CHAPTER 5 STRATEGIC INVESTMENTS

INTRODUCTION

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

The 2014 Regional Transportation Plan promotes a more efficient transportation system that calls for fully funding alternative transportation modes, while emphasizing transportation demand and transporation system management approaches for new highway capacity.

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

Alternative scenarios are not addressed in this document; they are, however, addressed and analyzed for their feasibility and impacts in the Environmental Impact Report prepared for the 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 more efficient transportation system that calls for fully funding alternative transportation modes, while emphasizing transportation demand and transporation system management approaches for new highway capacity.

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.

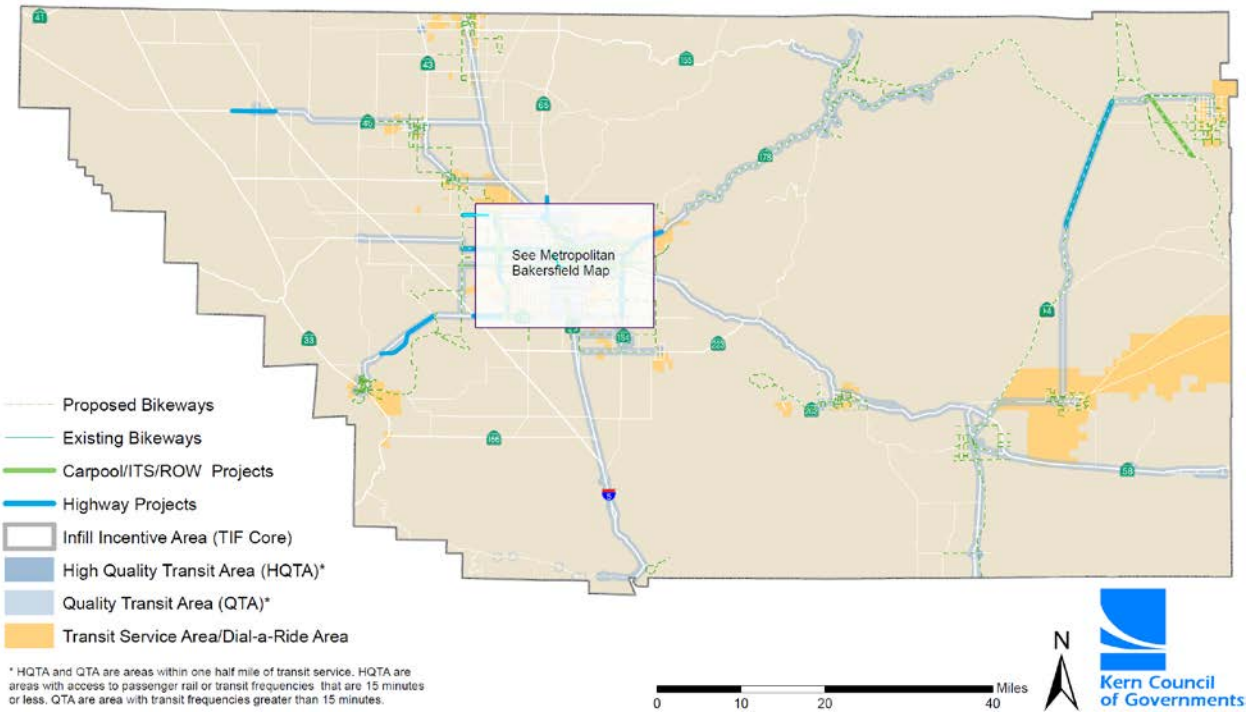
The planning process is iterative. System-wide performance measures have been developed and will be used to help policymakers and the community-at-large evaluate tradeoffs among transportation improvement alternatives. Performance measures will also be used to help evaluate how the 2014 RTP contributes to the Kern region's quality of life. Refer to Chapter 2 for additional information about the performance measures.

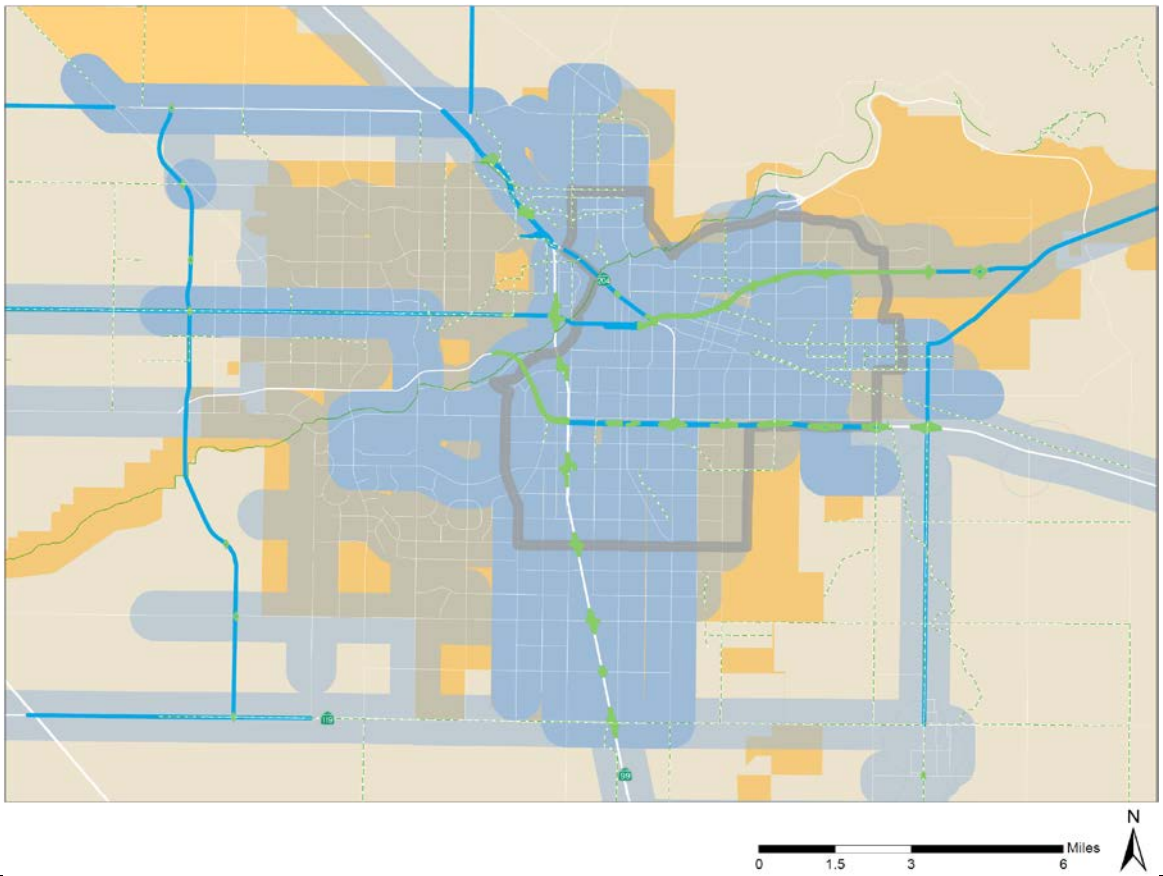
Each element in this chapter addresses proposed actions to implement the goals and policies of Chapter 2. These actions outline specifically how the goals of the plan will be accomplished. This chapter contains the following action elements:

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

In the following Constrained 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.

FIGURE 5-1 CONSTRAINED PROJECTS MAP (2014–2040)





PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS

2014 through 2040 - Transit			
Project	Location	Scope	YOE Cost
Vanpool	Countywide	Vanpools - build and maintaine fleet of 500 Vans by 2040	48,000,000
Park and Ride	Various	Park and Ride Lots (1,500 spaces)	6,000,000
Bus Service	**Metro Bkd**	**Full size natural gas buses**	**232,500,000**
		Full size natural gas buses - 120 replacement buses	
		Full size natural gas buses - Fixed Routes - 130 new buses	
		Full size natural gas buses - Bus Rapid Transit - 24 new buses	
		Full size natural gas buses - Express Service - 36 new buses	
Bus Service	**Countywide**	**Full, midsize and mini-van size natural gas buses**	**34,700,000**
		Full size natural gas buses - Express Service - 10 new buses	
		Midsize natural gas buses - 120 replacement buses	
		Midsize natural gas buses - 120 new buses	
		Mini van / buses - 45 replacement buses	
Bus Service	Metro Bkd	2 Transit Maintenance Stations	10,000,000
Bus Service	Metro Bkfd	3 transfer stations	15,000,000
ITS	Countywide	ITS related improvements / upgrades	3,000,000
Passenger Rail	Rosamond	Metrolink extension - Palmdale/Lancaster to Rosamond	112,000,000
Passenger Rail	Bakersfield	Amtrak Station - Phase II	13,000,000
Passenger Rail	Bakersfield	High Speed Rail Station - Bakersfield	50,000,000
Passenger Rail	Region	High Speed Rail Alignment and Facilities Fresno to Bakersfield	1,000,000,000
Passenger Rail	Shafter/Wasco	High Speed Rail Heavy Maintenance Facility	450,000,000
		Sub-total	**$1,974,200,000**

2014 through 2040 - Highway Operational Improvements			
Project	Location	Scope	YOE Cost
HOV Lanes	**Bakersfield**	**Various State Routes - HOV lanes**	**149,000,000**
		Westside Parkway - Heath Road and Stockdale Highway to SR 58 at Fairfax	
		State Route 178 - Existing west freeway terminus to Oswell Street	
HOV Ramps	**Bakersfield**	**Install HOV Ramps and metering improvements at various locations**	**148,000,000**
		SR 99 Interchange at Snow Road - HOV Ramp Metering	
		SR 99 Interchange at Olive Drive - HOV Ramp Metering	
		SR 99 Interchange at Rosedale Hwy - HOV Ramp Metering	
		SR 99 Interchange at California Ave - HOV Ramp Metering	
		SR 99 Interchange at Ming Ave- HOV Ramp Metering	
		SR 99 Interchange at White Lane- HOV Ramp Metering	

PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Highway Operational Improvements (Continued)					
Project	Location	Scope	YOE Cost		
		SR 99 Interchange at Panama Lane- HOV Ramp Metering			
		SR 99 Interchange at SR 119 - HOV Ramp Metering			
		SR 58 Interchange at Oak Street - HOV Ramp Metering			
		SR 58 Interchange at H-Chester Ave - HOV Ramp Metering			
		SR 58 Interchange at Union Street - HOV Ramp Metering			
		SR 58 Interchange at Cottonwood Road - HOV Ramp Metering			
		SR 58 Interchange at Mount Vernon - HOV Ramp Metering			
		SR 58 Interchange at Oswell Street - HOV Ramp Metering			
		SR 58 Interchange at Fairfax Road - HOV Ramp Metering			
		SR 58 Interchange at Weedpatch Hwy - HOV Ramp Metering			
		SR 178 Interchange at SR 204 - HOV Ramp Metering			
		SR 178 Interchange at Beale Avenue - HOV Ramp Metering			
		SR 178 Interchange at Haley Street - HOV Ramp Metering			
		SR 178 Interchange at Mount Vernon Street - NOV Ramp Metering			
		SR 178 Interchange at Oswell Street - HOV Ramp Metering			
		SR 178 Interchange at Fairfax Road - HOV Ramp Metering			
		SR 178 Interchange at Morning Drive - HOV Ramp Metering			
		West Beltway Interchange at 7th Standard Road - HOV Ramp Metering			
		West Beltway Interchange at Olive Drive - HOV Ramp Metering			
		West Beltway Interchange at Rosedale Hwy - HOV Ramp Metering			
		West Beltway Interchange at Stockdale Hwy - HOV Ramp Metering			
		West Beltway Interchange at Ming Avenue - HOV Ramp Metering			
		West Beltway Interchange at White Lane - HOV Ramp Metering			
		West Beltway Interchange at SR 119 - HOV Ramp Metering			
		Sub-total	**$297,000,000**		

*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.

PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Non-motorized			
Project	Location	Scope	YOE Cost
Various locations	**Countywide**	**Construct Class I, II or Class IIII Bike Path; striping; signage**	**$85,500,000**
	Arvin	Main Street from Panama Road to Di Giorgio Road- 1 Mile - Class II	
	Arvin	E Bear Mountain Blvd from S Comanche Drive to Weedpatch Hwy - 4.1 miles	
	Bakersfield	Union Avenue from Panama Road to Bear Mountain Blvd - 4 miles - Class II	
	Bakersfield	Santa Fe Way from Driver Road to Riverside Street - 3.6 miles - Class II	
	Bakersfield	Rudd Avenue from Palm Avenue to Brimhall Road - 0.5 miles - Class II	
	Bakersfield	Roberts Lane from Norris Road to Washington Avenue - 0.5 miles - Class II	
	Bakersfield	Roberts Lane from Washington Avenue to Standford Drive - 0.7 miles - Class II	
	Bakersfield	River Blvd from Panorama Drive to Bernard Street - 1.3 miles - Class II	
	Bakersfield	Pioneer Drive from Oswell Steet to Morning Drive - 2 miles - Class II	
	Bakersfield	Pegasus Road from Merle Haggard Drive to Norris Road - 1.8 miles - Class II	
	Bakersfield	Patton Way from Snow Road to Hageman Road - 1.8 miles - Class II	
	Bakersfield	Panama Road from Weedpatch Hwy to S Comanche Drive - 4 miles - Class II	
	Bakersfield	Palm Avenue from Heath Road to Renfro Road - 1 miles - Class II	
	Bakersfield	Palm Ave (Country Breeze & Slikker Drive) from Old Farm Road to Country Breeze Place - 1.7 miles - Class II	
	Bakersfield	Old River Road from Taft Hwy to Shafter Road - 3 miles - Class II	
	Bakersfield	Old Farm Road from Palm Avenue to Brimhall Road - 0.5 miles - Class II	
	Bakersfield	Old Farm Road from Good Place to Rosedale Hwy - 0.5 miles - Class II	
	Bakersfield	Norris Road from Snow Road to Roberts Lane - 0.7 miles - Class II	
	Bakersfield	Nord Avenue from Kratzmeyer Road to Stockdale Hwy - 4.5 miles - Class II	
	Bakersfield	Niles Street from Virginia Street to Morning Drive - 3.5 miles - Class II	
	Bakersfield	Muller Road from S Owell Street to Weedpatch Hwy - 2 miles - Class II	
	Bakersfield	Merle Haggard Drive from South Granite Road to N Chester Avenue - 1 miles - Class II	
	Bakersfield	McCray Street from Merle Haggard Drive to China Grade Loop - 1 miles - Class II	
	Bakersfield	Landco Drive from Calloway Canal to Rosedale Highway - 0.7 miles - Class II	
	Bakersfield	Kratzmeyer Road from Santa Fe Way to Enos Lane - 4.5 miles - Class II	
	Bakersfield	Knudsen Drive from Norris Road to Hageman Road - 0.9 miles - Class II	
	Bakersfield	Hageman Road from Wegis Avenue to Nord Road - 0.5 miles - Class II	
	Bakersfield	Flower Street from Owens Street to Mt Vernon Avenue - 1 miles - Class II	
	Bakersfield	Enos Lane from Beech Avenue to Panama Lane - 11.3 miles - Class II	
	Bakersfield	Decatur Street from Airport Drive to Sequoia Drive - 0.3 miles - Class II	
	Bakersfield	Day Avenue from N Chester Avenue to Manor Street - 0.5 miles - Class II	
	Bakersfield	Comanche Drive from E Panama Lane to Varsity Avenue - 5.5 miles - Class II	
	Bakersfield	Buena Vista Blvd from S Union Avenue to S Comanche Drive - 9.1 miles - Class II	

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PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Non-motorized			
Project	Location	Scope	YOE Cost
	Bakersfield	Brimhall Road from Enos Lane to Superior Road - 1 miles - Class II	
	Bakersfield	Brimhall Road from Wegis Avenue to Rudd Avenue - 1 miles - Class II	
	Bakersfield	Brae Burn Drive from Country Club Drive to College Avenue - 0.6 miles - Class II	
	Bakersfield	Beech Avenue from E Los Angeles to Enos Lane - 2.3 miles - Class II	
	Bakersfield	Airport Drive from China Grade Loop to Roberts Lane - 1.3 miles - Class II	
	Bakersfield	Olive Drive from Victor Street to SR 99 - 0.3 miles - Class III	
	Bakersfield	N Chester Avenue from Existing Bike Route to Merle Haggard Drive - 0.3 miles - Class III	
	Bakersfield	Rosedale Hwy from Enos Lane to Mohawk Street - 10.9 miles - Caltrans Shoulder	
	Bakersfield	Woodrow Ave from Roberts Lane to N Chester Ave - 1.8 miles - Neighborhood Green Streets	
	Bakersfield	Wilson Avenue - Castaic Ave from Roberts Lane to North Chester Avenue - 1.9 miles - Neighborhood Green Streets	
	Bakersfield	Valencia Drive from College Ave to Pioneer Drive - 1 miles - Neighborhood Green Streets	
	Bakersfield	Shalimar Drive from Niles Street to Pioneer Drive - 0.5 miles - Neighborhood Green Streets	
	Bakersfield	Pesante Road from Cul-de-sac to Pioneer Drive - 1 miles - Neighborhood Green Streets	
	Bakersfield	Jeffrey Street from Union Ave to River Blvd - 0.2 miles - Neighborhood Green Streets	
	Bakersfield	Jeffrey Street from Loma Linda Drive to River Blvd - 0.7 miles - Neighborhood Green Streets	
	Bakersfield	Height Street from River Blvd to Haley Street - 0.5 miles - Neighborhood Green Streets	
	Bakersfield	Decatur Street from Sequoia Drive to Chester Ave - 0.8 miles - Neighborhood Green Streets	
	Bakersfield	Country Club Drive - Horace Mann Ave- Pentz St from College Ave to Center St - 0.8 miles - Neighborhood Green Streets	
	Bakersfield	Center Street/Rosewood Avenuenue from Shalimar Drive to Monica Street - 1.8 miles - Neighborhood Green Streets	
	Bakersfield	Center Street from Oswell Steet to Pesante Road - 0.8 miles - Neighborhood Green Streets	
	Bakersfield	Tupman Path from Enos Lane to Moose Street - 5.6 miles	
	Bakersfield	Stine Canal from Stockdale Hwy to Belle Terrace - 0.5 miles - Other	
	Bakersfield	Lake Evans Loop from Lake Evans to Lake Evans - 2.7 miles - Other	
	Bakersfield	Enos Lane Path from Panama Lane to Buena Vista Rec Area Loop - 4.5 miles - Other	
	Bakersfield	East Side Canal from Kentucky Street to Fairfax Road - 2.7 miles - Other	
	Bakersfield	East Side Canal from E Brundage Lane to Panama Road - 7.9 miles - Other	
	Bakersfield	East Branch Canal from Belle Terrace to Casa Loma Drive - 0.7 miles - Other	
	Bakersfield	Cumberland Road from Bear Valley Road to Bear Valley Springs - 3.6 miles - Other	
	Bakersfield	Central Branch Canal from Ming Avenue to Union Avenue - 1.3 miles - Other	
	Bakersfield	Central Branch Canal from E Pacheco Road to Buckley Avenue - 0.8 miles - Other	
	Bakersfield	Central Branch Canal from E Panama Lane to Berkshire Road - 0.5 miles - Other	
	Bakersfield	Callow ay Canal from Coffee Road to Hwy 99 - 3.8 miles - Other	
	Bakersfield	Buena Vista Rec Area Loop from Lake Buena Vista to Lake Buena Vista - 7.7 miles - Other	
	Bakersfield	Beardsley Canal from Fruitvale Avenue to Manor Street - 4 miles - Other	

PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Non-motorized (Continued)			
Project	Location	Scope	YOE Cost
	Bakersfield	Arvin-Edison Canal from S Oswell Street to Marion Avenue - 1.5 miles - Other	
	Bakersfield	Arvin-Edison Canal from Central Branch Canal to Mount Vernon Avenue - 1.3 miles - Other	
	Bakersfield	Lake Ming Loop from Kern River Parkway to Campground Road - 2.6 miles - Class I	
	Bakersfield	Airport Drive from Manor Street to W China Grade Loop - 1 miles - Class II	
	Bakersfield	Unknown Bike Path from Knudsen Drive to SR 99 - 0.7 miles - Class I	
	Bakersfield	Unknown Bike Path from Arrow Street to May Street - 0.6 miles - Class I	
	Bakersfield	Unknown Bike Path from Beardsley Avenue to Kern River Parkway - 0.5 miles - Class I	
	Bakersfield	Weedpatch Hwy from SR 58 East Hwy to Panama Road - 6 miles - Class II	
	Bakersfield	Taft Hwy from Heath Road Extension to Buena Vista Road - 3 miles - Class II	
	Bakersfield	Standard Street from Rio Mirador Drive to Gilmore Avenue - 1.1 miles - Class II	
	Bakersfield	Panama Road from Buena Vista Road to Weedpatch Hwy - 12.1 miles - Class II	
	Bakersfield	Muller Road from Weedpatch Hwy to S Comanche Drive - 4 miles - Class II	
	Bakersfield	Gilmore Avenue from Mohawk Street to Standard Street - 1 miles - Class II	
	Bakersfield	Fairfax Road from E Brundage Lane to Panama Road - 6 miles - Class II	
	Bakersfield	Edison Hwy from Washington Street to S Comanche Drive - 7.8 miles - Class II	
	Bakersfield	E Panama Lane from Cottonwood Road to S Comanche Drive - 8.1 miles - Class II	
	Bakersfield	E Norris Road from Roberts Lane to N Chester Avenue - 2.1 miles - Class II	
	Bakersfield	Cottonwood Road from E Panama Lane to Panama Road - 2 miles - Class II	
	Bear Valley	Bear Valley Road from Cumberland Road to Hwy 202 - 6.8 miles - Other	
	County	Kern River Parkway from Western end of Path to Lake Buena Vista - 2.9 miles - Class I	
	County	Sierra Hwy from Rosamond Blvd to LA County Line - 3 miles - Class II	
	County	Rosamond Blvd from 60th Street to Sierra Hwy - 4.2 miles - Class II	
	County	Kiddyland Drive from River Crossing to Alfred Harrel Hwy - 0.3 miles - Class II	
	County	SR 178 from SR 14 to Sierra Hwy - 32.3 miles - Caltrans Shoulder	
	County	SR 178 from Bakersfield City Limits to Kern River Valley - 26.4 miles - Caltrans Shoulder	
	County	SR 14 from SR 178 to Mojave - 46.6 miles - Caltrans Shoulder	
	County	202 Hwy from Tehachapi Blvd to Bear Valley Road - 5.7 miles - Caltrans Shoulder	
	Delano	Lake Woollomes Loop from Lake Woollomes to Lake Woollomes - 5.3 miles - Class I	
	Delano	Stradley Avenue from SR 155 to Sherwood Avenue - 6 miles - Class II	
	Delano	Pond Road from Benner Avenue to Stradley Avenue - 3 miles - Class II	
	Delano	Mast Avenue from Garces Hwy to Airport Avenue - 1 miles - Class II	
	Delano	Airport Avenue from Mast Avenue to Proposed Woollomes - 2.7 miles - Class II	
	Golden Hills	Woodford Tehachapi Road from Valley Blvd to Highline Road - 1 miles - Class II	
	Golden Hills	Valley Blvd from Tucker Road to Woodford Tehachapi Road - 1.5 miles - Class II	

PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Non-motorized (Continued)			
Project	Location	Scope	YOE Cost
	Golden Hills	SR 202 from Bear Valley Road to Woodford Tehachapi Road - 5.7 miles - Class II	
	Golden Hills	Pellisier Road from Banducci Road to Giraudo Road - 2 miles - Class II	
	Golden Hills	Old Town Road from Mariposa Road to Tehachapi Road - 0.7 miles - Class II	
	Golden Hills	Highline Road from Tucker Road to Banducci Road - 3.1 miles - Class II	
	Golden Hills	Golden Hills Blvd. from Santa Barbara Drive to Highline Road - 1.1 miles - Class II	
	Golden Hills	Giraudo Road from Pellisier Road to Bailey Road - 0.5 miles - Class II	
	Golden Hills	Cummings Valley Road from Bailey Road to Bear Valley Road - 1 miles - Class II	
	Golden Hills	Cummings Valley Road from Bailey Road to SR 202 - 0.4 miles - Class II	
	Golden Hills	Bear Valley Road from SR 202 to Proposed Road - 1.5 miles - Class II	
	Golden Hills	Banducci Road from SR 202 to Highline Road - 0.2 miles - Class II	
	Golden Hills	Banducci Road from Comanche Point Road to Pellisier Road - 2.5 miles - Class II	
	Golden Hills	Bailey Road from Giraudo Road to Cummings Valley Road - 1.5 miles - Class II	
	Golden Hills	Stallion Springs Road/Comanche Point Road from Banducci Road to Banducci Road - 3.1 miles - Other	
	Indian Wells	Brown Road from SR 14 to US 395 - 20 miles - Class III Signage Only	
	Indian Wells	Brown Road from US 395 Northern Overpass to US 395 Southern Overpass - 0.3 miles - Class III Signage Only	
	Indian Wells	Athel Avenue from Us 395 to Brown Road - 2.6 miles - Class III Signage Only	
	Indian Wells	US 395 from Brown Road to China Lake Blvd. - 10.1 miles - Caltrans Shoulder	
	Indian Wells	US 395 from Brown Road to Inyo County Line - 10.4 miles - Caltrans Shoulder	
	Indian Wells	SR 14 from Athel Avenue to SR 178 - 5.9 miles - Caltrans Shoulder	
	Indian Wells	SR 14 from US 395 to Athel Avenue - 1 miles - Caltrans Shoulder	
	Indian Wells	Brown Road from US 395 to Ridgecrest Blvd. - 8.2 miles - Pave Shoulder	
	Indian Wells	Brown Road from Athel Avenue to US 395 - 7.8 miles - Pave Shoulder	
	Indian Wells	Brown Road from US 395 Northern Overpass to US 395 Southern Overpass - 0.3 miles - Pave Shoulder	
	Indian Wells	Inyokern Road from SR 178 Ridgecrest City Limits to SR 14 - 9.2 miles - Other	
	Inyokern	Broadway from Orchard Avenue to Plains Avenue - 0.5 miles - Class II	
	Kern River	Lake Isabella Blvd from Nugget Ave to Erskine Creek Road - 2.2 miles - Class II	
	Kern River	Kelso Valley Road from SR 178 to Adams Drive - 1.8 miles - Class II	
	Kern River	Kelso Valley Rd / Kelso Valley Creek Road from SR 178 to Loops Back to SR 178 - 9.7 miles - Class III	
	Kern River	SR 178 from Kelsy Valley Creek Road to Kelso Valley Road - 1.2 miles - Caltrans Shoulder	
	Kern River	Lake Isabella Loop from Loop to - 30.1 miles - Other	
	Kernville	Kern River/Lake from Riverside Park to Wofford Heights Park - 4.3 miles - Class I	
	Kernville	Sierra Way from Valley View Drive to Cyrus Canyon Road - 2.2 miles - Class III	
	Kernville	Sirretta Street from Burlando Road to Existing Class II - 1 miles - Neighborhood Green Streets	

PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Non-motorized (Continued)			
Project	Location	Scope	YOE Cost
	Kernville	Burlando Road from Rio Del Loma/Whiskey Flat to Kernville Road - 2.1 miles - Neighborhood Green Streets	
	Kernville	Burlando Road from Kernville to Wofford Heights - 3 miles - Class I	
	Lake Isabella	Wofford Road Lake Isabella 2 2.0 from Burlando Road to SR 155 - 2 miles - Class II	
	Lake Isabella	McCray Road from SR 178 to Dogwood Road - 0.4 miles - Class II	
	Lake Isabella	Erskine Creek Road from Lake Isabella Blvd to Pasadena Lane - 1.4 miles - Class II	
	Lake Isabella	Bodfish Canyon Road from Lake Isabella Blvd to End of Road - 2.9 miles - Class II	
	Lake Isabella	Sierra Way from Kernville Airport to SR 178 - 11.2 miles - Class III	
	Lake Isabella	Hwy 155 from Wofford Road to Lake Isabella Blvd - 5.5 miles - Class III	
	Lake Isabella	SR 178 from SR 155 to Sierra Way - 11.4 miles - Caltrans Shoulder	
	Lake Isabella	SR 178 from Mobile Drive to Poplar Street - 0.8 miles - Caltrans Shoulder	
	Lake Isabella	Lynch Canyon Drive from SR 178 to Poplar Street - 0.7 miles - Neighborhood Green Streets	
	McFarland	Sherwood Avenue from Stradley Avenue to S Garzoli Avenue - 1 miles - Class II	
	McFarland	Perkins Avenue from Stradley Avenue to S Garzoli Avenue - 1 miles - Class II	
	Mojave	Sierra Hwy from Oak Creek Road to Purdy Avenue - 2.4 miles - Class I	
	Mojave	Rosewood Blvd from Kyle Street to 5th Street - 5 miles - Class II	
	Mojave	Purdy Ave from 45th Street to Town Limits - 6.8 miles - Class II	
	Mojave	Oak Creek Road from 45th Street to K Street - 2.3 miles - Class II	
	Mojave	O Street from Inyo Street to Park Street - 0.4 miles - Class II	
	Mojave	Kock Street from Arroyo Avenue to Purdy Avenue - 3.1 miles - Class II	
	Mojave	K Street from Oak Creek Road to Inyo Street` - 0.5 miles - Class II	
	Mojave	Inyo Street from K Street to O Street - 0.3 miles - Class II	
	Mojave	Holt Street from Arroyo Avenue to Purdy Avenue - 3 miles - Class II	
	Mojave	Denise Avenue from 5th Street to Town Limits - 1.5 miles - Class II	
	Mojave	Camelot Blvd from 45th Street to Holt Street - 1.6 miles - Class II	
	Mojave	Butte Avenue from 5th Street to Town Limits - 1.5 miles - Class II	
	Mojave	Arroyo Avenue from 5th Street to Town Limits - 1.5 miles - Class II	
	Mojave	Arroyo Avenue from 45th Street to SR 58 - 1.9 miles - Class II	
	Mojave	5th Street from Rosewood Blvd to Purdy Avenue - 5.1 miles - Class II	
	Mojave	40th Street from Arroyo Avenue to Purdy Avenue - 3.1 miles - Class II	
	Mojave	Sierra Hwy from Rosamond Blvd to Silver Queen Road - 9.3 miles - Class III	
	Mojave	SR 58 from SR 14 (Sierra Hwy) to 5th Street - 2.9 miles - Caltrans Shoulder	
	Ridgecrest	Javis Avenue Parkway from China Lake Blvd to S Downs St Parkway - 1.2 miles - Class I	
	Ridgecrest	Indian Wells Valley Parkway Trail from N Jacks Rancho Road to N Jacks Rancho Road - 12.6 miles - Class I	
	Ridgecrest	Bowman Road from Jacks Ranch Road to Brady Street - 1 miles - Class I	

PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Non-motorized (Continued)			
Project	Location	Scope	YOE Cost
	Ridgecrest	Springer Avenue from College Heights Blvd to Gatew ay Blvd - 1 miles - Class II	
	Ridgecrest	Springer Avenue from S Dow ns Street to Norma St Parkw ay - 0.5 miles - Class II	
	Ridgecrest	Springer Ave from Jacks Ranch Road to Brady Street - 1 miles - Class II	
	Ridgecrest	S Dow ns Street from S China Lake Blvd to E Javis Ave - 1.1 miles - Class II	
	Ridgecrest	Javis Ave from South China Lake Blvd to Norma St Parkw ay - 1.8 miles - Class II	
	Ridgecrest	Jacks Ranch Road from Ridgecrest Blvd to Springer Avenue - 2 miles - Class II	
	Ridgecrest	Drummond Avenue from Jacks Ranch Road to Dow ns Street - 1 miles - Class II	
	Ridgecrest	Brady Street from Inyokern Road (SR 178) to South China Lake Blvd - 4.7 miles - Class II	
	Ridgecrest	E Dolphin Avenue from Gatew ay Blvd to Lumill Street - 0.5 miles - Class III	
	Ridgecrest	E Belle Vista Parkw ay from Gatew ay Blvd to Summit Street - 0.4 miles - Class III	
	Ridgecrest	US 395 from China Lake Blvd to San Bernardino Cty Line - 14 miles - Caltrans Shoulder	
	Shafter	Shafter Avenue from Sierra Avenue (Shafter) to Kimberlina Road - 3.3 miles - Class II	
	Shafter	Riverside Street from Central Valley Hw y to Driver Road - 2.6 miles - Class II	
	Shafter	Riverside Street from Poplar Avenue to Charry Avenue - 2.5 miles - Class II	
	Shafter	Poplar Avenue from Fresno Avenue to Riverside Street - 2 miles - Class II	
	Shafter	Palm Avenue from Kimberlina Road to Fresno Avenue - 3 miles - Class II	
	Shafter	Palm Avenue from Lupine Court to Kimberlina Road - 1.5 miles - Class II	
	Shafter	Magnolia Avenue from McCombs Road to Kimbelina Road - 4 miles - Class II	
	Shafter	Kimberlina Road from Magnolia Avenue to Shafter Avenue - 5.1 miles - Class II	
	Shafter	Fresno Avenue from Palm Avenue to Shafter Avenue - 4.1 miles - Class II	
	Shafter	Central Avenue from Filburn Avenue to Kimberlina Road - 1.5 miles - Class II	
	Shafter	S H Street from Taff Hw y to Shafter Road - 3.2 miles - Class II	
	Taft	Weedpatch Hw y from Di Giorgio Road to E Bear Mountain Blvd - 3 miles - Class II	
	Taft	Pico Street from S 6th Street to Asher Way - 0.1 miles - Class II	
	Taft	Olive Avenue from Supply Row to Wood Street - 0.3 miles - Class II	
	Taft	Harding Avenue from A Street to E Street - 0.2 miles - Class II	
	Taft	Grevillea Street from Division Road to Harrison Street - 0.5 miles - Class II	
	Taft	General Petroleum from 2nd Street to Wood Street - 0.4 miles - Class II	
	Taft	Elm Street from Division Road to Harrison Street - 0.5 miles - Class II	
	Taft	E Street from Harding Avenue to 10th Street - 0.6 miles - Class II	
	Taft	E Ash Street from Adams Street to Airport Road - 0.9 miles - Class II	
	Taft	Division Road from Grevillea Street to Ash Street - 0.7 miles - Class II	
	Taft	Cedar Street from Harrison Street to Airport Road - 1.6 miles - Class II	
	Taft	Cedar Street from Division Road to Tyler Street - 0.4 miles - Class II	

PROJECT LISTING - TABLE 5-1. CONSTRAINED PROGRAM OF PROJECTS CONTINUED

2014 through 2040 - Non-motorized (Continued)					
	Taft	Asher Avenue from Supply Row to South Street - 0.5 miles - Class II			
	Taft	Ash Street from Emmons Park to Harrison Street - 0.2 miles - Class II			
	Taft	A Street from Arroyo Drive to Hilard Street - 0.3 miles - Class II			
	Taft	Taft Path from Kern River Parkway to Gardner Field Road - 10.6 miles - Other			
	Taft	Gardner Field Road from County to Aqueduct - 1.5 miles - Other			
	Tehachapi	White Pine Drive from Tehachapi Blvd to Mariposa Road - 0.4 miles - Class II			
	Tejon	Castac Lake from Loop to - 7.4 miles - Other			
	Tupman	Tule Elk Reserve Path from Tupman Path to Tule Elk Reserve State Park - 1.3 miles - Other			
	County	Garlock Road from Redrock-Randsburg Road to US 395 - 18 miles - Class III			
	Wasco	Hwy 46 from Gun Club Road to Magnolia Ave - 8 miles - Caltrans Shoulder			
Various locations	Countywide	Construct Pedestrian Enhancement Improvements	77,500,000		
Various locations	Countywide	Construct Complete Streets Improvements	261,000,000		
		Sub-total	**$424,000,000**		
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) Sub-total	**$141,700,000**		
2014 through 2020 - Major Highway Improvements					
Project	Location		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	2014
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	2016
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
		Sub-total	**$899,000,000**		

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 / Inyokern 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	Union Ave 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
		Sub-total	**$568,793,000**		
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	Near Oswell St 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
		Sub-total	**$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 (HOV - ramp metering)	$32,600,000	KER08RTP103	2033
Route 99	Bakersfield	Beardsley Canal 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 (HOV - 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 (HOV - ramp metering)	50,000,000	KER08RTP085	2033
Route 178	Bakersfield	At various locations - ramp improvements (HOV - ramp metering)	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
		Sub-total	**$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
		Sub-total	**$48,000,000**		
		Total Major Highway Improvements	$2,564,186,000		

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 w idening; reconstruction	$540,000,000		
Various Locations	Metro Bkfd	Signalization	15,000,000		
Various Locations	Rosamond	Street w idening; signalization	112,000,000		
Various Locations	Countyw ide	Transportation Control Measures	386,000,000		
Various Locations	Countyw ide	Bridge and street w idening; reconstruction; signalization	632,000,000		
		Sub-total	**$1,685,000,000**		

* Note: Adjustments to programming w ere made regarding the overlap of HOV related improvements listed separately from regionally significant highw ay improvements.

2014 through 2040 - Summary of Constrained Projects

Program Category	Totals
Transit / Rail / High Speed Rail	**1,974,200,000**
Operational Improvements - HOV Lanes / Ramp Metering	**297,000,000**
Pedestrian Complete Streets and Bicycle Improvements	**424,000,000**
Local Streets and Roads	**1,685,000,000**
Major Highway Improvements 2014-2020	**$899,000,000**
Major Highway Improvements 2021-2040*	**1,793,286,000**
Freight Rail	**141,700,000**
Grand Total	**$7,214,186,000**

FIGURE 5-2 FINANCIALLY UNCONSTRAINED PROJECTS (BEYOND 2040) [REVISE MAP]

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

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS

Beyond 2040 - Transit		
Project	Location	Scope	YOE Capital Cost
Local Passenger Rail	Shafter, Bakersfield	Amtrak San Joaquins stop in North/West Bakersfield - platform, track turnout , park&ride, ticket both, RoW (2012 Commuter Rail Study)	$5,000,000
Local Passenger Rail	Delano, Shafter, Bakersfield	Up to 4 Amtrak San Joaquins stops on BNSF - platform, track turnout , park&ride, ticket both, RoW (2012 Commuter Rail Study)	$20,000,000
Local Passenger Rail	Wasco, Bakersfield	Positive Train Control Port Chicago - Bakersfield (Draft 2012 State Rail Plan)	$24,000,000
Local Passenger Rail	Shafter, NW Bakersfield	Double Track BNSF Jastro/Landco to Shafter (Draft 2012 State Rail Plan)	$71,300,000
Local Passenger Rail	Shafter, Wasco	Double Track BNSF Shafter to Wasco (Draft 2012 State Rail Plan)	$37,000,000
Local Passenger Rail	NW Bakersfield	Jastro Curve Realignment (Draft 2012 State Rail Plan)	$50,000,000
Local Passenger Rail	Wasco, Bakersfield	Corridor Wide Signal Upgrades to 90 MPH - Oakland to Bakersfield (Draft 2012 State Rail Plan)	$55,000,000
Local Passenger Rail	Wasco, County	Double Track BNSF Wasco to Corcoran (Draft 2012 State Rail Plan)	$200,000,000
Commuter Rail	Buttonw illow , SW Bakersfield	Metro/Southw est Corridor (2012 Commuter Rail Study)	$158,300,000
Commuter Rail	Arvin, Lamont, SE Bakersfield	Metro/Southeast Corridor (2012 Commuter Rail Study)	$162,400,000
Commuter Rail	Wasco, Shafter, NW Bakersfield	Metro/Northw est Corridor (2012 Commuter Rail Study)	$220,600,000
Commuter Rail	Mojave, Cal City, Tehachapi	Metrolink Service Extension - Tehachapi Corridor (2012 Commuter Rail Study)	$231,300,000
Commuter Rail	Delano, McFarland	Metro/Airport, Delano Corridor (2012 Commuter Rail Study)	$317,800,000
Local Passenger Rail	Eastern California	Mammoth Lakes to Lancaster/Palmdale (2005 E. Sierra Public Transit Study)	$3,335,000,000
Light Rail	Bakersfield	Metropolitan Bakersfield Light Rail System (2012 Long Range Transit Plan)	$4,000,000,000
High Speed Rail	Kern, L.A. County	Northw est of Bakersfield to Palmdale (potential *early* initial operating segment from Madera to Palmdale Metrolink Service)	$20,000,000,000
		Sub-total	**$28,887,700,000**

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS CONTINUED

Beyond 2040 - Freight rail				
Project	Location	Scope	YOE Cost	Project ID
Intermodal hub	Delano	RailEX Expansion Phase 2 (Draft SJV Interregional Goods Movement Plan IGM)		
Intermodal hub	Shafter	Shafter Inland Port Phases 2 & 3 (Draft SJV IGMP)	$60,000,000	
shortline rail	Delano, Shafter, McFarland	Shortline Rail Rehabilitation and Gap Closure (Draft SJV IGMP)		
shortline rail	Bakersfield	SJVR - Expand Bakersfield Yard Capacity (Draft SJV IGMP)		
shortline rail	Arvin, Buttonwillow	SJVR - Shortline Rail Improvments (Draft SJV IGMP)		
shortline rail	Mojave	Mojave - Airport Rail Access Improvements (Draft SJV IGMP)		
		Sub-total	**$60,000,000**	
Beyond 2040 - Active Transportation				
Project		Scope	YOE Cost	Project ID
Future long-range non-motorized updates for bicycle and pedestrian related infrastructure may indicate a greater need for capital improvements. During the life of this plan, current expectations may be met as outlined in recent long-range bike and pedestrian studies and reflected in Table 5.1. Should these expectations change in the future this plan will be updated.				
		Sub-total	**$0**	

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS CONTINUED

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	
	Sub-total	**$44,678,000**	

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS CONTINUED

Major Highway Improvements				
Project	Location	Scope	YOE Cost	Project ID
Beyond 2040 - Major Highway Improvements				
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 freew	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 ran	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 lane	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

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS CONTINUED

Major Highway Improvements				
Project	Location	Scope	YOE Cost	Project ID
Beyond 2040 - Major Highway Improvements				
South Beltway	Bakersfield	I-5 to Rt 58 - new expressway	$610,000,000	KER08RTP074
Santa Fe Way	Bakersfield	Hageman to Los Angeles Ave - widen to four lanes	127,238,885	KER08RTP051
East Beltway	Bakersfield	Rt 58 to Morning Drive - construct new expressway	200,000,000	KER08RTP078
Beale Road	Bakersfield	L St/Beale @ BNSF - construct grade separation	69,000,000	KER08RTP127
Q Street	Bakersfield	Q St @ UPRR near Golden State Hwy - construct grade separation	59,000,000	KER08RTP136
Comanche Drive	Cnty/Bkfd	Comanche Dr. @ UPRR - construct grade separation	59,000,000	KER08RTP123
Olive Drive	County/Bkfd	Olive Dr. @ UPRR - construct grade separation	69,000,000	KER08RTP129
Renfro Road	County/Bkfd	Renfro Rd @ BNSF - construct grade separation	59,000,000	KER08RTP130
California City Blvd	California City	Rt 14 east six miles - widen to four lanes	22,000,000	KER08RTP052
Twenty Mule Team Rd	California City	California City Blvd to Rt 58 - widen to four lanes	21,565,913	KER08RTP053
North Gate Road	California City	California City Blvd to North Edwards - construct new four lane road	60,384,555	KER08RTP054
Woollomes Ave.	Delano	Rt 99 - widen bridge to four lanes; reconstruct ramps	134,000,000	KER08RTP056
Garces Highway	Delano	Interstate 5 to Rt 99 - widen to four lanes	288,983,230	KER08RTP057
Cecil Ave.	Delano	Wasco Pond Rd to Albany St - widen to four lanes	17,800,000	KER08RTP055
Kimberlina Road	Kern / Wasco	Kimberlina Rd @ BNSF - construct grade separation	59,000,000	KER08RTP132
Red Apple Rd	Kern	Tucker Rd to Westwood Blvd - widen to four lanes	4,313,183	KER08RTP058
Sierra Way	Kern	Lake Isabella at South Fork Bridge - reconstruct bridge	51,758,190	KER08RTP059
Frazier Park	Kern	Park and Ride facility near Frazier Park Blvd	12,939,548	KER08RTP060
Wheeler Ridge Rd	Kern	I-5 to Rt 223 - widen to four lanes	129,395,476	KER08RTP061
K Street	Kern	Mojave - extend K St to Rt 14	12,939,548	KER08RTP063
Kratzmeyer Road	Kern	Kratzmeyer Rd @ BNSF - construct grade separation	59,000,000	KER08RTP128
Airport Drive	Kern	Airport Dr. @ UPRR - construct grade separation	69,000,000	KER08RTP131
Rosamond Blvd	Kern	Rosamond Blvd @ UPRR - construct grade separation	69,000,000	KER08RTP133
K Street	Kern / Mojave	K St @ UPRR - construct grade separation	69,000,000	KER08RTP135
Elmo Highway	McFarland	Elmo Hwy @ UPRR - construct grade separation	69,000,000	KER08RTP124
Dennison Road	Tehachapi	Green St/ Dennison Rd @ UPRR - construct grade separation	69,000,000	KER08RTP121
Teh. Willow Springs Rd	Tehachapi	Rt 58 to Rosamond Blvd - widen to four lanes	150,961,389	KER08RTP064
Valley Blvd	Tehachapi	Tucker Rd to Curry St - widen to four lanes	23,722,504	KER08RTP065
Kern Ave.	McFarland	Pedestrian bridge at Rt 99 - reconstruct	5,391,470	KER08RTP066
Mahan St	Ridgecrest	Inyokern to South China Lake Blvd - widen to four lanes	32,348,869	KER08RTP067
Richmond Rd	Ridgecrest	E Ridgecrest Blvd - widen to four lanes	6,469,774	KER08RTP068
Bowman Rd	Ridgecrest	China Lake to San Bernardino Blvd - reconstruct	4,313,183	KER08RTP069

TABLE 5.2 - UNCONSTRAINED PROGRAM OF PROJECTS CONTINUED

Major Highway Improvements

Project	Location	Scope	YOE Cost	Project ID
Beyond 2040 - Major Highway Improvements				
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
		Sub-total	**$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	
		Sub-total	**$500,000,000**	

Beyond 2040 - Summary of Unconstrained Projects

Program Category	Totals
Major Highway Improvements	**$6,179,200,961**
Local Streets and Roads	**500,000,000**
Transit	**28,887,700,000**
Active Transportation	**0**
Aviation	**44,678,000**
Grand Total	**$35,611,578,961**

FREIGHT MOVEMENT ACTION ELEMENT

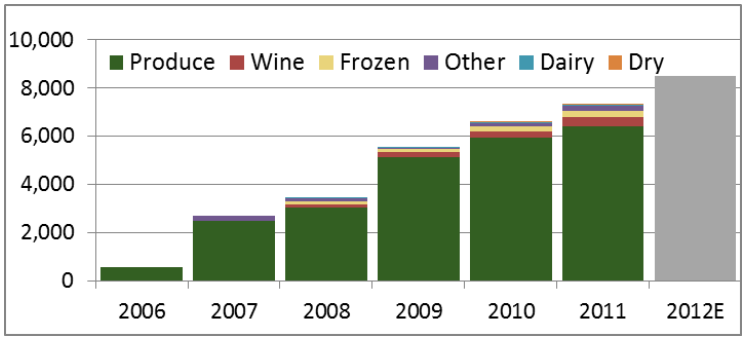
See the Land Use Action Element – Highway/Road Land Use Actions, Land Use Action Element – Rail/Transit Land Use Actions, Land Use Action Element – Global Gateways Land Use Actions, Land Use Action Element for freight movement proposed actions. See Chapter 4, Sustainable Communities Strategy, for further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

Efficient freight transportation is critical to the economic health of the Kern region. As one of the prime agricultural regions in the nation, the intra-county road linkage of goods to processing plants, and the intercounty linkage of goods to other regions, manufacturers, and shipping ports is essential. 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.

Figure 5-3 Delano RailEx – Rail Gateway for California's Produce via Union Pacific/CSX to the East Coast

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.

Figure 5-4 Delano RailEx Ships 8,000 Rail Cars Per Year (CPY) Eliminating 20,000 Long Haul Truck Trips Per Year



Existing System

Rail

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

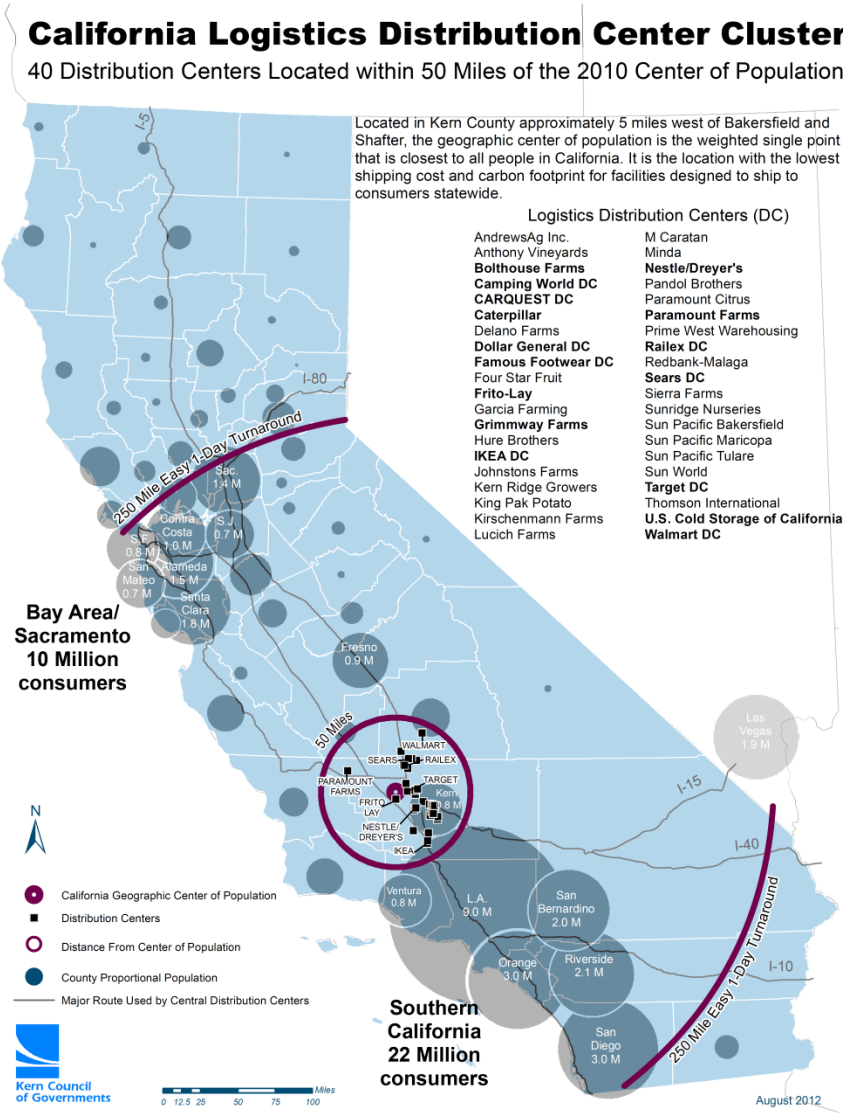
Two major rail companies, Union Pacific (UP) and Burlington Northern Santa Fe (BNSF), serve Kern County. UP representatives report that they operate an average of 19 trains per day through the San Joaquin Valley carrying food products, general freight, grain, and lumber. UP and CSX Transportation have teamed with RailEx, a refrigerated railcar and warehousing service, to offer perishable goods transportation from the San Joaquin Valley to New York. RailEx unit trains from Delano transport over $500 Million annually of product from California's growers that might otherwise have been shipped by truck, or worse, result in reduced exports and lost income/jobs to California.

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

Most cargoes shipped by rail to and from Kern are bulk items such as grains, food products, and oil products. Rail transport provides the option of specialized rail cars such as flatbeds, refrigerated boxcars, fuel tankers, and piggyback cars. These specialized rail cars allow 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. With the planned Tehachapi Pass capacity improvement project jointly funded by the State of California and the BNSF, the current 35 trains that pass through the summit daily, are forecasted to increase to 50 trains per day over the next five years

Figure 5-5



Inland Port and Intermodal Rail Facilities

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

In the 1980s, railroads consolidated their intermodal service networks into fewer, larger hubs. Railroads saw an opportunity to consolidate facilities through mergers, and a need to consolidate sufficient volume in one location to justify lift machines. The forecasted 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 2006, 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 are 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.

FIGURE 5-6 TRUCK & RAIL DISTRIBUTION CENTER IN KERN

The Shafter Intermodal Rail Facility (SIRF) is owned and operated by the City of Shafter, and is currently servicing 1,500 rail cars per year. In 2013 the city will complete a $3 million expansion funded with Congestion Mitigation and Air Quality funds that will enable the facility to handle two full length unit trains via a rail shuttle service between Shafter and the ports. The facility services the Paramount Industrial Park which includes major retail distribution centers for Target and Ross. Expansion plans include establishing a grain transload facility that would bag and load into shipping containers, bulk grain shipments from the Midwest. The containerized unit trains could include additional products from the region ranging from almonds to specialized oilfield equipment. Two key elements for the success of an inland port are 1) sufficient distance to warrant the cost of loading and unloading trains, and 2) a supply of empty containers nearby. SIRF is ideally located approximately 300 miles by rail from both the Port of Oakland and the Ports of L.A./Long Beach, and has a ready supply of empty shipping containers collecting at 40 distribuiton centers within 50 miles of the facility.

An inland port would serve as a cargo facilitation center, where a number of import, export, manufacturing, packing, warehousing, forwarding, customs, and other activities (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. A major issue regarding the rail facility is the need for rail shuttle service to the ports.

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.

The City of Delano has worked closely with RailEx to expand the existing rail spurs at that facility. The resulting capacity increase could allow shipments to and from this facility to double to nearly $1 billion in gross shipments annually, further benefiting air quality and job creation.

Tejon Ranch is considering extending a rail service to the distribution centers on I-5 at the base of the Grapevine. The Tejon Ranch Commerce Center (TRCC) is the site of the largest activated Foreign Trade Zone (FTZ) in California at 177 acres and has the ability to expand to 500 acres. FTZ's are sites near ports of entry where foreign and domestic merchandise considered international trade can provide important cost-savings benefits involving customs duties and other charges. Users can obtain permission from customs to move merchandise directly from the port of arrival to the FTZ avoiding delays at

congested ports. SIRF, RailEx and TRCC are strategically located proximate to major transportation routes serving both Northern and Southern California as well as the regions to the east.

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

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

Trucks

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

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). [Placeholder: Update with 2013 SJV Goods Movment Plan] 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. An ever increasing array of federal, state, and air district regulations on truck emissions are continuing to improve this situation. At the Ports of L.A./Long Beach alternative fuels and electric trucks are greatly improving this situation.

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.

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. Southern California Edison (SCE) and Pacific Gas and Electric Company (PG&E) are responsible for the maintenance and operation of the natural gas line, while major petroleum corporations are responsible for the crude oil pipelines throughout the region. State and federal agencies regulate the use of pipelines.

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.

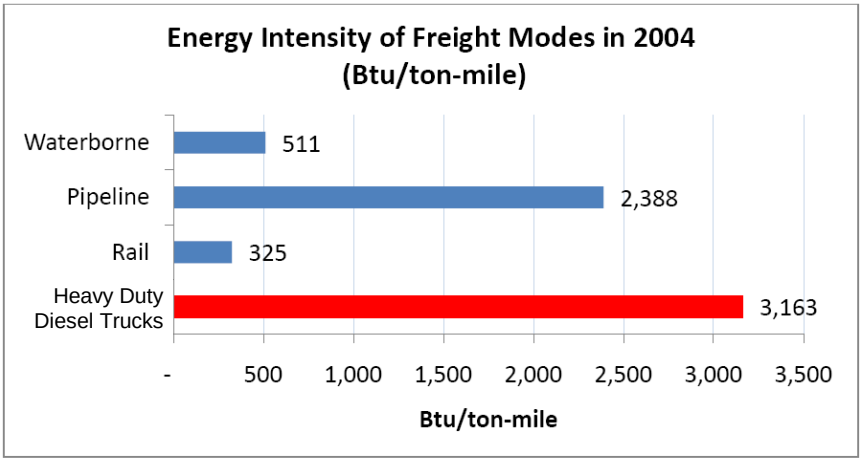
Needs and Issues

Agriculture, food processing, energy production, and refining provide a stable base to the economy of Kern County and are dependent on the goods movement infrastructure. Population and economic growth pressures have resulted 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.

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 5-7 ENERGY EFFICIENCY BY TRANSPORT MODES



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

Figure 5-7 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.

Short Haul Rail Abandonment Issue

In 2010, Kern COG hired Wilbur Smith Associates to conduct the Phase 1 Kern County Rail Study, followed by the Phase 2 Study completed in the summer of 2012. The studies stemmed from a growing concern about the abandonment of short-haul rail lines. During the 1990s, the Eastern Sierra/Lone Pine subdivision connecting the rail spur with China Lake Naval Air 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 segment of the old SP line in Tulare County from the Kern county line, several miles east of Delano, to Porterville.

The Central California Rail Shippers/Receivers Association has concerns that similar abandonments in Kern might happen for two reasons: (1) increasing tariffs and fees by the rail providers, (2) lack of use by business along the route. Lack of use may be partially caused by high railroad tariffs and fees that make it cheaper to ship by truck, or price transport costs beyond what the market can 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.

Proposed Actions

Near Term, 2014–2020

- Develop an annual freight movement stakeholders group for coordinating preservation and expansion efforts.

- Coordinate preservation and expansion efforts.
- Encourage communication between short-line rail operators, shippers, and economic development agencies.
- Explore options for potential uses of the southern portion of Arvin Subdivision as identified in the Kern County Rail Study Phase 2.
- Explore 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.
- Continue development of the Delano RailEx Facility for intermodal freight shipping to the East Coast.

Long Term, 2021–2040

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

PUBLIC TRANSPORTATION ACTION ELEMENT

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

Existing Transit Services

Within Kern County, existing public transportation services include public transit, Amtrak, and other private carriers such as Greyhound. Local and regional public transit is available within and between sixteen Kern County communities. 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.

CalVans is a public vanpool service that serves Central California. At the July 19, 2012, Kern COG board meeting, the Transportation Planning Policy Committee approved a request from CalVans to become a participating member of its board through an addendum to a Joint Powers Authority. The CalVans board approved Kern COG as its newest member agency at its board meeting on September 13, 2012. In 2012 Calvans operated 65 vanpools in Kern County.

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

The "San Joaquin Valley Express Transit Study" conducted by the County of Merced, recommended the creation of the regional agency. It also made the finding that a publicly operated vanpool system is the most practical and cost effective way of addressing transit needs in the rural areas of the 8-county region.

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.

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

Operator	Area Served	Service Type	Days of Service	Fare Structure	
				Regular	Discount
	Boron	Deviated fixed route	Wed	$1.00	$.75 seniors, disabled & youth
	Kern River	Dial-a-ride	Mon-Sat	$1.00	$.75 seniors, disabled & youth
	Frazier Park	Dial-a-ride	Mon-Sat	$1.00	$.75 seniors, disabled & youth
	Lamont	Fixed route	Mon-Sat	$0.75	$.50 seniors, disabled & youth
	Mojave	Dial-a-ride	Mon-Sat	$1.00	$.75 seniors, disabled & youth
	Rosamond	Dial-a-ride	Mon-Sat	$1.00	$.75 seniors, disabled & youth
GET	Metro Bakersfield	Fixed route	Daily	$1.00	$.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

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

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.

In 2006, GET became one of the first large transit fleets in the nation entirely fuled by natural gas. 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, and later in 2004, CTSA made several service improvements including wheelchair accessibility on 67% of its fleet and the hiring of additional drivers. Over the past four years, CTSA's ridership has improved by 69.8% and is currently delivering a healthy 15.2% farebox return (10% is required by Transportation Development Act regulations).

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 .25 percentage points of the 7.5% (8.5% in Delano) 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. This is 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.

Chapter 6 – Financial Element identifies several new sources that may be dedicated toward transit. Table 6-1 identifies 38% of all funding in this plan going toward transit, high occupancy vehicle, passenger rail, aviation, and other uses. These sources include LTF, farebox, local agency funds/developer impact fees, State Transportation Improvement Program, State Transit Assistance Account, Congestion Mitigation and Air Quality Program, Federal Transit Administration (sections 5307, 5310, 5311), Federal Stimulus funding, as well as other revenue streams. Some of these funding sources are being applied to transit for the first time as part of this plan.

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 guides routine decisions associated with operations and maintenance. This document covering a five-year period is updated annually.

A five-year TDP was prepared for the 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.

CTSA, GET-A-LIFT, and other social service transportation providers fill an important role in providing unmet transit needs in areas beyond fixed route service.

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

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

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

- **Support transit use at the local level and on a regional scale.** Potential transit ridership and multimodal opportunities should be considered in planning new growth areas, developing land use policies for existing developed areas, and planning for major infrastructure investments. The focus should be on improving the form of the region, with particular emphasis on enhancing pedestrian activity in and around downtown Bakersfield and other potential sites such as adjacent to California State University, Bakersfield (CSUB).

- **Focus development and infrastructure on key cores and corridors.** Transit ridership will be highest when it effectively serves key origins and destinations. Transit becomes an attractive alternative to the automobile when it is accessible, convenient, and efficient. In order to maximize the attractiveness of transit, service should be focused on major corridors such as Chester, California, Mt. Vernon, and Ming, 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.

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

The GET Long Range Transit Plan uses a phased approach that is already transforming the Metropolitan Bakersfield Transit System. The Near-term plan became operational in October 2012, creating a Rapid Bus network through the core area with headways less than 15 minutes. The Mid-term plan includes

expansion of the rapid bus network and implementation of a Bus Rapid Transit (BRT) System. The Long-term plan expands the system further and increases headways throughout the system. Portions of the BRT system may become the future light rail system for Metropolitan Bakersfield.

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. Given the varied geography, sparse populations, and long distances that buses must travel, the study found that transit operations through the Eastern Sierra region provide exceptionally good coverage. Nearly all communities within the study area have some level of transit service, offering basic mobility to meet some travel demands.

Regional Rural Transit Strategy

Kern COG initiated a study to evaluate alternatives to its current network of rural transit services. A project advisory committee representing transit providers and social services throughout Kern County, inaugurated this effort, the Regional Rural Transit Strategy (RRTS), in spring 2002.

- The RRTS inventoried existing public transit services in rural Kern County, identifies possible alternatives to existing public transit service and recommends strategies to improve the rural Kern County public transit system. The 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 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, including extension of Metrolink from Lancaster north to Rosamond/Edwards AFB, and the addition of one or more Amtrak stops in north/west Bakersfield.

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

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

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 approximately 2½ hours. Intercity travelers (trips between metropolitan regions) along with longer-distance commuters would enjoy the benefits of a system designed to connect with existing rail, air, and highway systems.

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

The major challenge to the Authority is to secure financing in order to implement the system. In November 2008, California voters passed Proposition 1A, which authorized the State to issue $9.95 billion in bonds to fund the first phase of a high-speed rail system. In July 2012, the Federal Rail Administration awarded California $3.1 billion in stimulus funding to accelerate the purchase of rights-of-way and completion of engineering studies and to begin construction. Up to $1.5 billion of the $6 billion identified for the first construction segment could be used to build track in the Kern region. The Authority has estimated that the existing funding will allow the track to get as far south as Wasco or northwest Bakersfield. An additional $20 to $30 billion is needed before the first true high speed trains can begin operation as early as 2035.

The Authority's 2012 business plan indicates that Amtrak passenger service could use the first construction segment if the remaining funding is delayed. In 2013, the Caltrans Division of Rail released a draft State Rail Plan that proposed interim use of the first construction segment.

Proposed Public Transportation Actions

Near Term, 2014–2020

- GET should decreased emphasis on timed connections at transit centers
- New GET transit center at CSU Bakersfield
- Increased GET service to CSU Bakersfield and Bakersfield College
- Faster GET crosstown trips
    - New Express routes
    - New "Rapid" routes
    - More direct routes
- Refine KRT scheduling practices
- Consider KRT route reconfiguration within Downtown Bakersfield
- Analyze KRT stop placement
- 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

Long Term, 2021–2040

- Introduce "full" GET Bus Rapid Transit
- GET Crosstown service connecting one side of Bakersfield to the other
- GET Circulator services within neighborhoods or around outlying areas of Bakersfield
- Continuation of GET Express routes
- Introduce GET hybrid Circulator/Express service
- Rapid bus improvements
- Introduce Express bus service along SR 178/24th Street/Rosedale Highway and SR 99
- Truck climbing lane along eastbound SR 58
- Consider Bus Rapid Transit in exclusive lanes with traffic signal priority
- Consider additional Express bus service
- Consider ramp metering
- Consider peak period only HOV lanes
- Consider converting BRT corridors to light rail transit
- Consider additional peak period HOV lanes
- Continue pursuing extension of Metrolink from Lancaster to Rosamond
- As HSR proceeds to construction:

  Identify preferred corridor to connect Bakersfield and Delano with commuter rail/HSR feeder service

  Identify potential funding for commuter rail operations

  Work with local transit providers to connect riders to commuter rail/HSR
- Reassess feasibility of commuter rail in various corridors

ACTIVE TRANSPORTATION ACTION ELEMENT

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

Kern County is especially well suited for active transporation such as biking and walking. According to the National Household Travel Survey, in 2009, over 25 percent of trips in Kern County were less than one mile. The climate and terrain of the region is favorable for active transportation, with many clear, dry days and moderate temperatures. For short trips, biking and walking can serve as an alternative to the automobile. Because these modes are non-polluting and energy efficient, it is an element in the region's multimodal transportation system that leads to a more efficient transportation network.

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

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

Existing Systems

Bicycle facilities generally fall into three distinct categories: Class I, and variations of Class I bike facilities are the first category. Class I facilities are paved right-of-way for exclusive use by bicyclists, pedestrians, and those using non-motorized modes of travel. Class II bike lanes are defined by pavement striping and signage used to allocate a portion of a roadway for bicycle travel. Several jurisdictions have variations on Class II facilities, which provide optional striping scenarios to allow on-street parking. 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. 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 5-10 summarizes existing and funded bikeways in Kern County by community. Table 5-11 summarizes existing bikeways in unincorporated Kern County by bikeway class.

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 5-12. 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.

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 AIR EMISSIONS REDUCTION ACTION ELEMENT

Existing System

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

"National, state, regional, and local efforts have been successful in reducing overall air emission levels by more than 90% since 1990."

FIGURE 5-8 TRANSPORTATION AIR EMISSIONS REDUCTION EFFORTS IN THE KERN REGION

• Park-and-Ride Facilities (local/state) • High-Occupancy Vehicle Facilities (local/state) • Commute Kern Ridesharing Programs/Incentives (regional) • CalVans Vanpool Program (regional) • Bicycle/Pedestrian Projects and Programs (local) • New/Expanded/Increased Transit Service (local) • GET Online Trip Planer Transit Marketing, Information, and Amenities (local) • Fuel Pricing (state, national) • Rule 9410 eTrips Employer-Based TDM Programs (regional) • Rule 9510 ISR, and Infill Incentive Zone Transportation Impact Fee Land Use Strategies (Regional, local) • Signal Synchronization and Roadway Intersection Improvements (local, state) • Incident Management/Kern 511 Traveler Information (local, regional, state) • Shifting/Separating Freight Movements (local, state)	• IdleAIR Idling Reduction Facilities (local, regional) • Rule 9310 School Bus Fleets Accelerated Retirement/Replacement of Buses (local) • Accelerated Retirement/Replacement of Heavy-Duty Trucks Incentive Program (regional) • Diesel Engine Retrofits Incentive Program (regional) • Clean Diesel (state) • Inspection & Maintenance Programs (state) • Locomotive Replacement or Repowering (regional, state, national) • Locomotive Idling Reduction (national, state, regional) • Transportation Construction Equipment (national, state) • Rule 8061 Unpaved Road Dust Mitigation (local) • Road Paving (local) • Street Sweeping (local)

National, state, regional, and local efforts have been successful in reducing overall air emission levels by more than 90% since 1990. With over two decades of reduction efforts in place, the easy fixes are gone. To achieve additional emission reductions are becoming ever more costly and challengeing for the region.

Transportation Control Measures

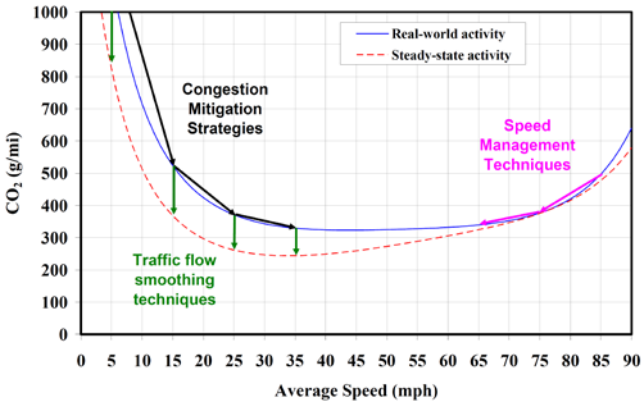
A subset of air emission reduction efforts in Kern, Transportation Control Measures (TCM) have received a high level of attention since the passage of the state and federal Clean Air Acts and congestion management legislation. As a result, air quality planning areas for the entire San Joaquin Valley, Mojave Desert, and Indian Wells Valley have been designated as nonattainment for at least one harmful pollutant. 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. For a complete Discussion of Transportation Control Measures being implemented in Kern see the most recent adopted Federal Air Quality Conformity Analysis document available at:

http://www.kerncog.org/publications/regional-transportation-aq-conformity. This RTP includes a combined public review process for the conformity analysis and is adopted by joint resolution that includes the Conformity Document.

Needs and Issues

In response to the Kern RTP outreach activities and comments provided by the general public at Kern COG's workshops, reducing unhealthy air emissions is a primary goal of the 2014 RTP. Recent polls on issues facing Kern consistently rank air quality as the greatest concern for our region's residents, especially those living in the San Joaquin Valley portion of Kern. 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:

FIGURE 5-9 VEHICLE EMISSIONS BY SPEED
SOURCE: BARTH/BORIBOONSOMSIN, 2008



- 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.

- Reduce Congestion – Figure 5-14 illustrates that reducing traffic congestion at slow speeds while enforcing speed limits on freeways can significantly reduce CO2 emissions. Maintining smooth flow traffic on surface streets and freeways can reduce emissions as much as 12%. Kern congestion management program action element on page [5-??] in conjuction with local traffic impact fees have helped to keep Kern's traffic flowing at the optimum speeds of 25 to 60 MPH as the region continues to grow. Continued investment in traffic signal synchronization is a major priority for Kern's CMAQ funding. In 2012 Kern completed a railroad grade separation study prioritizing projects in the region.

- Alternative-fuel fleets – Between 2007 and 2010, California's clean diesel fuel standards were 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. However, diesel exhaust still has a toxicity component that may warrant continued conversion of fleets, especially school buses. In 2007, California Executive Order S-01-07 established the Low Carbon Fuels Standard with a goal to reduce carbon emissions by 10% by 2020. Also in 2007 the Energy Independence Act set the goal to produce 36 billion gallons of renewable fuel blended into transportation fuel nationwide. The state of California is investing $100 Million per year on alterntive fuels technology including electric plug-in, hydrogen fuel cell and natural gas. Fueling infrastructure is crtical for the success of alternative fuels in the region.

- Reduce Travel -– 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. The San Joaquin Valley is the only region in the nation with an Indirect Source Review rule in place that creates incentives for new development to reduce offsite emissions.

Proposed Actions

Near and Long Term, 2014–2040

- 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 East Kern Air Pollution Control District.
- Improve public transit
- Increase alternative-fuel fleets
- Ridesharing and voluntary employer-based incentives
- Traffic flow improvements/railroad grade separations
- Park and ride lots
- Bicycle and pedestrian travel
- 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
- 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.
- High Occupancy Vehicle (HOV) lane additions: Centennial Corridor provides room to accommodate HOV;
- Add "missing links" (streets) to roadway network that reduce out of direction travel: Centennial Connector will provide a major freeflow traffic connector that will improve air quality by reducing stop and go truck travel on local arterials. 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
- Lower transit fares or transit subsidies.

- Increased parking costs for central business district locations
- Carpool program
- Flextime program

INTELLIGENT TRANSPORTATION SYSTEMS ACTION ELEMENT

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

Intelligent Transportation Systems (ITS) apply advanced information processing, communications, vehicle sensing, and traffic control technologies to the surface transportation system. The objective of ITS 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 objective of ITS is to promote more efficient use of the existing highway and transportation network, increase safety and mobility, and decrease the environmental impacts of congestion.

The EDP's primary focus for the Kern County region is the maximization of safety, traffic flow, and efficiency in both rural and urban areas. It presents an integrated, multimodal, phased strategic plan to address the surface transportation needs and problems of the Kern region through the use of ITS. By preparing the EDP, Kern County is in a position to take advantage of federal and other funding opportunities and implement various components of ITS.

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

TABLE 5-5 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, institutional issues and provides a framework for deploying ITS projects.

The San Joaquin Valley Intelligent Transportation Systems Strategic Deployment Plan was adopted by Kern COG in November 2001 and is incorporated within the RTP by reference. The plan was federally approved January 8, 2002.

San Joaquin Valley ITS Architecture Maintenance Plan

While the San Joaquin Valley Regional ITS Architecture is included in the San Joaquin Valley ITS Strategic Deployment Plan, it is considered a process that will be maintained, revised, and validated as needed. The architecture is a set of rules that facilitates the building of systems and allows these systems to communicate and inter-operate when built. Changes to the Regional ITS Architecture, such as new ITS regional needs, plans and priorities, projects, scope, and stakeholders, will be documented through updates to the Deployment Plan. The San Joaquin Valley ITS Architecture Maintenance Plan, including revised management procedures, was adopted by 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 ACTION 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 program is an effort to more directly link land use, air emissions, transportation, and the use of new advanced transportation technologies as an integral and complementary part of this region's plans and programs.

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 an efficient transportation system is developed that relates population growth, traffic growth and land use decisions to transportation system level of service (LOS) performance standards and air quality improvement. 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 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 5-15 and 5-16 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 33
SR 43
SR 46
SR 58
SR 65
SR 99
SR 119
SR 166
SR 178
SR 184
SR 202
SR 204
SR 223
U.S. 395

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 5-10 – METROPOLITAN BAKERSFIELD CONGESTION MANAGEMENT PROGRAM

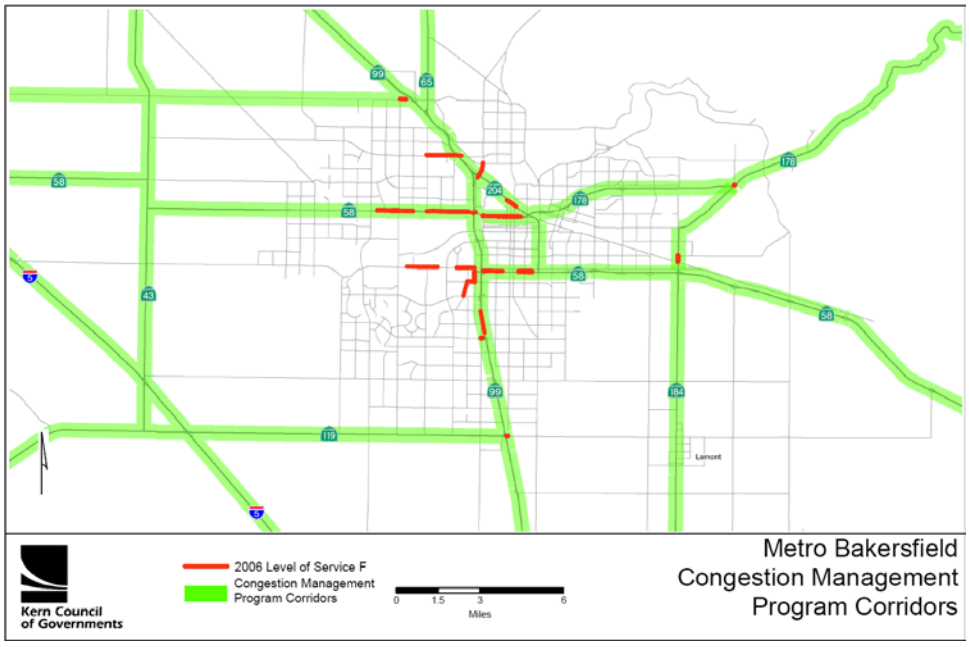
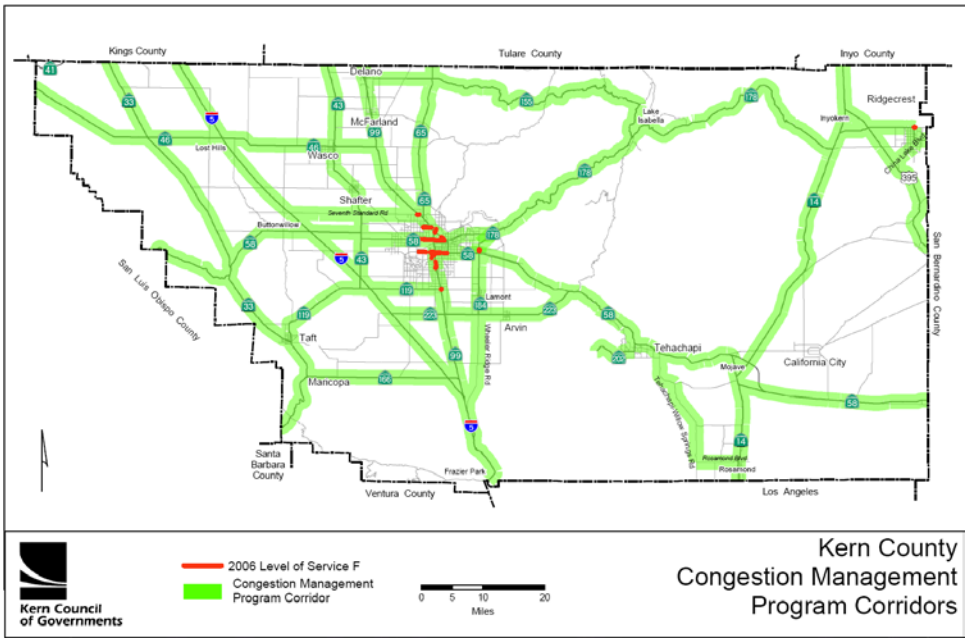


FIGURE 5-11 – KERN COUNTY CONGESTION MANAGEMENT PROGRAM CORRIDORS



Level of Service Standards

The purpose of this section is to establish level of service standards for the Congestion Management road network in Kern County. California Government Code Section 65089(b)(1)(B) requires that level of service standards be established at no worse than LOS E, or LOS F if that is the current level of service.

Level of service, according to the Transportation and Traffic Engineering Handbook, is a "qualitative measure that represents the collective factors of speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs provided by a highway facility under a particular volume condition." Level of service is ranked from A to F, with A being best and F being worst (see Table 5-6).

TABLE 5-6 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 costs can also be used as a strategy to reduce congestion during peak periods.

- Grace Period – Member agencies are not required to prepare a deficiency plan or traffic study as required under this section until Kern COG 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.

- 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. Annually, the agency shall determine if the County and the cities are conforming to the Program, including, but not limited to, all of the following:

- Consistency with levels of service and performance standards, except as provided in subdivisions (b) and (c);

- Adoption and implementation of a transportation demand management/trip reduction ordinance;

- 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 of 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.

REGIONAL STREETS AND HIGHWAYS ACTION ELEMENT

See the Land Use Action Element – Highway/Road Land Use Actons for further discussion on sustainable land use decisions relative to highways and roads.

A system of safe and efficient highways, streets, and roads is essential to the movement of people, vehicles, and goods in and through Kern County. Public vehicles, private automobiles, and commercial shippers all share the same transportation network. Providing a system of state and federal highways and regionally significant arterials that can meet this variety of needs is critical to the plan's goal of enhancing the quality of life for Kern County's residents.

The new project selection criteria incorporate livable community strategies into the prioritization elements for projects of regional significance.

In 2012, Kern COG adopted new SB 375-enhanced project selection criteria, which will be used for all future calls for projects. The new project selection criteria incorporate livable community strategies into the prioritization elements for projects of regional significance. This is an important step for the region in that it helps to implement Chapter 4 the Sustainable Communities Strategy by allowing projects that incorporate sustainable strategies to score higher for funding consideration. Additionally, complete streets elements were incorporated into the project selection criteria and the Congestion Mitigation and Air Quality Improvement (CMAQ) Program to prioritize new projects.

Existing Streets and Highways System

Streets and highways relevant to this element are the state and interstate highways in the county. These projects are federally funded and/or considered "regionally significant." This element also recognizes principal arterials as important to the movement of goods and people in the region. Interstate highways in Kern County relevant to the 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 depicted below.

[Add map of projects under construction - Rochelle]

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

Maintenance Needs

Maintaining the local transportation infrastructure is of critical importance for the entire region. Based on extensive input in development of this RTP, maintaining the roads are the public's top transportation priority (Appendix ?? - Public Outreach). Deferred maintenance costs on local roads are estimated to exceed $500 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.

Based on extensive input in development of this RTP, maintaing our roads are the public's top transportation priority.

Given ongoing concern regarding deferred maintenance, goals and policies in Chapter 2recognize 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. Financing assuptions include an increase in funding for maintence from a variety of potential national, state and local sources actively being explored.

Bakersfield Federal Demonstration Project – Thomas Roads Improvement Program (TRIP)

The foundation for planning the Metropolitan Bakersfield highway transportation network was titled the Bakersfield Beltway System in federal legislation, as shown on Figure 5-12. 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.

Figure 5-12 Bakersfield Federal Demonstration Projects

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.

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 5-18 and 5-19 reflect "build" scenario LOS values because the network includes the Constrained Program of Projects. Figures 5-20 and 5-21 reflect the "no build" scenarios in that the network only reflects current system improvements, while future growth values are used to generate future vehicle miles traveled without the proposed improvements.

FIGURE 5-13 KERN COUNTY TRAFFIC CONGESTION – 2040 BUILD SCENARIO

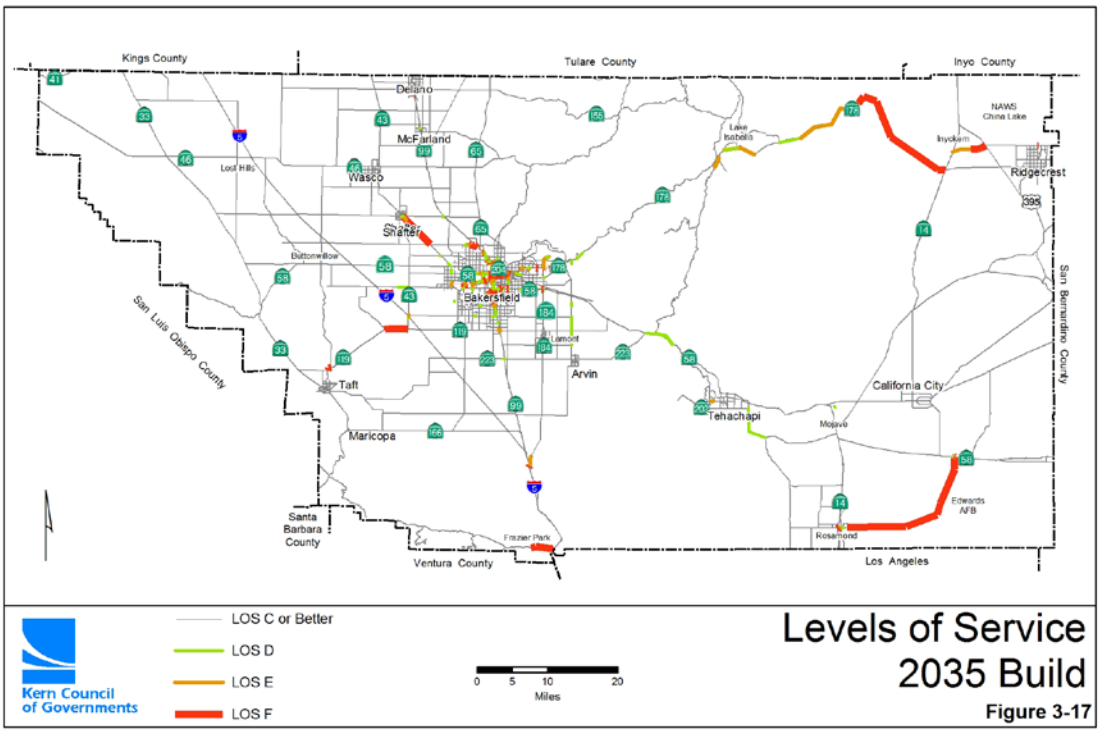


FIGURE 5-14 METRO BAKERSFIELD TRAFFIC CONGESTION – 2040 BUILD SCENARIO

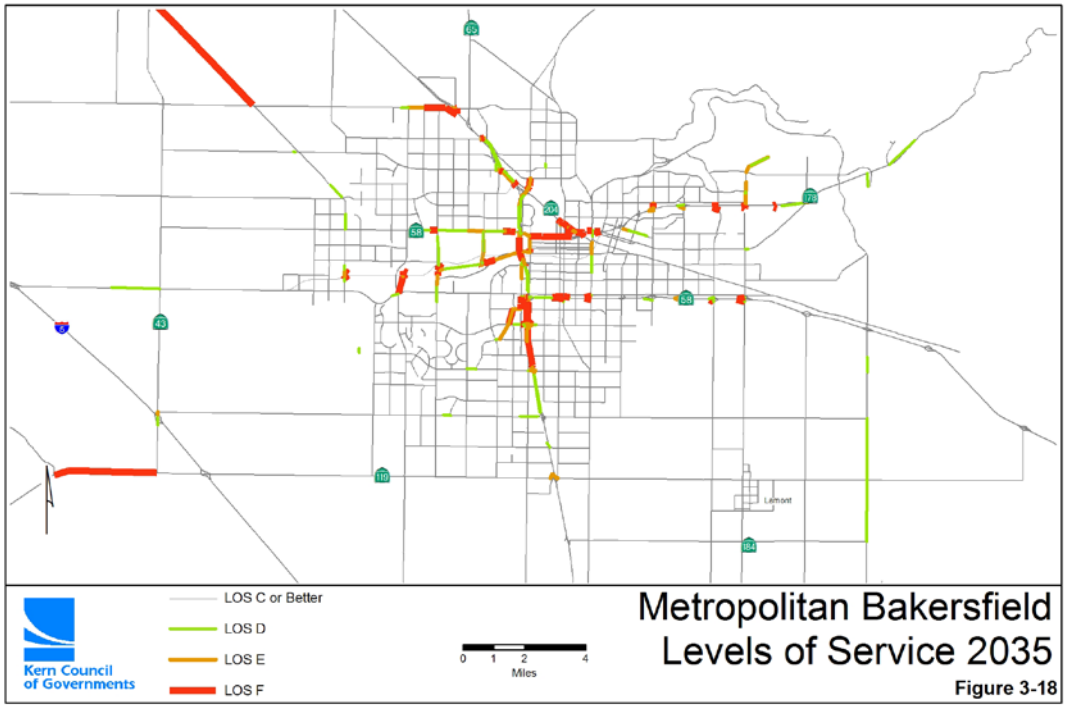


FIGURE 5-15 KERN COUNTY TRAFFIC CONGESTION – 2040 NO BUILD SCENARIO

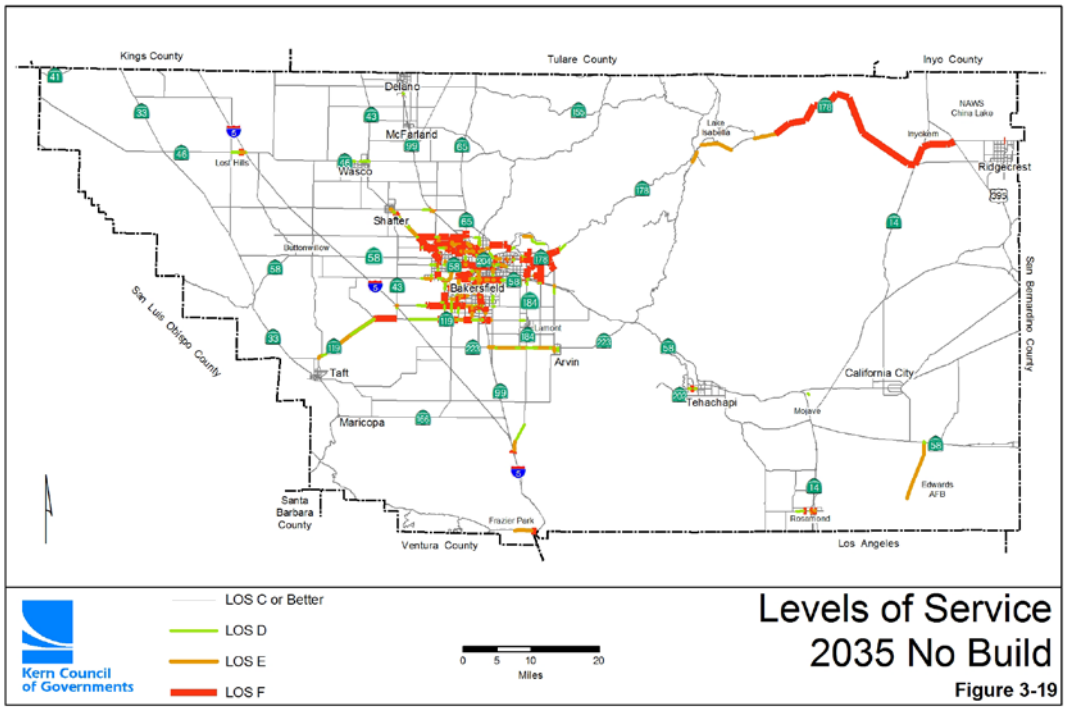
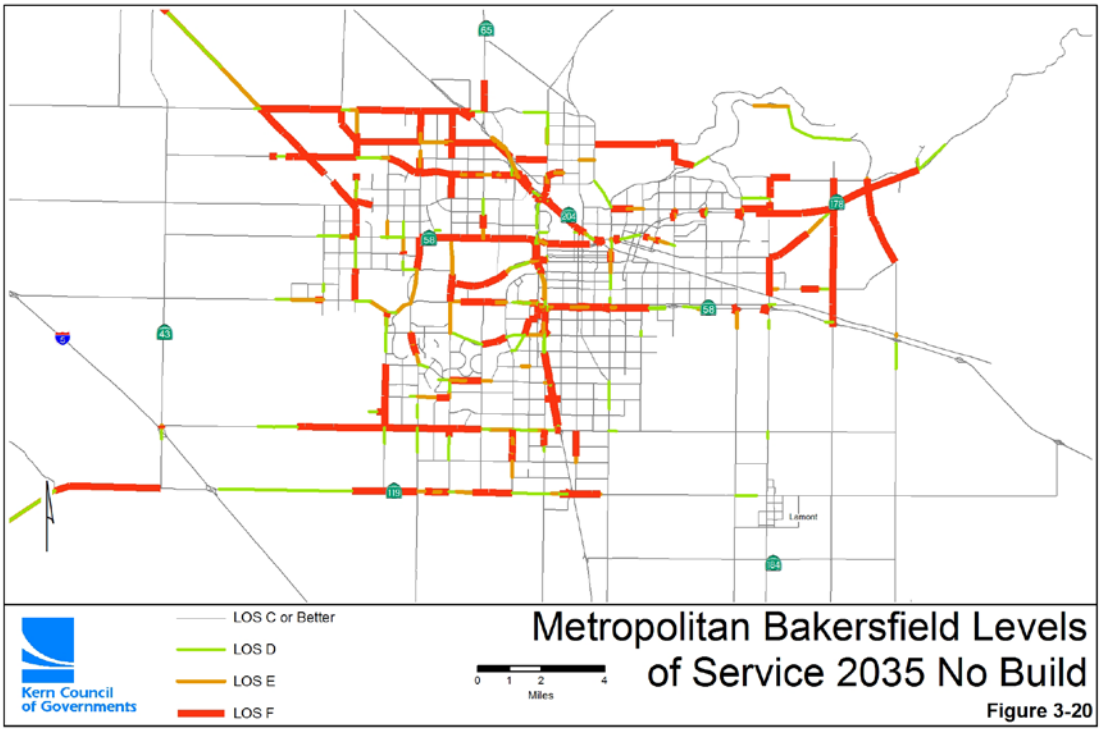


FIGURE 5-16 METRO BAKERSFIELD TRAFFIC CONGESTION – 2040 NO BUILD SCENARIO



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. 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. Both the Metropolitan Bakersfield and Tehachapi ordinances created a core area with a fee half the rate charged to development on the community periphery, the intent of which is to encourage infill development.

Figure 5-17 Transportation Impact Fees - Per Single Family Housing Unit

Jurisdictions	outlying / core area
Metro Bakersfield / County	$12,870 / $7,747
Tehachapi /County	$4,772 / $2,952
Rosamond-Willow Spr.	$1,461 / $1,461
Wasco	$685 sliding scale

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. Ultimately it is up to each local jurisdiction to determine if an impact fee warrants adoption.

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.

Roads and Streets Monitoring

On an ongoing basis, Kern COG collects data and monitors roadway conditions throughout the county for road and street maintenance purposes. This effort includes providing input to the Federal Highway Administration Highway Performance Monitoring System, as well as conducting traffic counts and vehicle occupancy counts at various locations in the county. 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 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.
- Local Governments consider pursuing alternative funding sources such as regional and individual TIFs where justified as a necessary means to address transportation needs.
- 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.

AVIATION ACTION ELEMENT

See the Land Use Action Element – Global Gateways Land Use Actions for proposed actions related to air travel and connectivity. See Chapter 4, Sustainable Communities Strategy, for further discussion on sustainable land use decisions relative to air travel and connectivity.

Kern County's airports address a variety of local and regional services. The aviation system connects the traveling public and freight and cargo movers with California's major metropolitan airports. Additionally, Kern's airports serve the US military directly or in an auxiliary fashion. Many of the airports also support local farmers, police and medical services and provide recreational opportunities. Together, the airports provide a viable mobility option for the county's residents and businesses.

Kern County's aviation system includes 14 publicly owned airports.

Existing Aviation System

Kern County's regional airport system includes a diverse range of aviation facilities. It 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.

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 Air/Spaceport
- 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.

The master plan allows for the construction of a third runway (east of the existing runways) to meet any resulting air freight capacity expansion.

Established in 1927, Meadows Field was the first airport in the Bakersfield area. By 1930, the airport handled over 12,000 passengers and close to 7,000 operations annually. 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 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 Airport, currently with 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 Air/Spaceport currently offers fixed-base operator facilities for airport users from Edwards Air Force Base, Rosamond, Mojave, Tehachapi, California City, and Boron. The airport serves as a civilian flight test center for business, military, civil, and home-built aircraft being developed for testing. It also serves as a base for modification of major military and civilian aircraft. The airport is located northeast of the community of Mojave and is within 1 mile of SR 14 and SR 58. A rail spur from the Union Pacific Railroad leads into the airport. In 2004 the Mojave Air/Spaceport became the first FAA approved civilian space port, and was home to the manufacturing and flight testing of Virgin Galitic's Spaceship One and Spaceship Two, the first manned civilian re-useable spacecraft.

In 2004 the Mojave Air/Spaceport became the first FAA approved civilian space port, and was home to the manufacturing and flight testing of Virgin Galitic's Spaceship One and Spaceship Two, the first manned civilian re-useable spacecraft.

Existing airport facilities include a 12,500-foot runway and two crosswind runways. The longest runway is equipped with high-intensity runway lights while the 7,040-foot runway is equipped with medium-intensity runway lights. The third runway is 4,900 feet long but has no lighting.

Existing land use in the vicinity consists of mixed urban use to the east and south in the community of Mojave, industrial and highway commercial uses to the northwest, and undeveloped desert to the north and east. The airport itself includes a substantial area devoted to aviation-related industrial uses.

Minter Field Airport District/Shafter Airport serves general aviation activities at the junction of SR 99 and Lerdo Highway. Minter Field has two main runways and one crosswind runway. Runway 12/30 is

4,520 feet long, has both Very High Frequency Omni-directional Range non-precision and global positioning system-based instrument approaches, and is equipped with a precision approach path indicator and landing lights.

A third runway serves as a general aviation crosswind landing alternative. One of the benefits this runway offers is to allow student pilots the opportunity to practice crosswind approaches and departures.

Minter Field is surrounded primarily by agricultural uses with a 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 also be 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 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, 2014–2020

- Work with Meadows Field and Inyokern Airport to obtain funding from the state and federal governments for their respective development programs.

- Work with local and regional transit providers to increase alternative mode ground access options at Meadows Field.

- Assist Meadows Field with planning related to high-speed rail connections.

- Work with public airports to increase their access to state and federal funds.

- Work with the JLUS committee to implement planning activities listed in the JLUS for R-2508 airspace (China Lake Naval Air Weapons Station and Edwards Air Force Base).

Long Term, 2021–2040

- 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.

SAFETY/SECURITY 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.

Kern COG's commitment to public safety includes a safety performance measure as a critical factor in the Regional Tranportatoin Plan.

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.

LAND USE ACTION ELEMENT

See Chapter 4, Sustainable Communities Strategy, for further information on sustainable land use.

Land use is one of the most important factors in effective transportation planning to preserve the region's economic, environmental, and equitable sustainability. While Kern COG does not have jurisdiction over land use planning, the agency promotes and encourages dialogue among stakeholders involved in the land use decision-making process, through 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.

FIGURE 5-18 HIERARCHY FOR TRANSPORTATION-RELATED LAND USE DECISIONS

As an example, in transportation planning, airports have a very limited number of sites they can be located at. They require a large area and must be located away from steep terrain as well as residential development. If development encroaches on an airport the use of that facility can be greatly curtailed or even closed, negatively affecting the region's economy and payback on the original investment in that facility. Another example of this hierarchy can be the location of local streets. When a subdivision is designed the positioning of the streets are often adjusted to optimize the layout of the residential lots. Local streets have many site opportunities or options to best fit the surrounding uses. In terms of transportation related land use decision, the positioning of local streets are not as important as the location of major transportation infrastructure investments such as aiports or other global gateways.

This action element covers transportation planning priorities from a land use perspective. The discussion is organized using the suggested hierarchy in Figure 5-13, focusing on the uses with the fewest number of site opportunities first. Each transportation category discussed below (global gateways, rail/transit, and highways/roads) will also focus on the need to preserve locations for intermodal connectivity and viability, ensuring the RTP goals are met.

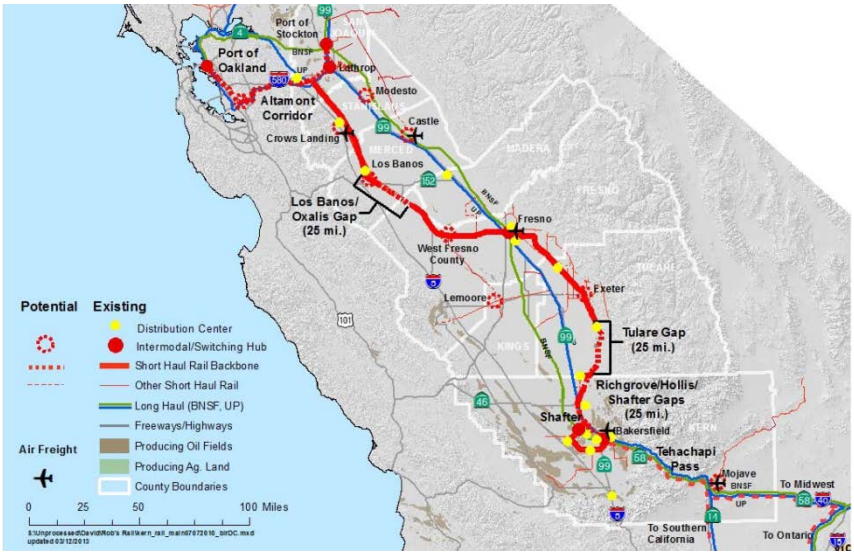
Global Gateways Land Use Actions

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

Inland Ports

Landlocked Kern County has no seaports; however, it is closely linked to international trade through the ports of Los Angeles/Long Beach and Oakland/Stockton. The Kern region has infrastructural and economic connections to two of the world's largest international trade gateways. During the economic boom, 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).

FIGURE 5-19 POTENTIAL OAKLAND-SHAFTER INLAND PORT RAIL SHUTTLE



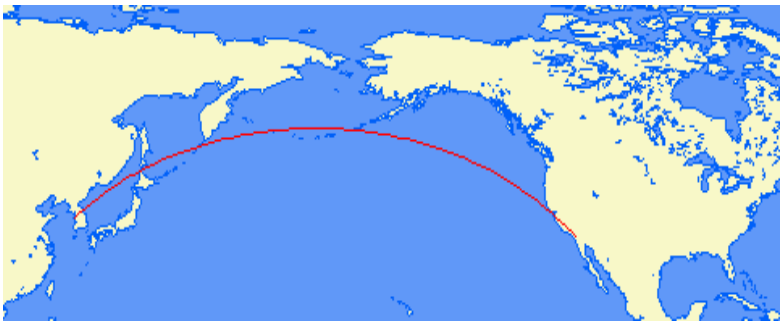
The Shafter Intermodal Rail Facility (SIRF) – Currently, all containerized goods movement within California destined to or from the ports must be trucked. A public/private partnership consisting of the State of California, Union Pacific, SSA Marine, Daewoo, Paramount Farming Co., the City of Shafter, 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 5-24 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.

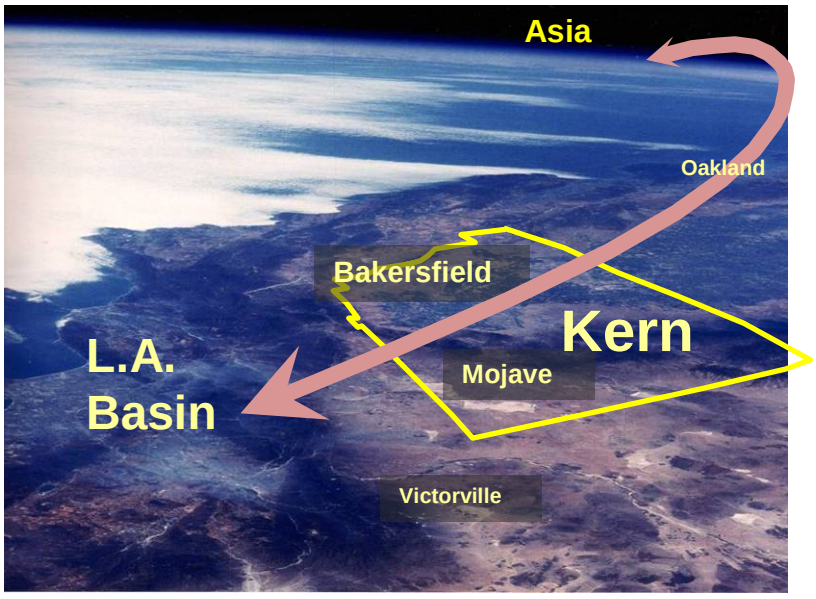
Rail access to the ports provides for sustainable economic, environmental, and equitable opportunities for a region and is the highest land use concern related to transportation facilities in Kern County. In June 2009, Paramount Farming Company produced a SIRF White Paper that estimated the inland port 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.

FIGURE 5-20 GREAT CIRCLE ROUTE BETWEEN SOUTHERN CALIFORNIA AND ASIA HTTP://GC.KLS2.COM/



The Tejon Ranch Commerce Center (TRCC) is the site of the largest activated Foreign Trade Zone (FTZ) in California at 177 acres and has the ability to expand to 500 acres. FTZ's are sites near ports of entry where foreign and domestic merchandise considered international trade can provide imporatant cost-savings benefits involiving customs duties and other charges. Users can obtain permission from Customs to move merchandise directly from the port of arrival to the FTZ avoiding delays at congested ports. Both SIRF and TRCC are strategically located proximate to major transporations routes and is within 50 miles of the geographic center of population for the state making the location ideal for serving both Northern and Southern California as well as the regions to the East.

FIGURE 5-21 KERN COUNTY ON GREAT CIRCLE ROUTE BETWEEN SOUTHERN CALIFORNIA AND ASIA



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

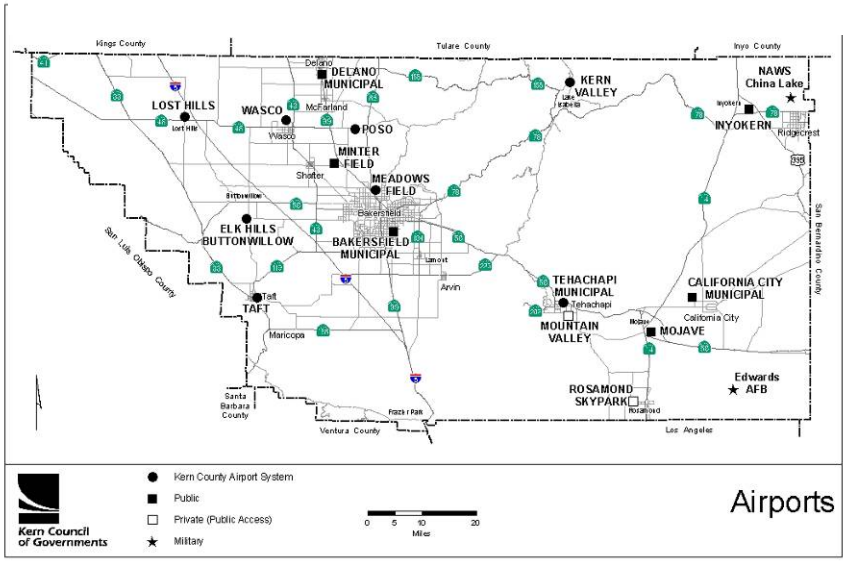
As Asia and the southwestern United States continue to grow, air freight is anticipated to steadily increase once economic recovery is realized. Anticipated increases in time-sensitive cargo have made air freight from Asia a booming business. Southern California is focusing its expansion of air freight 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.

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 5-20 and 5-21). 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.

FIGURE 5-22 POTENTIAL AIR TAXI/JET CHARTER FACILITIES



Air Passenger Service

As with air freight, the Los Angeles Basin's runway capacity to handle air passenger service will not be able to meet demand, even with the planned Palmdale International Airport. The Southern California Association of Governments' overall plan to sustain its region's growth in air passenger demand is to link the region's airports with high-speed rail. This would allow the more congested airports to ferry passengers to and from outlying airports where additional capacity is available. The goal is to create an integrated airport system for Southern California that allows users to fly into one airport, catch 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 inland ports and airports can greatly limit the use of such facilities and eventually force their closure. Cities and the County address land use compatibility issues in their respective general plans and implementing ordinances, and together with the CEQA process have the means to conduct health risk assessments, air quality analysis and noise assessments to establish standards and conditions that are applicable to each local land use jurisdiction's siituaition. Table 5-7 provides advisory recommendations for suggested setback distances that would limit exposure to harmful air pollution. (These are rough estimates and should be used only when no other data or local study is available.)

TABLE 5-7 AIR QUALITY RECOMMENDATIONS ON SITING NEW SENSITIVE LAND USES SUCH AS RESIDENCES, SCHOOLS, DAYCARE CENTERS, PLAYGROUNDS, OR MEDICAL FACILITIES

Source Category	CARB Advisory Recommendations
Rail Yards	Avoid siting new sensitive land uses within 1,000 feet of a major service and maintenance rail yard.

	Within 1 mile of a rail yard, consider possible siting limitations and mitigation approaches.
Distribution Centers, Truck Stops	Avoid siting new sensitive land uses within 1,000 feet of a distribution center (that accommodates more than 100 trucks per day, more than 40 trucks with operating transport refrigeration units (TRUs) per day, or where TRU unit operations exceed 300 hours per week). Take into account the configuration of existing distribution centers and avoid locating residences and other new sensitive land uses near entry and exit points.

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

Noise sources should also require proper setbacks when siting future transportation facilities or when considering mitigation such as increased insulation and sound walls. Each jurisdiction is responsible for maintaining an Airport Land Use Compatibility Plan with specific information on siting land uses adjacent to each airport. Table 5-29 provides some advisory recommendations when no other information is available.

TABLE 5-8 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.
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, 2014–2020

- 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 Directions to 2050 Growth principles vision for economic vitality by planning and programming infrastructure to provide connectivity to air traffic and international cargo facilities.
- Coordinate with the County of Kern, City of Bakersfield, and City of Shafter on the proposed expansion of Meadows Field in the County of Kern Airport Master Plan.

- Coordinate with the Southern California Association of Governments, the Metropolitan Transportation Commission, and the ports to minimize impacts of port activity through Kern County.

Long Term, 2021–2040

- Monitor progress toward implementing regional principles developed by the Directions to 2050 visioning process consistent with local general plans.

- Coordinate with the Kern County Department of Airports, municipalities and aiport districts 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.

Rail/Transit Land Use Actions

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

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

Rail Freight

Not only is connection to the ports vital, but connections with switching yards to out-of-state destinations are a primary function of the rail system. In 2008, 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.

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 Directions to 2050 visioning process. Strategies such as public/private partnerships and leveraging passenger rail service to preserve the short-haul system should be considered. Shipping freight by rail is ten times more

energy-efficient than by truck, making preservation and expansion of rail freight vital to both the preservation of natural resources and development of a sustaining economy and strategic employment place types.

Passenger Rail/Public Transit

Like freight rail, passenger rail and public transit have limited site opportunities and are highly dependent on surrounding land uses. It is important that investment in these modes follow land use decisions that support such investment. This section covers rail and transit priority place types, transit-oriented design, and carefully planned parking facilities that promote transit use and that could be considered in the next update of a jurisdictions circulation plan.

Transit Oriented Land Use Concepts – Passenger rail and transit are dependent on where the population is located. Figures 4-9 and 4-10 of the Sustainable Communties Strategy chapter illustrate Transit Priority and Strategic Employment Place Types for Kern. Rather than showing large areas of planned urban growth, the maps show existing, planned and potential places where future transit and passenger rail service investment might occur based on existing variances in adopted general plan intesities. In addition, the maps illustrate how transit investment would coordinate with these existing and planned place types.

Transit viability is closely linked to land use density and intensity within a region. Before World War II, land uses in most communities were focused on walkability and streetcar accessibility. Most communities in the Kern region have an urban core based on these concepts. The historic pre-WWII Bakersfield downtown was very walkable and accessible via a streetcar system. The Southern Pacific passenger train station on Baker Street in Old Town Kern (East Bakersfield) was connected to the Santa Fe train station in downtown Bakersfield on F Street by an electric trolley that ran along 19th Street from 1901 to 1942. Suburban explosion since WWII has spawned a low-density development pattern that results in heavily subsidized, underused transit service.

As Metropolitan Bakersfield has grown, it has loosely developed around a network of auto-oriented retail centers illustrated in the Centers Concept map from the Metropolitan Bakersfield General Plan (Figure 5-32). Transit connectivity between the centers in the northwest are hindered by a 3-mile-wide low-density oil production and refining complex on the northwest side of the Kern River. The result is poor transit service from the rapidly growing northwest to the rest of Metropolitan Bakersfield. A ring of centers now exists around this industrial area, including Downtown/Westchester, California Avenue, The Marketplace/CSUB, Northwest Promenade, and Rosedale Highway/SR 99. Each of these centers covers a large area that often lacks a central focal point or pedestrian pocket for concentrating urban transit access, requiring a car to get from one store to another within the centers. Beyond this ring of centers, potential new centers are planned in outlying areas.

Transit oriented development can play an important role in outlying communities and rural areas as well. However, the techniques must be scaled down to fit the lower intensity land uses. Service to outlying areas lack the ridership to warrant frequent service. The importance of connecting services via dial-a-ride local circulator bus service can increase the service area for riders in outlying communities. Vanpooling can play an important roll in providing service to strategic employment areas in outlying communities as well. The unmet transit needs process helps ensure that transit needs in rural and urban areas that are reasonable to be met, are provided service.

The following are a suggested list of tools and concepts available to the local land use authorities.

Existing Tools and Concepts

Reduced Impact Fees for Core Area Development – To encourage gradual infill development, in 2003 the City of Bakersfield and the County of Kern jointly adopted a two-tiered traffic impact fee for Metropolitan

Bakersfield. The fee in the "core area" is nearly half of the $12,870 per house in the "non-core area." The City of Tehachapi also adopted a reduced fee for the core area development. The core area is primarily the older built-out portions of the community that have the infrastructure in place. The logic behind the lower core area fee is that housing in these areas should not have to pay as high a fee because the transportation infrastructure is already in place. The result is a fee structure that promotes infill and increased densities in areas with readily available bus transit, bike, and pedestrian access.

Indirect Source Review (ISR) Rule – The San Joaquin Valley Air Pollution Control District has enacted the ISR rule, requiring new development to pay a fee for mitigating air quality impacts. All or a portion of the fee can be waived if a developer includes strategies that improve air quality, such as walkable design, bike paths, better access to transit, etc.

High-Speed Rail Station Area Planning – The City of Bakersfield Economic and Community Development Department is already planning intensification of land uses around the proposed high-speed rail station in downtown Bakersfield. Plans include the addition of 600 housing units and the Mill Creek pedestrian parkway that connects shops, restaurants, offices and housing to the downtown high-speed rail station site.

Blueprint/Directions to 2050 Principles in General Plan – The City of Maricopa has incorporated the Blueprint/Directions to 2050 Principles into its General Plan such as enhancement of existing assets, and compact walkable development.

Healthy Communities – The City of Delano 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.

Complete Streets in Circulation Elements – Effective in 2011, AB 1358 required general plan circulation elements to include transit systems, bike systems, and pedestrian facilities in addition to automobile circulation networks. According to Government Code Section 65302(b)(2)(A) and (B), with the next substantial revision to a jurisdiction's general plan circulation element, the jurisdiction must incorporate a multi-modal network with complete street techniques for safe and convenient travel for all users, including public transit users in the rural, suburban, and urban context of the general plan. Circulation Plan update guidelines are available at

http://opr.ca.gov/docs/Update_GP_Guidelines_Complete_Streets.pdf .

Specific Plan Lines - In addition, Kern County has already made extensive use of specific plan lines to preserve right-of-way for future highway corridors. Local land use plans can consider other strategies to preserve transit centers and corridors. Specific plan lines can be developed that identify transit-oriented centers, corridors, and boulevards to allow for gradual higher-capacity transit modes as land use densities warrant.

New Tools and Concepts

Transit More Responsive to Peak Period Demand Changes - A major advantage of transit over single-occupant vehicle facilities, such as freeways, is that transit is more economical when a corridor reaches capacity. The cost to add a bus or another railcar along a corridor as congestion increases is considerably less expensive than adding right-of-way for another roadway lane; the bus is only needed during peak

TABLE 5-9 PHASED TRANSIT CAPACITY INTENSIFICATION

Fixed-Route Transit

Bus Rapid Transit

Commuter Rail

High-Speed Rail

LOCAL	INTERCITY	INTERREGIONAL
Rural (Village/Neighborhood) 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)		

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

periods, making it more efficient than providing a travel lane that is underused 90% of the time.

Phased Transit Capacity Intensification – As transit oriented place types gradually develop, eventually sufficient land use intensity will be available to support increased capacity modes such as express bus service, bus rapid transit and, eventually, commuter/light rail. In 1997, the MTIS developed a sketch plan for a commuter rail network connecting Metro Bakersfield to outlying communities. As part of the Metro Bakersfield Long Range Transit Plan completed in April 2012, commuter rail service using existing spur lines to link with high-speed rail station in Bakersfield was studied. A gradual phasing of transit-capacity intensification needs to be brought online carefully, to match the gradual land use intensification. Table 5-5 illustrates the progressive steps along a local, intercity, or interregional corridor as it becomes sufficiently used to support higher-capacity transit modes.

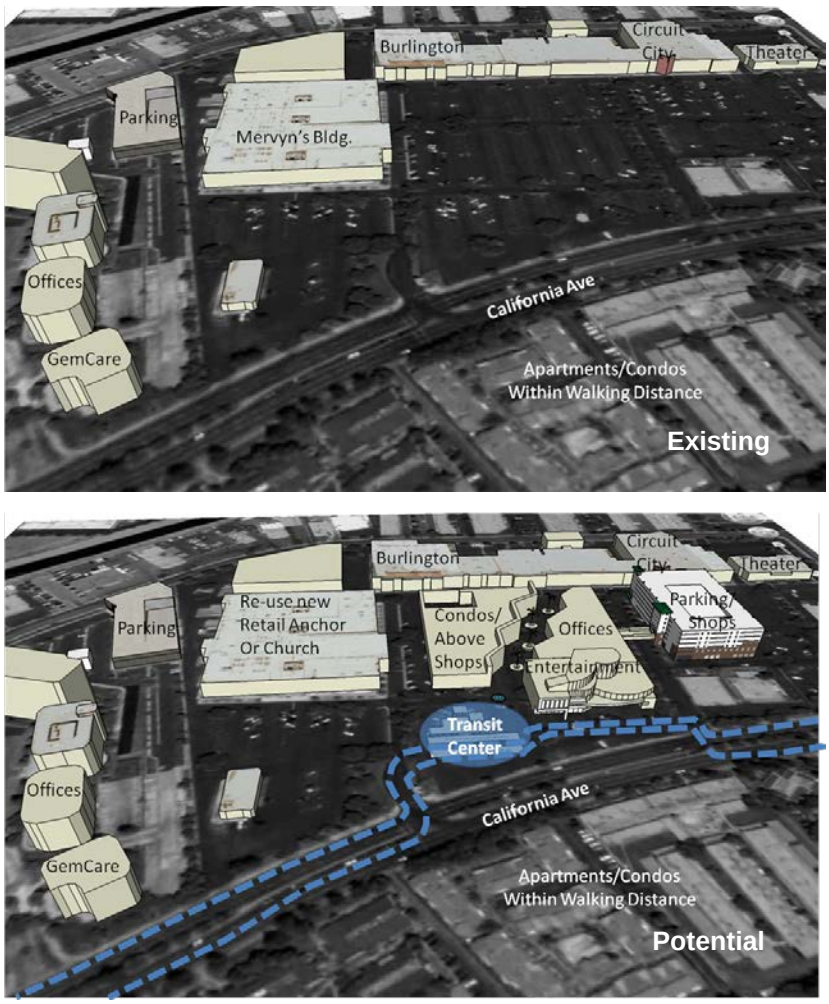
The Bay Area Transportation and Land Use Coalition (TALC) suggests an evolving transit strategy that promotes the concept of Express Bus/Bus Rapid Transit (BRT) as an interim step between fixed bus routes and higher-capacity modes such as light rail. BRT is an evolving term for a host of sophisticated technologies including articulated buses, auto drive technology, and traffic signal green-light extension used on both bus-only and mixed-flow lanes. The Federal Transit Administration offers the following definition of BRT:

Bus rapid transit (BRT) is a combination of facility, systems, and vehicle investments that convert conventional bus services into a fixed-facility transit service, greatly increasing their efficiency and effectiveness to the end user.

The TALC strategy focuses on a planned and evolving intensification of transit-oriented development destinations for use as BRT stops. TALC's strategy of phased transit mode intensification, as the centers and corridors infill and ridership increases, allows the transit fare box revenue to drive the building and gradual intensification of the transit facilities along the corridor. Table 5-11 illustrates the evolving progression from rural to suburban to urban transit usage as the land use intensifies and the ridership warrants higher-capacity transit modes.

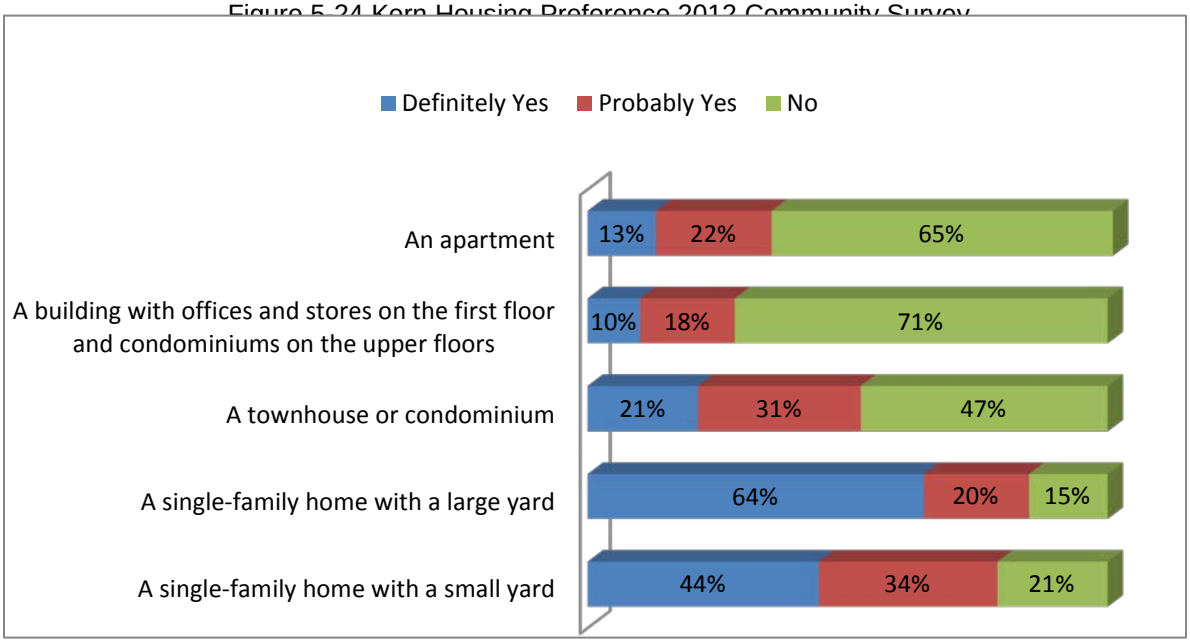
TALC suggests that infill land development around the transit centers should gradually drive the intensification of transit infrastructure. As new low-density suburban development occurs, a phased land use plan can provide areas for the future densification and infill with more intense urban uses around a transit center. This might include reserving areas for future commercial, mixed use, and more compact housing options.

FIGURE 5-23 BAKERSFIELD MERVYNS PLAZA – EXISTING/POTENTIAL



Market Driven Housing Choices - Recent surveys and studies suggest a shift in the market demand for housing. In 2008, 2009, and 2012, Godbe Research conducted statistically valid community surveys of 1,200 people each asking residents about their housing preferences. Figure 5-24 provides information from the 2012 Community Survey. The survey 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 indicates that over 60% of people still prefer a single-family home with a large yard; although, the survey does not define what constitutes a large or small yard. Providing single-family housing between higher density transit centers, will make high-capacity transit service more viable.

Figure 5-24 Kern Housing Preference 2012 Community Survey



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 5-36 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.

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, 2014–2020

- Continue to 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, other local transit providers, and local land use planners to preserve existing and future transit opportunities from the encroachment of low-density land uses around transit-oriented development centers.

- Implement the long-range 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, 2021–2040

- Monitor progress toward implementing principles developed by the Directions to 2050 outreach process.

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

- Land uses should be mixed both horizontally and vertically where appropriate. Vertical mixed use, with ground-floor retail in developed areas and activity centers as identified through land use plans, can increase the vitality of the street and provide people with the choice of walking to desired

services. More important for Bakersfield, mixing uses horizontally can prevent desolate, single-use areas and encourage increased pedestrian activity; scale of use and distance between uses are important to successful horizontal mixed-use development.

- Support and enhance transit priority and strategic employment place types. These areas have a strong impact on transportation patterns as the major destinations. They are generally characterized by their regionally important commercial, employment, and service uses. To make these places more transit-supportive, they should be enhanced by land use decisions that locate new housing and appropriately scaled retail and employment uses to diversify the mix, creating an environment that maximizes transportation choice.

- The cities and the county should be encouraged to provide land use intensities at levels that will promote use of transit and support pedestrian and bicycle activity. A general threshold for transit-supportive residential uses is 10 to 15 units per 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.

- The cities and the county should be encouraged to provide parking requirements (and parking provision) compatible with compact, pedestrian, and transit-supportive design and development. Requirements should account for mixed uses, transit access, and the linking of trips that reduce reliance on automobiles and total parking demand.

Highway/Road Land Use Actions

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

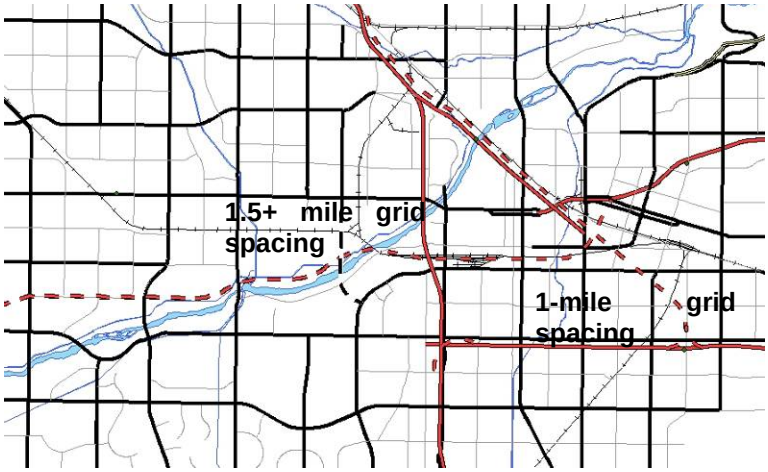
See Chapter 4, Sustainable Communities Strategy, for further discussion on sustainable highway/road facilities and connectivity.

While roads and highways have considerably more flexibility in siting than air, rail, or transit modes, roads provide interconnectivity to all other modes. At these intermodal connection points, road and highway land use decisions are considerably less flexible because of the limited number of site opportunities. Preserving intermodal connections, while ensuring the capacity necessary to minimize congestion, is a major concern for land use planning. When siting roads and highways, local planners rely on special transportation studies and circulation plans. The following are some ideas that planners might consider implementing to encourage sustainable roads and highways within the Kern region.

Road and Highway Grid

A rule of thumb is that highways and freeways in urban areas should be spaced 3 to 6 miles apart. Recent specific plan line adoptions around Metropolitan Bakersfield have resulted in a beltway system that will be more than 7 miles from the next parallel freeway facility. As new housing is built on the urban fringe, residents may strongly object to new freeways being constructed near their homes, thus potentially driving the beltway system further out; the arterial circulation system in the interior would suffer increased congestion as a result. Parallel arterials halfway between two parallel freeways that are spaced too far apart would be servicing greater loads than six-lane arterials can absorb because they must carry additional traffic that the freeway system is too distant to service.

FIGURE 5-25 CENTRAL BAKERSFIELD'S INTERRUPTED ARTERIAL GRID



The Central Bakersfield arterial network can be characterized as a high-volume, interrupted grid pattern (Figure 5-25). While many regions provide a four-lane arterial grid, Metropolitan Bakersfield is fortunate to have a six-lane arterial network that is laid out on roughly 1-mile intervals with curvilinear deviations from the section line grid. However, the arterial system is interrupted by a series of railroad corridors, freeways, canals and a river, resulting in greater than 1.5-mile gaps between arterials. A level of service degradation can be anticipated where arterials are spaced at greater than 1-mile intervals. The decision to allow the lower-density arterial spacing avoided building costly bridges, as well as further arterial segments on the urban fringe where future traffic volumes would be expected to be low. As new entitlements were approved beyond these locations, congestion levels increased in these areas.

In addition to arterial spacing, spacing of freeway interchanges has resulted in increased traffic congestion levels. Ming Avenue, White Lane, and Panama Lane, at State Route 99, were all spaced 1.5 miles apart when the highway was designed to rural specifications in these areas. Now that the region has urbanized, heavy traffic congestion is common at all three interchanges.

Irregular spacing of arterials can make it more challenging to synchronize traffic signals in more than one direction. Arterials with signals at irregularly spaced collectors and entrances to shopping centers further complicate traffic signal coordination efforts. A collector network that directs local traffic to and from the arterials commonly deviates from the grid layout in the newer suburbs, hindering traffic signal synchronization.

The silver lining of having an imperfect arterial grid is that it results in higher levels of congestion that may promote the use of transit and other modes. However, bus transit is often stuck in the same traffic congestion. Transit service needs to provide a congestion free alternative to get around during peak periods if it is to be a viable alternative to automobile travel. Providing alternatives such as light rail and bus lanes during peak travel periods ensure that transit provides a congestion free alternative to single-occupant vehicle travel.

Bus and Carpool Lanes

One of the most efficient uses of high-occupancy vehicle (HOV), low-emissions vehicle (LEV) lanes is to provide priority access to express bus service. The sight of buses speeding past congested traffic can be a strong inducement for commuters to take advantage of transit, helping to relieve congestion and extending the service capacity of a freeway by providing an alternative means to get through a congested corridor.

FIGURE 5-26 BUSINESS ACCESS & TRANSIT (BAT) LANES

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 5-26). In Seattle, on some arterials, the right lane is reserved as a business access and transit (BAT) lane. The lane may be used for turning right into or out of parking lots and at intersections, or by a bus. The BAT lane configuration allows the bus service to get through when the arterial is congested. Buses are allowed to travel through the intersection in the BAT lane. A BAT lane also allows for carpools, vanpools, and emergency vehicles to get through when traffic is backed up.

At its September 18, 2012, meeting, the Kern COG board took action to join the CalVans board to provide input to increase vanpool services in Kern County. Currently, CalVans operates 65 vanpools in Kern County equaling a reduction of vehicle miles traveled (VMT) in Kern of 1.7 million miles. Kern COG and

CalVans estimate a possible 200 vanpools may be in operation in Kern and reduce VMT by 5.2 million miles.

Park-and-Ride Locations

Park-and-ride locations should be planned at the terminus of an express bus/BRT/light rail line and near major intermodal facilities such as freeway interchanges, airports, and regional rail. As the metropolitan 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

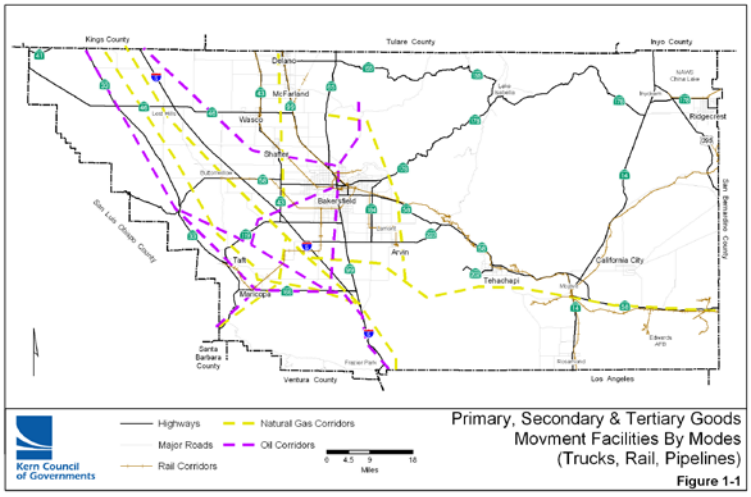
Closely tied to the region's economic and environmental goals, truck freight mobility along highways is highly dependent on land use decisions. For this discussion, freight mobility is divided into three separate areas:

- 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

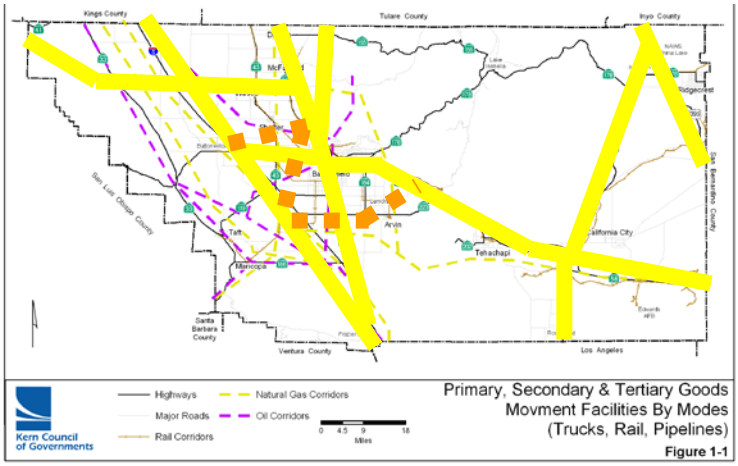
Of the primary or through-county goods movement, pipelines handle more tonnage than all other modes combined (Figure 5-27). These privately operated facilities allow the inexpensive movement of liquid and gas products. In addition to relieving a tremendous tonnage of equivalent truck and rail traffic, 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 5-27 PRIMARY GOODS MOVEMENT CORRIDORS: TRUCK, RAIL, PIPELINES



Kern lies at the crossroads for much of the trucking goods movement throughout the state. Figure 5-27 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.

FIGURE 5-28 PRIMARY TRUCK GOODS MOVEMENT FACILITIES: EXISTING AND PLANNED

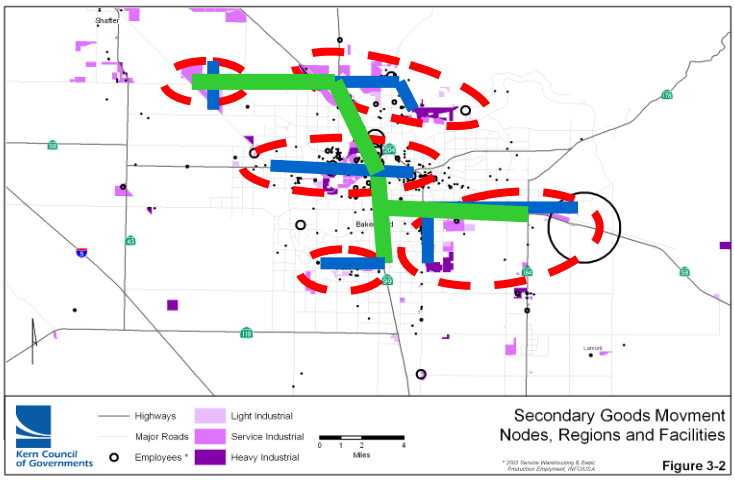


Options to increase capacity through these passes include adding truck toll lanes that use congestion pricing to create an incentive for trucks to travel at off-peak times. Another option is the double tracking of the rail line over the Tehachapi Pass. This alternative would greatly increase the capacity 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 5-40 as dashed lines, these facilities should be considered heavily traveled truck routes, and land use along these corridors should be tolerant of truck traffic.

Secondary Goods Movement

FIGURE 5-29 SECONDARY GOODS MOVEMENT FACILITIES CONNECTING INDUSTRIAL AREAS IN METRO BAKERSFIELD



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 5-29. Connecting these areas is a series of internal arterials and collectors that must handle high volumes of truck traffic. Figure 5-29 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.

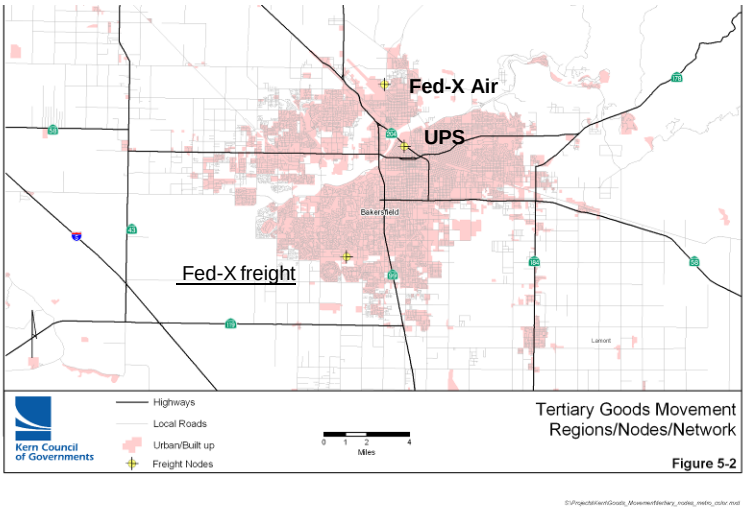
Transporting goods along these corridors requires special turning-radius considerations for longer truck trailers. National Surface Transportation Assistance Act truck routes must be able to handle trucks up to 53 feet in length and require special median design to accommodate the larger turning radii. 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 5-30). 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.

FIGURE 5-30 TERTIARY GOODS MOVEMENT NODES



Proposed Road/Highway-Related Land Use Actions

Near Term, 2014–2020

- Continue to use the CEQA review process to inform stakeholders and decision-makers on the impacts of sensitive land use developments near vital transportation infrastructure.
- Work with member agencies to preserve existing and future road and highway rights-of-way from the encroachment of sensitive land uses.
- Implement the long-range 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, 2021–2040

- Monitor progress toward implementing regional principles developed by the Directions to 2050 outreach process.

- Promote land use along freight corridors that are compatible with goods movement traffic.

- The transportation and circulation framework should define compact districts and corridors that are characterized by high connectivity of streets to not overly concentrate traffic on major streets and to provide more direct routes for pedestrians, good access to transit, and streets that are designed for pedestrians and bicycles, as well as for vehicles.

- New residential developments should include streets that provide connectivity. Cul-de-sacs and walls around communities are especially challenging for providing effective 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.

Proposed Actions

Near Term, 2014–2020

- Encourage land uses decisions by member agencies that promote pedestrian, bike, and transit-oriented mixed-use and infill development.
- Continue to review and comment on environmental documents and their identified transportation impacts, recommending pedestrian, bike, and transit-oriented development strategies.
- Promote increased communication with neighboring jurisdictions on interregional land use issues.
- Coordinate regularly with SCAG on interregional land use and transportation planning issues.
- Coordinate with the San Joaquin Valley Metropolitan Planning Organizations on interregional land use and transportation planning issues.
- Coordinate with the Eastern Sierra Transportation Planning Partnership on interregional land use and transportation planning issues.

Long Term, 2021–2040

- Encourage land use decisions by local government member agencies that promote pedestrian, bike, and transit-oriented mixed-use and infill development.
- Where appropriate, encourage local government agencies to plan for high-density, pedestrian-oriented transit hubs that support the current and planned investment in alternative transportation modes such as bus transit.
- Encourage higher densities by member agencies necessary for the Regional Housing 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.