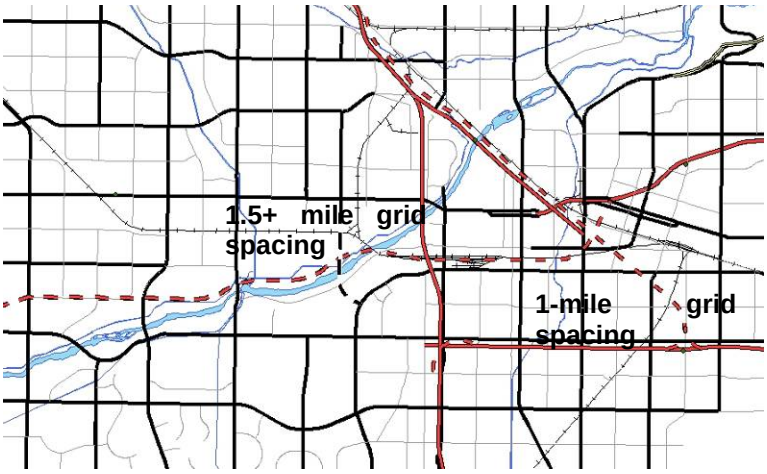
See Chapter 4, Sustainable Communities Strategy, for further discussion on sustainable highway/road facilities and connectivity.

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.

FIGURE 5-28 CENTRAL BAKERSFIELD'S INTERRUPTED ARTERIAL GRID



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, and a river, resulting in greater than 1.5-mile gaps between arterials. Nevertheless, 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.

In addition to arterial spacing, spacing of freeway interchanges has resulted in increased traffic congestion levels. Ming Avenue, White Lane, and Panama Road, 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.

Transit/Pedestrian-Oriented Highways and Roads

Highways and roads can be designed to optimize pedestrian, bike, and transit usage. One strategy is to allow for phased intensification of TOD centers at greater than 1-mile intervals with regional centers approximately every 4 miles. A proposed implementation of this concept, "The Urban Network: A New Framework for Growth," was developed by Peter Calthorpe for Chicago's suburbs (available from website http://www.calthorpe.com). Calthorpe's urban network starts with a hierarchy of TOD centers ranging from local neighborhood centers at half-mile intervals off the arterial/avenue grid and within a quarter-mile's walking distance of all housing. Village centers are spaced every other mile along the avenues and a town center can be found every 4 miles along a "transit boulevard." The system includes a grid of connectors and one-eighth-mile spacing crisscrossed by a diagonal network of connectors that provide for connectivity between the town center and smaller village centers. The diagonal streets use traffic

circles and roundabouts to promote traffic calming and provide a more direct route for bikes and pedestrians to the town center's transit hub. The following strategies for laying out a road and highway network can be employed along an arterial to facilitate gradual transit intensification:

- Provide bus/transit shelters adjacent to public plazas or parks at the focal point of a pedestrian node/TOD center.
- Plan for park-and-ride lots at the final stop of express bus routes.
- Provide traffic signal green-light extension override for transit buses on major arterials/transit boulevards.
- Provide a local ordinance and signage giving buses the right-of-way when pulling into traffic.
- During peak travel periods, reserve outside lanes of an arterial as express bus priority lanes as well as high-occupancy vehicle, emergency vehicle, and right turn business access.
- Gradually evolve express bus routes to dedicated lanes for bus rapid transit and eventually for use as on-street light rail.
- Split arterials passing through TOD centers into one-way couplets. This would lessen the impact of heavy traffic on pedestrian activity along the arterial and eliminate the left turn cycle from traffic signals, thereby improving traffic flow though the TOD center.
- Use roundabouts and traffic circles that can reduce traffic signal delay by as much as 25%.
- Locate industrial centers along freeways and alternate throughways or expressways that provide an alternative route for trucks when freeways are congested.
- Provide bus/high occupancy vehicle/low emissions vehicle/bus lanes on congested freeways.
- Consider congestion pricing on high-occupancy toll lanes.
- Consider complete streets techniques for analyzing level of service on roads.

FIGURE 5-29 BUSINESS ACCESS & TRANSIT (BAT) LANES

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 (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.

A comprehensive system of HOV lanes needs to be studied for the congested areas of Metropolitan Bakersfield. Often, studying a single corridor will suppress results that a full network of HOV lanes might demonstrate viability. Kern COG is considering development of a Corridor System Management Plan for the Metropolitan Bakersfield area that will look at issues such as HOV/LEV/bus lanes, congestion pricing, and other means to finance them.

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 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 trucks. 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.

FIGURE 5-30 PRIMARY GOODS MOVEMENT CORRIDORS: TRUCK, RAIL, PIPELINES

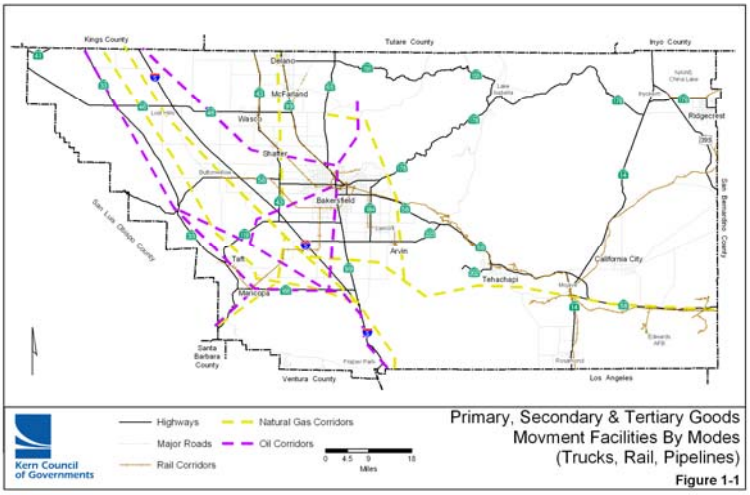
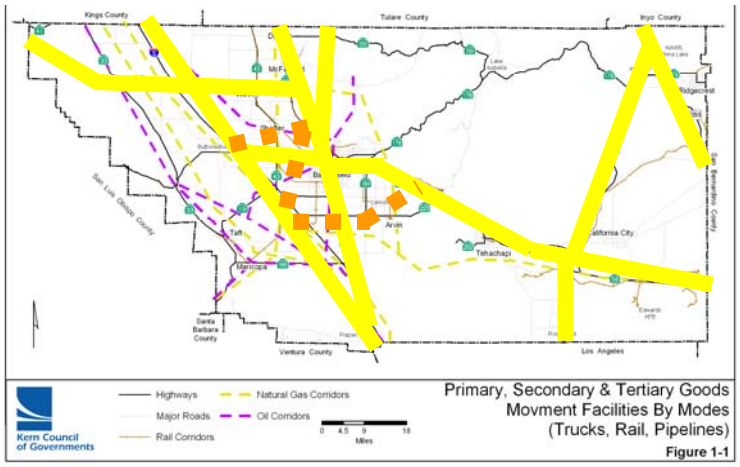


FIGURE 5-31PRIMARY TRUCK GOODS MOVEMENT FACILITIES: EXISTING AND PLANNED

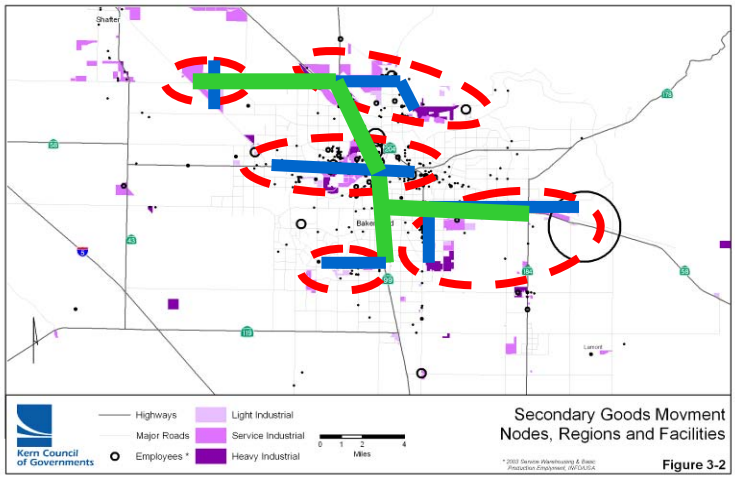


Kern lies at the crossroads for much of the trucking goods movement throughout the state. Figure 5-31 shows the State Highway system that passes through the county. The Tejon and Tehachapi passes are major bottlenecks for trucking and rail. Preservation of these corridor passes for goods movement is critical to Kern County's and California's economic health. Forecast 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.

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 though the region. A system of beltways surrounding Metropolitan Bakersfield will help relieve these corridors. Shown on Figure 5-31 as dashed lines, these facilities should be considered heavily traveled truck routes, and land use along these corridors should be tolerant of truck traffic.

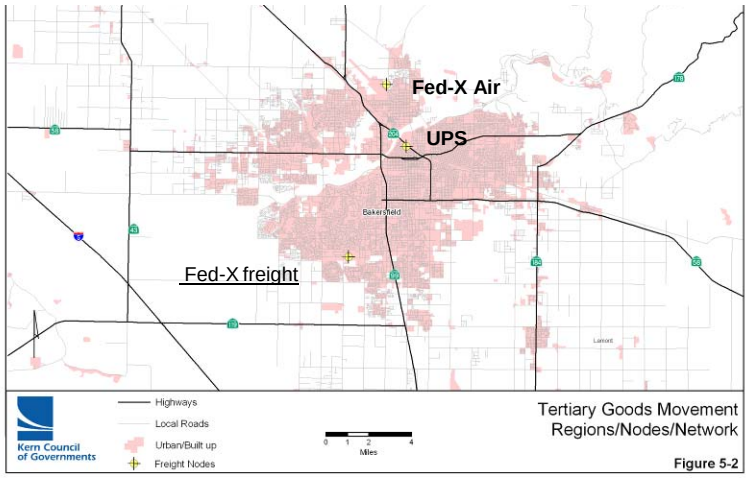
FIGURE 5-32 SECONDARY GOODS MOVEMENT FACILITIES CONNECTING INDUSTRIAL AREAS IN METRO BAKERSFIELD



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 red 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 Shafter Intermodal Rail Facility.

FIGURE 5-33 TERTIARY GOODS MOVEMENT NODES



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.

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.

Mitigating Impacts of Land Use Decisions on Highways and Roads

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 on airports and seaports can greatly limit the use of such facilities and eventually force a closure of such facilities. Table 5-12 lists suggested setback distances that would limit exposure to harmful air pollution. (These are rough estimates and should only be used when no other data or local study is available.)

TABLE 5-12 AIR QUALITY RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES SUCH AS RESIDENCES, SCHOOLS, DAYCARE CENTERS, PLAYGROUNDS, OR MEDICAL FACILITIES

Source Category	CARB Advisory Recommendations
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.
Freeways and High-Traffic Roads	• Avoid siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day.

Source: California Air Resources Board, Air Quality and Land Use Handbook http://www.arb.ca.gov/ch/landuse.htm

Proposed Road/Highway-Related Land Use Actions

Near Term, 2014–2015

- 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 2014 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 regional general plan circulation elements, using specific plan lines as appropriate to implement goods movement improvements along designated transit corridors.

- Provide for all types of truck-related goods movement along truck-route corridors.

Long Term, 2016–2035

- Monitor progress toward implementing regional principles developed by the Blueprint visioning process.

- Expand the role of the Transportation Technical Advisory Committee or create a new entity for collaboration on building and preserving the region's transportation infrastructure toward economic opportunities. Add ex-officio member representatives from trucking stakeholders, as appropriate.

- 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 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.

- 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 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.

Regional Housing Need Allocation

See Chapter 4, Sustainable Communities Strategy, for further Regional Housing Needs Allocation information.

Kern COG prepares a Regional Housing Needs Allocation (RHNA) of low- and very low-income housing for each jurisdiction in the region that must be approved by the California Department of Housing and Community Development (HCD). Each jurisdiction is assigned a forecast of housing need that is used in local general plan housing elements. SB 375 will require 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 forecast 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. With enough land to accommodate twice the current forecast growth, Kern County has had little difficulty in providing adequate acreage for low-income housing. Coastal communities have the greater challenge of accommodating their growth within their city limits using infill and compact growth techniques.

Proposed Actions

Near Term, 2014–2015

- Encourage land uses decisions by member agencies that promote pedestrian, bike, and transit-oriented mixed-use and infill development.
- 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.
- Coordinate with the Eastern Sierra Transportation Planning Partnership on interregional land use and transportation planning issues.

Long Term, 2016–2035

- Encourage land use decisions by local government member agencies that promote pedestrian, bike, and transit-oriented mixed-use and infill development.
- 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 in the Regional Housing 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.
- 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.

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. Its objective is to promote more efficient use of the existing highway and transportation network, increase safety and mobility, and decrease the environmental impacts of congestion. 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 will be in a position to take advantage of federal and other funding opportunities and implement various components of ITS.

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 were developed that integrate existing ITS efforts under way in the Kern region and will incrementally develop a sound basis for 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. Examples include building communication links with Bakersfield SONET ring and developing smart call boxes.
- 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, smart studs, and rock-fall detection systems.

- 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 commuter kiosks.

- 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 Golden Empire Transit service and coordinating Golden Empire Transit and Kern Regional Transit 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 workstations 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.

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 5-13 to demonstrate its potential for improvements within the Kern region.

TABLE 5-13 EXAMPLES OF ITS BENEFITS

Freeway Management	Reduced accidents by 15–62% while handling 8–22% more traffic at 16–62% greater speeds compared to pre-existing congested conditions (quantified benefit through the use of ramp metering).
Incident Management	By providing video feeds from the field into a Traffic Management Center, the responding towing concession yielded a clearance reduction of 5–8 minutes.
Traffic Signal Control	Implementation of a transit signal priority system yielded a 5–8% decrease in transit run times.
Transit Management	On-time performance yielded improvements of 12–28% while reducing costs to generate a positive return on investment in as little as three years.
Signal Coordination	Has resulted in an average of 20% reduction in travel times in various locations throughout California.

Source: FHWA-JPO-96-008, Intelligent Transportation Infrastructure Benefits: Expected and Experienced. (1996)

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, and the institutional issues and also provides a framework for deploying ITS.

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 the Kern Council of Governments on April 21, 2005, and is incorporated within the 2014 RTP by reference. The plan was federally accepted July 14, 2005.

Proposed Actions

Short- and Long-Term Actions, 2014–2040

- 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.
- Form public/private partnership task force (on project-by-project basis).

CONGESTION MANAGEMENT PROGRAM ELEMENT

[Placeholder: Kern COG to update the CMP to reflect new modeling.]

As with the previous federal surface transportation acts, under SAFETEA-LU (Section)(s) 1107, 6001), all urbanized areas larger than 200,000 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 Process 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.

Pursuant to California Government Code Section 65089(a), Kern COG was designated as the Congestion Management Agency 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 Congestion Management Program. The Congestion Management Program 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 Kern County 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 Congestion Management Program 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 Congestion Management Program as required under state law and for the Congestion Management Process under federal law.

Purpose

The purpose of the Congestion Management Program is to help ensure that a balanced 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. 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:

- 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 Congestion Management Program 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, “no Federal funds may be spent for capacity-expanding projects unless they come from a CMP” for Transportation Management Agencies greater than 200,000 population and in federal nonattainment areas.

Contents

The Congestion Management Program 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 Congestion Management Program 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.

- 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 Congestion Management Program. 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 (see Chapter 4, ITS Action Element).

Monitoring and Implementation Process

To ensure the Congestion Management Program 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 with 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 Congestion Management

Program 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 systemwide congested travel statistics using the Kern COG regional travel demand model.

Designated Regional Transportation System

The purpose of defining the Congestion Management Program 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)(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 5-34 and 5-35 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.

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	

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 223

FIGURE 5-34 – METROPOLITAN BAKERSFIELD CONGESTION MANAGEMENT PROGRAM

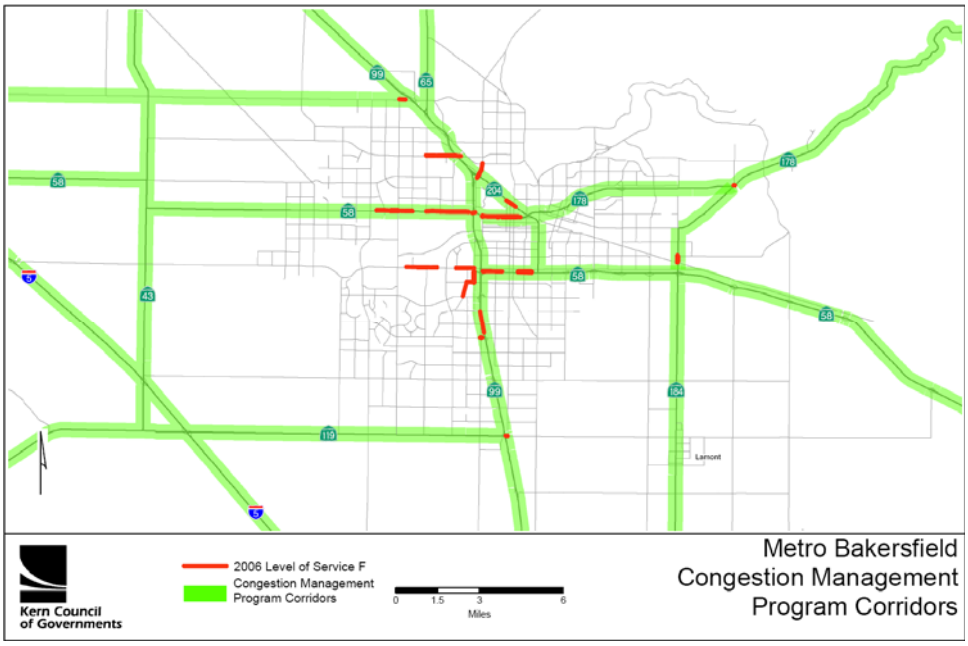
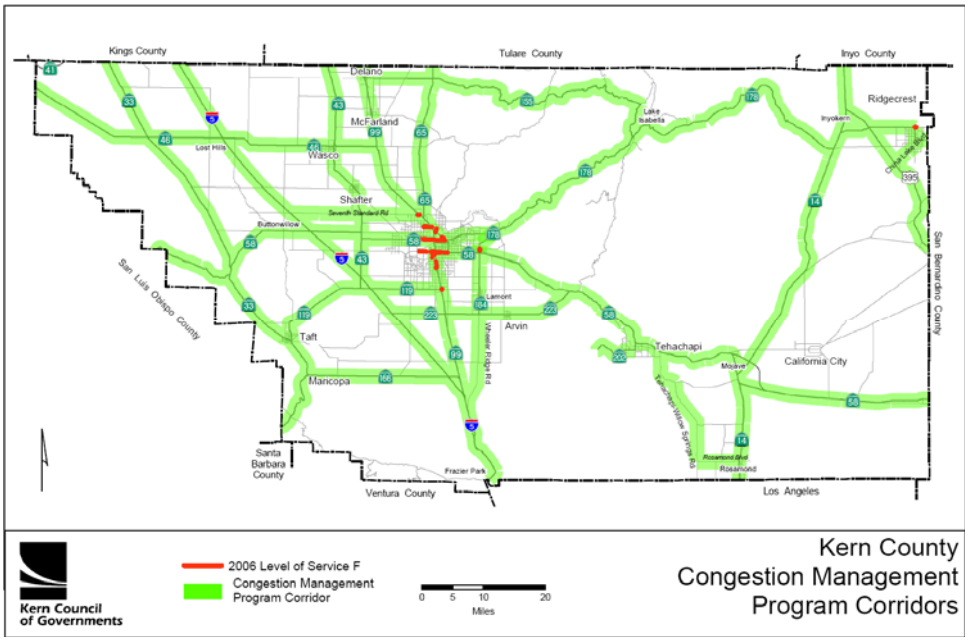


FIGURE 5-35 – KERN COUNTY CONGESTION MANAGEMENT PROGRAM CORRIDORS



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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 5-14).

TABLE 5-14 LEVELS OF SERVICE

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.

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 County 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 Congestion Management Program LOS E standard. Existing LOS F locations are listed below.

- Rosamond Boulevard – 10th Street West to SR 14
- Seventh Standard Road – SR 99 to Coffee Road

- SR 178/24th Street – Oak Street to N Street
- SR 184/Morning Drive – Breckenridge Road to Edison Highway
- SR 204/Golden State Highway – F Street to Chester Avenue
- SR 58 – SR 99 to Cottonwood Road
- SR 58/Rosedale Highway – SR 99 to Main Plaza Drive
- SR 99 NB – White Lane to Wilson Road

(List updated based on most recent travel demand model validation base year)

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.

In addition to the LOS standards of the Congestion Management Program, 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 city's 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.

Mitigating Deficiencies

The Deficiency Plan is similar to a Corridor Systems Management Plan (CSMP). The deficiency plan section of the traffic study should analyze affected portion of the Congestion Management Program network and parallel corridors as appropriate. A grace period is being provided until Kern COG completes the CSMP 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 cost 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 completes the Corridor System Management Plan for the deficient segments.

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 Congestion Management Program 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 Congestion Management Program. Of particular importance is the establishment of traffic counts and regional traffic modeling. Kern COG completes one coordinated and comprehensive review of current 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.

- 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 Congestion Management Program 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.

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- 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 Congestion Management Program. Annual, 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;

- 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 monitoring process, the Congestion Management Agency finds that a local jurisdiction is not conforming with the provisions of the Congestion Management Program, 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 on nonconformance to come into conformance with the Congestion Management Program, in accordance with Section 65089.4(a). If the nonconforming jurisdiction has not come into compliance with the Congestion Management Program, 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 Congestion Management Program 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 Congestion Management Program.

SAFETY ACTION ELEMENT

SAFETEA-LU added a new stand-alone factor to increase the safety 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.

Caltrans published the final version of the statewide State Highway Safety Plan (SHSP) in September 2006. The Safety Plan guides safety activities regarding all users on all public roadways. Key points of the Safety Plan include:

- Highlighting challenges to roadway user safety on California's roads;

- Painting the picture of fatalities experienced on California's roads;

- Proposing high-level strategies to reduce fatalities for each challenge;

- Guiding implementation of specific projects and activities through 2010.

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 your 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.

- 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.

- Avoid requiring out-of-direction travel, especially in the middle of routes.

TRANSPORTATION SECURITY

Policies and Recommendations

Kern COG’s Transportation Security Plan 2012–2050 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.

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 2014 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 2014 and FY 2040, the implementation period for this 2014 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. Thus, Kern COG has responsibilities for the allocation of funds and the approval of transportation projects each year that represent millions of dollars. These responsibilities involve the use of 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, SAFETEA-LU.

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 2014 RTP rely on simplified financial assumptions upon which programming assumptions are then based.

Therefore, the best use of a comparison of revenues and expenditures is for broad, suggestive purposes about Kern COG's future financial situation rather than as an exact budget of revenues and expenditures for the FY 2014–2040 planning period covered by this RTP.

REVENUE PROJECTION ASSUMPTIONS

The 2014 RTP financial plan identifies forecasted revenues and expenditures approaching $11.4 billion for capital and operations and maintenance, for all modes. Approximately $7.2 billion is identified to support the region's capital transportation investments. About $4.2 billion is indicated 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 2014 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% considered reasonably available focus on future changes to local and regional policies and revisions to state and federal transportation legislation.

Approximately $1.3 billion of the $11.4 billion revenue estimate is based on revenue streams considered reasonably available to regions in the future: (1) 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); (2) leveraging of local sales tax measures; (3) potential national freight program/freight fees; (4) future state bonding programs; and (5) mileage-based user fees.

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 $1.3 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. The Kern region has taken note and has implemented a project selection policy that supports revenue leveraging and performance-based selection criteria that support livable communities and complete streets concepts. Presented below is justification for Kern's "Other" revenue assumptions.

- The Kern region has demonstrated an interest in passing a self-help transportation tax, and state law may assist in that effort by requiring a majority vote to pass such a tax the future.

- 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 $1.3 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.

- **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.

The assumptions below represent newer goals and policies that the Kern region will rely on to deliver an additional 10% of the program.

- **Bond Proceeds from Local Sales Tax Measures** – Issuance of debt against existing sales tax revenues in Kern County.

- **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 is anticipated with the next federal reauthorization of the Surface Transportation Act. The US Senate's proposal would establish a federal formula for funding the national freight network.

- **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.

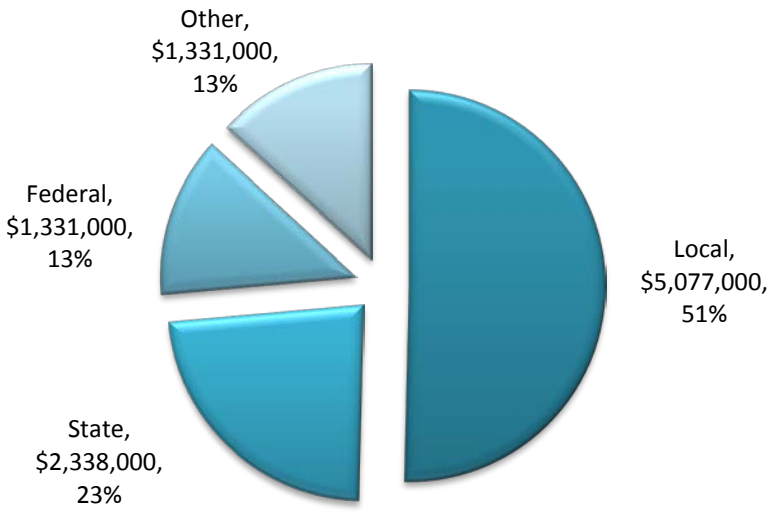
- **State Bond Proceeds, Federal Grants, and Other Financing for California High-Speed Rail Program** – State general obligation bonds authorized under the Bond Act approved by California voters as Proposition 1A in 2008; federal grants authorized under the American Recovery and Reinvestment Act and High-Speed Intercity Passenger Rail Program; potential use of qualified tax credit bonds; and private sources.

REVENUE SOURCES

Revenues identified in the 2014 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 $11.4 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 $4.2 billion of the $11.4 billion in expected revenue is for the operation and maintenance of the countywide transportation system. The remaining $7.2 billion is dedicated to capital improvements for all modes over the 26-year period of this plan.

FIGURE 6-1. TRANSPORTATION REVENUES 2014–2040



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 (11%), bus transit fare box (2%), and other local funding such as developer fees and general funds (27%).

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 greater Tehachapi area, and the County will continue to review growing unincorporated areas and develop identical programs when appropriate.

TABLE 6-1. REVENUE FORECAST 2014–2040 ($ X 1,000)

Table 6-1 Revenue Forecast 2014-2040 ($ 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	1.68%	$ 48,000	$ 144,000				
Local - General Funds - streets and roads maintenance	$ 400,000	3.50%				$ 320,000		$ 80,000
Local Transportation Funds	$ 1,205,000	10.54%	$ 301,000	$ 904,000				
Bus Farebox	$ 171,000	1.50%		$ 171,000				
Local Agency Funds/Developer Fees/Regional Fees/Other	$ 3,109,000	27.19%	$ 37,000		$2,985,275		$ 86,725	
Subtotal	**$ 5,077,000**	**44.41%**						
State Sources								
STIP (Regional and Interregional)	$ 1,125,000	9.84%	$ 140,000		$ 985,000			
State Transit Assistance (STA)	$ 460,000	4.02%	$ 100,000	$ 360,000				
State Highway Operation and Protection Program (SHOPP)	$ 750,000	6.56%				$ 750,000		
State Aid to Airports	$ 3,000	0.03%	$ 3,000					
Subtotal	**$ 2,338,000**	**20.45%**						
Federal Sources								
Regional Surface Transportation Program	$ 210,000	1.84%				$ 190,000		$ 20,000
Transportation Enhancement Activities Program	$ 37,500	0.33%					$ 37,500	
Congestion Mitigation and Air Quality Program	$ 197,500	1.73%	$ 125,000				$ 72,500	
Local Assistance (HES, HBRR, Sec.130, Emergency Relief)	$ 82,000	0.72%				$ 82,000		
Federal Aid to Airports	$ 45,000	0.39%	$ 22,500	$ 22,500				
FTA Section 5307 (Transit – metro)	$ 97,500	0.85%	$ 24,375	$ 73,125				
FTA Section 5310 and 5311 (Transit – senior/disabled/rural)	$ 22,500	0.20%	$ 5,625	$ 16,875				
Recovery Act - High Speed Rail	$ 1,500,000	13.12%	$1,500,000					
State/Federal Demonstration / Other	$ 495,000	4.33%	$ 9,600		$ 455,400		$ 30,000	
Subtotal	**$ 2,687,000**	**23.50%**						
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 feeSelf-help sales tax State Federal Excise Tax on Fuel	$ 1,331,000	11.64%	$ 175,000	$ 156,000	$ -	$ 700,000	$ 31,000	$ 230,000
Subtotal	**$ 1,331,000**	**11.64%**						
Total	$11,433,000	100.00%	$2,491,100	$1,847,500	$4,425,675	$2,042,000	$ 257,725	$ 330,000
Total of Capital Revenue	**$ 7,174,500**	100%	22%	16%	39%	18%	2%	3%
Total of O & M (Operations and Maintenance	**$ 4,219,500**		**38%**		**57%**		**5%**	

State Revenue

State funding sources constitute about 20% of the total 26-year transportation budget. Most of these monies come from the State Transportation Improvement Program (10%) and the State Highway Operation and Protection Program (7%). State Transit Assistance funds make up the remaining 4%.

The 2006 state elections produced positive results for statewide infrastructure bond measures. The Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006, approved by the voters as Proposition 1B on November 7, 2006, includes a program of funding from $4.5 billion to be deposited in the Corridor Mobility Improvement Account (CMIA). Other bond opportunities include the State Route 99 Program, Trade Corridor Program and a State-Local Partnership Program. Kern COG has participated in the submittal of candidate projects for State Routes 46 and 99. Some of the candidate bond projects are part of Table 5-1 or under construction; others are listed in Table 5-2. Should Kern be successful in receiving programming under any of these new bond programs, the 2014 RTP will be updated as required.

Federal Revenue

Approximately 23% of the transportation funds for the 2014 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 Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement (CMAQ) Program, and Transportation Alternatives (TA). In the 2014 RTP, STP, CMAQ, and TA programs total approximately 4% of anticipated funds. The remaining programs are for safety projects and aviation funding.

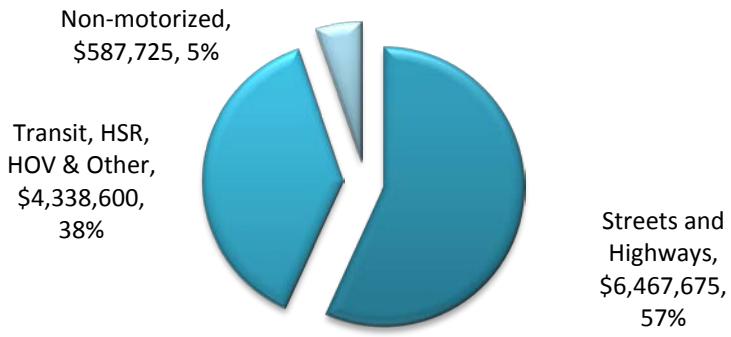
Federal revenue estimates in Table 6-1 are consistent with federal fund estimates resulting from the passage of SAFETEA-LU (August 10, 2005). Project programming of regionally significant projects and revenue estimate information is consistent with the latest four-year STIP fund estimate adopted by the California Transportation Commission (CTC) for use in the development of the 2014 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 26-year life of this document.

BASELINE EXPENDITURES

Given the 2014 RTP's baseline cost estimate of $11.4 billion, Figure 6-2 illustrates the mode split for the region. The data show that about 51% of the region's baseline costs are dedicated to street and highway improvements or maintenance. Twenty-three percent (23%) of expenditures are for transit operating and capital needs. The remaining 1% of RTP expenditures are for transportation control measures, aviation, and non-motorized projects.

Figure 6-2. Investments by Mode 2014–2040 ($ x 1,000)



Financial Constraint Demonstration

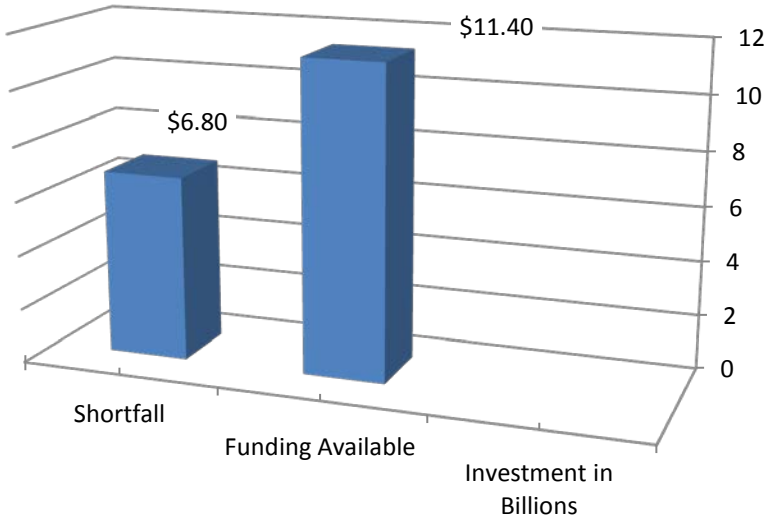
Kern COG has assembled a comprehensive inventory of the transportation revenue programs currently in use by all governmental entities (federal, state, and local) and has projected these revenues primarily based on historical averages over the life of the RTP. Financial revenue projections are based on 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 $6.8 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 2014 RTP time frame. While the shortfall is shown as approximately $6.8 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.

FIGURE 6-3. INVESTMENT SHORTFALLS



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 SAFETEA-LU 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 Undermining Transportation Goals – The recent increase of supplemental gas tax funding sources, such as toll freeways 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 infrastructure. Two specific issues exacerbate this situation.

Cause: Improved Fuel Economy Threatens 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 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 fuels 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 undermining the "pay-as-you-go" policy of the transportation systems.

Possible Solution: Transportation Funding Overhaul Needed

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 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 view 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 on highways created by trucking. 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)

[Placeholder: Kern COG to update using local data if Mileage-Based User Fees are included or assumed within the 2014 RTP.]

Description: Mileage-based user fees would 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 estimates 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. This projection assumes there is not a 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, which would lead to a more rapid deterioration in 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.

For the SCAG region, revenue from mileage-based fees totals $148.2 billion from FY2025 to FY2035. 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 $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

CORRIDOR PRESERVATION

It is important to identify and preserve transportation corridors needed to expand or enhance transportation for Kern County's future. 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 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 the 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.

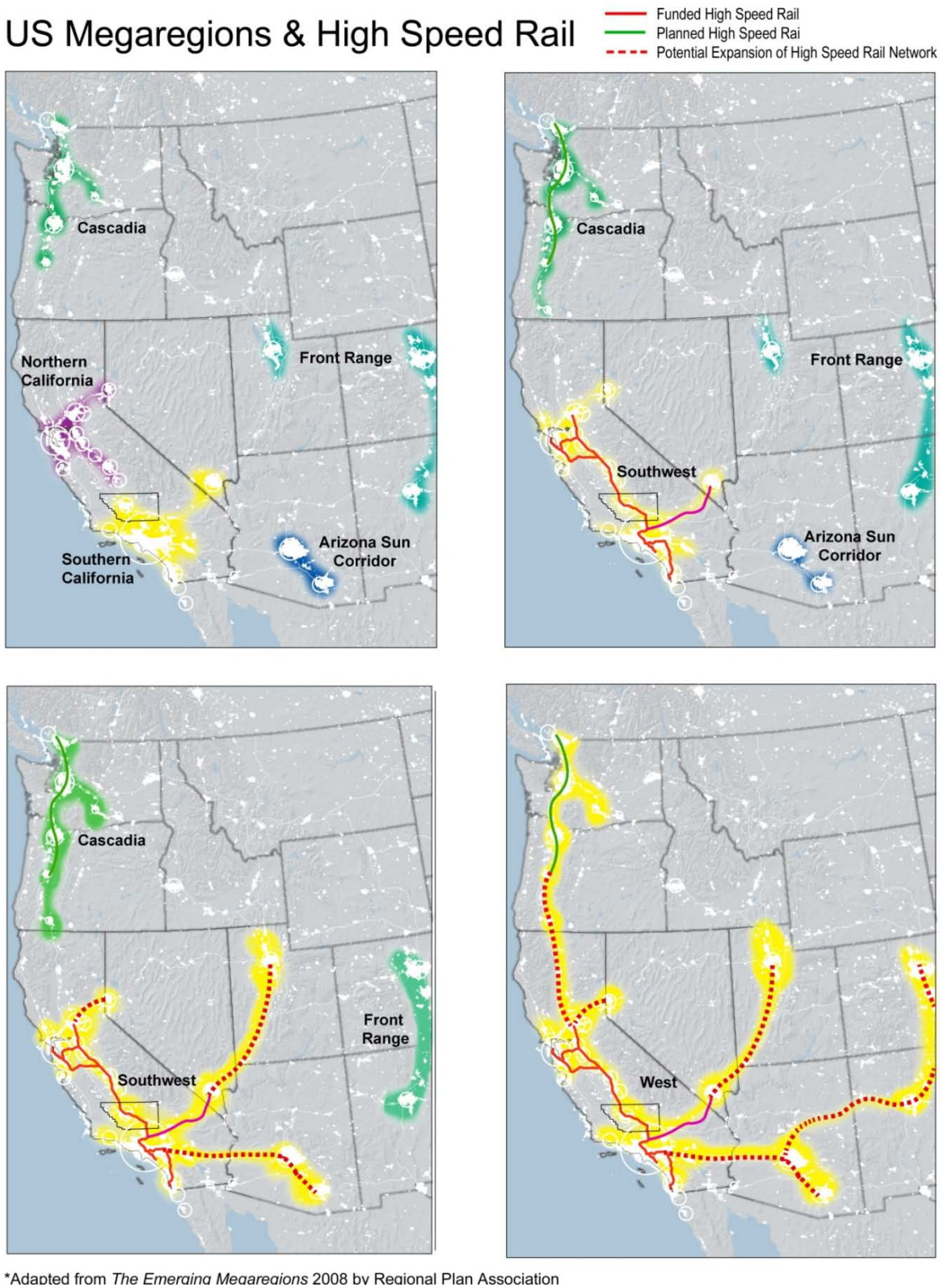
Post-2035 Long-Range Corridors	
Corridor	**Source**
Interregional Corridors	
Route 46 (New Alignment through Wasco)	City of Wasco; Caltrans; Kern COG
Route 58 (New Alignment – Route 99 west to I-5)	Caltrans; Kern COG
Willow Springs Expressway	Rosamond TIF; Kern COG; Caltrans
Transit/Passenger Rail Corridors	
Link to Mammoth/Reno	Eastern Sierra Planning Partnership
Wasco/Bakersfield/Arvin Commuter Rail	1997 Major Transportation Investment Study
Palmdale/Rosamond/Edwards AFB Commuter Rail	San Joaquin Valley Express Transit Study (2009)
Kern County	
Centennial Corridor (Crosstown 178 connection)	City of Bakersfield; Kern County; Kern COG
South Beltway	City of Bakersfield; Kern County; Kern COG
West Beltway	City of Bakersfield; Kern County; Kern COG
East Beltway	City of Bakersfield; Kern County; Kern COG
North Beltway	City of Shafter; Kern County; Kern COG
Intermodal Corridors	
Seventh Standard Road/North Beltway	Bakersfield; Shafter; Kern County; Kern COG
Route 58 (Bakersfield to Tehachapi)	Caltrans; Kern COG
UP/BNSF Rail Corridor (Bakersfield to Tehachapi)	Caltrans; Kern COG

HIGH-SPEED RAIL

The California High-Speed Rail Authority (CHSRA) is currently funded for about 25% of a $45 billion high-speed rail (HSR) system for intercity travel between the major metropolitan centers of Sacramento and the Bay Area, through the San Joaquin Valley, to Los Angeles and San Diego. The HSR system is projected to carry as many as 117 million passengers annually by 2030 and is estimated to be half the cost of widening Interstate 5 (I-5) to eight lanes. The remaining funding is anticipated to come from the federal transportation bill reauthorization and private sector investment. Construction of the first segments is scheduled to begin by 2012. One of the first segments is anticipated to connect Madera, Merced, and Fresno ("the gateway cities of Yosemite") with Bakersfield. The proposed HSR system will provide a reliable mode of travel, which will link the major metropolitan areas of the state and deliver predictable and consistent travel times. Further objectives are: (1) to provide an interface with commercial airports, mass transit, and the highway network; (2) to relieve capacity constraints of the existing transportation system as intercity travel demand in California increases; and (3) to construct the proposed HSR system in a manner sensitive to and protective of California's unique natural resources. The system needs to be practicable and feasible as well as economically viable. The system should maximize the use of existing transportation corridors and rights-of-way, be implemented in phases, and be completed by 2020.

Figure 6-1 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) 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 western United States. As HSR segments are completed, travel times between the megaregions will decrease, increasing the economic links and causing the megaregions to coalesce. A 2-hour, 27-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.

Over 30 years of 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, making expansion of the system to the largest megaregion (Southern California). Other countries have also found that opening day ridership exceeded forecasts in every instance.



*Adapted from *The Emerging Megaregions* 2008 by Regional Plan Association

1401 19th Street, Suite 300, Bakersfield, California 93301

Electrically powered, high-speed, steel-wheel-on-steel-rail technology is proposed that would serve the major metropolitan centers of California. By 2020, the proposed service would include approximately 86 weekday trains in each direction to serve the intercity travel market, with 64 of the trains running between Northern and Southern California, and the remaining 22 trains serving shorter-distance markets. Most passenger service is assumed to run between 6 a.m. and 8 p.m. The proposed system would be capable of speeds in excess of 200 mph, and the projected travel times would be designed to compete with air and auto travel. For example, the projected travel time by HSR between San Francisco and Los Angeles would be just under 2 hours and 30 minutes, and between Los Angeles and San Diego, it would be just over 1 hour.

The cost to implement the HSR system is estimated at approximately $45 billion, depending on the alignment and station options selected. The cost estimate includes right-of-way, track, guideway, tunneling, stations, mitigation, and estimated year-of-expenditure costs. The CHSRA has indicated that private funds would be sought for the train sets and operating costs.

High-speed rail would provide a new intercity, interregional, and regional passenger mode that would improve connectivity and accessibility to other transit modes and airports compared to the other alternatives. High-speed rail, over and above automobile and airline travel, would improve travel options available throughout the San Joaquin Valley and other areas of the state with limited bus, passenger rail, and air service for intercity trips.

High-Speed Rail Terminal Impact Analysis

The High-Speed Rail Terminal Impact Analysis was prepared to determine a community-preferred site for Bakersfield's future high-speed rail station. Three sites within metropolitan Bakersfield had been previously identified: Meadows Field vicinity, Golden State/"M" Street, and Truxtun/"S" Street.

Kern COG commissioned this study to recommend a locally preferred station site to be forwarded to the California High-Speed Rail Authority. This study was not intended to include final station design concepts or to cite specific environmental impacts, but rather as a tool for CHSRA to understand the Bakersfield community's concerns as well as to explain potential partnering opportunities.

The study evaluated the sites for concerns regarding mobility, access and Intermodal connectivity, cost, user convenience, impact on built environment, air quality, economic development, and environmental impacts.

A series of outreach meetings was undertaken in order to compile and understand various objectives and preferences for a station site.

On July 1, 2003, the Kern County Board of Supervisors adopted Resolution 2003-290 in support of the Truxtun Avenue terminal site. On July 9, 2003, the Bakersfield City Council voted to adopt Resolution 118-03 endorsing the Truxtun Avenue site as their preferred site. And in September 2003, Kern COG adopted Resolution 03-23 to designate the Truxtun Avenue terminal site as "the preferred base system local alternative site for the Metropolitan Bakersfield high-speed rail terminal."

The Truxtun site is located in the vicinity of the current Amtrak station. It is west of Union Avenue and east of Chester Avenue along the Burlington Northern Santa Fe (BNSF) rail corridor. The High-Speed Rail Environmental Impact Report has identified the station site between S Street and Sonora Street as the most promising area, but has indicated a possible alternative with a north/south orientation along Union Avenue. The Truxtun Station is located within walking distance of the downtown area, including two hotels, the convention center, many government office buildings, and Bakersfield's new Ice Center and McMurtrey Aquatic Center.

Connections to other modal uses would be effortless. Amtrak and Greyhound connections have existing facilities at or near the Truxtun Station, while Golden Empire Transit and Kern Regional Transit also have regular stops at the Amtrak station. This proximity would facilitate passenger transfer connections, sharing of the Amtrak feeder bus terminal, and possibly even sharing of an expanded station.

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 the 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 Bakersfield, Lamont, and Arvin, as well as to Meadows Field Airport, McFarland, and Delano, was suggested in the 1997 Major Transportation Investment Study. Since 2005, a similar commuter rail service between Albuquerque and Santa Fe, New Mexico, continues to surpass ridership expectations by pricing tickets relative to auto fuel costs.

NEED FOR CONSTRAINED PROJECT DEVELOPMENT

Under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), 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.

If new funds are identified, then projects in the Unconstrained Program of Projects (Table 4-2) can be amended into the Constrained Program of Projects (Table 4-1) via the amendment process. Under this arrangement, decision-makers would have flexibility to consider new projects and to respond to funding opportunities that may present themselves in the future.

UNCONSTRAINED PROJECTS/UNMET TRANSPORTATION NEEDS

Beyond the 2014 RTP, an estimated $6.8 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. Kern COG, in cooperation and coordination with its stakeholders, maintains a list of capital projects that are financially unconstrained (see Table 4-2). Conceivably, as the future funding picture changes, some of these projects could be advanced to constrained status in future RTP updates.

FUNDING MECHANISMS

Kern County continues to experience strong growth, adding more traffic and taxing the capacities of the street and highway system. In an effort to expand needed transportation facilities before traffic congestion causes the roads 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 subregional traffic impact fee studies throughout the county. The initial study focused on southeast Kern (Tehachapi, California City, and Mojave) and has been completed. Kern COG anticipates completing further studies by mid-2011.

The focus of the needed transportation improvements is on regional roads of significance. At this time, only metropolitan Bakersfield, Wasco, Shafter, Delano, greater Tehachapi, and Rosamond (unincorporated) have adopted TIFs.

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 covered for Garvee Bond projects is such that only the largest corridor projects would be eligible.

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.[1] 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.

AIR QUALITY–RELATED PROJECTS FOR FUTURE STUDY

- Metrolink Commuter Rail (Rosamond to Los Angeles)
- Eastern Sierra Passenger Rail Corridor (Reno to Los Angeles)
- Major Transportation Investment Study (MTIS) long-range transit improvements – passenger light rail (Metro Bakersfield) and passenger heavy rail (connecting outlying valley communities)
- Bakersfield High-Speed Rail Station – Airport Bus Rapid Transit (BRT) Shuttle

[1] 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.

- Shafter Intermodal Trade and Transportation Center (ITTC) expansion
- Shafter Airport/Union Pacific Intermodal Freight Facility expansion
- Laval Road Industrial Complex – new freight rail line and intermodal facility
- Freeway ramp metering
- High-occupancy/zero-low emission vehicle (HOV/ZEV/LEV) lanes
- Toll lane/facility congestion pricing
- Paving and sweeping shoulders and dirt roads
- Alternative fuel fleets and infrastructure
- Incentives for increasing land use densities.

SAFETY PROJECTS FOR FUTURE STUDY

- State Route 58 from General Beale Road to Tehachapi Boulevard offramp – truck auxiliary lane
- I-5 from State Route 99 split to Kings County line – truck auxiliary lane
- Network of dedicated truck lanes
- State Route 178 from Lake Isabella to Ridgecrest – realign and add passing lane

VALLEYWIDE CHAPTER

Included as Appendix A, the San Joaquin Valleywide Regional Transportation 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, the 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), being 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 2014 RTP.

FEDERAL TRANSPORTATION IMPROVEMENT PROGRAM (FTIP)

As the designated MPO, Kern COG is charged with developing and maintaining the Federal Transportation Improvement Program (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 TIP is that it is the incremental implementation of the long-range RTP. The TIP 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.

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 2014 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; rather, 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 4, Strategic Investments, Tables 4-1 and 4-2). Only after projects are included in the CIP can they then be funded and advanced as part of the RTIP.

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.

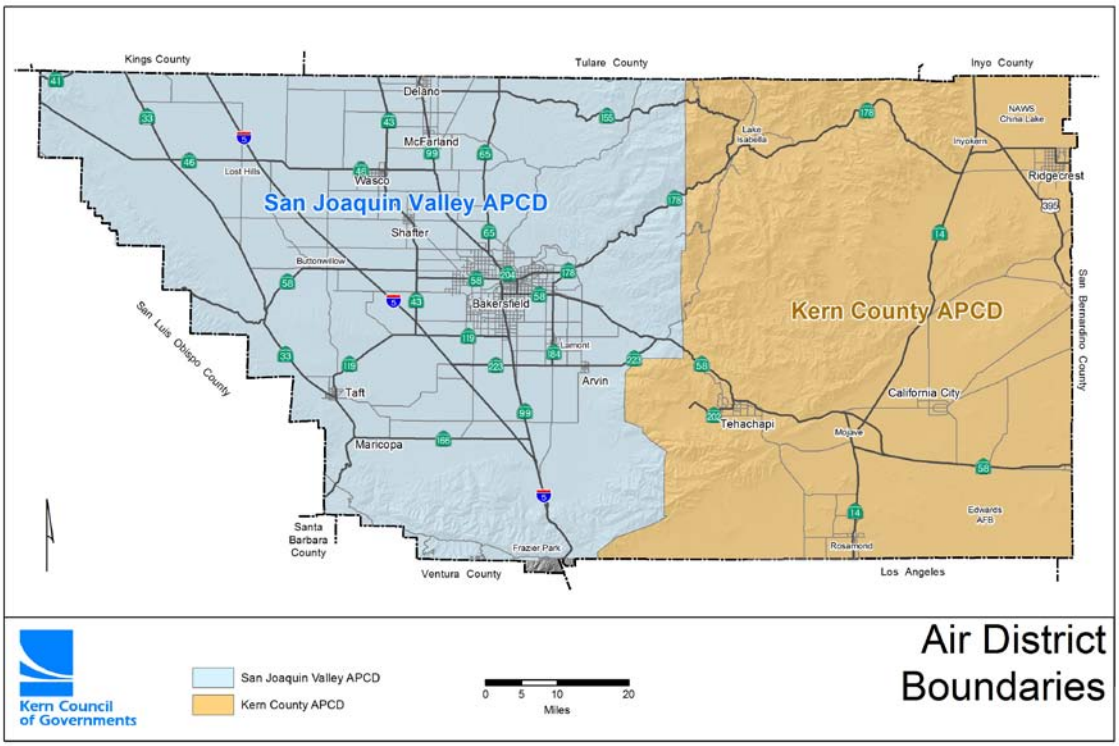
AIR QUALITY CONFORMITY MONITORING

Before federal approval of the RTP and TIP, 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 2014 RTP and FTIP are hereby included by reference; the relevant resolution adopting the 2014 RTP will be included in the final document. This analysis demonstrates that the criteria specified in the federal transportation conformity determination rule are satisfied by the TIP 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. The two air districts in Kern County are shown on Figure 8-3.

Kern COG has an adopted cost-effectiveness policy for programming Congestion Mitigation/Air Quality (CMAQ) funding.

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 2014 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)

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 is developing a regional traffic monitoring program. The program will provide regular traffic counts and speed surveys across all jurisdictions in the region. The collected data will assist in setting policies, forecasting future transportation needs, and monitoring air quality conformity.

CONGESTION MANAGEMENT PROGRAM (CMP)

State Proposition 111, passed by voters in 1990, requires urbanized areas to prepare and regularly update a Congestion Management Program. SAFETEA-LU updated this requirement for Transportation Management Areas; the Kern region is considered to be a Transportation Management Area. The purpose of the CMP is to (1) monitor the performance of the transportation system; (2) develop programs to address near-term and long-term congestion; and (3) better integrate transportation and land use planning.

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 D 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.

Historically, Metropolitan Bakersfield and other urbanizing areas in Kern County have been able to absorb increased traffic and have met these communities' transportation needs by adding some local roads, the Mojave Bypass, and a few more buses. But the Kern region can no longer assimilate additional traffic because of this continuing growth. Kern COG estimates that the population of Metropolitan Bakersfield alone will increase by more than 60%. Congestion on arterial roadways and city streets will become intolerable unless significant new transportation facilities and services are provided.

The Congestion Management Program should stay in place in order to respond to the anticipated problems. The program is provided as a separate element of Chapter 4, Strategic Investments.

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 potential high-speed rail. Any project involving transportation improvements is reviewed to determine whether such improvements are included in the RTIP.

TRANSPORTATION PLANNING STUDIES

Roads to Ruin

Kern COG prepared *Roads to Ruin: Transportation Funding Options for Kern County* in early 2002 to educate decision-makers and the public regarding the "dire straits" of Kern County's roads and public transportation systems.

As described in the document, Kern's cities and the county are falling further behind in maintaining already beleaguered roads, while agencies such as Golden Empire Transit have no operating monies to meet growing demands for its services. In addition, the pace of new capital transportation projects cannot hope to meet anticipated needs under current funding projections.

Roads to Ruin discusses potential revenue sources available to assist Kern County's growing transportation needs. Among the possibilities, voters could approve a countywide, special transportation-related sales tax ballot measure; a "special district" sales tax measure; a countywide parcel-based tax; a gasoline tax increase; a regional transportation impact fee; or a combination of these.

Regardless of which strategy appears the most viable, however, the consequences of continuing to rely solely on traditional funding are abundantly clear: the regional transportation system for Kern County will continue to deteriorate on an increasingly rapid scale and will become increasingly congested. Drivers will pay more and wait longer to commute; public transportation operators will be unable to provide for the additional demands for service; and capital project construction will take too long to provide meaningful congestion relief.

The question no longer is whether additional transportation revenue is necessary to ensure a properly maintained and functioning transportation system, but rather will the existing infrastructure last until new revenue arrives?

Metro Bakersfield Major Transportation Investment Strategy (MTIS)

In 1997, Kern COG completed the *Metropolitan Bakersfield MTIS Action Plan*. The MTIS considered nine alternatives, including various combinations of increased bus service, a cross-town freeway, a beltway system, super arterials, enhanced transportation system management (TSM), and passenger light rail service (found not be financially viable until sometime after 2015). The preferred option focused on growing the transit bus fleet to 200 vehicles and building a cross-town freeway. Increased transit operations will someday provide a feeder network for future passenger rail options. The MTIS transit action plan includes additional bus transfer stations, a bus automatic vehicle location (AVL) system, and additional routes and increased headways. Golden Empire Transit is deploying AVL, automated fare box, and passenger count systems.

The 2001 Bakersfield System Study developed regional consensus on the road system improvements. The MTIS formed the Inter-agency Metropolitan Transportation Committee (IMTC) to monitor the progress of the MTIS action plan. The IMTC publishes an annual report on action plan progress.

The sixth annual report was published in November 2003, which included transportation projects under development in 2002–2003, including changes in legislation, planning, and projects, as well as a "report card" identifying those transportation projects delivered in the second phase (2003–2006) of the Action Plan.

The MTIS Action Plan is structured to be responsive to future budgetary, political, and economic changes affecting local, state, and federal funding levels. The MTIS is modified and updated to accommodate changing priorities.

Traffic Model Forecasting

Kern COG maintains a regional travel demand forecast model for the Kern region. 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 populations, households, employment, school enrollment, income, traffic counts, speeds, intersection configuration, existing and planned transportation networks, etc. These variables are

maintained for approximately 1,000 transportation analysis zones covering the 8,200-square-mile Kern County . One of the primary purposes of the model is to demonstrate conformity with the federal Clean Air Act goals requiring substantial reductions from all pollution sources, including transportation-related mobile source emissions. Travel Demand Forecast Modeling is also used in support of the RTP/TIP processes, CMP, and numerous environmental documents for locally identified projects. Kern COG's Regional Transportation Model provides a savings to its member agencies by avoiding duplicate, overlapping, and potentially conflicting transportation forecasts.

Oversight for the model is provided by the Kern Regional Transportation Modeling Committee, which operates under a Memorandum of Understanding signed by the City of Bakersfield, Caltrans District 6, the County of Kern, and Kern COG.

Kern COG and the Kern Regional Transportation Modeling Committee have adopted the following policies and procedures for maintaining the model:

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 "buildout 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) Highway Performance Monitoring System (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 model existing, planned, and proposed future transportation facilities.

6) Transportation Analysis Zone Updates – Added as needed in response to additional network 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.

Kern COG SB 375 Framework

In 2012, the Kern COG Board of Directors adopted the SB 375 Framework, which includes a set of core actions to guide the development and implementation of the 2014 RTP. These 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 traveled for Kern County's existing and planned transportation and circulation network to determine anticipated effectiveness.

3) Include clean fuel and clean technology (Pavley) 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 forecast 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) subregions of Kern County to provide feedback on progress toward achieving the state targets.

12) Develop two types of strategies within the plan: (1) strategies that reduce emissions countywide; and (2) strategies that reduce emissions subregionally.

13) Explore the potential of establishing modeling budgets for each subregion of the county.

See Chapter 4, Sustainable Communities Strategy, for further discussion on the SB 375 Framework.