Kern Area Regional Goods-Movement Operations (KARGO)

Community Prosperity and Protection Study Phase III

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Kern Council of Governments

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Executive Summary

The Kern Area Regional Goods-Movement Operations (KARGO) Community Prosperity/ Protection Study (Study) aims to assess and plan for the continued growth of goods movement industries in and through Kern County. The Study focuses on identifying transportation strategies and infrastructure improvements that support regional goods movement needs while reducing impacts on local communities and strengthening the resiliency of the transportation system

As a major freight and logistics hub within California, Kern County plays an important role in statewide and national movement of agricultural products, industrial goods, energy resources, and consumer freight through an extensive network of highways, rail corridors, industrial centers, and logistics facilities. At the same time, the County faces ongoing transportation challenges related to roadway safety, truck congestion, aging infrastructure, climate vulnerability, and increased pressure on communities located near key freight corridors.

The purpose of the Community Prosperity/ Protection Study is to support development of a dependable, efficient, and climate-resilient transportation system that improves regional mobility, supports economic growth, and enhances community well-being throughout Kern County. Building on previous KARGO planning efforts, the Study evaluates transportation conditions, climate vulnerabilities, economic trends, and community concerns to identify and prioritize transportation and freight investments that strengthen climate resiliency, improve goods movement efficiency, support economic opportunity, and minimize impacts on disadvantaged communities. The Study includes technical analysis, stakeholder coordination, public outreach, project prioritization, and implementation planning intended to help Kern COG and partner agencies advance near-term and long-term transportation improvements that improve safety, maintain critical transportation infrastructure, support high-paying and emerging industries, improve air quality, and enhance overall transportation system reliability.

The key objectives of the Study include:



Climate Resiliency: Asessing vulnerabilities to extreme weather events and developing strategies to build a dependable, efficient and climate-resilient transportation network.



Goods Movement Network: Identifying and prioritizing projects that enhance goods movement efficiency and attract high-paying, high-tech industries, while creating new employment opportunities in infrastructure, tourism, and industrial sectors.



Disadvantaged Communities: Minimizing negative impacts of freight movement on disadvantaged communities by rerouting heavy trucks away from sensitive areas, improving air quality, and promoting equitable access to transportation improvements.



Public Engagement: Incorporating community input into project and strategy development, including the 2026 Regional Transportation Plan and Sustainable Communities Strategy.



Economic Development: Identifying funding opportunities and prioritizing projects that can be implemented near-term to maximize benefits for both the regional economy and the community.

Additional project information and the project overview video are available via the project website: kerncog.org/kargo.

Summary by Chapter

Chapter 1 provides an overview of Kern County's regional transportation system, economic conditions, and goods movement network that shape transportation needs and investment priorities throughout the region. The chapter describes Kern County's role within California's statewide and national freight network and highlights the importance of major highway and rail corridors, including I-5, SR 99, SR 58, SR 14, SR 223, SR 184, SR 166, and the Union Pacific and BNSF rail systems, in supporting agricultural production, industrial activity, warehousing, logistics, and freight

movement throughout the State. The chapter also summarizes existing transportation infrastructure, regional travel patterns, and the growing importance of goods movement industries to the regional economy.

In addition, Chapter 1 outlines the major constraints and opportunities influencing the future of Kern County's transportation system and economy. Existing challenges include aging and vulnerable transportation infrastructure, roadway congestion and freight bottlenecks, truck conflicts within local communities, limited network redundancy, and a highly freight-dependent economy that is sensitive to market fluctuations and climate-related disruptions. The chapter also discusses broader economic and employment trends, including the decline of some legacy industries and the growing importance of logistics, warehousing, industrial development, and inland port activity. Emerging opportunities related to economic diversification, workforce development, and expanded rail and intermodal freight movement are also discussed, including the potential to shift a portion of long-haul freight movement from trucks to rail through proposed inland port and freight rail investments. Together, these existing conditions, constraints, and opportunities establish the foundation for the Study's transportation, resiliency, economic development, and goods movement recommendations.

Chapter 2 summarizes the overall study approach, including technical analysis methods, project development, stakeholder coordination, and public engagement activities completed throughout the planning process. Building on previous efforts of the Study, this effort focused on identifying and evaluating candidate transportation improvements intended to improve goods movement efficiency, increase resiliency, enhance safety, and reduce transportation impacts on local communities. The chapter describes how candidate projects were developed and organized into regional improvement strategies, including Safety Goods Movement Corridors and Greenpass Networks. Safety corridor projects focus on improving freight reliability, roadway operations, and emergency access along key truck routes, while Greenpass Networks are intended to redirect truck traffic away from neighborhoods, schools, and downtown areas where feasible.

The chapter also outlines the Study's public outreach and stakeholder engagement efforts. Outreach occurred in two phases and included workshops, community meetings, stakeholder coordination, and online engagement opportunities. Community feedback highlighted concerns related to roadway safety, truck traffic, flooding, roadway maintenance, emergency evacuation access, air quality, and multimodal transportation needs. Stakeholder input helped refine project

Phase I:

Integrated Circulation Study

- Future Conditions & Needs Assessment
- Recommendations for Circulation Elements
- Sustainability Strategies

Phase II:

Sustainability Study

- Freight Modal Shift Proposal - Rail vs. Truck Emissions Reduction
- Clean Technology Integration: Blueprint for Medium and Heavy Duty Zero Emission Vehicle Infrastructure
- Roadway Network Improvement Projects
- Funding Strategies

Phase III:

Community Prosperity/Protection Study

Phase III:

Community Prosperity/ Protection Study

- Phase II Roadway Network - Technical Analysis & Climate Risk Assessment
- Project Concept Development
- Round 1: Public Engagement
- Project Prioritization Analysis
- Round 2: Public Engagement
- Preliminary Concept Designs and Cost Estimates
- Final Stakeholder Input
- Final Study

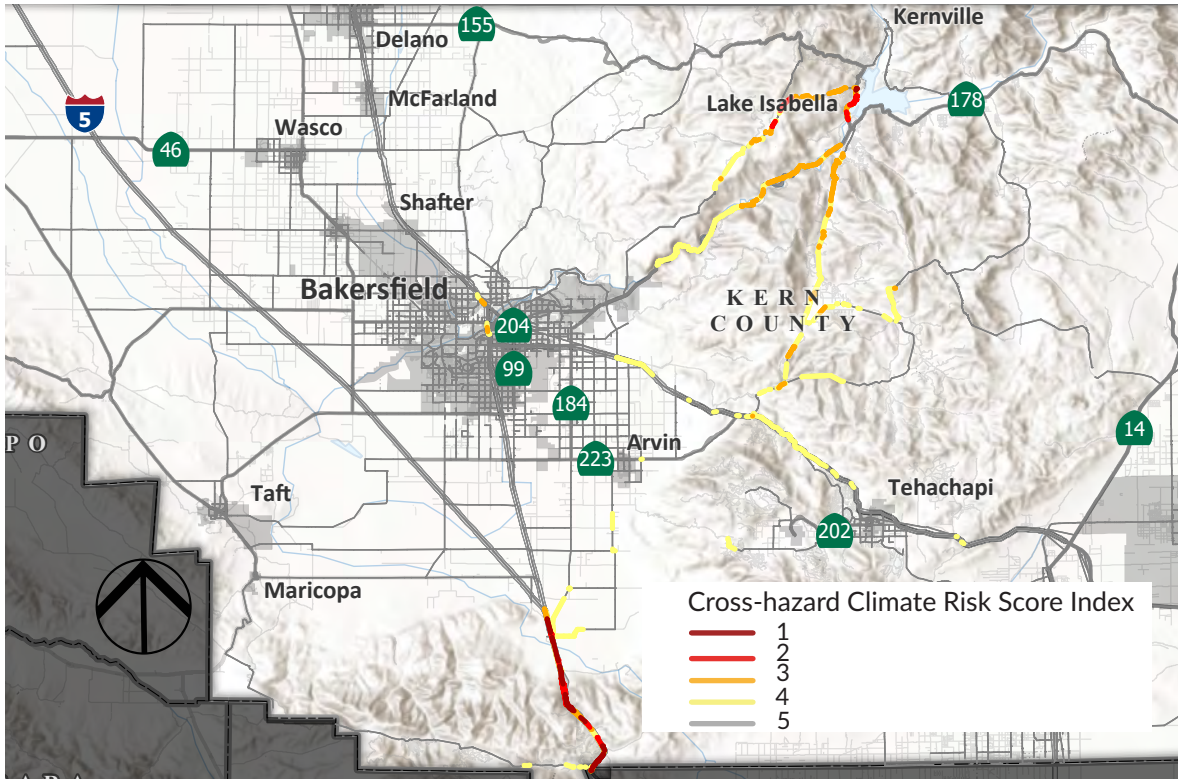
Implementation

priorities and ensure that recommended improvements reflected both regional transportation needs and local community concerns.

Chapter 3 discusses the technical analyses completed to evaluate climate vulnerability, potential transportation improvements, and economic impacts associated with goods movement and inland port development and freight shift to rail in Kern County. The chapter begins with a Climate Vulnerability Assessment that evaluated transportation infrastructure exposure to hazards including extreme heat, wildfire, flooding, landslide, and seismic risk. Approximately 9,600 miles of roads, 373 miles of railways, 662 bridges, and more than 260 culverts were analyzed using climate projections, transportation network data, and asset condition information. The assessment found that more than 50 percent of Kern County's transportation assets are highly vulnerable to climate-related hazards, with flooding and extreme heat representing the greatest risks to existing infrastructure. Key regional corridors including portions of SR-99, SR-155, I-5, SR-58, and SR-178 were identified as particularly vulnerable to future climate impacts.

The chapter also includes a transportation analysis of potential transportation improvements across 12 focus areas throughout Kern County. Using the KernCOG Travel Demand Model, Replica travel pattern data, truck activity data, and crash

Roadways and Cross-Hazards Climate Risk Map - Cross-hazard climate risk categories range from 1 (highest relative risk) to 5 (lowest relative risk), reflecting each asset's combined exposure to multiple climate hazards and the potential consequences of disruption.



data, the analysis evaluated how proposed transportation improvements could affect roadway usage, truck activity, safety, accessibility, and community exposure to freight-related impacts under future growth and inland port development scenarios.

The final section outlines the economic analysis completed using the TREDIS economic model to estimate the long-term economic impacts associated with inland port development scenarios in Shafter, Mojave, and the Tejon Commerce Center. Results indicate that inland port operations could generate substantial long-term economic benefits, including employment growth, labor income, and economic output, while supporting continued growth in logistics, warehousing, manufacturing, transportation, and supply-chain industries throughout Kern County.

Chapter 4 describes the methodology used to evaluate, score, and prioritize candidate KARGO projects throughout Kern County. Building upon earlier KARGO planning phases, the Study advances from long-range strategy development toward implementation by identifying projects that best support climate resiliency, goods movement efficiency, economic vitality, and community well-being. More than 80 candidate projects were evaluated through a multi-criteria prioritization framework designed to compare a diverse range of project types while identifying projects that provide the greatest potential co-benefits and alignment with regional and community priorities.

Projects were scored and ranked using five primary performance measures: climate vulnerability, economic and goods movement benefits, disadvantaged community co-benefits, deliverability, and community support. The methodology incorporated both quantitative and qualitative analysis, including climate exposure data, transportation network performance, collision history, truck activity, population exposure, freight accessibility, project readiness, and public engagement feedback. The prioritization process also incorporated state and federal equity screening tools, including CalEnviroScreen and USDOT Equitable Transportation Community data, to help prioritize projects that improve access, mobility, and quality of life within historically underserved communities.

The resulting project rankings reflect relative investment priority, with lower cumulative scores identifying projects that are more advanced, provide greater regional and community benefits, and are better positioned for expedited implementation. Ranked projects were organized geographically to support balanced regional investment and establish a framework for advancing future planning, funding, environmental clearance, and implementation efforts throughout Kern County.

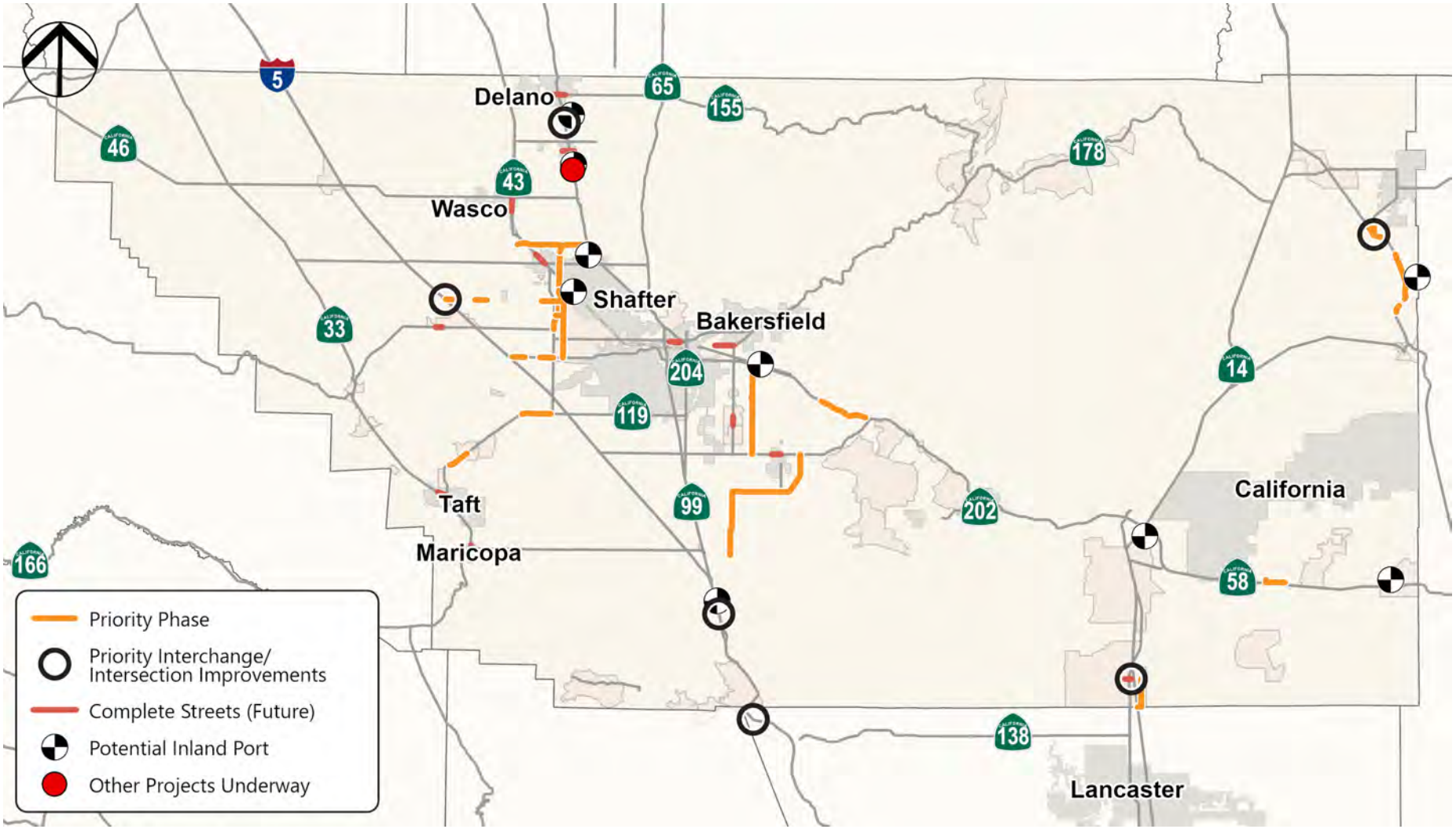
Chapter 5 presents the implementation strategy for advancing the Study's recommended transportation improvements. The chapter summarizes planning-level cost estimates, implementation considerations, and potential funding opportunities associated with candidate projects identified throughout the Study. Recommended projects include roadway safety improvements, freight corridor enhancements, resiliency projects, rail and intermodal investments, truck routing improvements, and multimodal transportation improvements located throughout Kern County. Because many of the recommended improvements involve large-scale infrastructure investments and coordination among multiple agencies and stakeholders, the implementation strategy organizes projects into phased timeframes based on readiness, cost, complexity, and funding alignment.

The chapter also identifies potential state, federal, regional, and local funding programs that may support future implementation efforts. Moving forward, the Study is intended to serve as a long-term framework for advancing transportation investments that improve goods movement operations while supporting safer communities, improved transportation resiliency, and continued economic growth throughout Kern County.

KARGO Study - Countywide Priority Phases Map

The following map illustrates the priority phases of each project across the region. Phasing reflects the results of the project prioritization analysis, with adjustments informed by agency stakeholder input during review of cost estimates and implementation considerations.

Refer to Chapter 5 for details on each proposed project, including scope, preliminary cost estimates, and recommended funding and implementation strategies.



How Much Does Each Project Cost?

The following table shows the total cost for the priority phase or interchange/intersection improvement, as shown in the previous map. The total project cost is estimated at $812.72 million. These projects are not currently funded.

Project Name	Cost Estimate
Arvin/Maricopa/Taft Green-pass Network (Phase 1.1)	$92,200,000
SR 58 Tehachapi Grade Improvements (Phase 2.1)	$155,000,000
Delano/McFarland Green-pass Network (Phase 3.3)	$1,170,000
I-5 Grapevine Improvements (Phase 4.1)	$44,950,000
Lamont/SE Bakersfield Green-pass Network (Phase 5.1)	$111,000,000
US 395 Goods Movement/Safety Improvements (Phase 6.1 & 6.2)	$94,700,000
NW Bakersfield Green-pass Network (Phase 7.1 & 13.7)	$75,850,000
Rosamond Green-pass Network (Phase 8.2)	$46,150,000
SR 33/7th Standard Rd Safety Improvements (Phase 9.3 & 9.5)	$66,100,000
SR 58/Stockdale Hwy Connection to I-5 Corridor Improvements (Phase 10.3)	$44,900,000
Wasco Ave/HSR Frontage Road (Phase 11.1)	$41,850,000
California City Blvd Extension to EAFB North Gate Safety Corridor (Phase 12.1)	$38,850,000
Grand Total	**$812,720**,000

Table of Contents

CHAPTER 1 | Introduction 1
1.1 Purpose 2
1.2 Regional Overview 2
1.3 Constraints 6
1.4 Opportunities 12

CHAPTER 2 | Planning Approach 16
2.1 Previous Efforts 17
2.2 Project Development Process 18
2.3 Public Engagement 28

CHAPTER 3 | Analysis 31
3.1 Climate Vulnerability Assessment 32
3.2 Transportation Analysis of Potential Improvements 40
3.3 Economic Analysis 72

CHAPTER 4 | Project Prioritization 76
4.1 Project Prioritization 77
4.2 Project Rankings 79

CHAPTER 5 | Implementation 90
5.1 Implementation Strategy 91
5.2 Arvin/Maricopa/Taft Green-Pass Network 93
5.3 SR-58 Tehachapi Grade Improvements 95
5.4 Delano/McFarland Greenpass Network 97
5.5 I-5 Grapevine Improvements 99
5.6 Lamont/SE Bakersfield Green-Pass Network 101
5.7 US 395 Goods Movement/Safety Improvements 103
5.8 Bakersfield Green-Pass Network 105
5.9 Rosamond Green-Pass Network 107
5.10 SR 33/7th Standard Rd Safety Corridor Improvements 109
5.11 SR 58/Stockdale Hwy Connection to I-5 Safety Corridor Improvements 111
5.12 Wasco Ave/HSR Frontage Rd 113
5.13 California City Boulevard Extension 115
5.14 Funding Strategy and Program Alignment 117
5.15 Next Steps 121

Appendices

Appendix A - Technical Studies 122
Appendix B - Public Engagement 123
Appendix C - Cost Estimates 124
Appendix D - Conceptual Plans 125

Content of Figures

FIGURE 1-1. GDP and Employment 4
FIGURE 1-2. Transportation Network 5
FIGURE 1-3. GDP and Employment by Industry (2023) 7
FIGURE 1-4. GDP and Employment Forecast (2050) 8
FIGURE 1-5. How Freight-Reliant is Kern County's Economy? 10
FIGURE 2-1. North Valley Selected Project Areas 20
FIGURE 2-2. South Valley Selected Project Areas 22
FIGURE 2-3. Tehachapi Selected Project Areas 24
FIGURE 2-4. Eastern Kern Selected Project Areas 26
FIGURE 3-1. Kern County Climate Projections 33
FIGURE 3-2. Extreme Heat Risk & Transportation Assets 35
FIGURE 3-3. Flood Risk & Transportation Assets 36
FIGURE 3-4. Wildfire Risk & Transportation Assets 37
FIGURE 3-5. Countywide Landslide and Seismic Risk 38
FIGURE 3-6. Countywide Seismic Risk 39
FIGURE 3-7. Arvin/Maricopa/Taft Green-Pass Network Travel Patterns 42
FIGURE 3-8. Federal/State STAA and Local Truck Routes In and Around Arvin 43
FIGURE 3-9. SR-58 Tehachapi Safety Corridor Travel Patterns 45
FIGURE 3-10. SR 58 Truck Trips and Parking 46
FIGURE 3-11. Delano/McFarland Green-Pass Network Travel Patterns 48
FIGURE 3-12. Federal/State STAA and Local Truck Routes In and Around Delano and McFarland 49
FIGURE 3-13. I-5 Grapevine Safety Travel Patterns 51
FIGURE 3-14. I-5 Grapevine Safety Travel Patterns 52
FIGURE 3-15. I-5 Monthly Truck Trips by Destination 53
FIGURE 3-16. Lamont/SE Bakersfield Green-Pass Network Travel Patterns 55
FIGURE 3-17. US-395 Safety Corridor Travel Patterns 57

FIGURE 3-18. Federal/State STAA and Local Truck Routes In and Around North Kern County 58
FIGURE 3-19. Bakersfield Green-Pass Network Travel Patterns....60
FIGURE 3-20. Federal/State STAA and Local Truck Routes Green-Pass Alignments 61
FIGURE 3-21. Rosamond Green-Pass Network Travel Patterns 63
FIGURE 3-22. 7th Standard Rd Safety Corridor Travel Patterns 65
FIGURE 3-23. SR-58/Stockdale Hwy Safety Corridor Travel Patterns....67
FIGURE 3-24. Wasco Ave/Merced Ave Green-Pass Network Travel Patterns 69
FIGURE 3-25. SR-58/California City Blvd Safety Corridor Travel Patterns 71
FIGURE 4-1. Roadways and Cross-Hazards Climate Risk....80
FIGURE 4-2. Railways and Cross-Hazards Climate Risk 81
FIGURE 4-3. Kern County Disadvantaged Communities....82
FIGURE 5-1. Arvin/Maricopa/Taft Green-Pass Network....94
FIGURE 5-2. SR-58 Tehachapi Grade Improvements 96
FIGURE 5-3. Delano/McFarland Green-Pass Network....98
FIGURE 5-4. I-5 Grapevine Improvements.... 100
FIGURE 5-5. Lamont/SE Bakersfield Green-Pass Network 102
FIGURE 5-6. US 395 Goods Movement/Safety Improvements 104
FIGURE 5-7. Bakersfield Green-Pass Network.... 106
FIGURE 5-8. Rosamond Green-Pass Network 108
FIGURE 5-9. SR 33/7th Standard Rd Safety Corridor Improvements.... 110
FIGURE 5-10. SR 58/Stockdale Hwy Connection to I-5 Safety Corridor Improvements 112
FIGURE 5-11. Wasco Ave/HSR Frontage Road.... 114
FIGURE 5-12. California City Boulevard Extension 116

Contents of Tables

TABLE 2-1. North Valley Selected Project Areas 21
TABLE 2-2. South Valley Selected Project Areas 23
TABLE 2-3. Tehachapi Selected Project Areas 25
TABLE 2-4. Eastern Kern Selected Project Areas 27
TABLE 3-1. Inland Port Employment Impacts (2045) 73
TABLE 3-2. Inland Port Employment Scenarios by Industry (2045) 74
TABLE 4-1. Ranked Projects and Performance Scores 83
TABLE 5-1. Cost Estimate: Arvin/Maricopa/Taft Green-Pass Network 93
TABLE 5-2. Cost Estimate: SR-58 Tehachapi Grade Improvements 95
TABLE 5-3. Cost Estimate: Delano/McFarland Green-Pass Network 97
TABLE 5-4. Cost Estimate: I-5 Grapevine Improvements 99
TABLE 5-5. Cost Estimate: Lamont/SE Bakersfield Green-Pass Network 101
TABLE 5-6. Cost Estimate: US 395 Goods Movement/Safety Improvements 103
TABLE 5-7. Cost Estimate: Bakersfield Green-Pass Network 105
TABLE 5-8. Cost Estimate: Rosamond Green-Pass Network 107
TABLE 5-9. Cost Estimate: SR 33/7th Standard Rd Safety Corridor Improvements 109
TABLE 5-10. Cost Estimate: SR 58/Stockdale Hwy Connection to I-5 Safety Corridor Improvements 111
TABLE 5-11. Cost Estimate: Wasco Av/HSR Frontage Road 113
TABLE 5-12. Cost Estimate: California City Boulevard Extension 115
TABLE 5-13. Funding Sources and Applicability by Project Type 118
TABLE 5-14. Typical Funding Cycle Calendar 119
TABLE 5-14. Typical Funding Cycle Calendar 120



CHAPTER 1 | Introduction

1.1 Purpose

The Kern Area Regional Goods-Movement Operations (KARGO) initiative has the broad goal of assessing and planning for the growth of the goods movement industries in and through Kern County. This includes planning for how the transportation system can respond to these needs and reducing the impacts of increased freight movements on local communities. As part of the KARGO inititiative, projects aim to help Kern County by:

- Ensuring high paying jobs in the region by attracting new high-tech industries
- Finding funding solutions for transportation improvements
- Maintaining local and rural roadways
- Ensuring roadway safety
- Keeping the transportation system reliable in the face of extreme weather events
- Identifying improvements that will continue to improve air quality

The purpose of the Community Prosperity/ Protection Study (Study) is to build a climate-resilient transportation system in Kern County that supports regional mobility, economic growth and community well-being. The Study aims to identify and prioritize transportation and freight investments that strengthen climate resilience, support economic growth, advance equity, and are positioned for near-term implementation.

The key objectives of the Study include:



Climate Resiliency: Asessing vulnerabilities to extreme weather events and developing strategies to build a dependable, efficient and climate-resilient transportation network.



Goods Movement Network: Identifying and prioritizing projects that enhance goods movement efficiency and attract high-paying, high-tech industries, while creating new employment opportunities in infrastructure, tourism, and industrial sectors.



Disadvantaged Communities: Minimizing negative impacts of freight movement on disadvantaged communities by rerouting heavy trucks away from sensitive areas, improving air quality, and promoting equitable access to transportation improvements.



Public Engagement: Incorporating community input into project and strategy development, including the 2026 Regional Transportation Plan and Sustainable Communities Strategy.



Economic Development: Identifying funding opportunities and prioritizing projects that can be implemented near-term to maximize benefits for both the regional economy and the community.

1.2 Regional Overview

Geography and Population

As California's third largest county, Kern County spans 8,200 square miles at the southern end of the Central Valley. Its landscape includes agricultural valleys, desert regions, and mountain ranges, and covers portions of the San Joaquin Valley, Sierra Nevada, Tehachapi Mountains, and Mojave Desert.

In 2022, Kern County had a total population of 916,000. Building on consistent population growth since the mid-1970s, Kern County's population has grown 32% since 2002. According to a KERNCOG forecast, the County is expected to have a population of around 1,024,000 people by 2050.

Kern County includes eleven incorporated cities, as well as several unincorporated rual communities. The cities include Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. Despite its vast size, nearly two-thirds of residents live within Metropolitan Bakersfield, an area that occupies just 1/20th of the county's total land area.

Employment and GDP

Kern County has a resident workforce of 391,000. In 2021, 74% of the county's jobs were performed by residents while the remainder were performed by commuters

into the County.

Unemployment in Kern County has remained persistently above national and state averages. From 2023 to 2024, the County's unemployment rate increased from 8.1% to 9.3%. By contrast, California's unemployment rate was 4.8% while the nation's unemployment rate was 3.5%.

Long-term forecasts indicate that the County's GDP (Gross Domestic Product) will rise steadily over the next three decades, but employment growth is expected to slow and vary according to industry, as shown in *Figure 1-1*. This forecast signals that Kern County will see an increase in economic output per employee. This is expected given the increased production capacity provided by technological advancements.

Transportation Network

Kern County's transportation network is comprised of major highways Interstate 5, State Route 99, and State Route 58, connecting Northern and Southern California. Rail service features Amtrak's San Joaquin route for passengers and extensive freight operations by BNSF Railway and Union Pacific. Future plans include a California High-Speed Rail station in Bakersfield, enhancing statewide connectivity.

Figure 1-2 illustrates Kern County's major highways and railways.

Kern County serves as a critical freight gateway. It connects Southern California, the Central Valley, and national freight corridors through Interstate 5, SR 99, and SR 58. These routes handle over 40% of California's truck freight and link to Class I rail lines operated by Union Pacific and BNSF.

The highway network in Kern County includes the following major corridors:

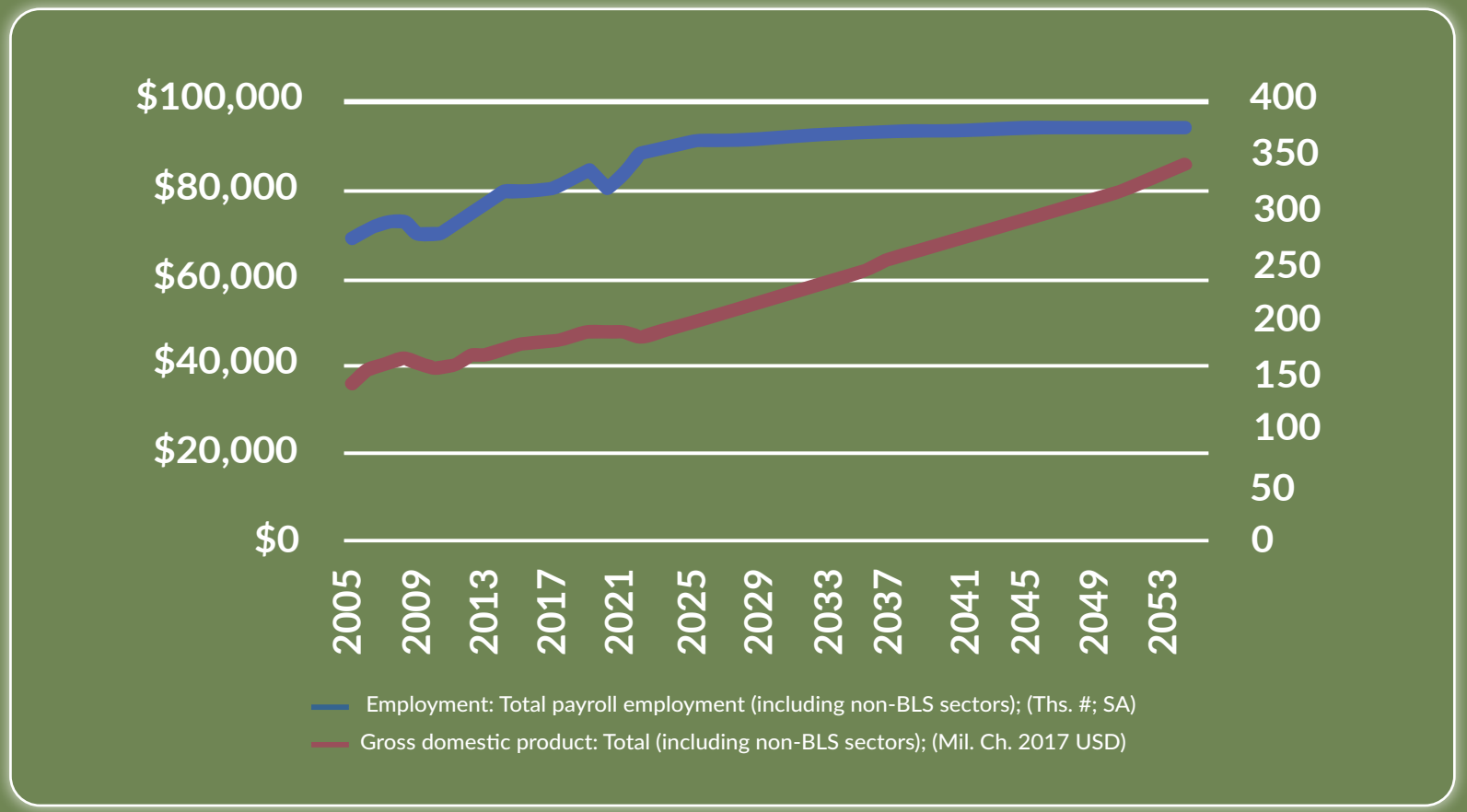
- **Interstate 5 (I-5):** Primary north–south corridor connecting California and national freight markets
- **State Route 99 (SR 99):** Major north–south arterial through the Central Valley
- **State Route 58 (SR 58):** Critical east–west freight corridor linking the Central Valley to the Mojave Desert and Interstate 40
- **State Route 14 (SR 14):** Connector between Kern County, Los Angeles Basin, and the Antelope Valley
- **State Route 223 (SR 223):** Regional link between SR 99 and SR 58
- **State Route 184 (SR 184):** Secondary freight route serving local agricultural production areas
- **State Route 166 (SR 166):** East–west corridor connecting Kern County to the Central Coast region

The rail network in Kern County includes the following:

- **Union Pacific Railroad (UP):** Mainline tracks, including the Tehachapi Pass route, connect the Central Valley, Southern California, and national markets
- **BNSF Railway (BNSF):** Shares Tehachapi trackage and operates additional lines serving local agriculture and industry.

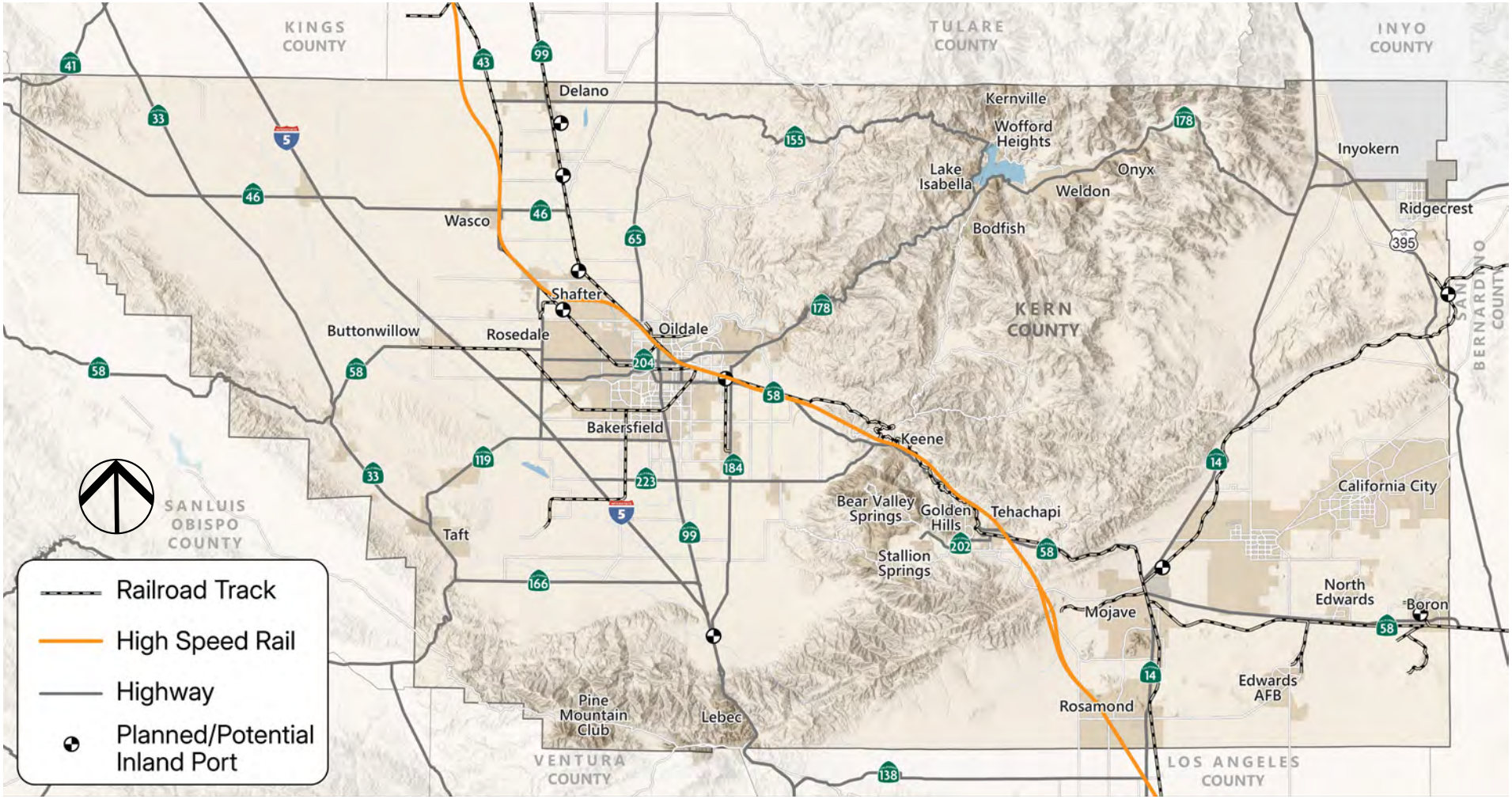


FIGURE 1-1. GDP and Employment



Source: U.S. Bureau of Economic Analysis, "CAGDP1 County and MSA gross domestic product (GDP) summary"

FIGURE 1-2. Transportation Network



1.3 Constraints

The Study will advance a climate-resilient transportation system in Kern County by addressing existing structural constraints while positioning the region to capitalize on emerging economic opportunities. Current challenges include the decline of legacy industries, aging and vulnerable transportation infrastructure, and a highly freight-dependent economy that is sensitive to market and climate disruptions.

Shrinking Legacy Sectors

Kern County's economic transition is constrained by the decline of historically dominant industries in agriculture and oil. The economic outlook for these industries reflects both growth projections and structural challenges.

Figure 1-3 provides detail on the relative size of each sector's GDP and the employment location quotient (LQ). Employment LQ quantifies how concentrated an industry's jobs are in a region when compared to the nation. Any LQ above 1 indicates a higher concentration of industry-specific employment within the region that the nation. A higher score means an even more concentration of jobs.

Figure 1-4 provides a look at the forecast economy of Kern County in the year 2050. The predicted level of employment for over 25 industries is displayed by order of their county GDP. These are forecasted to be the largest contributors to the county's economy in 25 years.

Shrinking production in agriculture and oil sectors is an economic setback, contributing to employment loss and economic stability.

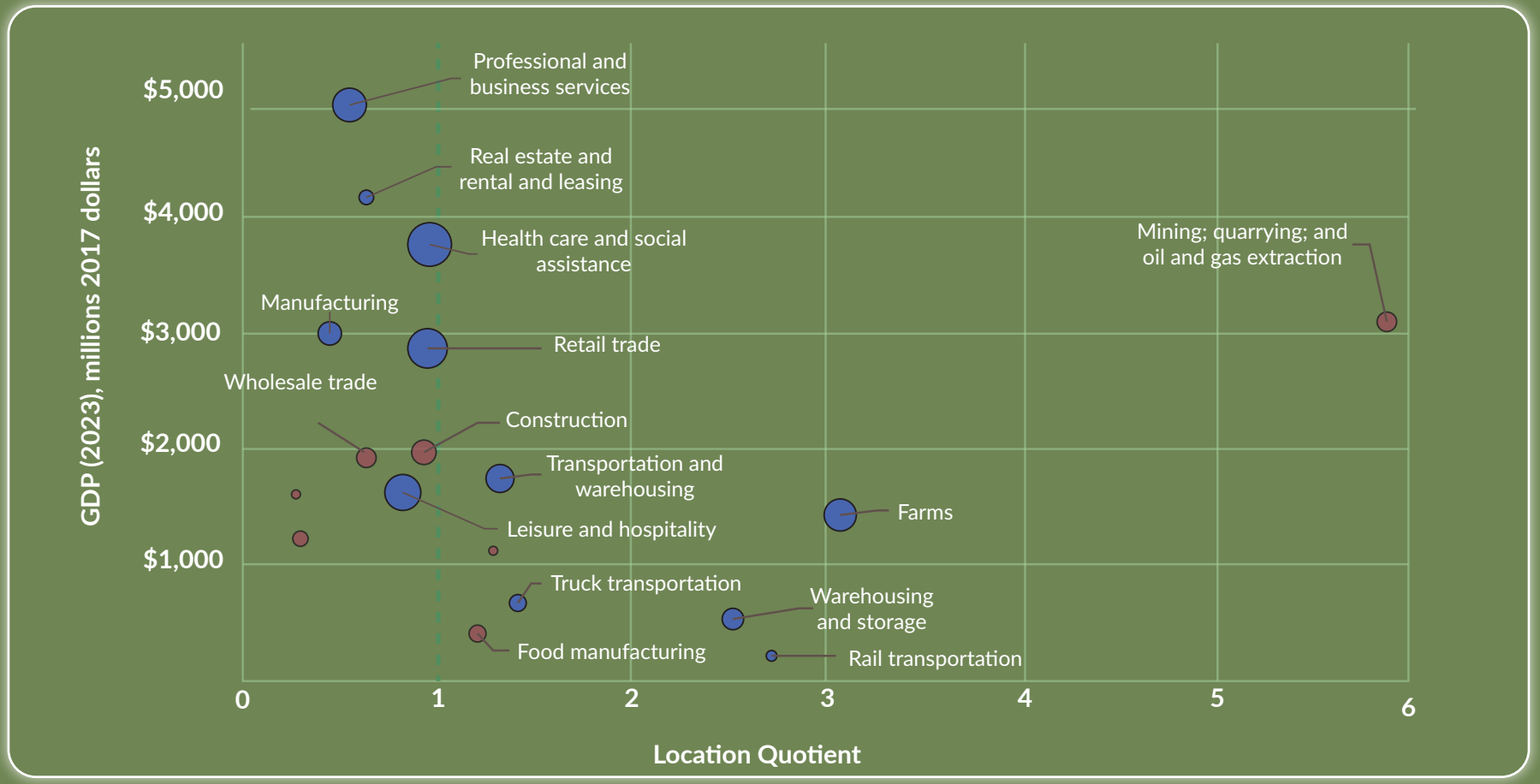
Employment Trends

- Farm employment has an LQ of 3.1, which is three times more concentrated than the national average. However, farm employment has not been rapidly growing, remaining stable over the past decade: from 17,050 to 17,730 employees (+4%).
- Forestry, fishing, hunting, and trapping had substantial employment growth (+17%) in the last decade: a total of 46,980 workers with an extremely high LQ of 53. By 2050, forecasts show forestry, fishing, hunting, and trapping providing over 48,000 jobs.
- Food manufacturing, a key value-added agricultural sector, has experienced an employment decline (-25%) from 2013 to 2023. Yet, the food manufacturing subsector still maintains an above-average employment concentration (LQ = 1.2) with 4,600 workers as of 2023.
- Oil and gas extraction is highly concentrated in Kern County, an LQ of 5.9. In 2023, the sector employed about 9,000 workers, but the industry has experienced a decline in employment. From 2013 to 2023, employment in mining, quarrying, and oil & gas extraction declined by 5.2%, outpacing the US's overall losses of 3.2%. By 2050, oil and gas employment is expected to decline substantially.

GDP Trends

- Agriculture, forestry, fishing, and hunting contributed $1,742 million to GDP in 2023. Food manufacturing is expected to grow in economic output despite stagnant or slightly declining employment.
- Oil and gas extraction remains a major contributor to Kern County's GDP. In 2023, the industry contributed over $3 billion to the local economy. Despite declining employment, the economic contribution of oil and gas will remain significant. Kern County produced 71% of California's oil as of 2019, though its national ranking has dropped due to regulatory changes and well closures.

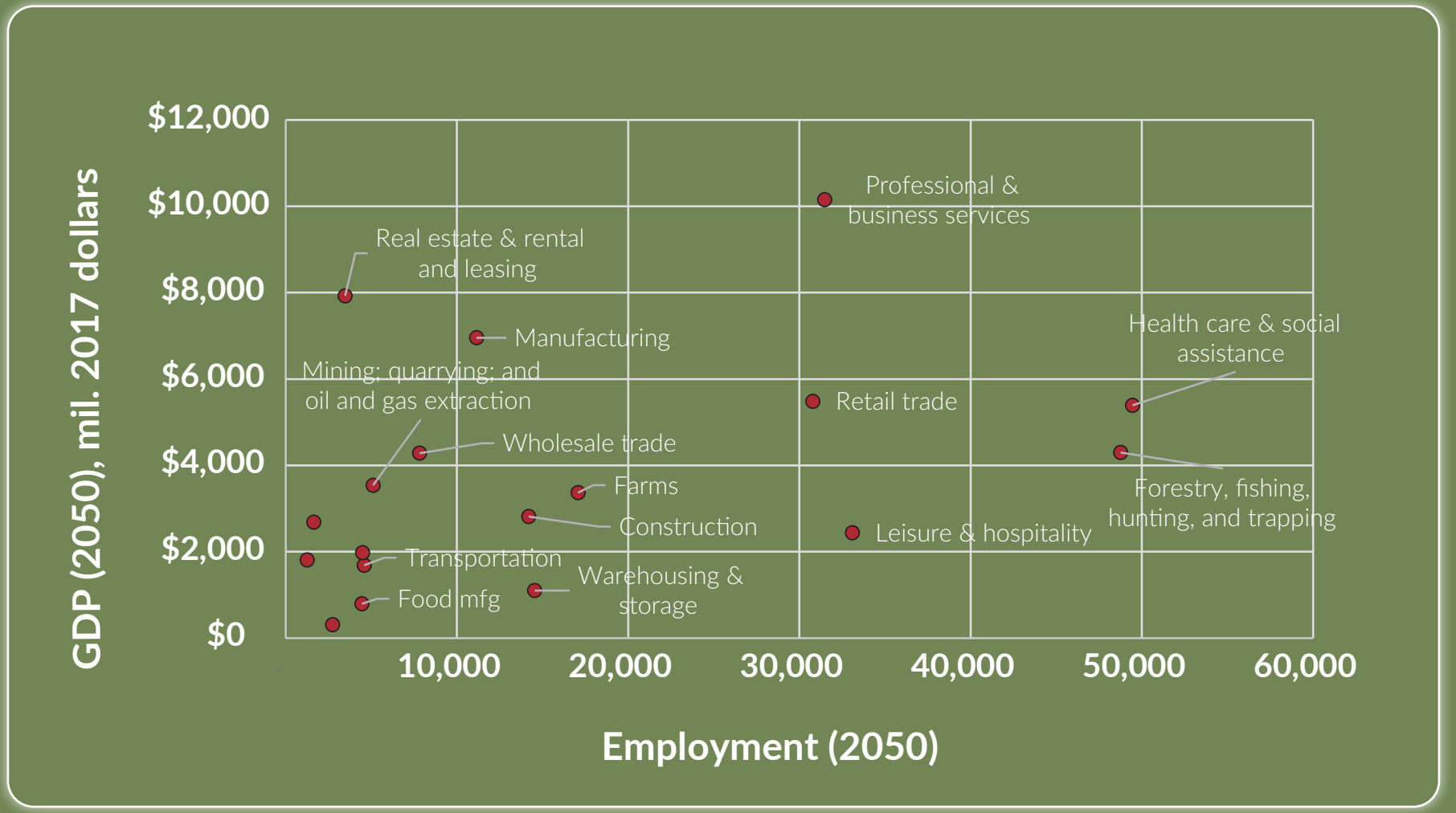
FIGURE 1-3. GDP and Employment by Industry (2023)



Source: EBP analysis of Moody's employment and GDP data

Notes: Graph omits forestry, hunting, trapping, and fishing (LQ >53). Bubble size corresponds with employment in 2023. Blue bubbles indicate employment growth from 2013 to 2023. Red bubbles indicate employment loss in the same period.

FIGURE 1-4. GDP and Employment Forecast (2050)



Source: EBP analysis of Moody's employment and GDP data

Freight-Dependent Industries

Kern County's critical industries to economic growth are constrained by an over reliance on freight transportation. These industries include agriculture (crop and animal production), food manufacturing, and forestry, and oil and gas extraction.

Figure 1-5 presents the key economic drivers in terms of both significant GDP and freight dependency for both inflows and outflows.

The agriculture sector is highly freight-dependent, with 84% of crop and animal production and 83% of forestry, fishing, hunting, and trapping relying on freight for inputs and outputs. Forestry is especially crucial to infrastructure investments since its one of the fastest-growing sources of jobs in Kern County over the next twenty years.

Agriculture and related sectors are central to Kern County's economy, generating the highest Gross Regional Product (GRP). Food manufacturing, which processes local agricultural products into higher-value goods, is another key contributor to GRP and depends heavily on transportation infrastructure for distribution.

Oil and Gas Extraction (81%), Manufacturing (80%), and Wholesale Trade (73%) are similarly freight-intensive, with most products and materials moved by trucks and trains. Oil and gas extraction remains a major economic driver, contributing over $3 billion to the county's GDP in 2023, and 25% of goods moving by truck.

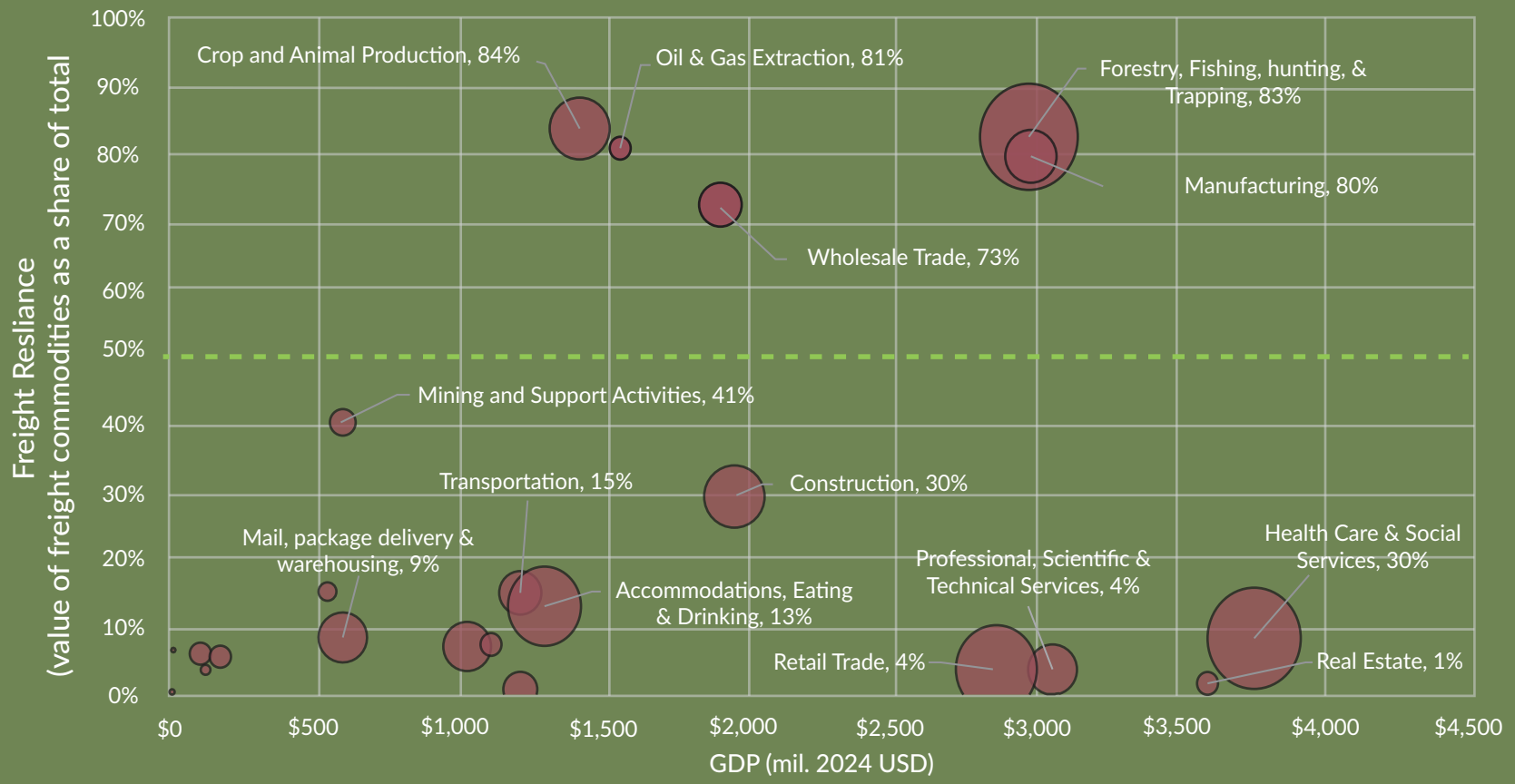
Some manufacturing subsectors, such as transportation and logistics are more freight-reliant than others. These industries benefit most from improvements in transportation connectivity, as efficient freight movement is critical to their ongoing economic success and regional competitiveness.

Despite the strength of these sectors, Kern County's economic prosperity remains constrained by their exposure to environmental, regulatory, and market shifts. Without diversification, the local economy risks over-reliance on a few key industries.

Over reliance on freight transportation means that high congestion, maintenance issues, or regulatory delays can directly impact the movement of goods, increase production costs, and limit market access.

Strategic planning and targeted investment in transportation infrastructure are essential to support sustainable growth and economic stability. These traditionally freight-intensive industries will be the largest users of transportation investments established by the county.

FIGURE 1-5. How Freight-Reliant is Kern County's Economy?



Source: EBP analysis of Moody's employment and GDP data

Aging Infrastructure

Kern County's transportation system spans over 9,600 miles of roadways and 375 miles of railways, 600 bridges, and 200 culverts. However, most of the transportation network is challenged by aging infrastructure and increasing climate vulnerability. Heavy truck volumes on major freight corridors further accelerate deterioration. Roadways, bridges, and culverts are reaching or exceeding their lifespan, and deferred maintenance intensifies these structural deficiencies.

Regional climate projections show Kern County will face more frequent extreme heat, heightened wildfire risk, and increased flooding from intense storm events. These hazards threaten critical transportation assets and expose key corridors such as I-5, SR-99, SR-155, and SR-178 to repeated risks. Limited redundancy in the network means that closures or failures, whether from age, disaster, or maintenance, can cause significant regional disruptions.

The impacts from extreme heat may result in accelerated pavement damage on SR-99 and SR-58 freight corridors, increased rail buckling on UP and BNSF mainlines, and heat-induced stress on bridge joints that shortens infrastructure lifespan.

Disruptions to major corridors and rail lines threaten Kern's role as a logistics and agricultural hub, while vulnerable populations, especially in rural and high-risk areas, face greater isolation and slower emergency response.

Wildfires can cause road closures, block drainage systems, damage property, and threaten lives. They may also lead to debris flows that clog culverts and disrupt rail service through mountain passes, as well as closures on SR-178 and SR-155.

Single-day storm intensity is projected to increase, heightening flash flood risks and expanding 100-year floodplains along the Kern River and Poso Creek. High-risk corridors include SR-99 near Bakersfield and SR-223, with SR-58 and SR-155 drainage systems likely to be overwhelmed.

Insufficient investment in resilient transportation infrastructure restricts access to high-growth sectors in logistics, warehousing, and advanced manufacturing, which depend on efficient goods movement and modern facilities.

CLIMATE HAZARD	IMPACT TYPE	IMPACTED AREAS
Extreme Heat	 Roadways/Pavement  Rail Buckling  Bridges	• I-5 • SR-58 • SR-99 • SR-178 • SR-155 • Railway System (UP/BNSF)
Flooding	 Blocked Drainage  Clogged Culvert	• 1-5 • SR-58 • SR-99 • SR-233 • SR-155 • SR-178 • Railway System (UP/BNSF)
Wildfire	 Road/Rail Closure  Blocked Drainage  Clogged Culvert	• I-5 • SR-58 • SR-178 • Railway System (UP/BNSF) • Tehachapi Pass

1.4 Opportunities

Economic Diversification & Workforce Development

Kern County is positioned to diversify its economy beyond traditional sectors by leveraging advancements in automation and logistics technologies. This shift is reinforced by a rapidly expanding transportation and warehousing sector in Kern County, where employment has more than doubled (+133%) over the past decade to exceed 19,000 workers. Warehousing and storage employment are forecasted to add nearly 5,000 jobs in Kern County by 2050, outpacing growth in most other sectors.

Recent corporate investments have capitalized on the county's strategic location at the junction of major transportation corridors (I-5, SR-99, SR-58, SR-46), positioning the region as a hub for major distribution facilities such as Amazon, Caterpillar, IKEA, and Walmart. To sustain growth, the region must adopt technology-driven strategies that optimize freight movement, improve data insights, and ensure operational safety.

Economic diversification depends on closing the gap between workforce skills and evolving industry needs. Logistics and warehousing employment in Kern County surged 353% in the past decade, reaching 10,000 jobs in 2023, with a location quotient of 10.11, which is ten times the national average. Developing new employment opportunities in infrastructure and industrial sectors will enable Kern County's workforce to support long-term regional competitiveness.

However, many residents lack access to affordable, high-quality training aligned with these emerging sectors. Only 18.2% of Kern County residents hold a bachelor's degree or higher, compared to 36.7% statewide, and persistent unemployment rates remain above state and national averages.

As automation, data analytics, and technology-driven supply chain management reshape the region's economic landscape, targeted workforce development will be critical to ensure residents can secure higher-wage opportunities. Partnerships with local educational institutions to create targeted programs can expand access to technical certifications and apprenticeships and align training with employer needs.

Kern COG works with local education and industry partners to advance educational opportunities that support careers in logistics and supply chain management, including the following career pathways:

- Kern High School District - Regional Occupational Center
- Bakersfield College - Bachelor of Arts in Industrial Automation
- California State University Bakersfield - Bachelor of Science in Business Administration, Supply Chain Logistics Concentration
- University of California, Merced - Doctorate of Philosophy in Management of Complex Systems
- Wonderful Company Training Center

These opportunities support workforce readiness as logistics and goods movement continue to expand across Kern County.



Students participate in hands-on industrial automation training, preparing for careers in logistics and supply chain operations.

Freight Shift

Kern County plays a critical role in California's goods-movement system, connecting Southern California ports, the Central Valley, and national freight corridors. Bakersfield functions as a major logistics hub, supporting intermodal transfers and regional freight distribution for Kern County's $7.5-billion agricultural economy. This central location positions the county to support a shift of long-haul freight from trucks to rail.

Planned investments, including the Arvin-Tejon Commerce Center Rail Spur and the proposed California Inland Port, present significant opportunities to advance this shift. These initiatives could move up to 30 percent of port-related truck freight to rail, reducing congestion on major highway corridors and cutting greenhouse gas emissions by as much as 60 percent per ton-mile. Achieving these outcomes will require strong public–private collaboration and continued investment in sustainable freight solutions, supporting regional economic growth projected at 2.1 percent annually through 2035 while improving environmental and community outcomes.

Shafter Inland Port: A Growing Logistics and Rail Hub in Kern County

A 100+ acre rail terminal supporting regional goods movement, jobs, and economic growth



Rail & Intermodal

- 100+ acre rail terminal on the BNSF mainline
- 160 container spaces
- $100 million private investment
- Currently under construction

Logistics & Warehousing

- 11 distribution centers (DCs), with more planned
- Over 8 million square feet built or under construction
- More than half built in the last 5 years

Major Tenants

- Amazon, Walmart, Target, Ross, FedEx, Smuckers, Wonderful Co.
- Mix of fulfillment, grocery, and container operations

Opportunities to Shift Goods From Truck to Rail

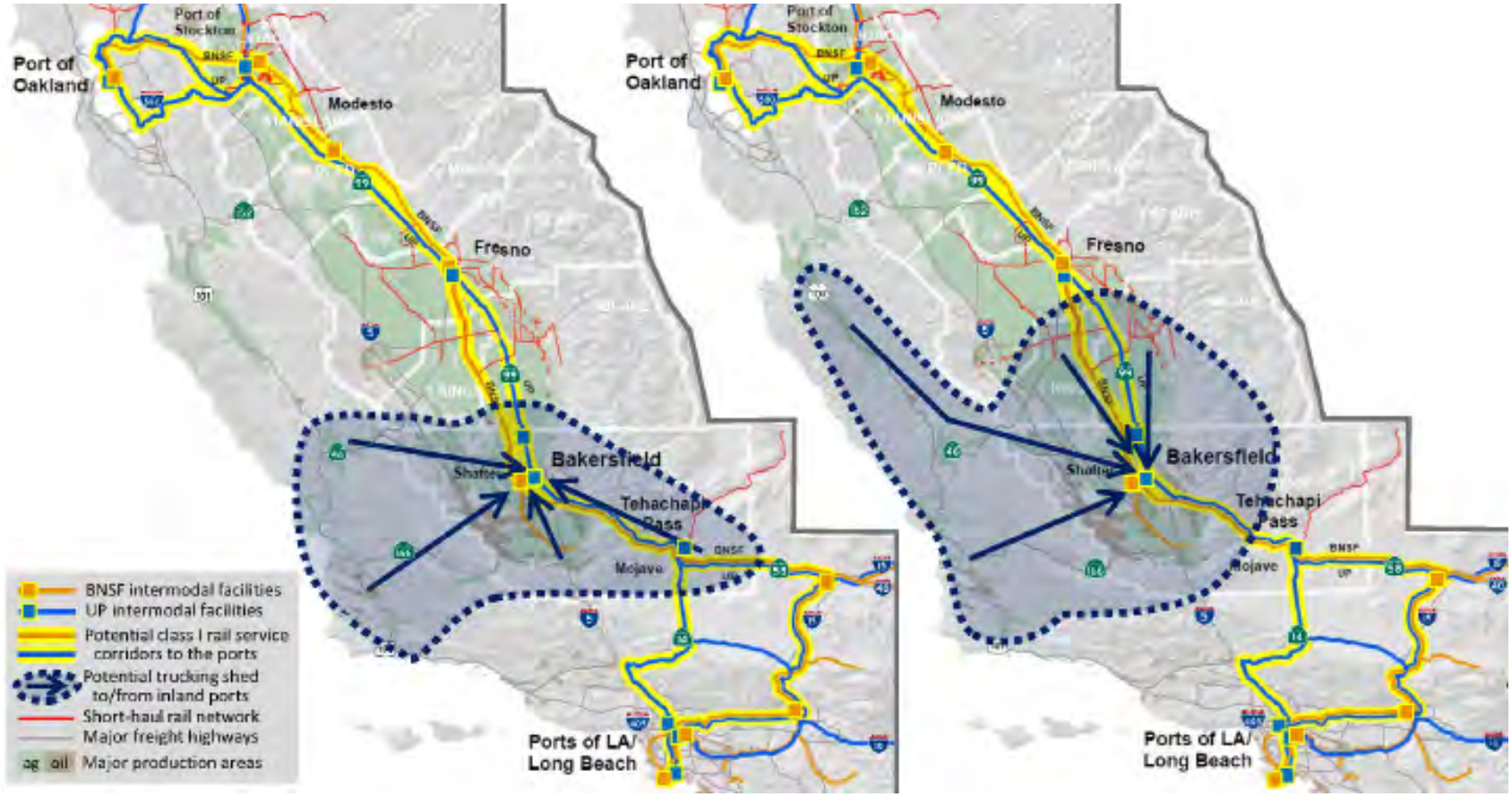
Two Potential Rail Corridors linking the Shafter Logistics Center with California's major seaports

Connecting to/from the Port of Oakland

Estimate 1-3 Trains per Week

Connecting to/from the Ports of LA & Long Beach

Estimate 2-6 Trains per Week



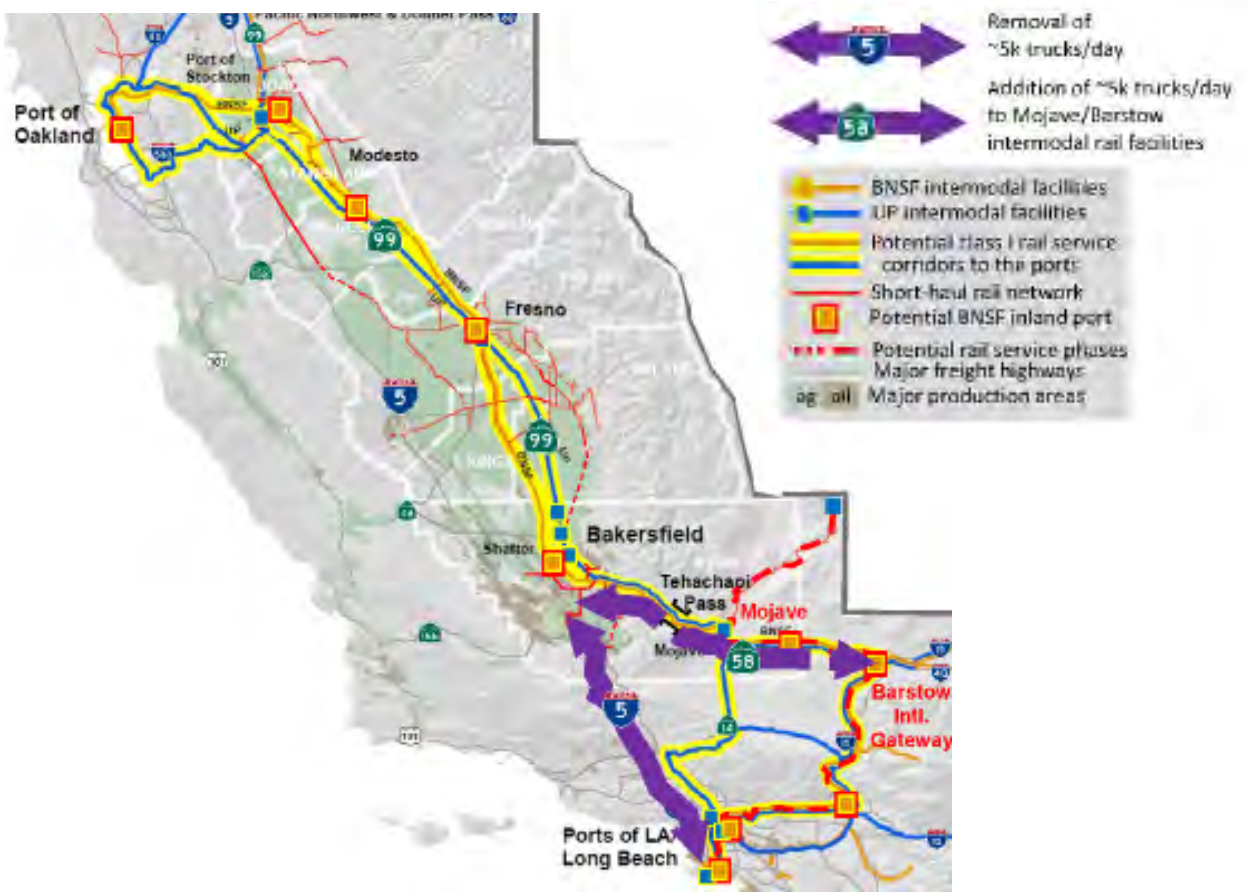
There is potential to shift freight from Class I truck operations to new rail service between Shafter and California's major seaports. Shifting trucks to rail could reduce highway congestion and emissions while improving goods movement between Shafter Inland Port and Port of Oakland/Port of LA & Long Beach. Estimates assume 10-30% truck-to-rail shift Based on California Inland Port Feasibility Study (2020).

Shifting More Freight to Rail: Impacts of the Barstow and Mojave Inland Ports

The proposed Barstow International Gateway could reroute up to 5,000 Trucks/day to SR 58 and enable 100+ freight trains per week between inland ports and the Ports of LA/Long Beach

The planned Barstow International Gateway is expected to shift up to 5,000 long-haul truck trips per day from I-5 onto SR 58, where containers would transfer to rail at the Mojave and Barstow inland ports. Together, these facilities could support more than 100 frieght trains per week connecting Kern County to the Ports of LA and Long Beach.

Looking ahead, future High-speed Rail service is anticipated to free seven round-trip freight slots on the BNSF line between Merced and Bakersfiled as early as 2028. This new rail capacity creates an opportunity to move more goods by rail instead of truck, reducing highway congestion, improving air quality, and strengthing the reliability of California's goods-movement system.





CHAPTER 2 | Planning Approach

2.1 Previous Efforts

The Kern Area Regional Goods-Movement Operations (KARGO) initiative has led previous efforts to assess and plan for the growth of the goods movement and sustainable practices throughout Kern County. This includes planning for how the transportation system can respond to these needs and reduce the impacts of increased freight movements on local communities. As part of the KARGO inititiative, Phase I and Phase II focused on regional transportation assessments and sustainable strategies, while incorporating community and stakeholder input into the project recommendations.

Phase I: Integrated Circulation Study

The Phase I: Integrated Circulation Study was developed to address the growing industrial and warehousing industries along 7th Standard Road, between Bakersfield and Shafter. The analysis comprised of ten distinct alternatives for roadway improvements and conceptual designs at twenty locations to further inform the future network needs in the area.

Phase I served as a tool for the cities of Bakersfield and Shafter and Kern County in updating their circulation elements. It culminated in a series of regional sustainability strategies:

- Logistics Transportation Fee to fund infrastructure improvements
- Freight shift from truck to rail to reduce emissions and congestion
- Identification of next-generation industrial trade port districts to support regional economic growth
- Clean highway technologies such as the SAFETEC autonomous, zero-emission truck testing zone.

Phase II: Sustainability Study

The Phase II: Sustainability Study focused on goods movement while addressing the regional economy and potential impacts of future land use and development. It also emphasized the importance of shifting freight from trucks to rail and adopting clean transportation technologies to ensure sustainable goods movement.

Phase II evaluated the effects and opportunities associated with increased vehicular activity and roadway damage due to the growth of the warehouse and e-commerce industries. To address the anticipated surge in truck traffic, a Nexus Study was conducted to establish a fair-share cost framework for funding roadway network improvement projects.

This phase identified priority infrastructure projects, proposed new regional impact fee scenarios, and recommended funding mechanisms to address a substantial funding gap. Phase II culminated in a refined and comprehensive list of infrastructure improvements, supported by a detailed implementation strategy.

Phase I:

Integrated Circulation Study

- Future Conditions & Needs Assessment
- Recommendations for Circulation Elements
- Sustainability Strategies

Phase II:

Sustainability Study

- Freight Modal Shift Proposal - Rail vs. Truck Emissions Reduction
- Clean Technology Integration: Blueprint for Medium and Heavy Duty Zero Emission Vehicle Infrastructure
- Roadway Network Improvement Projects
- Funding Strategies

Phase III:

Community Prosperity/Protection Study

2.2 Project Development Process

Phase III: Community Prosperity and Protection Study

The current phase of the KARGO initiative advances the vision of a climate-resilient transportation network by transitioning from strategic planning to implementation. Building on Phase II, approximately 80 prioritized roadway and transportation assets were advanced for further analysis. These projects encompass roadway capacity and operational improvements, safety and rehabilitation projects, complete streets enhancements, and targeted rail corridor improvements that collectively support safer, more efficient, and sustainable goods movement.

Project selection was informed by extensive stakeholder coordination, including engagement with local jurisdictions, transportation agencies, industry representatives, and community-based organizations. Particular emphasis was placed on incorporating input from disadvantaged communities to ensure that projects addressed community concerns related to safety, air quality, accessibility, and quality of life while supporting regional economic activity.

Figures 2-1 through 2-4 illustrate the selected projects by sub-region, including the North Valley, South Valley, Tehachapi, and Eastern Kern areas.

A climate vulnerability analysis was conducted to evaluate regional climate projections and assess transportation asset exposure to climate-related hazards. Projects were categorized by function, freight significance, and climate risk, and assigned cross-hazard scores to support prioritization.

Building on the climate vulnerability assessment, transportation impacts of selected projects were evaluated countywide using metrics related to population exposure, employment accessibility, and safety. Scenario-based modeling was applied to compare future conditions with and without the selected projects, enabling assessment of changes in traffic activity, freight movement, and community impacts associated with projected goods movement growth.
An economic impacts analysis was conducted to evaluate the potential effects of inland port development in Kern County, with a focus on long-term employment, income, and regional economic output. Using a scenario-based approach, the analysis examined how changes in travel patterns, freight activity, and operational performance associated with inland ports translate into sustained economic benefits across the regional economy.

Using a multi-criteria evaluation framework incorporating climate resilience, safety, economic benefits, freight efficiency, and community benefits, the highest-priority projects were advanced to planning-level cost estimates and conceptual designs to support funding applications and implementation readiness. Public and stakeholder input was integrated throughout the process to ensure alignment with community needs and regional goals.



Phase III:

Community Prosperity/ Protection Study

- Phase II Roadway Network - Technical Analysis & Climate Risk Assessment
- Project Concept Development
- Round 1: Public Engagement
- Project Prioritization Analysis
- Round 2: Public Engagement
- Preliminary Concept Designs and Cost Estimates
- Final Stakeholder Input
- Final Study

Implementation

Safety Goods Movement Corridors and Green-Pass Networks

As part of the project concept development process, candidate corridors were organized into distinct network improvement types to clearly define their purpose, function, and intended outcomes, with an emphasis on improving safety and supporting sustainable goods movement.

Safety Goods Movement Corridors are designated to enhance truck and freight routes by prioritizing safety, operational efficiency, and infrastructure resilience. Improvements may include pavement strengthening, intersection and interchange upgrades, operational safety treatments, and geometric design enhancements to better accommodate heavy vehicles while reducing collision risk, minimizing roadway wear, and improving reliability.

Green-Pass Networks are intended to strategically reroute regional and long-haul truck traffic away from downtown areas, neighborhood streets, and community-serving corridors to reduce conflicts with local travel. By redirecting trucks to designated bypass routes, Green-Pass Networks enable the implementation of Complete Streets improvements, such as pedestrian, bicycle, and transit enhancements within downtowns and community centers, while reducing noise, emissions, and safety conflicts, particularly in disadvantaged and residential areas.

Complete Streets is an approach to planning, designing, operating, and maintaining streets to provide safe, comfortable, and accessible mobility for users of all ages and abilities, including people walking, bicycling, using transit, and driving. Typical elements that make up a Complete Street include widening sidewalks, bicycle lanes, designated bus lanes, safe intersection and mid-block crossings, curb extensions, narrower travel lanes, and roundabous.



Traffic calming features including high-visibility crosswalks, curb extensions, and median islands



Class IV (protected) bicycle lane

FIGURE 2-1. North Valley Selected Project Areas

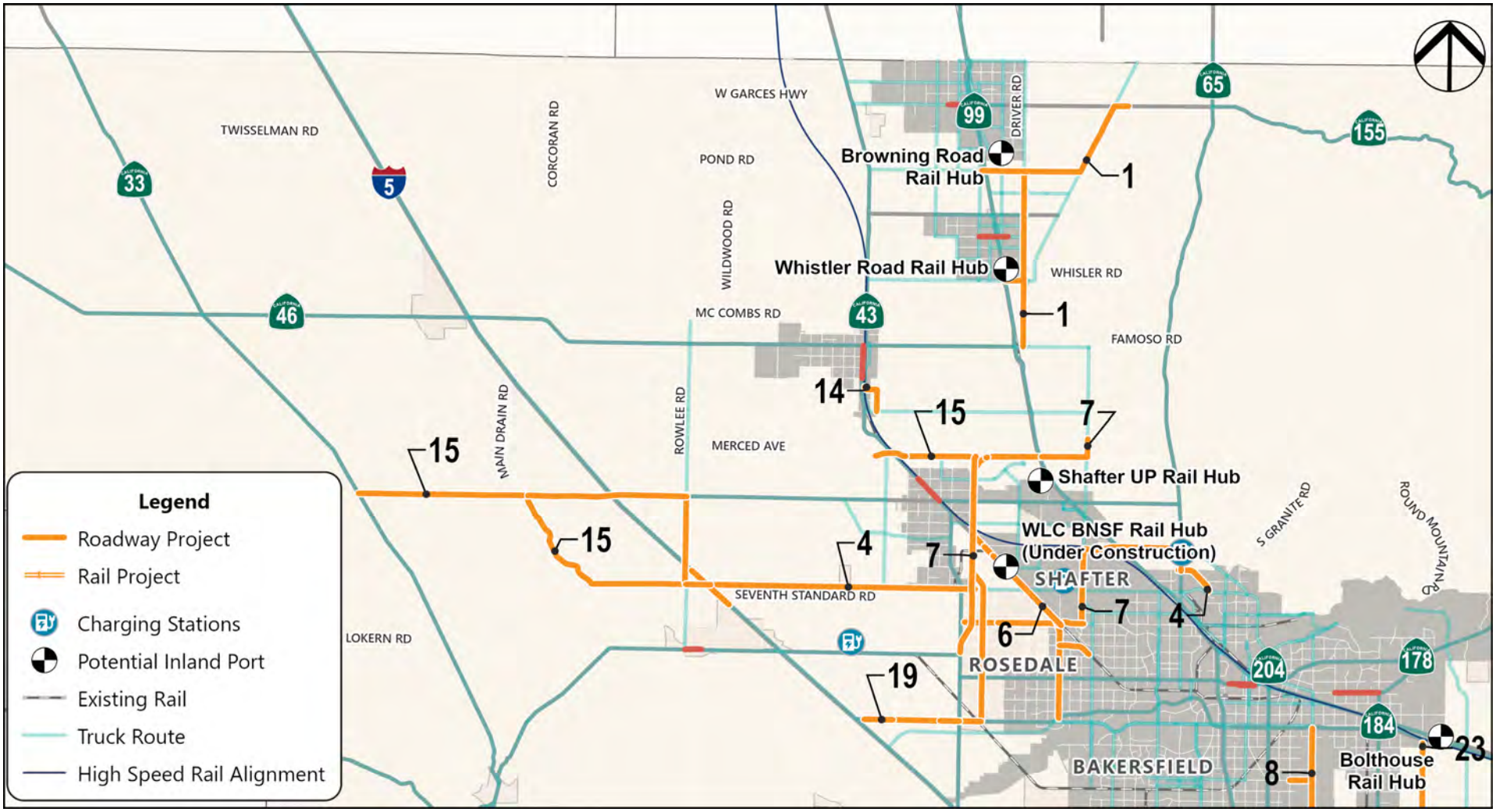


TABLE 2-1. North Valley Selected Project Areas

Number	Description
1	Delano Green-Pass
2	Merced Avenue-Expressway 2 Canal Bridges
3	Cherry Avenue-Expressway 2 Grade Separations
4/19	7th Standard Road/I-5 Airport Dr
6/20	Santa Fe Way, Burbank-Rosedale Hwy
7	Superior Road-Expressway 1 Grade Separation
15	Cherry Avenue-Expressway 2 Grade Separations
8	Panama Ln Green-Pass/Mt Vernon-Edison Rd
10	SR 99/Merced Avenue Interchange Improvements
14	Wasco Avenue Frontage Road to HSR Kimberline-Jackson
23	Lamont Green-Pass: Edison Road
31	99, Burbank Corr Beardslee Canal
35.2	SR99/Whistler Road Interchange
37/39	SR99/SR58 Interchange Missing Ramps
50	Zerker Road

Number	Description
52	Delano Complete Streets Corridor
55	Shafter Complete Streets Corridor
59	Buttonwillow Complete Streets Corridor
60	Bakersfield Complete Streets Corridor
61	178 Complete Streets Corridor
62	24th St Complete Streets Corridor
66	Shafter Rail Spur
74	Shafter-Bakerfield W Urban Corridor

FIGURE 2-2. South Valley Selected Project Areas

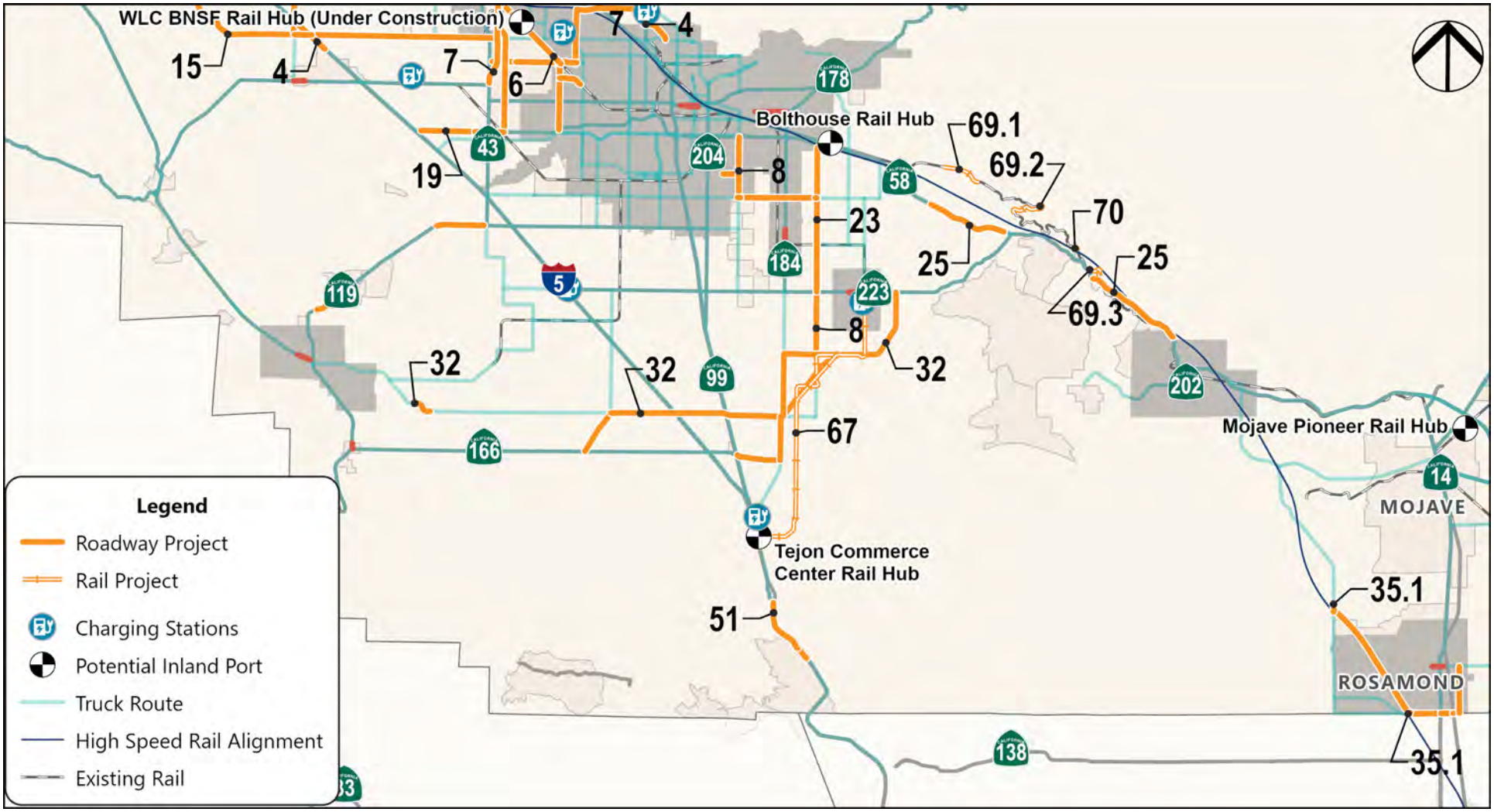


TABLE 2-2. South Valley Selected Project Areas

Number	Description
6	Santa Fe Way, Burbank-Rosedale Hwy
7	Superior Road-Expressway 1 Grade Separation
7	Cherry Avenue-Expressway 2 Grade Separations
8	Panama Ln Green-Pass/Mt Vernon-Edison Rd
9	Wheeler Ridge/Laval Road Trcc Core Safety Rehab
12	Near SR 58 Summit Interchange
19	SR58 Stockdale Hwy Passing Lanes SR 43 Enos Towards I-5
20	SR 58 Stockdale Hwy SR43 Enos-Health
21	Allen Road White-Panama
23	Lamont Green-Pass: Edison Road
25	HSR Tunnel Tailings Repurposing
31	99, Burbank Corr-Beardslee Canal
32	S Arvin Corridor/Tejon Lighting Project
35.1	Tehachapi-Willow Springs Road
39	SR99/SR58 Interchange Missing Ramps
40	I-5/SR43 Interchange
64	Maricopa Complete Streets Corridor

Number	Description
67	Arvin-Tejon Commerce Center Rail Spur
69.1	UP Tehachapi Pass Additions Siding Segment 1
69.2	UP Tehachapi Pass Additions Siding Segment 2
69.3	UP Tehachapi Pass Additions Siding Segment 3
30	UP Tehachapi Pass - retaining wall
73	Shafter-Bakersfield W Urban Corridor
46	I-5 SB/relocated weigh station
51	I-5 Truck Safety Passing Lanes Grapevine to Lebec
56	Lamont Complete Streets Corridor
57	Arvin Complete Streets Corridor
59	Buttonwillow Complete Streets Corridor
60	Bakersfield Complete Streets Corridor
61	178 Complete Streets Corridor
62	24th St Complete Streets Corridor
63	Taft Complete Streets Corridor

FIGURE 2-3. Tehachapi Selected Project Areas

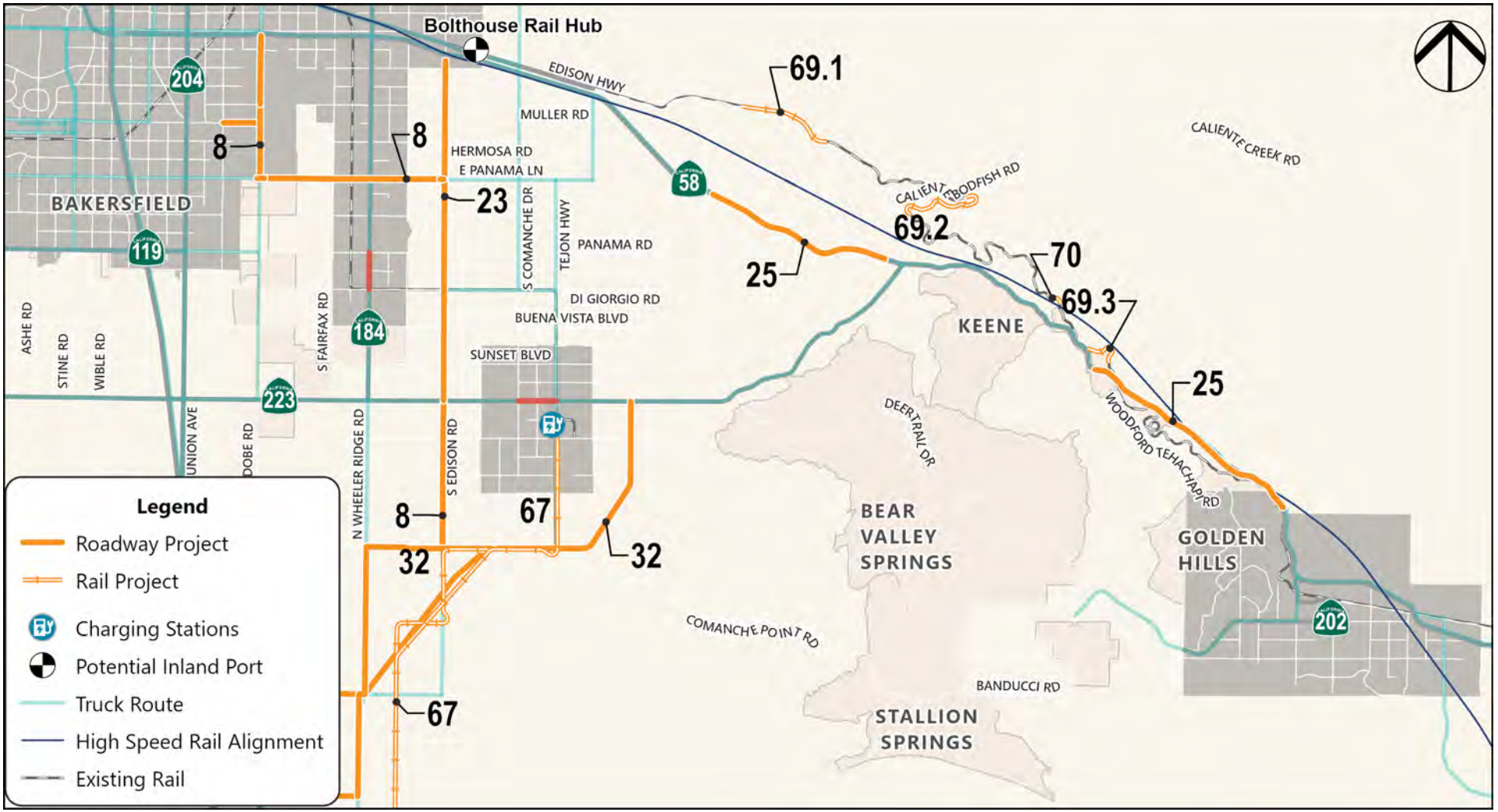


TABLE 2-3. Tehachapi Selected Project Areas

Number	Description
8	Panama Ln Green-Pass/Mt Vermon-Edison
12	Near SR 58 Summit Interchange
23	Lamont Green-Pass:Edison Road
25	HSR Tunnel Tailings Repurposing
32	S Arvin Corridor/Tejon Lighting Project
56	Lamont Complete Streets Corridor
57	Arvin Complete Streets Corridor
67	Arvin-Tejon Commerce Center Rail Spur
69.1	UP Tehachapi Pass Additions Siding Segment 1
69.2	UP Tehachapi Pass Additions Siding Segment 2
69.3	UP Tehachapi Pass Additions Siding Segment 3
70	UP Tehachapi Pass - retaining wall

FIGURE 2-4. Eastern Kern Selected Project Areas

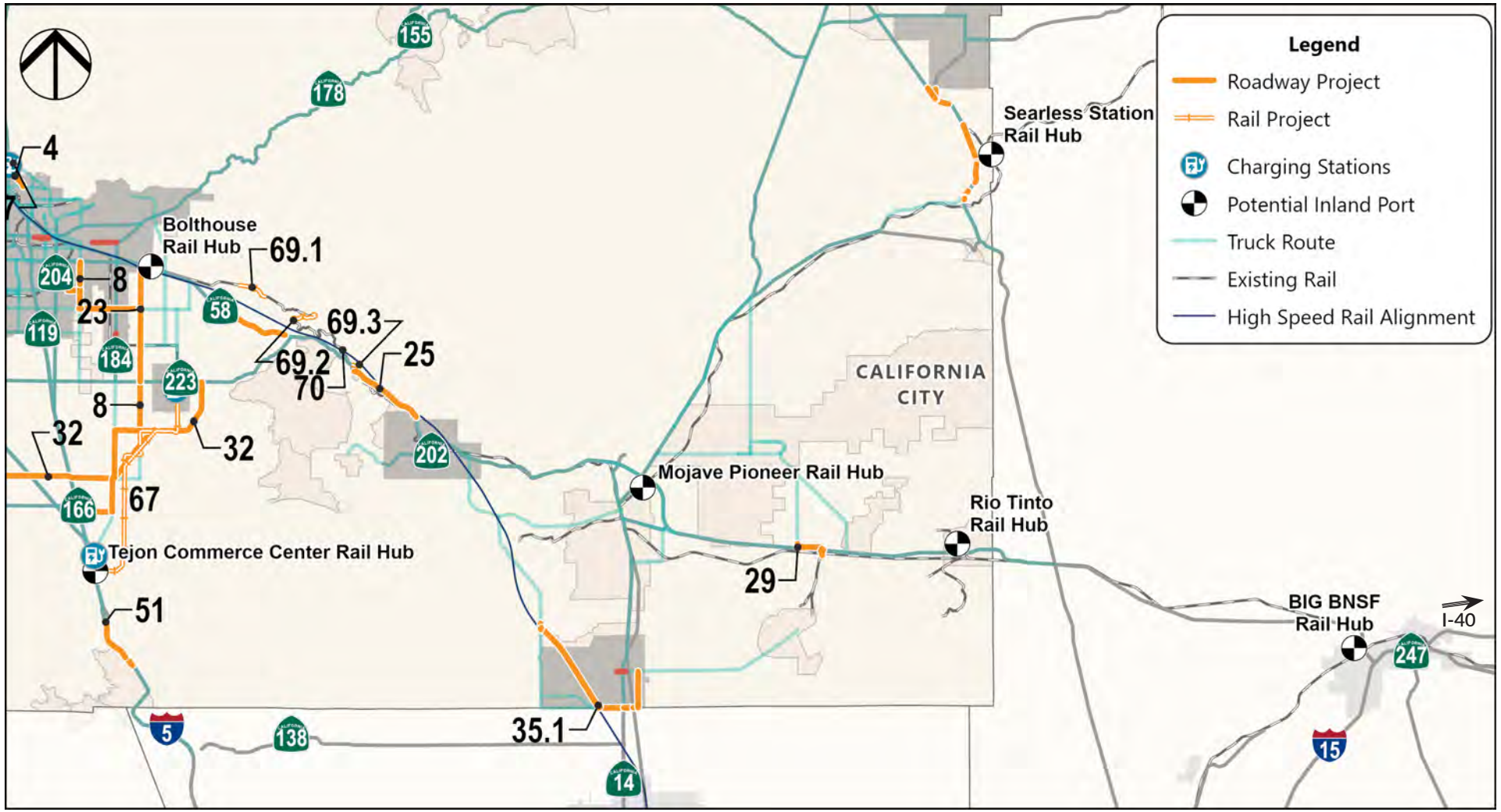


TABLE 2-4. Eastern Kern Selected Project Areas

Number	Description
4	7th Standard Road/I-5 Airport Dr
8	Panama Ln Green-Pass/Mt Vermon-Edison
9	Wheeler Ridge/laval Road TRCC Core Safety Rehab
12	Near SR 58 Summit Interchange
23	Lamont Green-Pass: Edison Road
25	HSR Tunnel Tailing Repurposing
27	US 395 Extend Passing Lanes North of Garlock Rd
29	58 frontage rd, Cal City Blvd-N Gate Blvd
31	99 Burbank Corr-Beardslee Canal
32	S Arvin Corridor/Tejon Lighting Project
35.1	Tehachapi-Willow Springs Road
37	SR99/7th Std Road Interchange
39	SR99/SR58 Interchange Missing Ramps
41	SR 14/Purdy Ave Interchange
46	I-5 SB/relocate weigh station

Number	Description
48	US 395 Searles Stn Intermodal Rail Facility
49	SR 14 Safety Passing Lanes: North of Red Rock Cyn to SR 178
51	I-5 Truck Safety Passing Lanes Grapevine to Lebec
56	Lamont Complete Streets Corridor
57	Arvin Complete Streets Corridor
58	Rosamond Complete Streets Corridor
60	Bakersfield Complete Streets Corridor
61	178 Complete Streets Corridor
62	24th St Complete Streets Corridor
67	Arvin-Tejon Commerce Center Rail Spur
69.1	UP Tehachapi Pass Additions Siding Segment 1
69.2	UP Tehachapi Pass Additions Siding Segment 2
69.3	UP Tehachapi Pass Additions Siding Segment 3
70	UP Tehachapi Pass - retaining wall

2.3 Public Engagement

Public engagement for the Study was conducted in two phases to gather meaningful input at key milestones. This approach allowed stakeholders to participate early in identifying constraints and challenges across the region and inform the development of proposed solutions.

Phase I was conducted in Summer 2024, and featured a series of public workshops held throughout Kern County. These sessions provided an opportunity for community members to share feedback on climate and transportation vulnerabilities across the region and discuss potential solutions to address these challenges.

Phase II was conducted in Spring 2025 and focused on gathering final input on the selected projects identified through the project prioritization analysis. During these workshops, participants reviewed and commented on the priority projects considered most critical for the region's long-term prosperity and protection.

To ensure an inclusive planning process, all community workshops were promoted through eblasts, Facebook posts, community calendars, and direct coordination with local agencies and community organizations. A total of 13 in-person, virtual and hybrid workshops were held across the county, engaging 172 participants.

Phase I workshop dates and locations were held at the following:

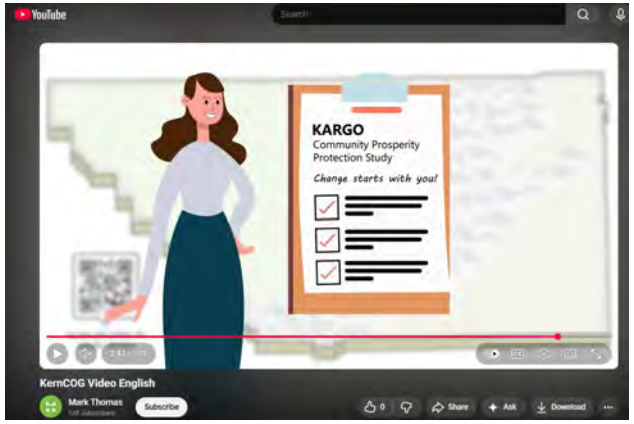
- July 24, 2024 – Tehachapi, Cummings Valley Elementary School Cafeteria
- July 29, 2024 – Tejon, Tejon Indian Tribe, Auditorium
- July 30, 2024 – Rosamond, Rosamond Community Services District, Board Room
- August 2, 2024 – Delano, Center for Race, Poverty, and the Environment
- August 14, 2024 – West Kern, West Kern Virtual Workshop
- August 22, 2024 – East Kern, East Kern Virtual Workshop

Phase II workshop dates and locations were held at the following:

- May 21, 2025 – Arvin, Arvin City Council Chamber
- May 22, 2025 – Shafter, Wonderful Company
- May 27, 2025 – Keene, Cesar E. Chavez National Monument
- May 28, 2025 – California CIty, City of California City Hall
- June 2, 2025 – Virtual Workshop
- June 3, 2025 – Virtual Workshop
- June 4, 2025 – Virtual Workshop



Digital ads were placed in the Bakersfield Californian newspaper from July 2024 to August 2024.



An animated video in English and Spanish was posted on YouTube and linked to the project website to promote the project. The 3-minute video provides an overview of the project's goals and objectives and encourages viewers to participate by visiting the project website.

Community input helped inform the Study's priorities and refine recommended improvements across Kern County subregions. A summary of key input by subregion is provided below, with full documentation included in Appendix B.

North Kern County

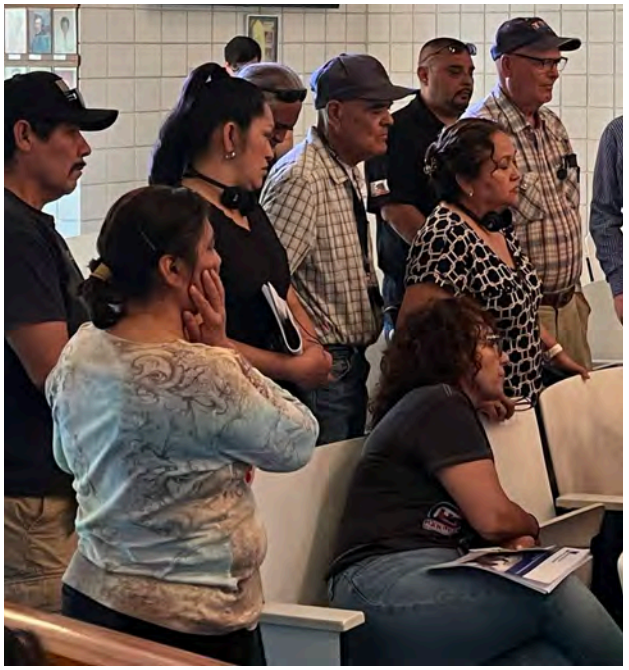
- Improve EV infrastructure and require new industrial development to use zero emission technologies
- Enhance road safety by building railroad grade separations and improving road connections
- Build "green-pass" routes that minimize disruption to residential areas, and allow for Complete Streets projects by rerouting heavy duty trucks out of communities Delano and Shafter
- Enhance safety at Lerdo Highway and Cherry Avenue
- Reduce the impact of trains and truck routes that could further exacerbate existing traffic and pollution issues
- Improve road maintenance and reduce trucks on the roads by shipping more by rail

East Kern

- Incorporate historical data into planning processes for enhanced resilience
- Raise awareness about past climate stressors and their ongoing impacts
- Enhance emergency routes, such as Deertrail Drive to Highway 223 and from Skyline Drive in Cummings/Bear Valleys and Tehachapi-Willow Springs Road along the High Speed Rail alignment
- Improve bicycle and pedestrian access along Rosamond Blvd
- Enhance stormwater management planning
- Enhance access to major employers in East Kern, such as Edwards Air Force Base
- Improve the rail crossings such as Avenue A to 10th/United Corridor, providing alternative access to Edwards Air Force Base
- Improve EV infrastructure
- Provide a roundabout at SR 395 and South Ridgecrest Blvd

South Kern

- Build "green-pass" routes that minimize disruption to residential areas and allow for Complete Streets projects by rerouting heavy duty trucks out of communities Lamont and Arvin
- Reduce truck activity - including truck parking - along the Union Avenue Corridor by providing a corridor along White Lane to access Mt. Vernon industrial area
- Enhance safety on major roads, including lighting, repaving, widening, and roudabouts on routes such as David Road and Wheeler Ridge Road
- Install roundabouts to enhance traffic flow
- Build drainage improvements to prevent water related hazards, such as flooding



Workshop participants discussing proposed project improvements at Arvin City Hall, May 21, 2025.









Public Engagement for a Propserous Community

Kern Area Regional Goods-Movement Operations

CHAPTER 3 | Analysis



3.1 Climate Vulnerability Assessment

Methodology

The Climate Vulnerability Assessment identified and evaluated the exposure of Kern County's transportation infrastructure to climate-related hazards. County-wide transportation assets included 9,600 miles of roads, 373 miles of railways, 662 bridges, 246 small culverts, and 15 large culverts. Climate hazards included extreme heat, wildfire, flooding, and landslide.

Baseline and future conditions were analyzed using regional climate projections from Cal-Adapt, which provided temperature and wildfire data for multiple scenarios. Localized Constructed Analogs (LOCA) improved temperature and precipitation projections based on historical observations. Additional data sources included FEMA, Caltrans, and CAL FIRE.

To determine vulnerability, transportation assets were mapped and analyzed for exposure to climate hazards. Each asset's vulnerability was assessed by combining climate exposure with network attributes such as traffic volume and asset condition ratings. Assets were ranked within their class (roads, railways, bridges, large/small culverts) using a weighted scoring system adapted from Caltrans' District 6 Adaptation Priority Report, refined for Kern County's geography and stakeholder input.

Climate modeling indicates that Kern County is likely to experience increased incidences of extreme heat events, prolonged drought, and associated increases in the risk of wildfires. *Figure 3-1* illustrates historical climate data alongside future projections under both low- and high-emission scenarios, highlighting trends in extreme heat, flood risk, and wildfire risk.

More than 50% of the county's transportation assets are classified as highly vulnerable to climate-related hazards. The most impacted transportation assets for asset category are listed in *Table 2-1*. Climate vulnerabilities related to flooding and extreme heat drove the majority of the high risks to existing transportation infrastructure in Kern County.

Climate Projections

Extreme Heat Risk

An extreme heat day is defined as a day when temperatures exceed 100.8°F, the 98th percentile maximum temperature for the historical baseline. Between 1961 and 1990, Kern County averaged about five extreme heat days per year. Under the low emissions scenario, this number is expected to increase to nearly 44 days by mid-century and 60 days by late century, representing more than ten times the original amount. Under the high emissions scenario, projections are even higher, with about 48 days by mid-century and 95 days by late century, nearly double the late-century estimate for the low emissions scenario.

Figure 3-2 illustrates the transportation assets affected by extreme heat under the high emissions scenario in Kern County. Assets in Eastern Kern, including State Route 178, are expected to experience the greatest impacts.

Flood Risk

Although average rainfall will not change significantly, the intensity of single-day storms is projected to increase in Kern County. Historically, the heaviest one-day rainfall averaged 26.4 millimeters. By mid-century, this could rise to 29.4 millimeters/day under moderate emissions and up to 32.1 millimeters/day under higher emissions by late century.

Figure 3-3 shows transportation assets affected by single-day storm intensity under the high emissions scenario in Kern County. Assets in Eastern Kern, including State Route 178 and State Route 15, are expected to experience the greatest impacts.

Wildfire Risk

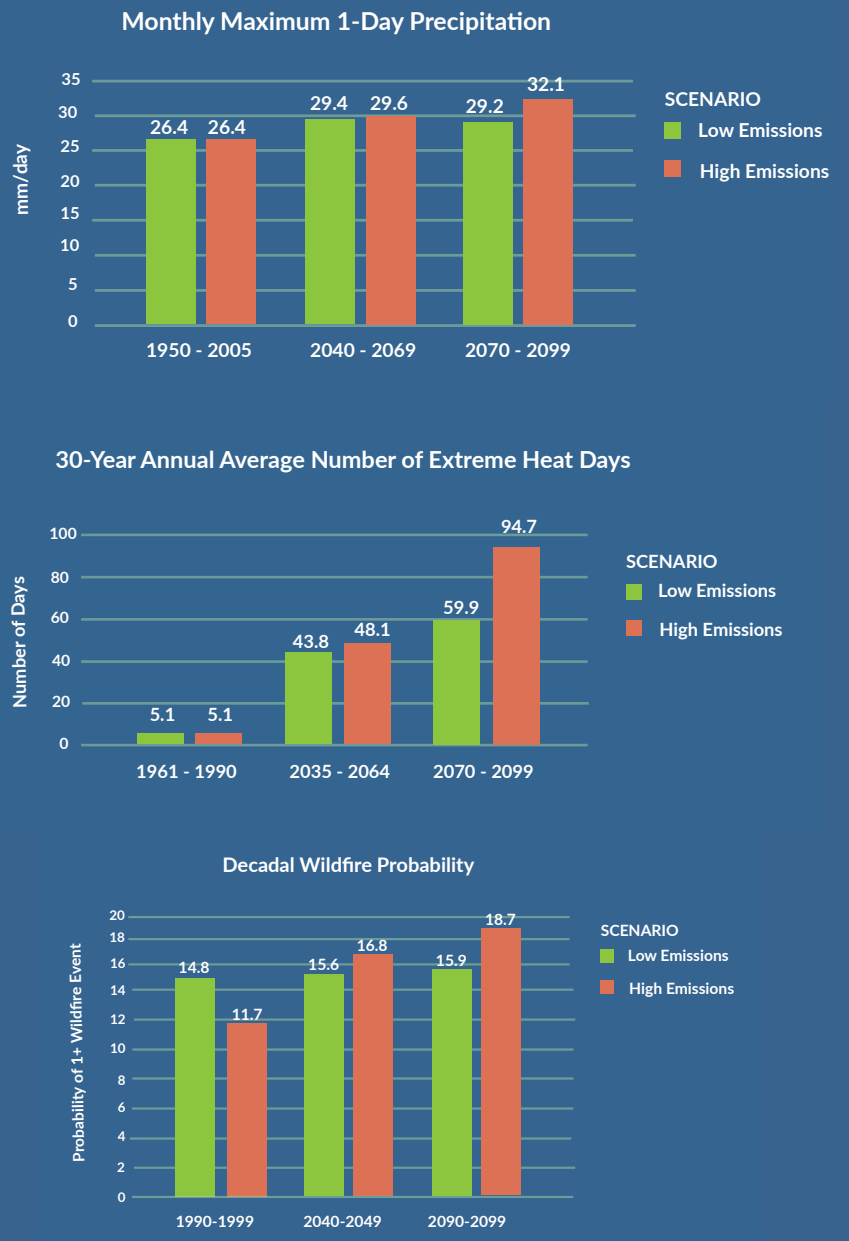
Wildfire events are defined as unplanned fire burning in natural or wildland areas. In Kern County, the chance of a wildfire varies by location, with the most at-risk areas having nearly a 3% annual chance each year.

Both the frequency and severity of wildfires are increasing, pushing hazard zones farther into regions such as Tehachapi Pass and the

FIGURE 3-1. Kern County Climate Projections

Regional climate projections show Kern County will face more frequent extreme heat, heightened wildfire risk, and increased flooding from intense storm events.

These hazards threaten critical transportation assets and expose key corridors such as I-5, SR-99, SR-155, and SR-178 to repeated risks.



SR-58 corridor. Under the high emissions scenario in Kern County, the probability of one or more wildfire events rises to 18.7%, compared to 15.9% under a low-emissions scenario.

Figure 3-4 illustrates the decadal wildfire probability for Kern County under the high emissions scenario and the transportation assets most affected. The probability represents the likelihood of one or more fire events occurring in a given location over a ten-year period. The analysis accounts for projected changes in temperature, precipitation, and wind patterns, as well as the sensitivity and severity of impacts, to estimate wildfire risk across the county. Assets in Eastern Kern, including I-5, SR-155, and SR-58, are expected to experience the greatest impacts.

Landslide and Seismic Risk

Integrating landslide and seismic risks with climate hazards provides a comprehensive framework for creating a climate resilient transportation network.

Figure 3-5 illustrates annualized landslide frequency by census tract, with projections of up to 41 landslide events per year. State Route 178 is identified as the corridor most at risk.

While earthquakes are not a climate event, increased resiliency to climate events can also make communities more resilient to earthquakes. Conversely, climate stressors can stress the transportation network in a way that makes assets more vulnerable to damage and other consequences of earthquakes. *Figure 3-6* illustrates peak horizontal acceleration with a 2% probability of exceedance over 50 years, highlighting seismic exposure in the region.

Top Assets at Risk

More than 50% of Kern County's transportation assets are classified as highly vulnerable to climate-related hazards.

The top assets at risk countywide include segments along SR-99, SR-155, I-5, and SR-58. Climate vulnerabilities related to flooding and extreme heat drove the majority of the high risks to existing transportation infrastructure in Kern County.



Tehachapi Pass Corridor: October 2015 mudslide on SR 58 buried nearly 100 vehicles across a 39-football-field stretch.

FIGURE 3-2. Extreme Heat Risk & Transportation Assets

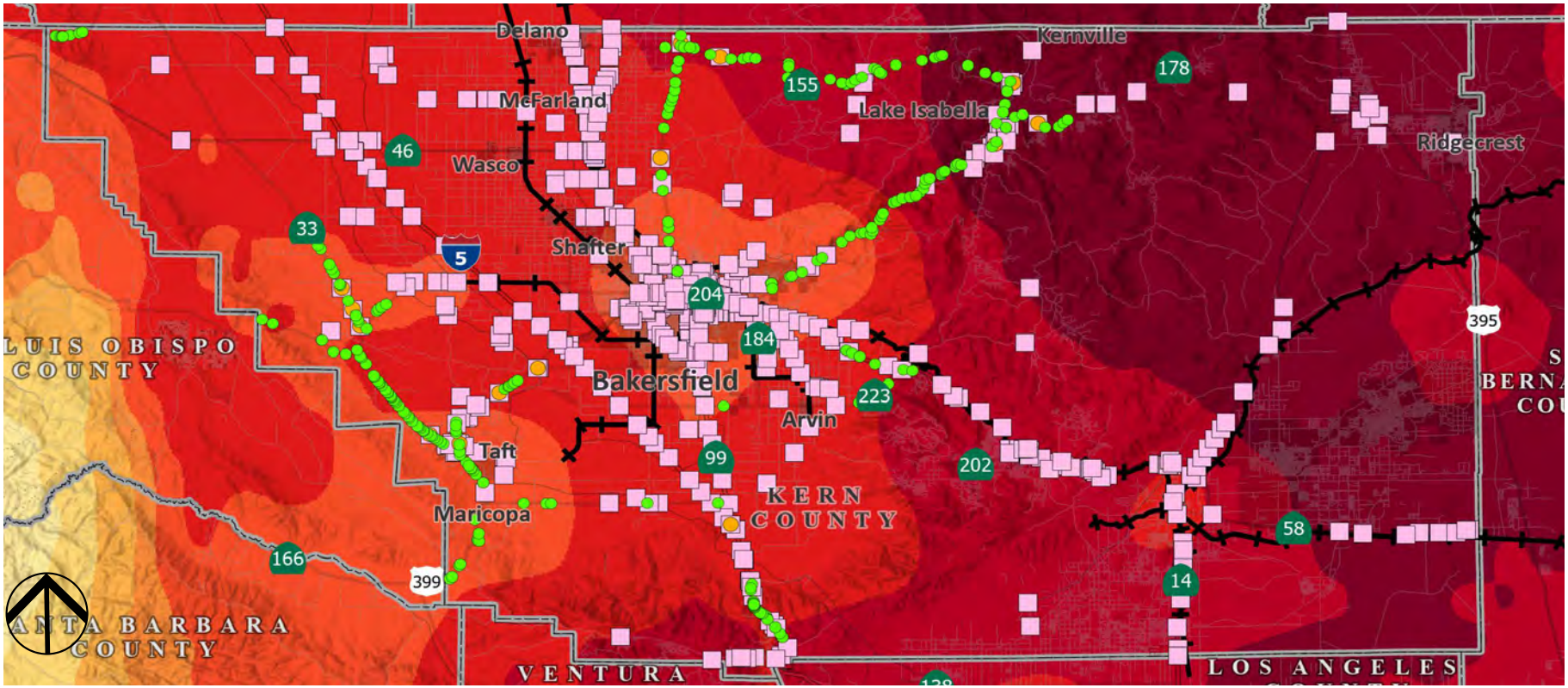
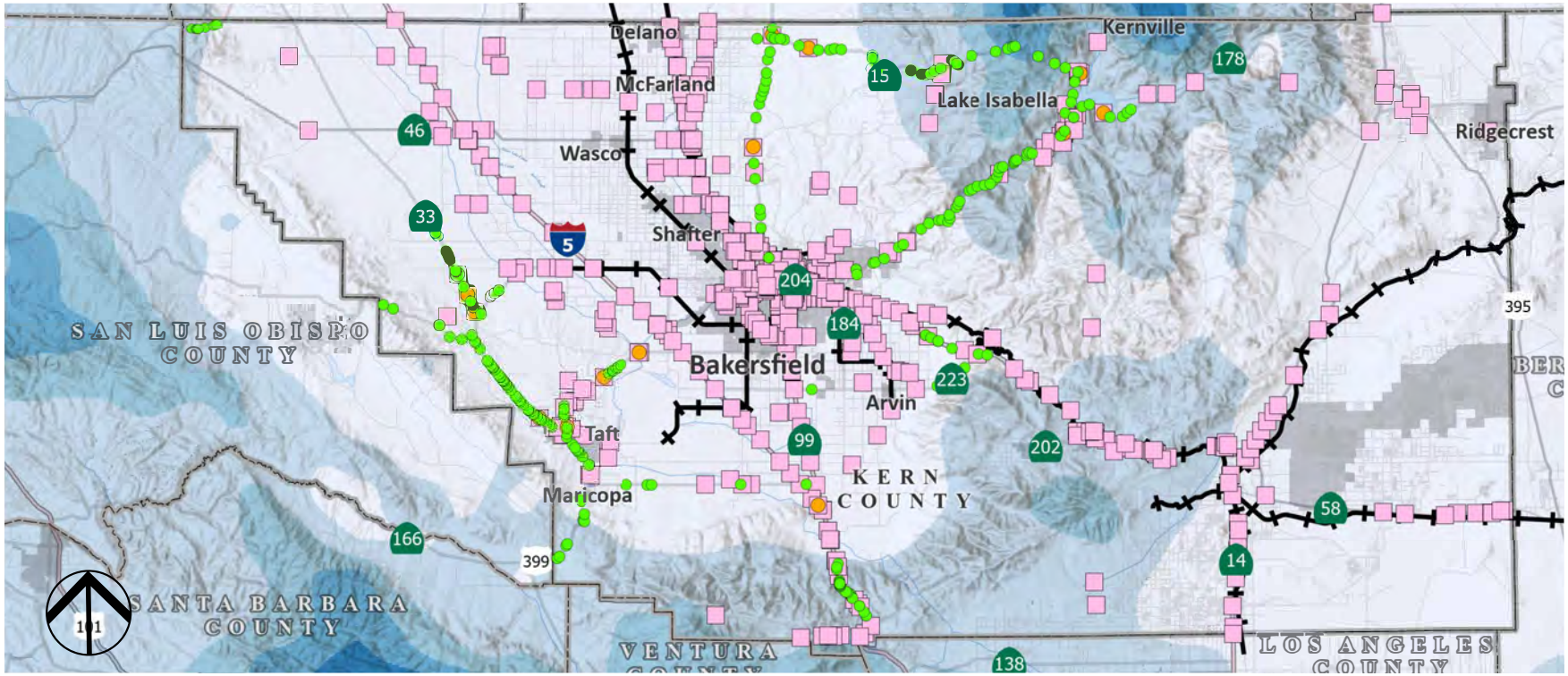


FIGURE 3-3. Flood Risk & Transportation Assets



Resources
- Small Culvert
- Large Culvert
- Bridge
- Railroad

Riverine Flooding - Annualized Frequency
- 0
- 0 - 0.96
- 0.96 - 2.71
- 2.71 - 5.50 | Event-Days per year

FIGURE 3-4. Wildfire Risk & Transportation Assets

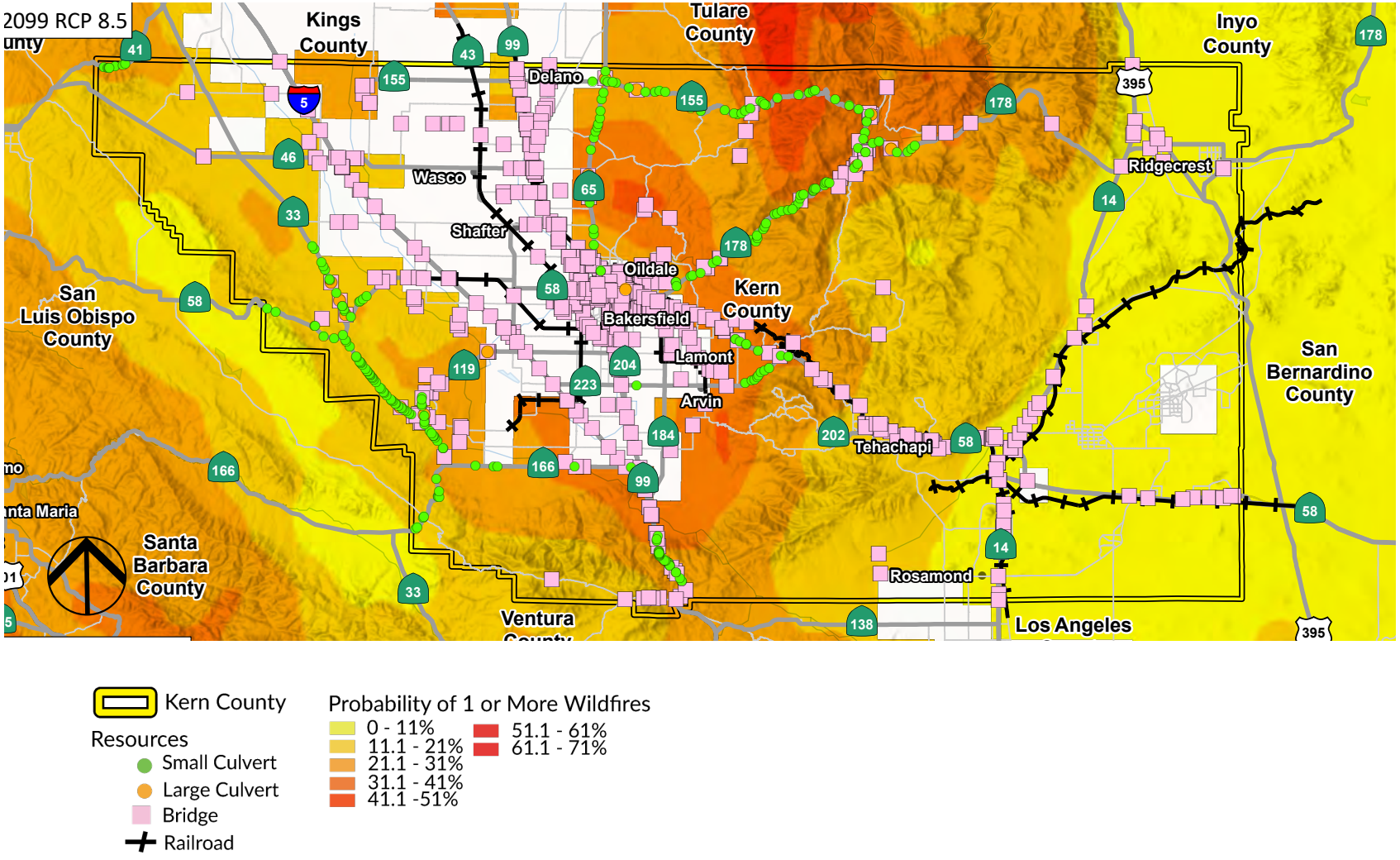


FIGURE 3-5. Countywide Landslide and Seismic Risk

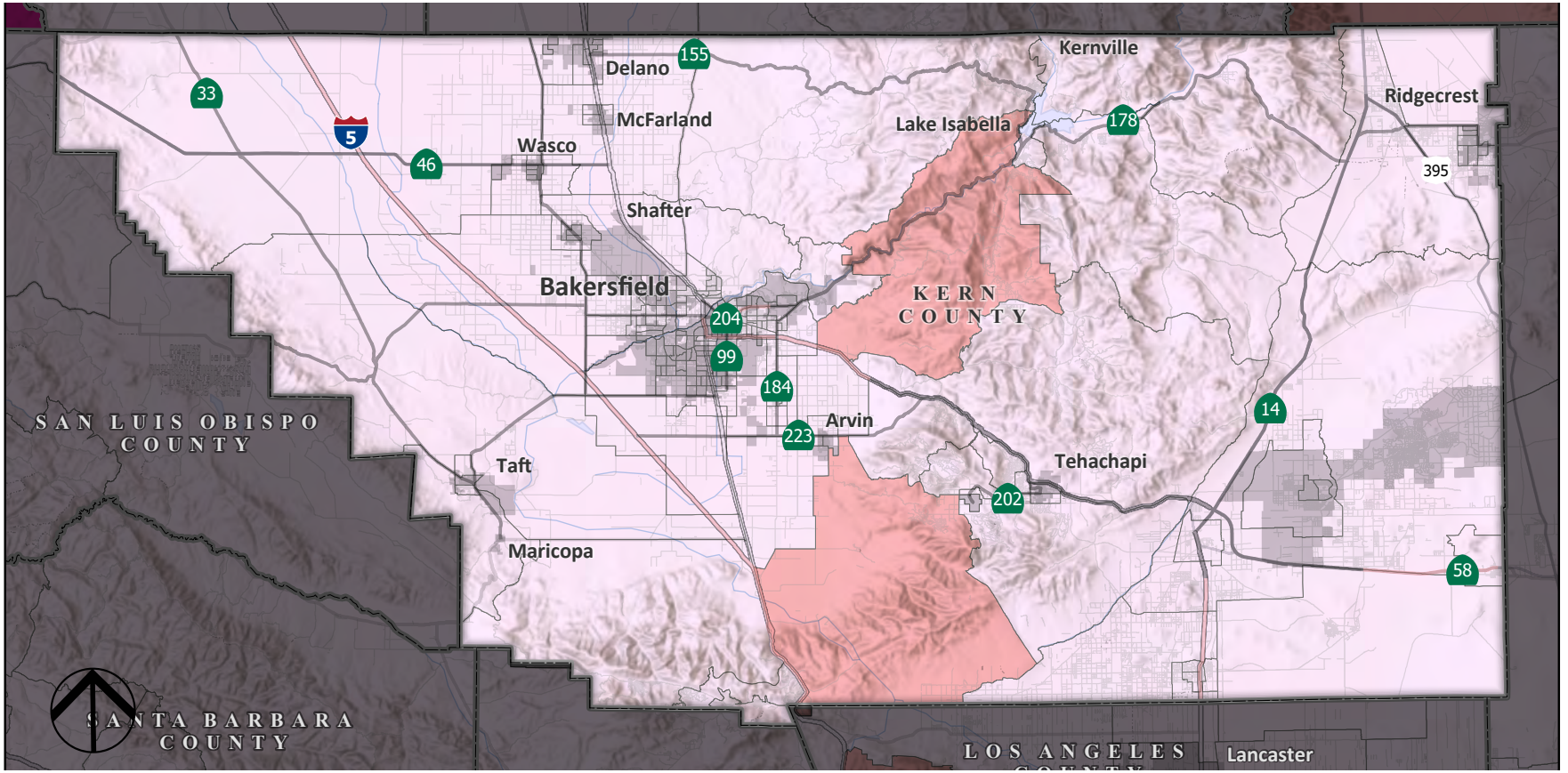
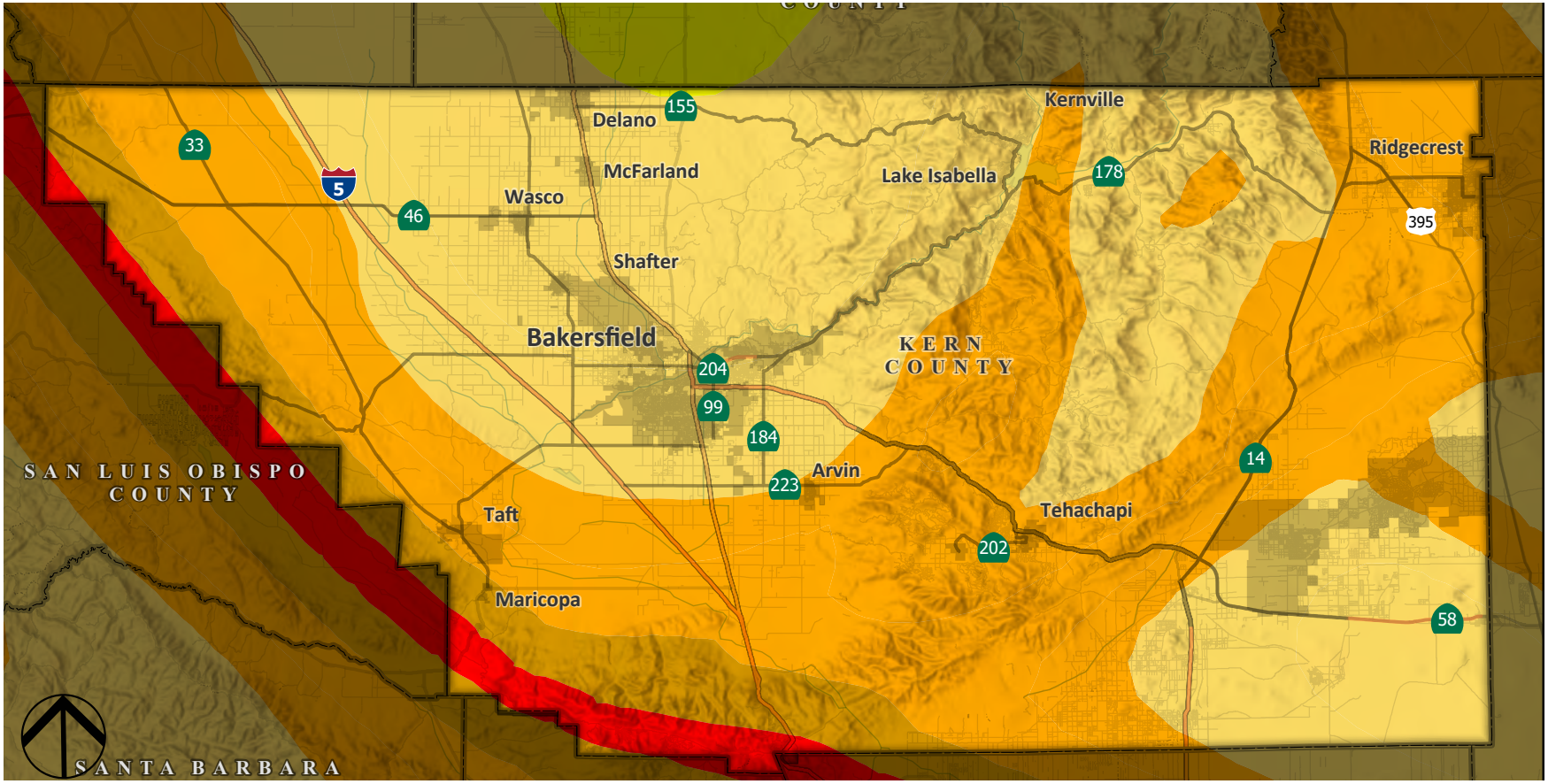


FIGURE 3-6. Countywide Seismic Risk



3.2 Transportation Analysis of Potential Improvements

Potential transportation improvements (KARGO Projects) were analyzed for 12 focus areas around Kern County. These improvements were identified based on analysis of existing conditions and adverse impacts of trucking activities on nearby communities. The following metrics were reviewed in the focus areas:

- **Exposed Population –** Population within 900 feet of corridors with high average daily truck traffic exposed to on-road emissions
- **Employment –** Jobs within 1-mile of KARGO Projects that benefit from improved accessibility
- **Safety –** Number of crashes over the last five years where someone was killed or seriously injured within 50 feet of KARGO Projects

The following data sources were used for these calculations:

- **Population and Employment –** KernCOG Travel Demand Model for 2022 RTP/SCS for scenario year 2023
- **ADT –** KernCOG Travel Demand Model for scenario year 2023, Replica data (Fall 2023), and KernCOG traffic counts for multiple years
- **Crash Data –** UC Berkeley's Transportation Injury Mapping System (TIMS), crashes occurring between 2019 and 2024

Replica data from Fall 2023 and Atri truck data from 2024 were examined to understand existing travel patterns on key roadways for vehicles and trucks in areas with potential transportation improvements. Replica provides estimates for number of vehicle trips between zip codes which use a given roadway, as well as how those trips travel throughout the roadway network. Replica trips were adjusted to reflect observed counts from KernCOG and Caltrans.

To understand the effects of KARGO Projects:

- **A Buildout model** was developed representing high land use growth in Kern County and with all RTP projects constructed. NO other transportation and rail improvements are included.
- **A Future Baseline model** was developed representing Buildout conditions plus one inland port, generating additional industrial land use growth at the inland port facilities.
- **A Baseline Plus Project model** was developed representing Future Baseline plus KARGO projects nearest to and associated with that inland port.
- **Changes in ADT, VMT, VHT, and/or population exposure** between Baseline and Baseline Plus Project were calculated to understand how KARGO projects would affect transportation patterns, roadway usage and community's burden related to goods movement activities in each focus area.

Arvin/Maricopa/Taft Green-Pass Network

SR-233 runs between I-5 to the west and SR-58 to the east, providing the primary east-west connection south of Bakersfield between I-5, SR-99, and SR-58. SR-58 carries high volumes of freight traffic and serves as the primary east-west connection between Kern County, the Mojave, and nationwide destinations along the I-10, I-70, and I-40 corridors.

SR-223 passes directly through the town of Arvin, meaning residents have high exposure to truck emissions and higher risk of fatal or severe collisions while traveling along and accessing businesses on either side of SR-223. Between 2019 and 2024, 16 crashes that resulted in death or serious injury happened within 50 feet of SR-223 between SR-99 and 5,250 ft west of General Beale Rd.

Potential improvements would provide an alternative network of roadways which connect SR-99, I-5, SR-166, and SR-58 which bypass Arvin. In addition to reducing exposure to trucks within the town of Arvin, improvements would increase connectivity between these highways. The project additionally improves connectivity between these highways, improving network resiliency in the event of closures such as on SR-58 or I-5 due to weather.

KEY IMPROVEMENT IMPACTS:

- At Buildout of Kern County, truck trips are expected to significantly growth in the Arvin area. While the proposed Tejon Inland Port would reduce daily VMT into and out of Kern County by 19,000, it would also increase truck trips on local roadways if no additional options are provided.
- Resilient route corridors would offer alternatives to SR-233 through Arvin and provide greater connectivity between I-5, SR-99 and SR-58, allowing trucks to bypass these populated areas and provide alternate routes if there is an unforeseen event. Interchange improvements will facilitate access for trucks accessing climbing/passing lanes.
- Shift freight traffic away from sensitive receptors like schools and residences, local downtown contexts, and corridors with a collision history in more populated areas like Arvin.
- Remove vehicle conflicts between freight traffic on SR-233 and vehicles traveling locally within the City of Arvin.
- Provide a shorter route between SR-58 and I-5 Grapevine and reduce VMT.

EXPOSED POPULATION

2,400

PEOPLE LIVING WITHIN 900 FEET OF ARVIN CORRIDOR

1,500

TRUCK AVERAGE DAILY TRAFFIC (ADT) OF ARVIN CORRIDOR

3.5 M

TRUCK ADT X POPULATION WITHIN 900 FEET OF ARVIN CORRIDOR

EMPLOYMENT

9,700

TOTAL JOBS WITHIN 1 MILE OF PROPOSED IMPROVEMENTS

7,400

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

1.9%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

5,000

FORECAST BYPASS ADT

14,000

DAILY VMT REDUCTION

700

FEWER DAILY TRUCK TRIPS THROUGH ARVIN

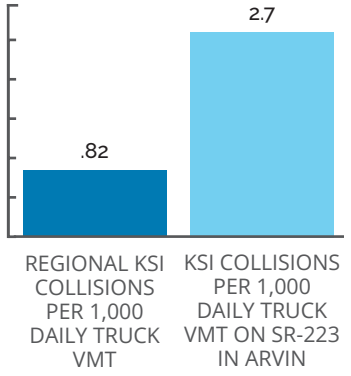
23.7 M

REDUCTION OF TRUCK ADT X FORECAST POPULATION WITHIN 900 FEET

COLLISION ANALYSIS (2019-2024)

16

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES WITHIN 50 FT OF SR-223 BETWEEN SR-99 AND GENERALE BEALE RD



COMMUNITY CONTEXT

DISTRICT

D2- S KERN

COMMUNITIES SERVED

ARVIN AND TAFT

SECTORS SERVED

AGRICULTURE, MANUFACTURING, OIL AND GAS EXTRACTION, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

SELECTED PROJECTS

#	RANK	PROJECT TITLE
32	1	S ARVIN CORRIDOR GREENPASS
32	5	GREENPASS: COPUS/DAVID RD I-5-WHEELER RIDGE RD
32	36	COPUS RD SAFETY REALIGNMENT
32	37	REALIGN SR 166 TO COPUS RD VIA OLD RIVER RD
57	45	SR223 ARVIN COMPLETE STREETS CORRIDOR
67	35	ARVIN-TEJON COMMERCE CENTER RAIL SPUR

Complete Streets Corridor would be implemented after Greenpass Connections are complete.

SR-223 passes through the center of the town of Arvin, meaning both local and regional trips are served by the roadway. The route is used as a cut-through to SR-58 from SR-166 and SR-99 since it is often the shortest and fastest route compared to traveling on SR-58 into Bakersfield. These trips expose the local population to additional noise and emissions while providing no economic benefit.

FIGURE 3-7. Arvin/Maricopa/Taft Green-Pass Network Travel Patterns

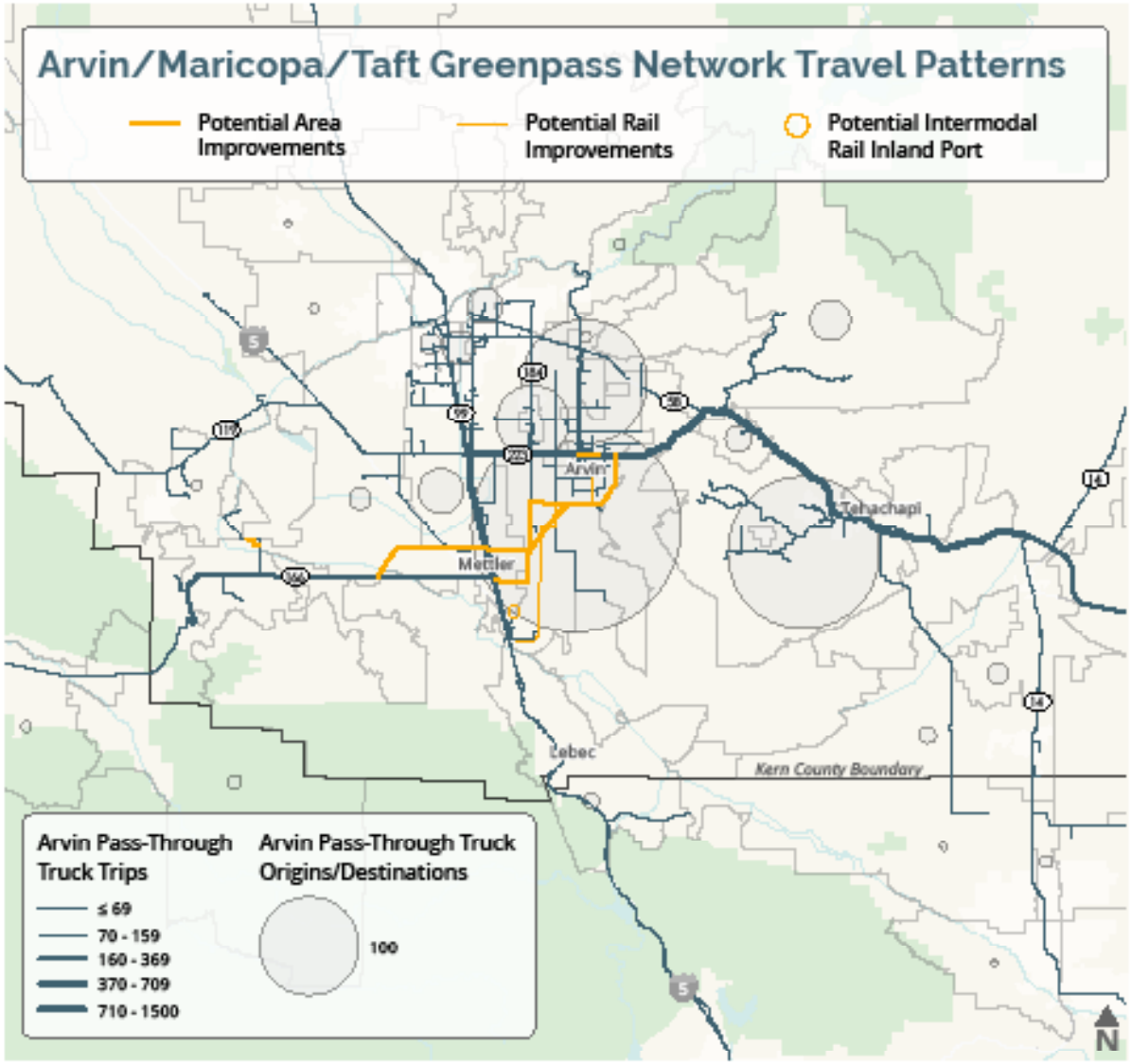
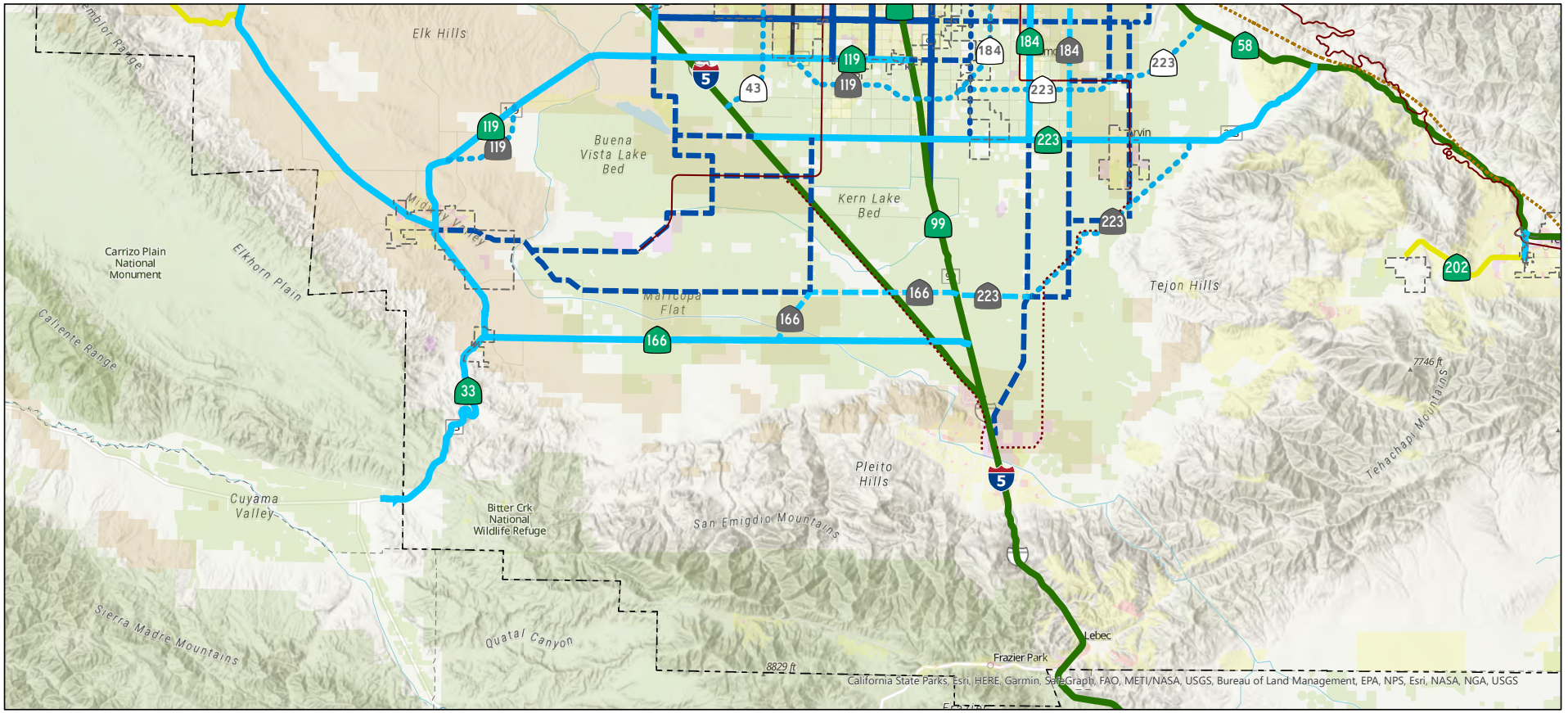


FIGURE 3-8. Federal/State STAA and Local Truck Routes In and Around Arvin



9 Miles

Kern Council of Governments

	Existing	Candidate	Future
National Network (STAA)	▬	▬	●●●
State Terminal Access (STAA)	▬	▬	●●●
Local (STAA)	▬	▬	●●●

Legal Routes
- 65' CA Legal Route
- 65' CA Legal *KPRA Advisory
- Other Major Local Arterials

Potential Highway Phases
- Existing
- Phase 1
- Phase 2

Rail
- Existing Rail
- Future Rail
- High Speed Rail Alignment

Intermodal Freight Hub
- Existing
- Potential

Combined General Plan Land
- Residential
- Commercial
- Industrial
- Agriculture Production
- Oil Production

SR-58 Tehachapi Safety Corridor

SR-58 is an important connection between Barstow and Bakersfield and serves both regional travel within the Bakersfield metropolitan area and longer-distance, national trips. This proposed project includes uphill truck climbing lanes, downhill passing lanes, and biological enhancements that will contribute to improved safety and conditions for wildlife. This segment of SR-58 provides two lanes in each direction and carries high proportions of freight traffic that traverse the state and eventually serve nationwide destinations along the I-10, I-70, and I-40 corridors.

The uphill passing lanes will offer congestion and safety benefits by providing additional capacity and helping separate vehicles with large speed differential. The downhill climbing lanes would be similar to those on I-5 and would allow for the provision of runaway truck ramps and additional safety treatments on the downhill side of SR-58, which exhibits a greater fatality rate than the uphill portion. Between 2019 and 2024 there were 38 fatalities or serious injury crashes that occurred on SR-58. Additionally, fires are common along this segment of SR-58 due to uphill overheating or downhill brake fires, and the additional passing lanes are intended to reduce the occurrence of these events through more capacity to accommodate slower vehicles. Interchange enhancements are proposed at SR-58 & SR-223 to facilitate the connection with the climbing lanes from this interchange to General Beale Road. The passing lanes will also create opportunities allowing for culverts and animal crossings (with fencing) that can facilitate habitat access for wildlife.

Other proposed project elements include a cultural/habitat interpretive center, relocated weigh station, and rail corridor enhancements. The biological interpretive center with amenities and a safety rest area will help keep drivers rested and alert. Data collected for SR-58 indicates that the area between Mojave and Bakersfield is a common area for trucks to stop and rest – with 68% of stops being in the range of 30 to 175 minutes and nearly 20% between 501 and 900 minutes. A biological center with a rest area will provide amenities for travelers and help prevent trucks from parking in areas such as shoulders or on-/off-ramps.

KEY IMPROVEMENT IMPACTS:

- Passing and climbing lanes will reduce congestion by providing additional capacity, reduce conflicts between truck and passenger vehicle traffic by separating vehicles with large speed differentials, reduce the frequency of fires related to overheating or braking.
- Interchange improvements will facilitate access for trucks accessing climbing/passing lanes.
- Reducing vehicle conflicts and delay conflicts at the SR-58 & SR-223 Interchange.
- New amenities and rest area will provide an improved area for vehicles stop and help keep drivers alert and rested.
- Expand/relocate weigh stations to prevent SB I-5 bypass via SR-58/14 and shift WB station east to block Tehachapi–Willow Springs Rd bypass.

EXPOSED POPULATION

100
PEOPLE LIVING WITHIN 900 FEET

8,600
TRUCK AVERAGE DAILY TRAFFIC (ADT)

860,000
TRUCK ADT X POPULATION WITHIN 900 FEET

240
TOTAL JOBS WITHIN 1 MILE OF PROPOSED IMPROVEMENTS

130
INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

0.07%
PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

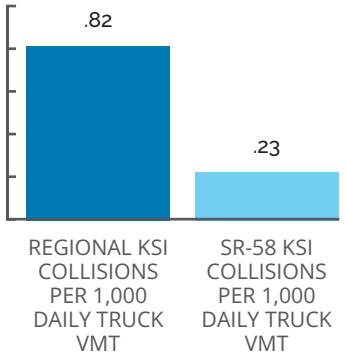
13%
REDUCTION IN DAILY PASSENGER VEHICLE VHT ALONG SECTION OF ROADWAY WHERE PASSING LANES ARE INSTALLED

10%
AVERAGE TRUCK PERCENTAGE

65,900
FORECAST TRUCK ADT ON SR-58

COLLISION ANALYSIS (2019-2024)

38
TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES OCCURRED ON SR-58 WITHIN 50 FT OF THE IMPROVEMENT AREA



COMMUNITY CONTEXT

DISTRICT

D4- E KERN

COMMUNITIES SERVED

LAMONT AND ARVIN

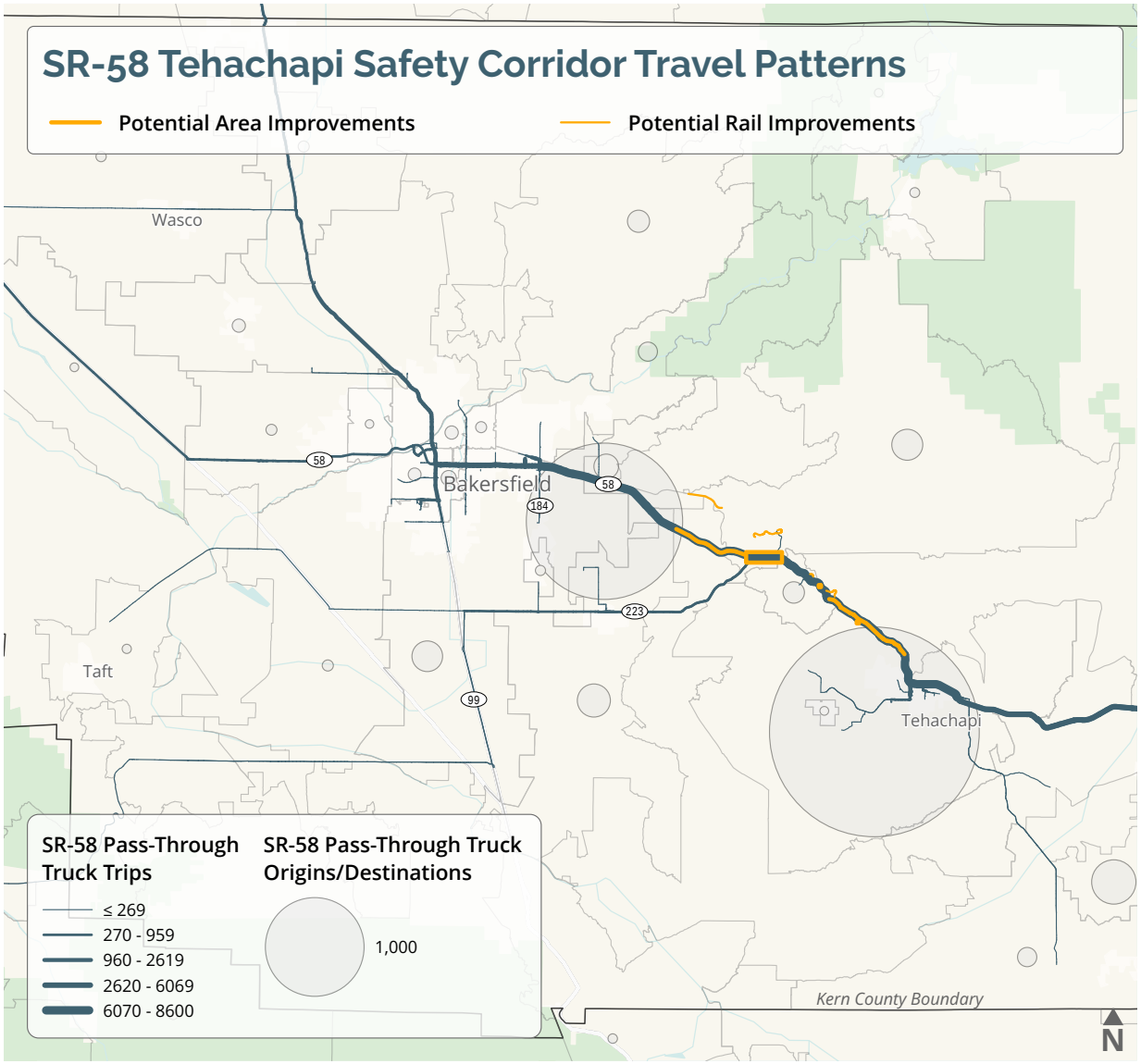
SECTORS SERVED

AGRICULTURE, MANUFACTURING, MINING, QUARRYING, OIL AND GAS EXTRACTION, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
25	2	SR58 TRUCK CLIMB/SAFETY PASSING LANES
25	8	SR58 TRUCK CLIMB/SAFETY PASSING LANES
25	11	SR58/SR223 INTERCHANGE
25	13	SR-58 CULTURAL BIOLOGICAL INTERPRETIVE CENTER
25	15	SR-58 EASTBOUND WEIGH STATION
25	32	HSR TUNNEL TAILINGS REPURPOSING
69.1	20	UP TEHACHAPI PASS ADDITIONS SEG 1
69.2	20	UP TEHACHAPI PASS ADDITIONS SEG 2
69.3	20	UP TEHACHAPI PASS ADDITIONS SEG 3
70	20	UP TEHACHAPI PASS IMPROVEMENTS

FIGURE 3-9. SR-58 Tehachapi Safety Corridor Travel Patterns



SR-58 serves both regional travel within the Bakersfield metropolitan area and longer-distance, national trips. Many trips traverse Kern County to connect with SR-99 and I-5 for northbound travel. Higher concentrations of pass-through destinations are found throughout Bakersfield, particularly south of SR-99 and north of SR-223, as well as farther southeast of SR-99. Pass-through destinations are also prevalent in the Tehachapi area.

ORIGIN-DESTINATION ANALYSIS

Destination	Trips
IN CALIFORNIA	85%
KERN COUNTY	38%
BAY AREA	3%
SOUTHERN CALIFORNIA	29%
NORTHERN CALIFORNIA	30%
OUTSIDE CALIFORNIA	15%

74,915 truck trips in total. Data was collected in March 2023. Truck trips include medium-duty (14,000 - 26,000 lbs) and heavy-duty (>26,000 lbs) commercial vehicles.

Data Source: Atri

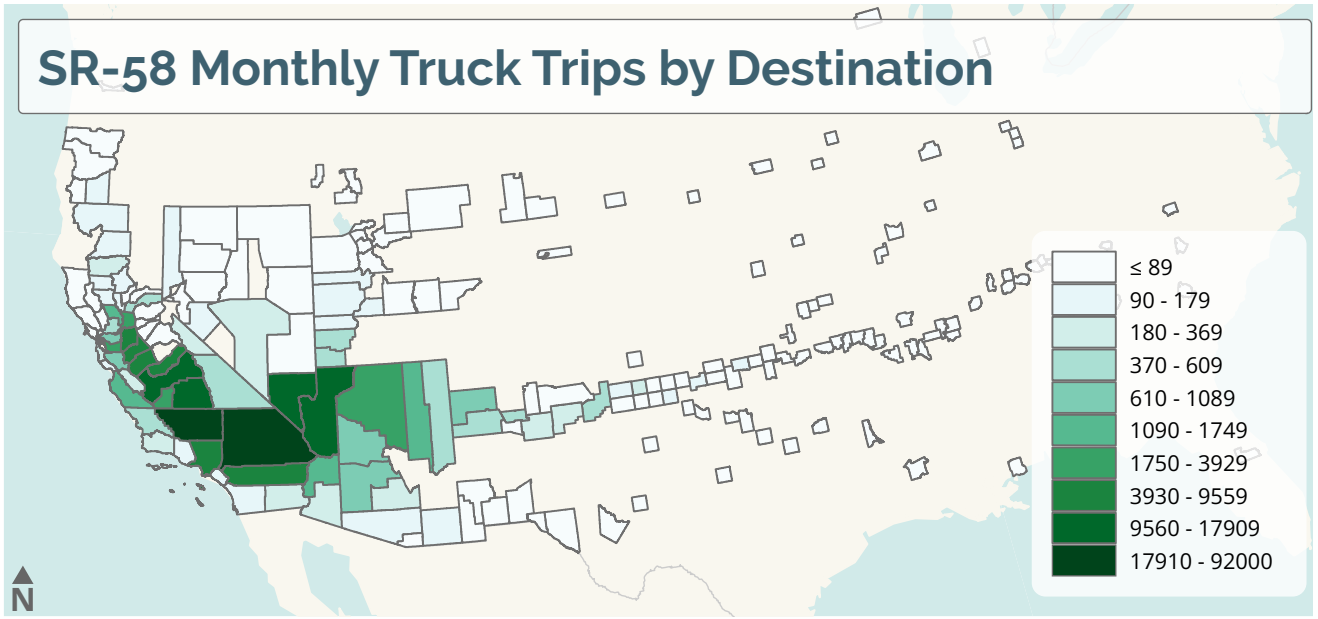
TRUCK PARKING ANALYSIS

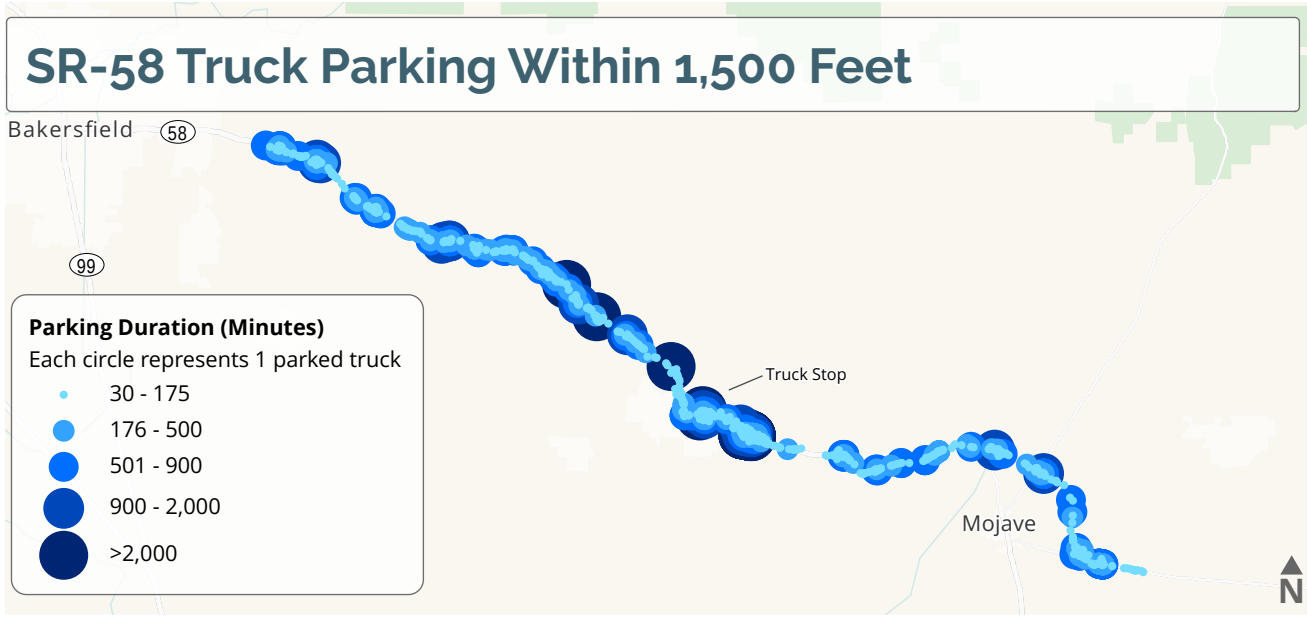
Duration (Minutes)	Percent
30 - 175	68%
176 - 500	7.2%
501 - 900	19%
901 - 2,000	4.6%
2,001 - 8,700	1.4%

Truck parking events longer than 30 minutes, based on a sample of 9,767 trucks stopped within 1,500 ft of SR-58. The average time is 278.5 minutes (over 4.5 hours). Long duration of truck parking on SR-58 West of the Tehachapi Truck Stops are likely due to truck breakdowns and accidents on the shoulder.

Data Source: Atri

FIGURE 3-10. SR 58 Truck Trips and Parking





Delano/ McFarland Green-Pass Network

Truck trips between agricultural and ag/industrial processing areas around Delano and McFarland have limited options to access SR-99 and use interchanges in the centers of Delano and McFarland, such as Garces Highway, to access the regional freight network. Proposed improvements include enhancements to the Pond Road interchange and Driver Road corridor to improve freight connectivity to SR-99 and move truck trips away from the communities of Delano and McFarland. The Driver Road improvements would also improve north-south connectivity parallel to SR-99, creating a more resilient network by providing facilities other than SR-99 to handle traffic.

KEY IMPROVEMENT IMPACTS:

- Resilient route corridors would provide alternatives to SR-99 access via interchanges in Delano and McFarland, including Garces Highway, Cecil Avenue, Elmo Highway, and Sherwood Avenue. These routes would allow trucks to bypass populated areas while also serving as reliable detours in the event of incidents or other unforeseen disruptions.
- Shift freight traffic away from sensitive receptors—such as schools and residences—as well as downtown areas and corridors with a history of collisions in more populated areas of Delano and McFarland.
- Reduce conflicts between freight and local traffic by limiting freight movement on local roadways within Delano and McFarland.

EXPOSED POPULATION

5,700

PEOPLE LIVING WITHIN 900 FEET OF GARCES HWY IN DELANDO

1,500

TRUCK AVERAGE DAILY TRAFFIC (ADT) ON GARCES HWY IN DELANO

4.6 M

TRUCK ADT X POPULATION WITHIN 900 FEET OF GARCES HWY IN DELANO

EMPLOYMENT

4,200

TOTAL JOBS WTIHIN 1 MILE OF PROPOSED IMPROVEMENTS

3,700

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

1.25%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

39%

REDUCTION IN TRUCK ADT ON GARCES HWY

32%

REDUCTION IN TRUCK ADT ON SHERWOOD AVE

3,900

FORECAST TRUCK ADT ON POND RD

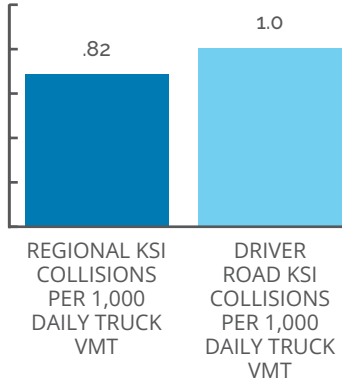
8.8 M

REDUCTION OF TRUCK ADT X FORECAST POPULATION WITHIN 900 FEET OF GARCES HWY

COLLISION ANALYSIS (2019-2024)

4 ⚠

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES OCCURRED WITHIN 50 FT OF DRIVER RD BETWEEN FAMOSO RD AND POND RD



COMMUNITY CONTEXT

DISTRICT

D3- N KERN

COMMUNITIES SERVED

DELANO AND MCFARLAND

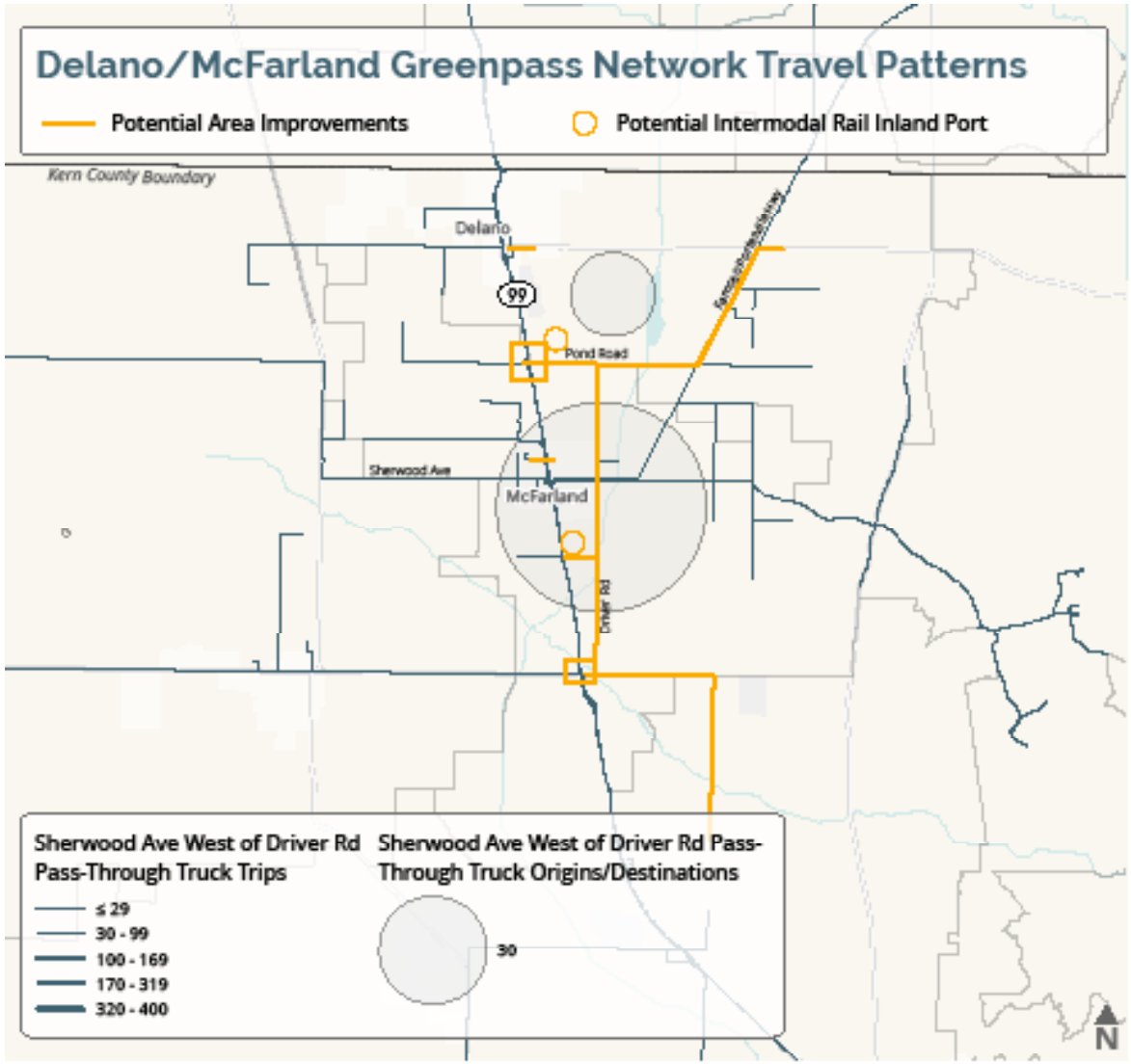
SECTORS SERVED

AGRICULTURE, MANUFACTURING, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
1	3	DELANO GREENPASS: POND RD
1	26	MCFARLAND RESILIENCY ROUTE: DRIVER RD
1	41	SR-99/POND ROAD INTERCHANGE
52	40	DELANO COMPLETE STREETS CORRIDOR
53	64	MCFARLAND COMPLETE STREETS CORRIDOR

FIGURE 3-11. Delano/McFarland Green-Pass Network Travel Patterns



SR-155 (Garces Highway) passes through southern Delano connecting to SR-99, meaning both local and regional trips are served by the roadway. The route is used as a cut-through from Famoso Porterville Highway to SR-99 and is a primary route for industrial and agricultural truck trips to access SR-99. These trips expose the local population to additional noise and emissions while providing no economic benefit.

FIGURE 3-12. Federal/State STAA and Local Truck Routes In and Around Delano and McFarland



I-5 Grapevine Safety Corridor

I-5 is the primary connection between Northern California, the Central Valley, Kern County, and Southern California, including the Ports of Los Angeles and Long Beach. Significant increases in volumes on I-5 and increased warehousing and industrial development in Kern County have highlighted the need to ensure this corridor remains resilient to disruptions and remains able to handle the flow of commerce north and south. Proposed improvements would relocate the southbound weigh station for trucks near Grapevine to mitigate the ability of trucks to bypass and avoid the existing weigh station. Additionally, the improvements would introduce truck passing lanes southbound from Grapevine to Lebec. These uphill passing lanes would offer congestion and safety benefits by providing additional capacity and helping separate vehicles with large speed differential.

KEY PROJECT IMPACTS:

- Roadway improvements would enhance safety for all users and facilitate goods movement through passing lanes and climbing lanes that would accommodate slower traveling vehicles and reduce the frequency of fires (and potential for large wildfires) related to overheating or braking.
- Dedicated second set of all truck lanes would help reduce passing conflicts with passenger vehicles and reduce VHT for passenger vehicles by providing a dedicated lane for slower moving trucks to drive.
- Mudslide prevention and habitat crossings

EXPOSED POPULATION

50

PEOPLE LIVING WITHIN 900 FEET

23,000

TRUCK AVERAGE DAILY TRAFFIC (ADT)

1.15 M

TRUCK ADT X POPULATION WITHIN 900 FEET

EMPLOYMENT

750

TOTAL JOBS WITHIN 1 MILE OF IMPROVEMENT AREA

580

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

0.22%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

15%

REDUCTION IN DAILY PASSENGER VEHICLE VHT ALONG THE 5 MILE SECTION OF ROADWAY WHERE TRUCK CLIMBING LANES ARE INSTALLED

13%

AVERAGE TRUCK PERCENTAGE

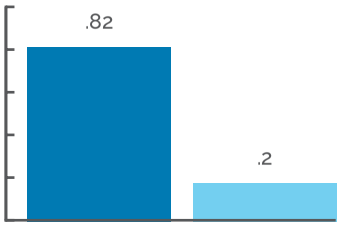
160,000

FORECAST TRUCK ADT ON I-5

COLLISION ANALYSIS (2019-2024)

16 ⚠

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES ON I-5 CORRIDOR BETWEEN GRAPEVINE AND LEBEC



COMMUNITY CONTEXT

DISTRICT

D2- S KERN

COMMUNITIES SERVED

KERN COUNTY

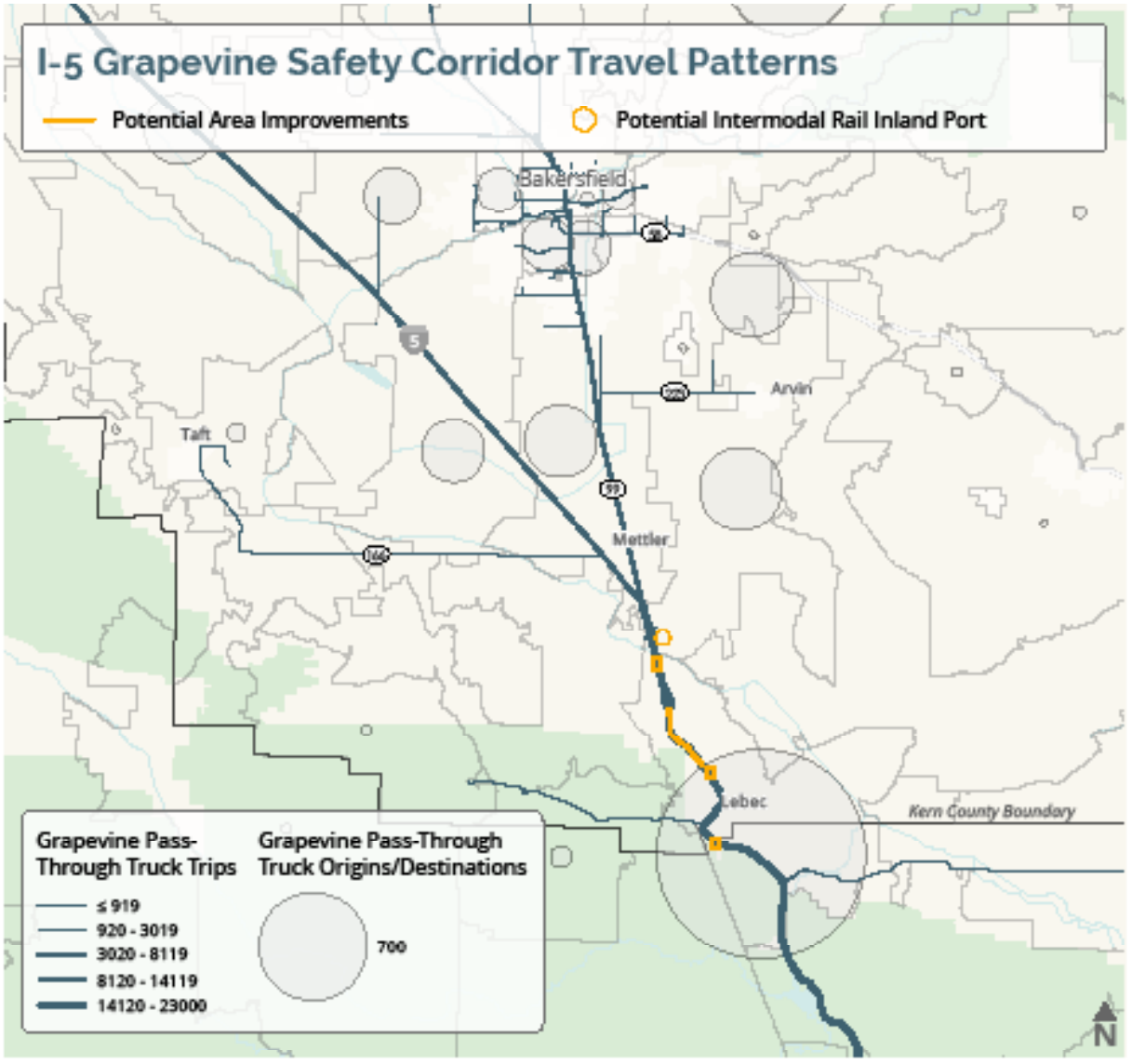
SECTORS SERVED

AGRICULTURE, MANUFACTURING, MINING, QUARRYING, OIL AND GAS EXTRACTION, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
46	4	I-5 SOUTHBOUND WEIGH STATION
51	7	I-5 TRUCK SAFETY PASSING LANES GRAPEVINE TO LEBEC, MUDSLIDE PREVENTION AND HABITAT CROSSING

FIGURE 3-13. I-5 Grapevine Safety Travel Patterns



I-5 serves south of Tejon serves as the primary connection between the Central Valley, Bakersfield metropolitan area, and Los Angeles Area/Southern California. While many drivers along the Grapevine are heading to and from destinations north of Kern County, a significant portion of trips are to and from destinations within the County, in particular the Bakersfield Metro area.

COMMUNITY CONTEXT

DISTRICT

D2- S KERN

COMMUNITIES SERVED

KERN COUNTY

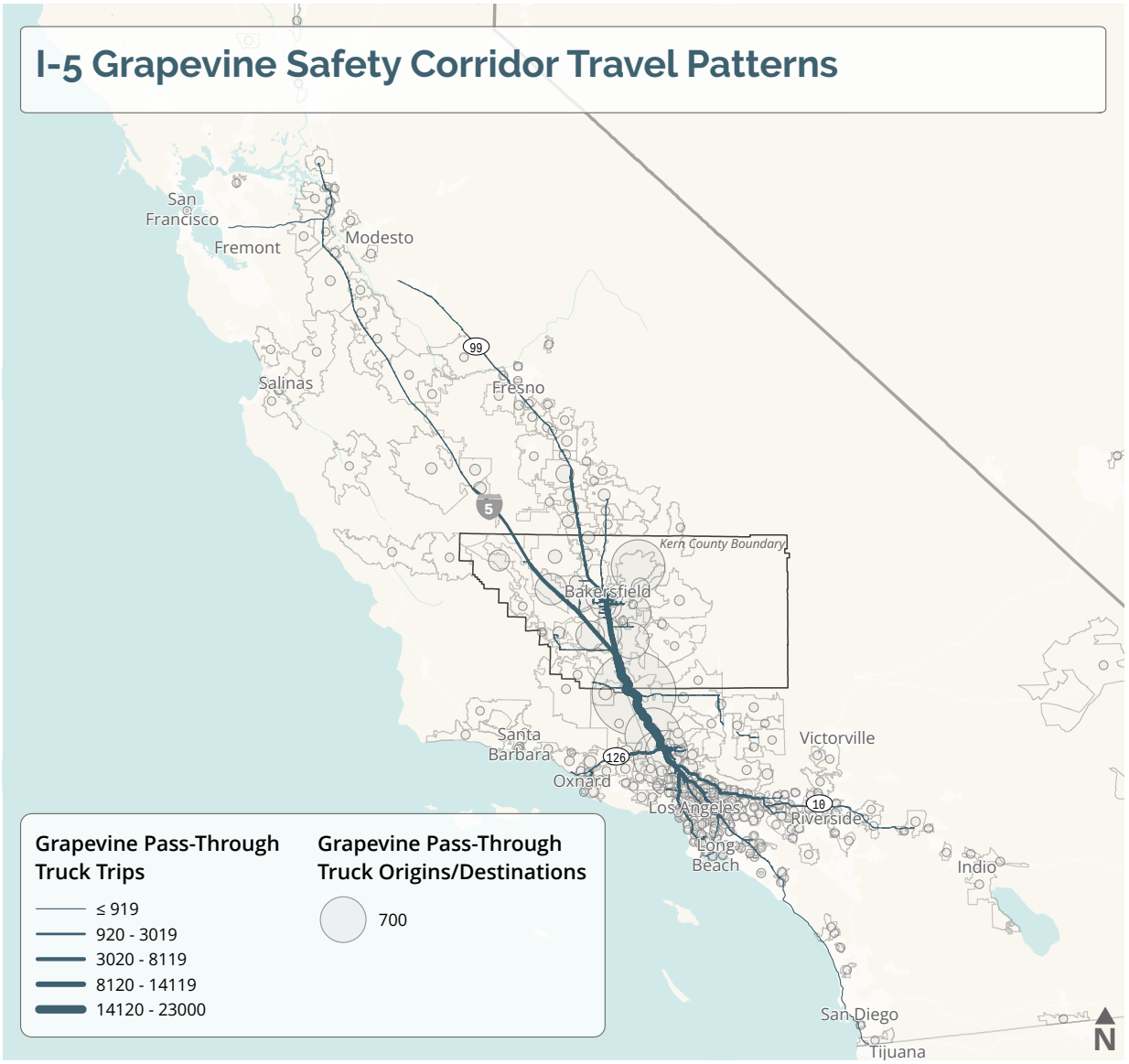
SECTORS SERVED

AGRICULTURE, MANUFACTURING, MINING, QUARRYING, OIL AND GAS EXTRACTION, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
46	4	I-5 SOUTHBOUND WEIGH STATION
51	7	I-5 TRUCK SAFETY PASSING LANES GRAPEVINE TO LEBEC, MUDSLIDE PREVENTION AND HABITAT CROSSING

FIGURE 3-14. I-5 Grapevine Safety Travel Patterns



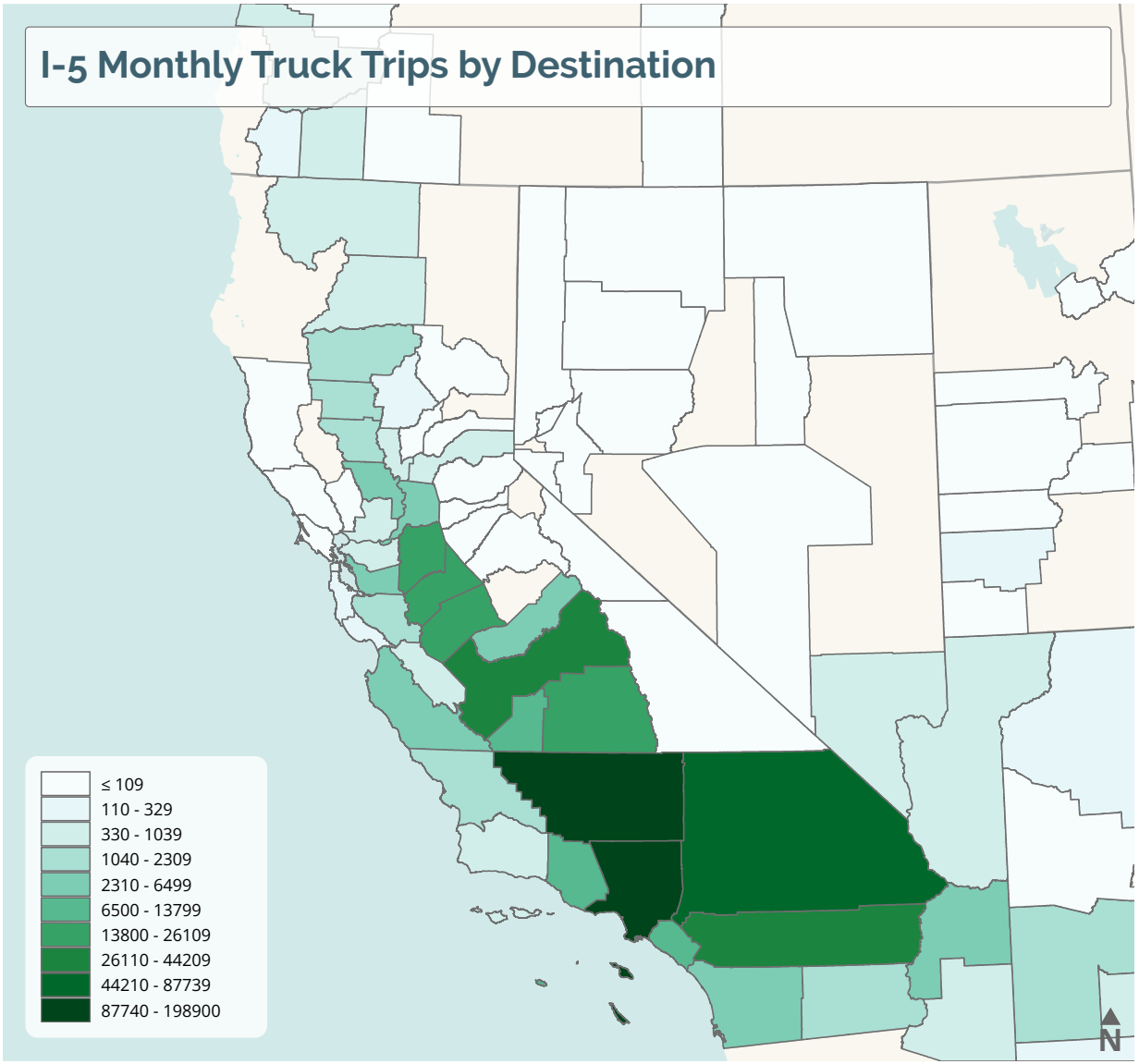
I-5 also serves as the primary connection for freight trips between Kern County, the Central Valley, and the Ports of Los Angeles and Long Beach.

Destination	Trips
IN CALIFORNIA	98%
KERN COUNTY	29%
BAY AREA	1%
SOUTHERN CALIFORNIA	46%
NORTHERN CALIFORNIA	22%
OUTSIDE CALIFORNIA	2%

156,533 truck trips in total. Data was collected in March 2023. Truck trips include medium-duty (14,000 - 26,000 lbs) and heavy-duty (>26,000 lbs) commercial vehicles.

Data Source: Atri

FIGURE 3-15. I-5 Monthly Truck Trips by Destination



Lamont/ SE Bakersfield Green-Pass Network

SR-184 runs north-south between SR-223 and SR-178 with an interchange at SR-58. It serves as the primary connection between Lamont and surrounding agricultural and industrial areas and Bakersfield. The state route passes through the center of Lamont, meaning residents have high exposure to truck emissions and higher risk of fatal or severe collisions while traveling along and accessing business on either side of SR-184.

Proposed improvements include an alternative network of roadways which parallel SR-184 and provide connectivity between SR-223, the planned Arvin Greenpass, and SR-58 while bypassing both the towns of Lamont and Arvin. This would include improving and upgrading Edison Road and the SR-58/Edison Road interchange and providing an additional east-west connection between Edison Road and Mount Vernon Avenue. In addition to reducing exposure to trucks within the town of Lamont, the improvements would additionally enhance connectivity between the areas around Lamont and SR-58/Bakersfield, improving network resiliency.

KEY IMPROVEMENT IMPACTS:

- Improvements would provide resilient route corridors that offer alternatives to SR-184 through Lamont and greater connectivity to Bakersfield (allowing trucks to bypass these populated areas and providing an alternate route if there is an unforeseen event).
- Shift freight traffic away from sensitive receptors like schools and residences, local downtown contexts, and corridors with a collision history in more populated areas like Lamont.
- Remove vehicle conflicts between freight traffic on SR-184 and vehicles traveling locally within the City of Lamont.

EXPOSED POPULATION

4,000

PEOPLE LIVING WITHIN 900 FEET OF SR-184 IN LAMONT

1,500

TRUCK AVERAGE DAILY TRAFFIC (ADT) ON SR-184 IN LAMONT

6 M

TRUCK ADT X POPULATION WITHIN 900 FEET

EMPLOYMENT

13,200

TOTAL JOBS WITHIN 1 MILE OF PROPOSED IMPROVEMENTS

4,200

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

1.9%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

5%

REDUCTION IN TOTAL ADT ON SR-184 THROUGH LAMONT

7%

REDUCTION IN ADT ON COTTONWOOD RD

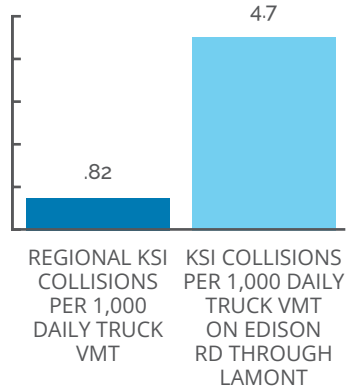
7.2 M

REDUCTION OF TRUCK ADT X FORECAST POPULATION WITHIN 900 FEET OF SR-184 IN LAMONT

COLLISION ANALYSIS (2019-2024)

7

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES ON EDISON RD THROUGH LAMONT



COMMUNITY CONTEXT

DISTRICT

D1 - C KERN AND D2 - S KERN

COMMUNITIES SERVED

LAMONT AND SOUTHEAST BAKERSFIELD

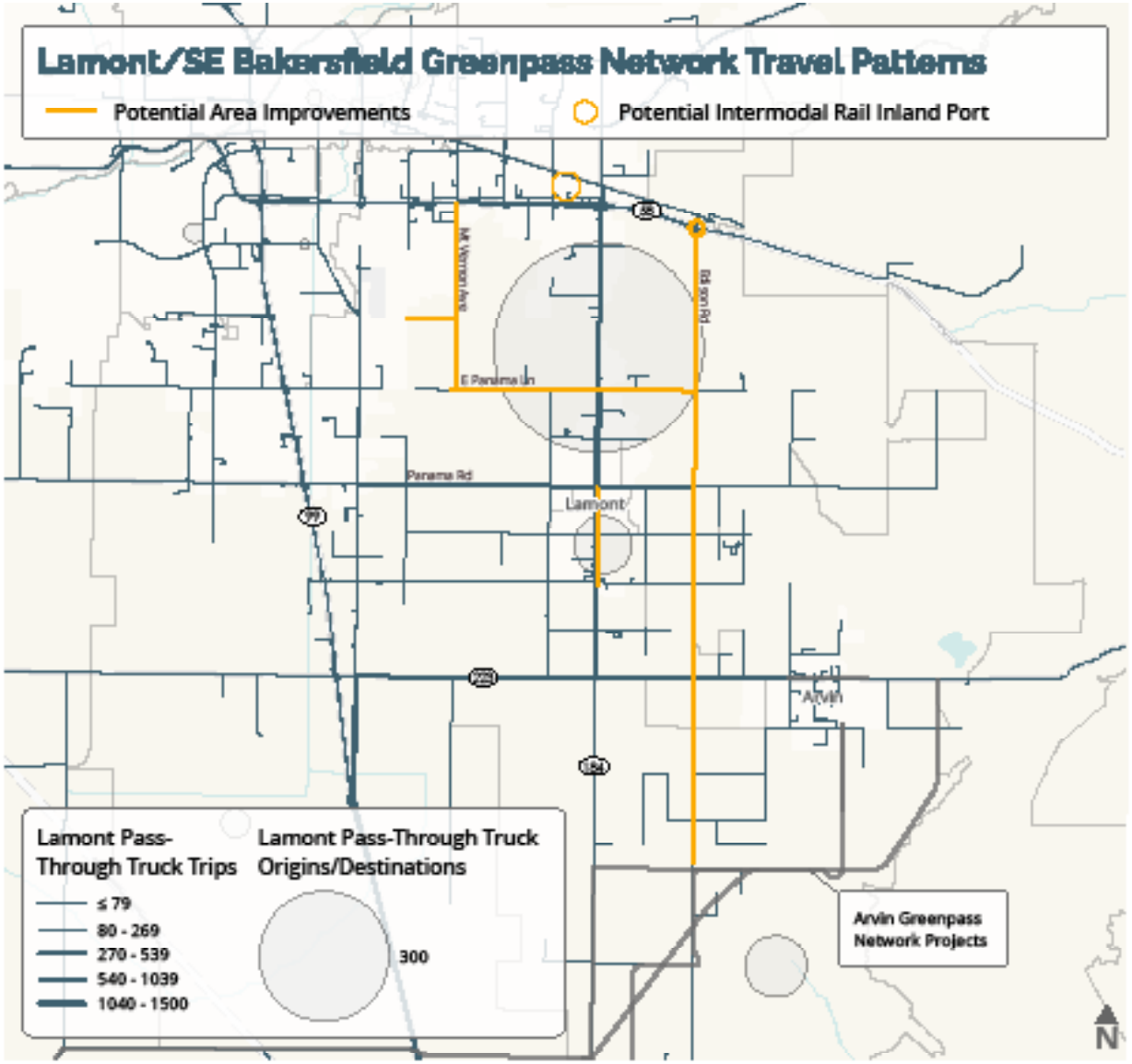
SECTORS SERVED

AGRICULTURE, MANUFACTURING, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
8	16	PANAMA LN GREENPASS/MT VERNON-EDISON RD
8	26	BAKERSFIELD GREENPASS: MT VERNON AVE EXTENSION
8	33	BAKERSFIELD GREENPASS: MT VERNON AVE
8	37	S LAMONT GREENPASS: EDISON ROAD/223-S ARVIN GREEN-PASS
23	6	LAMONT GREENPASS: EDISON ROAD
23	72	SR58 EDISON RD INTERCHANGE /58-223 GREENPASS
56	25	SR 184 - LAMONT COMPLETE STREETS CORRIDOR

FIGURE 3-16. Lamont/SE Bakersfield Green-Pass Network Travel Patterns



SR-184 passes through the center of the town of Lamont and connects to SR-58 north of the town. It is one of the primary routes between agricultural and industrial land uses around the town to SR-58 since other parallel routes have lower capacity or are less improved. These trips expose the local population to additional noise and emissions while providing no economic benefit.

US-395 Safety Corridor

Ridgecrest lies at the junction of US-395 and SR-178. These facilities serve a mix of freight and passenger vehicle trips heading to and from Ridgecrest, Naval Air Weapons Station China Lake, Searles Valley, and communities along the Eastern Sierra. Proposed improvements include enhancements to the China Lake Boulevard and US-395 intersection along with passing lanes along sections of US-395 between Garlock Road SR-178 and an intermodal rail facility near Searles Station Cutoff.

These improvements are intended to help reduce the number of collisions on US-395 and improve freight accessibility and intermodal options for Ridgecrest and the surrounding area. The total number of collisions per 1,000 daily truck VMT on this portion of US-395 is roughly 20% greater than the regional average and nearly 60% of collisions resulting in death or severe injury on US-395 within Kern County limits occurred within 250 feet of the improvement area. The US-395 & China Lake Boulevard interchange enhancements would modernize and enhance the existing stop-controlled intersection to better serve the volume of trucks utilizing this location, with potential options including a redesigned interchange or roundabout based on volume and collision data.

Searles Station is a strong candidate for an inland port. Currently used by Searles Valley Minerals to ship soda ash and borax by rail to the Port of Los Angeles, the site could expand to support intermodal container shipments. In 2023, the corridor carried over 1,000 daily trucks—largely from Reno-area distribution centers—many of which could be shifted to rail, reducing congestion on U.S. 395 and SR-14. Double-stack containers could be integrated with existing bulk trains, avoiding additional rail traffic on already constrained Southern California corridors. Targeted "last-mile" improvements would enable this shift. The site's remote setting, rail access, location within a Federal Opportunity Zone, and surrounding BLM land also position it for potential commercial space launch uses.

KEY IMPROVEMENT IMPACTS:

- Enhance safety for all users and facilitate goods movement through intersection improvements, enhanced capacity for slow vehicles, and passing lanes
- Reduce potential delay, conflicts, and collisions resulting in death or severe injury at the US-395 & China Lake Boulevard interchange
- Add "last-mile" truck passing lanes along U.S. 395 and Searles Station Cutoff to improve freight mobility. Searles Station could serve as a strategic hub for a potential intermodal inland port and commercial space launch facilities with rail access.
- Prioritize passing lane improvements south of SR-58 to strengthen connectivity between I-5, I-15, and I-10 in San Bernardino County.

EXPOSED POPULATION

90

PEOPLE LIVING WITHIN 900 FEET

1,000

TRUCK AVERAGE DAILY TRAFFIC (ADT)

90,000

TRUCK ADT X POPULATION WITHIN 900 FEET

EMPLOYMENT

30

TOTAL JOBS WITHIN 1 MILE OF PROPOSED IMPROVEMEMNTS

5

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

0.01%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

7%

REDUCTION IN DAILY PASSENGER VEHICLE VHT ALONG SECTION OF ROADWAY WHERE PASSING LANES ARE INSTALLED

15,900

FORECAST ADT ON US-395

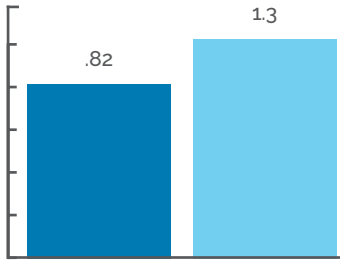
13,400

FORECAST ADT ON CHINA LAKE BLVD

COLLISION ANALYSIS (2018-2022)

9 ⚠

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES ON US-395 IN KERN COUNTY HAPPENED WITHIN 250 FT OF THE IMPROVEMENT AREA



COMMUNITY CONTEXT

DISTRICT

D4 - E KERN

COMMUNITIES SERVED

RIDGECREST

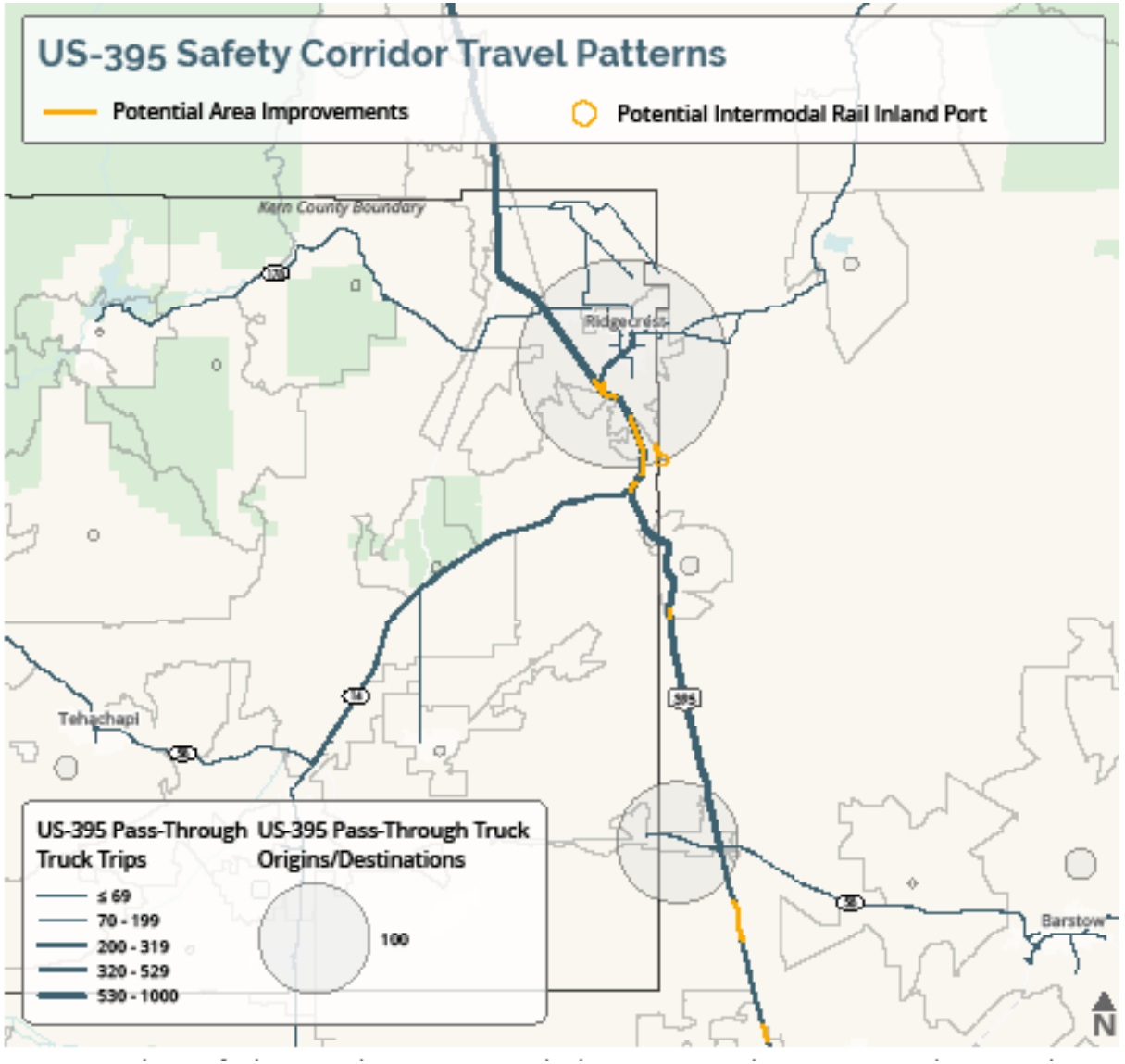
SECTORS SERVED

MANUFACTURING, MINING, QUARRYING, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

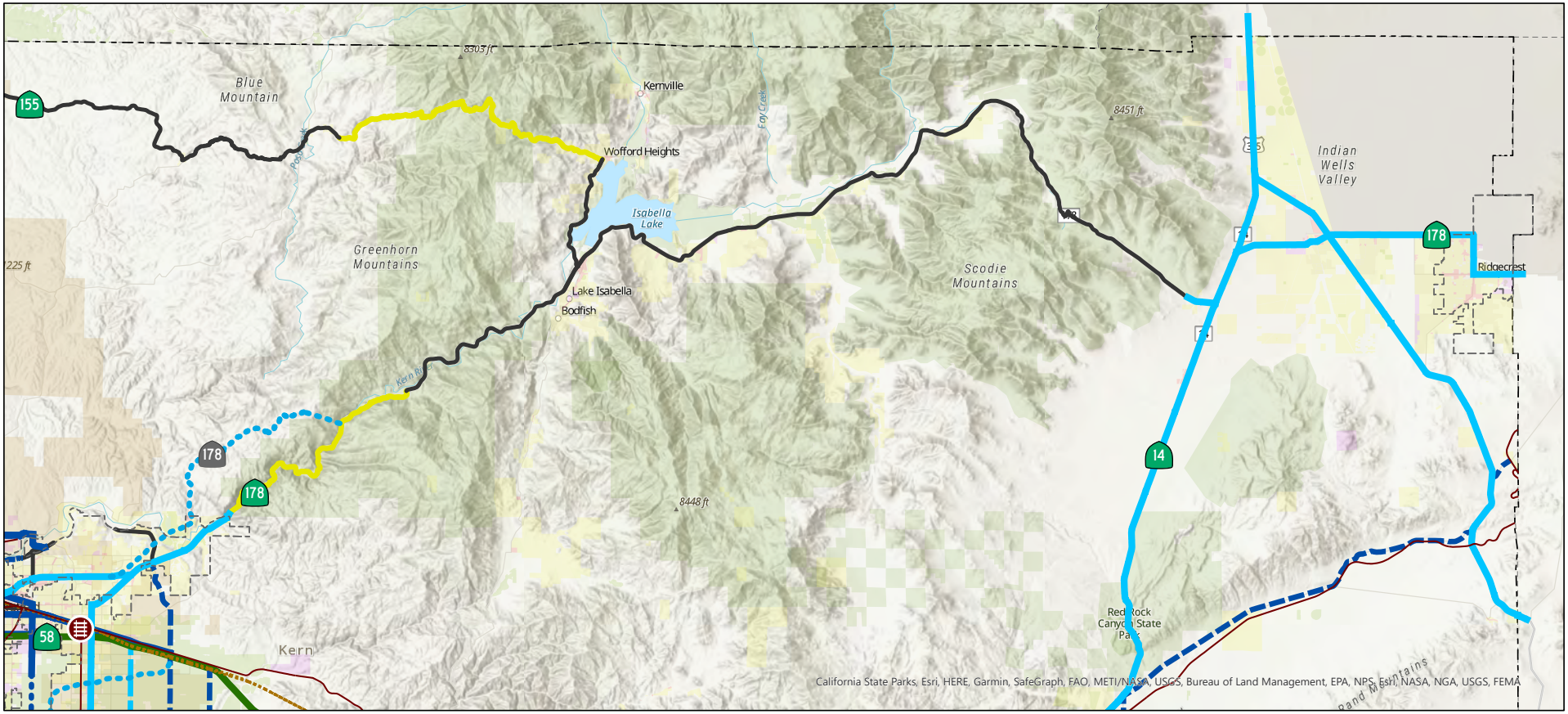
#	RANK	PROJECT TITLE
0	5	US-395/CHINA LK BL INTERCHANGE
27	8	US-395 SAFETY PASSING LANES
48	59	US-395 SEARLES STN INTERMODAL RAIL FACILITY
-	-	US-395 PASSING LANES, SAN BERNARDINO COUNTY

FIGURE 3-17. US-395 Safety Corridor Travel Patterns



SR-395 serves the city of Ridgecrest and connects the City of Ridgecrest to Inyo and Mono Counties to the north and San Bernardino County to the south. It is the primary highway connecting the community, serving most trips to and from Ridgecrest and the eastern Sierras.

FIGURE 3-18. Federal/State STAA and Local Truck Routes In and Around North Kern County



9 Miles

Kern Council of Governments

	Existing	Candidate	Future
National Network (STAA)	▬	▬	●●●
State Terminal Access (STAA)	▬	▬	●●●
Local (STAA)	▬	▬	●●●

Legal Routes
- 65' CA Legal Route
- 65' CA Legal *KPRA Advisory
- Other Major Local Arterials

Potential Highway Phases
- Existing
- Phase 1
- Phase 2

Rail
- Existing Rail
- Future Rail
- High Speed Rail Alignment

Intermodal Freight Hub
- Existing
- Potential

Combined General Plan Land
- Residential
- Commercial
- Industrial
- Agriculture Production
- Oil Production

NW Bakersfield Green-Pass Network

Goods traveling to/from agricultural areas in Kern County and population centers, such as Bakersfield, use a variety of corridors to connect to key roadways such as SR-43, SR-99, SR-46, and I-5. Accessing and utilizing these critical freight corridors requires traveling through suburban and populated areas. Proposed improvements aim to reduce the amount of truck traffic through populated areas in Bakersfield and Shafter by implementing the northwest Bakersfield Green Pass Network that will allow freight vehicles to bypass Shafter and portions of Santa Fe Way. Improvements would also provide resiliency corridors by providing additional north-south and east-west connections between and parallel to SR-99 and SR-43 that provide additional options should there be collisions, natural disasters, or other events that require closure of one of the roadways.

KEY IMPROVEMENT IMPACTS:

- Resiliency route corridors would offer alternatives to SR-43 and other local roadways, allowing truck trips to bypass these populated areas and provide an alternate route in the case of unforeseen events.
- Facilitate freight traffic away from sensitive receptors like schools and residences, local downtown contexts, and corridors with a collision history in more populated areas like Wasco and Shafter.
- Remove vehicle conflicts between freight traffic and passenger vehicles traveling locally in suburban areas by concentrating freight traffic on corridors which bypass the most densely populated areas and sensitive receptors.

EXPOSED POPULATION

3,700

PEOPLE LIVING WITHIN 900 FEET OF ENOS ROAD AND ALLEN ROAD

3,500

TRUCK AVERAGE DAILY TRAFFIC (ADT) ON ENOS RD AND ALLEN RD

13 M

TRUCK ADT X POPULATION WITHIN 900 FEET

EMPLOYMENT

3,800

TOTAL JOBS WITHIN 1 MILE OF IMPROVEMENT AREA

2,300

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

0.6%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

35%

REDUCTION IN ADT ON PARALLEL ROADS TO URBAN WEST CORRIDOR

28%

REDUCTION IN ADT ON ENOS RD FROM GREENPASS

83

REDUCTION IN DAILY PASSENGER VEHICLE VHT FROM SANTA FE WY IMPROVEMENTS

100,000

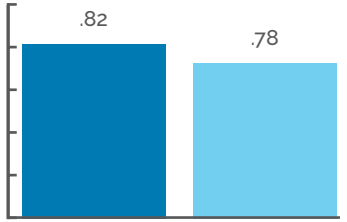
FORECAST URBAN WEST CORRIDOR ADT

COLLISION ANALYSIS

(2019-2024)

9

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES WITHIN 250 FT OF SANTA FE WY IMPROVEMENT AREA



COMMUNITY CONTEXT

DISTRICT

D1 - C KERN

COMMUNITIES SERVED

NORTHWEST BAKERSFIELD

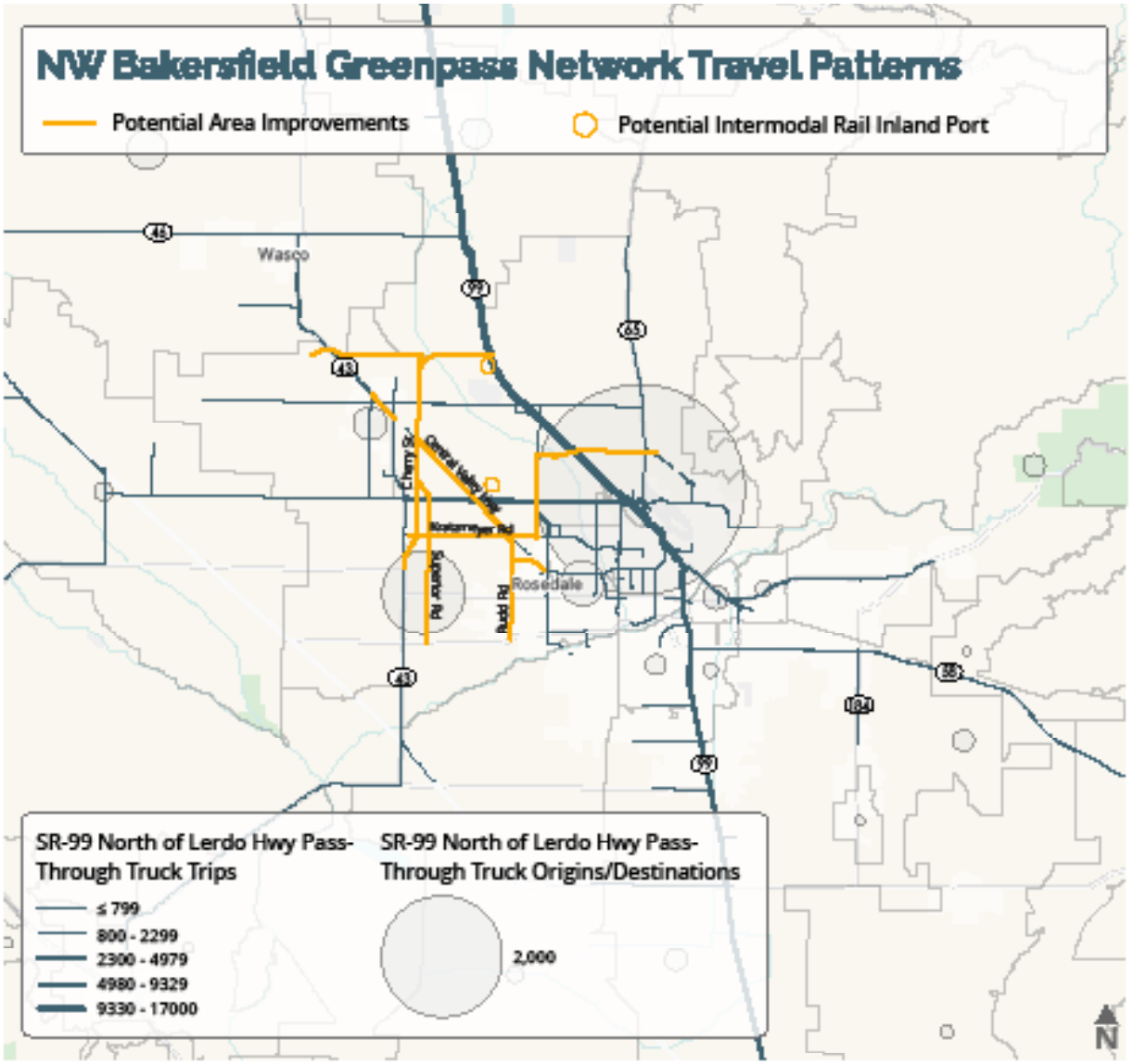
SECTORS SERVED

AGRICULTURE, MANUFACTURING, OIL AND GAS EXTRACTION, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

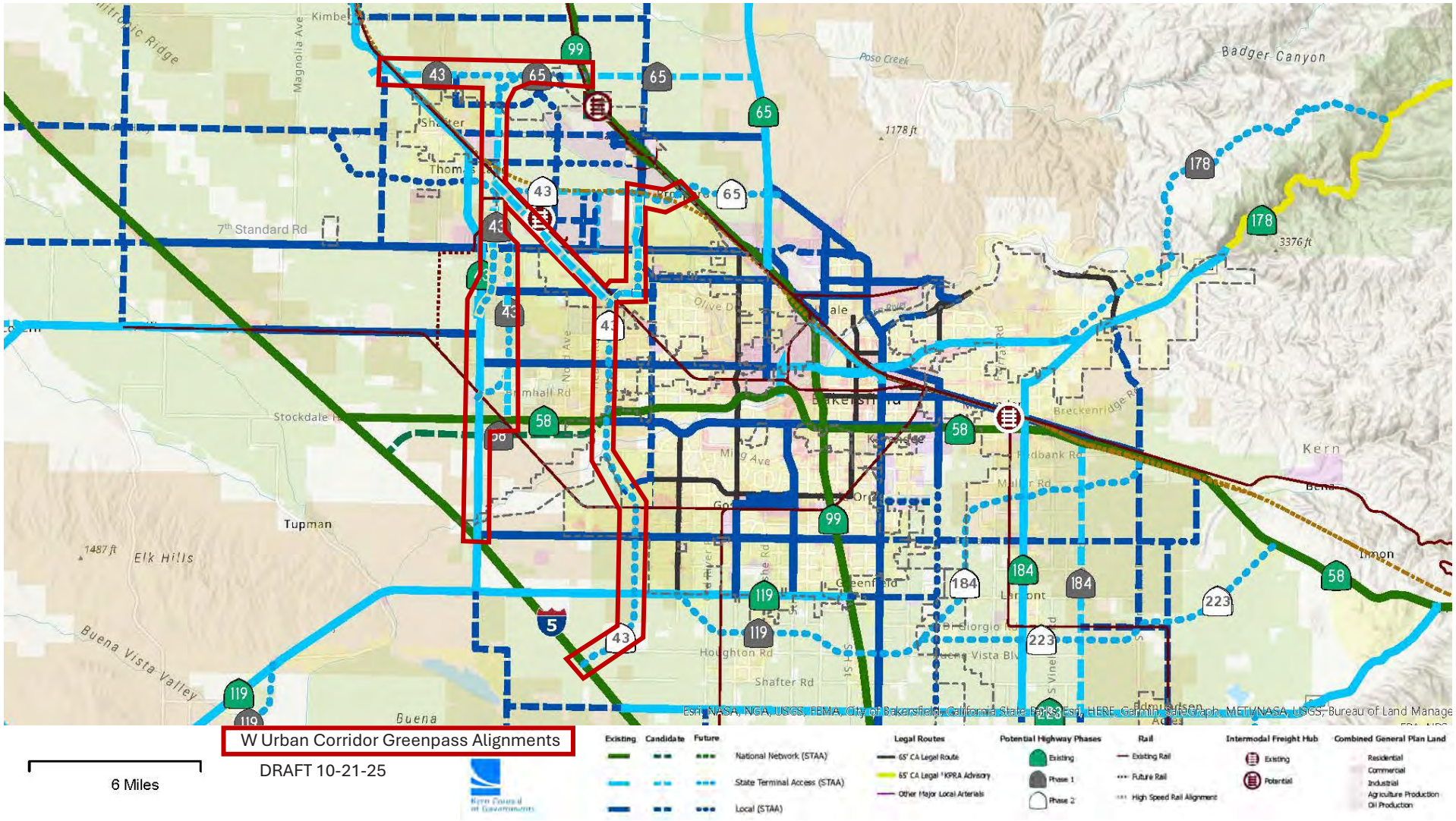
#	RANK	PROJECT TITLE
2	41	SHAFTER GREENPASS: MERCED AVENUE-EXPRESSWAY
3	49	SHAFTER GREENPASS: CHERRY AVENUE-EXPRESSWAY
6	71	SANTA FE WAY, BURBANK-ROSEDALE HWY
7	10	SHAFTER/BAKERSFIELD GREENPASS: SUPERIOR ROAD CORRIDOR
73	65	SHAFTER/BAKERSFIELD WEST URBAN CORRIDOR

FIGURE 3-19. Bakersfield Green-Pass Network Travel Patterns



Significant growth has occurred in the northwest Bakersfield area. While the area generates many trips to and from SR-99 to the north, there is a lack of north-south connectivity. Many trips to and from the north are concentrated on Zerker Rd, Calloway Dr, and 7th Standard Rd.

FIGURE 3-20. Federal/State STAA and Local Truck Routes Green-Pass Alignments



ROSAMOND GREENPASS NETWORK

SR-14 provides connections to other regional roadways such as SR-58 and SR-138, highlighting the subregional importance of this corridor. The Rosamond Greenpass Network would allow for efficient movement of trucks by connecting resiliency corridors and providing an additional route that connects to SR-58, connecting jurisdictions and avoiding more populated areas and roadways. Improvements east of SR-14 would provide an alternative route for trips specifically travelling to and from Edwards Air Force Base.

Tehachapi-Willow Springs Rd provides a resiliency route to SR-58, SR-14 and I-5 that in 2025 saw approximately 300 trucks per day according to the Kern COG Traffic Count Program. The corridor connecting with Tehachapi Bl, Oak Creek Rd, Rosamond Bl and Ave A, allow trucks to bypass the westbound Caltrans weigh station on SR 58 which sees nearly 9,000 trucks per day both directions. Improvements to this corridor may mean the need to relocate the 58 weigh station further West to capture westbound truck traffic.

Key Improvement Impacts:

- Connecting resiliency route corridors would provide additional travel alternatives to SR-14, via Tehachapi Willow Springs Road, when closures occur. Interchange improvements would facilitate access for trucks accessing climbing/passing lanes.
- Reduce the amount of truck through-traffic in Rosamond and near sensitive areas such as schools and residential areas.
- Increase safety along Rosamond Boulevard by reducing the likelihood of heavy vehicle conflicts with people accessing destinations, such as schools, homes, or restaurants.
- Enhance connectivity and flexibility of routes, particularly in the case of an event on SR-14, between Lancaster, Lake Los Angeles, Mojave, California City, and Tehachapi, and Edwards Air Force Base, while avoiding more populated and congested areas.
- Provide alternative route for trips traveling to and from Edwards Air Force Base.
- The corridor features a diagonal alignment adjacent the east side of the High-Speed Rail corridor connecting Ave A/SR-14 with Tehachapi-Willow Springs Rd, shaving off over 3 miles between SR-14 and Tehachapi. This corridor will increase the attractiveness of trucks using route SR-14 to bypass SR-58 westbound weigh station therefore it should be paired with the relocation of the SR-58 weigh station further west to capture westbound truck traffic.
- Rosamond Blvd west of SR-14 provides access to Rosamond High School, Elementary, and residential areas. This corridor should be considered for complete streets improvements and through trucking should be re-routed to the greenpass network accessing SR-14 at Ave A.

EXPOSED POPULATION

2,800

PEOPLE LIVING WITHIN 900 FEET OF ROSAMOND BLVD

500

TRUCK AVERAGE DAILY TRAFFIC (ADT) ON ROSAMOND BLVD

1.4 M

TRUCK ADT X POPULATION WITHIN 900 FEET OF ROSAMOND BLVD

EMPLOYMENT

500

TOTAL JOBS WITHIN 1 MILE OF PROPOSED IMPROVEMENTS

70

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

0.15%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

7,300

BYPASS ADT

19,200

REDUCTION IN VMT DUE TO ROSAMOND GREENPASS

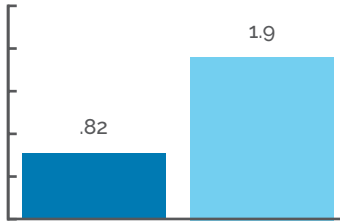
1,000

FEWER DAILY TRUCK TRIPS ON ROSAMOND SURFACE STREETS AT BUILD-OUT

COLLISION ANALYSIS (2018-2022)

14 ⚠

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES ON ROSAMOND BLVD CORRIDOR IN THE IMPROVEMENT AREA



COMMUNITY CONTEXT

DISTRICT

D4- E KERN

COMMUNITIES SERVED

ROSAMOND

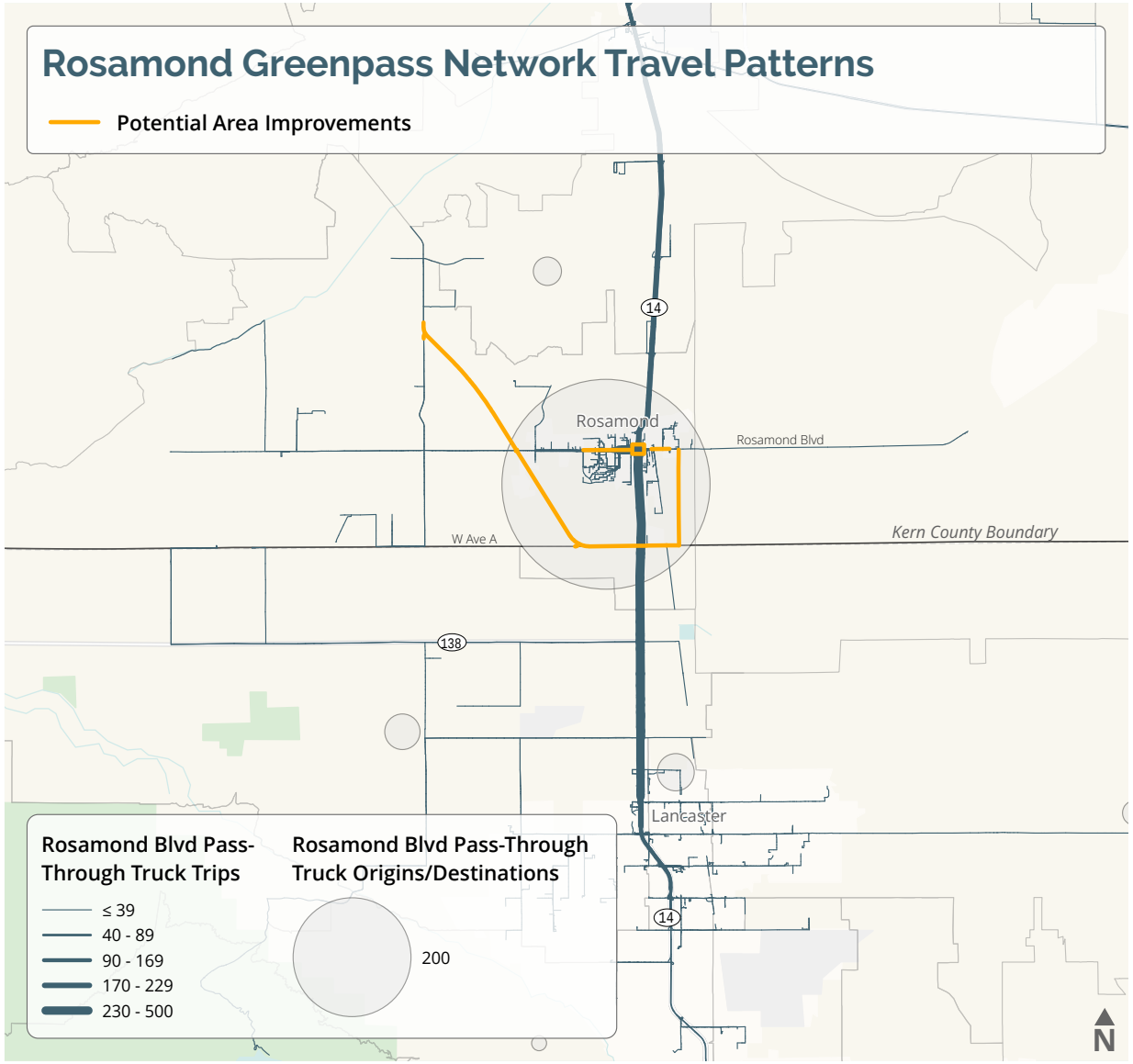
SECTORS SERVED

MANUFACTURING, MINING, QUARRYING, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
35.1 A	12	TEHACHAPI-WILLOW SPRINGS ROAD CORRIDOR GREENPASS: EAST OF SR-14
35.1 B	12	TEHACHAPI-WILLOW SPRINGS ROAD CORRIDOR GREENPASS: WEST OF SR-14
58	63	ROSAMOND COMPLETE STREETS CORRIDOR

FIGURE 3-21. Rosamond Green-Pass Network Travel Patterns



Rosamond Blvd serves as the primary access point to SR-14 for the community of Rosamond. It also functions as the primary connection to SR-14 for freight-generating land uses east and west of the community as well as trips using Tehachapi Willow Springs Rd as a cut-through between SR-58 and SR-14. These trips expose the local population to additional noise and emissions while providing no economic benefit. Proposed improvements east of SR-14 would offer a more direct alternative route for traffic traveling to and from Edwards Air Force Base, reducing reliance on Rosamond Blvd.

7TH STANDARD ROAD SAFETY CORRIDOR

7th Standard Road is the first road north of SR-58 which directly connects SR-99 and I-5. It is primarily a two-lane road that provides access to agricultural areas north of Bakersfield as well as several large industrial areas including the oil fields northeast of Bakersfield and distribution centers near the intersection of 7th Standard Road and Santa Fe Way.

Given the growth in freight generating land uses along the corridor, these improvement propose passing lanes, concrete rehabilitation, and other safety rehabilitation improvements to reduce the likelihood of severe and fatal collisions along the corridor. For example, the additional passing lanes proposed are intended accommodate slower vehicles and reduce conflicts between slower and faster moving vehicles.

The improvements would also provide additional connectivity to SR-33 west of I-5 and improve network resiliency by providing a parallel route to SR-58. These improvements would also facilitate the implementation of KARGO phase I study proposed creation of a Safer Autonomous Freight Enhanced Testing Environmentally Clean (SAFETEC) Logistics Zone.

KEY IMPROVEMENT IMPACTS:

- Roadway improvements would enhance safety for all users and facilitate goods movement through passing lanes that would accommodate slower traveling vehicles.
- Reduce potential delay, conflicts, and collisions resulting in death or severe injury at the I-5 & 7th Standard Road interchange.
- Maintain and enhance connectivity by enhancing an east-west corridor which connects I-5, SR-99, and communities, agriculture, and industrial areas along the northern edge of Bakersfield.
- The project is part of the KARGO Phase 2 recommendation for a SAFETEC corridor for improving safety by testing autonomous trucks on Kern's back roads away from all communities. 7th Standard Rd could be an early test corridor.

EXPOSED POPULATION

200

PEOPLE LIVING WITHIN 900 FEET OF 7TH STANDARD RD BETWEEN SR-43 AND I-5

1,500

TRUCK AVERAGE DAILY TRAFFIC (ADT) ON 7TH STANDARD RD BETWEEN SR-43 AND I-5

290,000

TRUCK ADT X POPULATION WITHIN 900 FEET

EMPLOYMENT

12,800

TOTAL JOBS WITHIN 1 MILE OF PROPOSED IMPROVEMENTS ALONG 7TH STANDARD RD BETWEEN I-5 AND AIRPORT DR

7,100

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE ALONG 7TH STANDARD RD BETWEEN I-5 AND AIRPORT DR

1.9%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

79

REDUCTION IN DAILY PASSENGER VEHICLE VHT ON 7TH STANDARD RD

16%

REDUCTION IN DAILY PASSENGER VEHICLE VHT FOR PORTIONS OF 7TH STANDARD RD WHERE PASSING LANES ARE INSTALLED

12%

TRUCK PERCENTAGE ALONG CORRIDOR

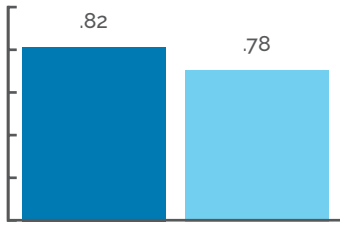
25,500

FORECAST AVERAGE CORRIDOR ADT

COLLISION ANALYSIS (2018-2022)

44

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES OCCURRED ON 7TH STANDARD RD CORRIDOR



COMMUNITY CONTEXT

DISTRICT

D1 - C KERN

COMMUNITIES SERVED

NORTHWEST BAKERSFIELD

SECTORS SERVED

AGRICULTURE, MANUFACTURING, MINING, QUARRYING, OIL AND GAS EXTRACTION, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
4	29	7TH STANDARD ROAD SAFETY REHAB
4	41	SHAFTER GREENPASS: 7TH STANDARD ROAD PASSING LANES
4	44	I-5/7TH STANDARD ROAD INTERCHANGE
4	45	SHAFTER GREENPASS: 7TH STANDARD ROAD CONCRETE REHAB
15	17	LERDO HWY SAFETY REHAB
15	20	ROWLEE RD SAFETY REHAB
15	13	MAIN DRAIN ROAD SAFETY REHAB

FIGURE 3-22. 7th Standard Rd Safety Corridor Travel Patterns



7th Standard Rd is a regionally significant roadway, serving as a direct connection between SR-99 and I-5. Many trips along the roadway are between SR-99, I-5, and northwest Bakersfield communities.

SR-58 Stockdale Highway Safety Corridor

SR-58 carries high volumes of freight traffic and servers as the primary east-west connection between Kern County, the Mojave, and nationwide destinations along the I-10, I-70, and I-40 corridors. Proposed improvements include enhancements along Stockdale Highway, or the westernmost portion of SR-58, between the western edge of Bakersfield and I-5. It serves trips traveling to/from agricultural areas in Kern County as well as trips to/from large population centers, such as Bakersfield, and trips passing completely through the County via I-5 and SR-58 including destinations further north in California and to the east in California and beyond.

Improvements proposed are intended to improve safety along the corridor. For example, the additional passing lanes proposed are intended accommodate slower vehicles and reduce conflicts between slower and faster moving vehicles. Additional proposed improvements would introduce enhancements at the I-5/Stockdale Highway interchange, which currently features angled ramps with tight turns, no turn-pockets, and stop-controlled off-ramps. Improvements to the interchange would also improve access to the adjacent commercial areas.

KEY IMPROVEMENT IMPACTS:

- Roadway improvements that would enhance safety for all users and facilitate goods movement through passing lanes that would accommodate slower traveling vehicles and trucks.
- Reduce potential delay, conflicts, and collisions resulting in death or severe injury at the I-5 & Stockdale Highway interchange.
- Maintain and enhance connectivity on the critical I-5 to SR-58 travel corridor.
- 40% of truck trips to and from I-5 north of SR-58 enter or exit I-5 at SR-58

EXPOSED POPULATION

100

PEOPLE LIVING WITHIN 900 FEET OF SR-58 BETWEEN I-5 AND SR-43

1,200

TRUCK AVERAGE DAILY TRAFFIC (ADT) ON OF SR-58 BETWEEN I-5 AND SR-43

120.000

TRUCK ADT X POPULATION WITHIN 900 FEET

EMPLOYMENT

710

TOTAL JOBS WITHIN 1 MILE OF PROPOSED IMPROVEMENTS NEAR SR-58 BETWEEN I-5 AND SR-43

190

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE NEAR SR-58 BETWEEN I-5 AND SR-43

0.21%

PERCENT OF COUNTY EMPLOYMENTWITHIN 1 MILE

FORECAST OUTCOMES

163

REDUCTION IN DAILY PASSENGER VEHICLE VHT ON SR-58

18,400

REDUCTION IN VHT ON SR-58 WHERE PASSING LANES ARE INSTALLED

18%

TRUCK PERCENTAGE ALONG CORRIDOR

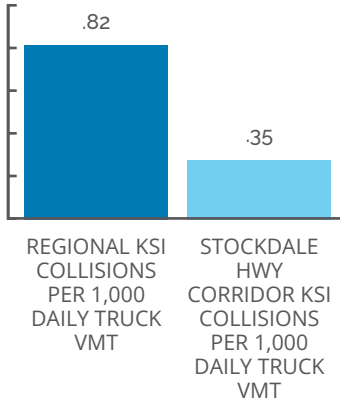
8%

REDUCTION IN DAILY PASSENGER VEHICLE VHT FOR PORTIONS OF SR-58 WHERE PASSING LANES ARE INSTALLED

COLLISION ANALYSIS (2018-2022)

5

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES ON STOCKDALE HWY HAPPENED WITHIN 50 FT OF THE IMPROVEMENT AREA BETWEEN I-5 AND WESTERN EDGE OF BAKERSFIELD



COMMUNITY CONTEXT

DISTRICT

D1 - C KERN AND D4 - E KERN

COMMUNITIES SERVED

WESTERN BAKERSFIELD

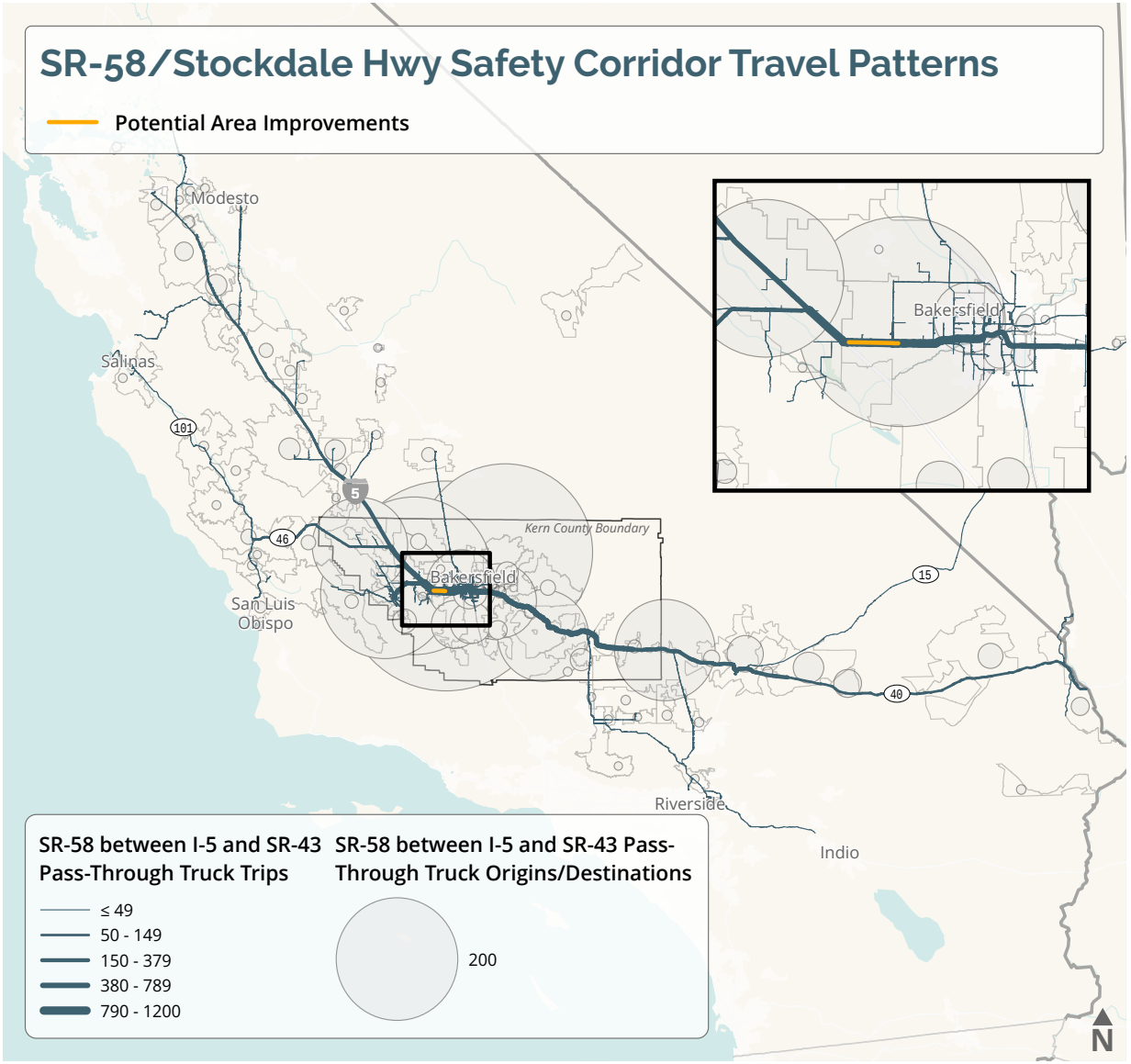
SECTORS SERVED

AGRICULTURE, MANUFACTURING, MINING, QUARRYING, OIL AND GAS EXTRACTION, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
12	17	SR-58 SUMMIT INTERCHANGE
19	17	I-5/SR58 STOCKDALE HWY INTERCHANGE
19	29	SR-58 STOCKDALE HWY SAFETY PASSING LANES

FIGURE 3-23. SR-58/Stockdale Hwy Safety Corridor Travel Patterns



SR-58 is a regionally and nationally significant roadway, serving as a direct connection between the Tehachapi Pass, SR-99 and I-5. Many trips along the roadway are between SR-99, I-5, and the Bakersfield metro area. Most trips using SR-58 to connect to I-5 are between western Kern County and areas to the north of the County and the Tehachapi pass.

Wasco Ave/ Merced Ave Green-Pass Network

State Route 43 is an important corridor providing north-south access from I-5 to Selma. SR-43 traverses the Cities of Wasco and Shafter, with Santa Fe Way branching off of SR-43 and extending southeast from Shafter to Bakersfield. One proposed improvement is the Wasco Avenue frontage road connecting Kimberlina Road and Jackson Avenue. During the development of High Speed Rail (HSR) infrastructure, the prior Wasco Road right-of-way was repurposed for HSR infrastructure. Previously, Wasco Road could be used to connect to Kimberlina, providing eastbound access over the "Calloway" canal. Today, vehicles can connect via Wasco Avenue to Jackson Avenue, however, Jackson Avenue does not provide access over the canal, thereby requiring more circuitous travel than would otherwise be necessary if Wasco Road connected directly to Kimberlina Road. Additionally, many truck trips have to pass through the center of Wasco to continue on SR-43 since the Wasco Avenue connection is not available. Improvements would reconstruct that frontage road to close the gap between Jackson Avenue and Kimberlina Road.

SR-43 in Shafter has a character that is different than most other sections of the highway as there are businesses and residents located next to the corridor. The portion of SR-43 in the City of Shafter experiences a relatively high proportion of truck traffic. To address the potential negative impacts of heavy truck traffic through the middle of Shafter, improvements are proposed to Merced Avenue and Cherry Avenue that would allow vehicles traveling along SR-43 to bypass Shafter. Reducing potential conflicts between trucks and other vehicles or people who may be walking in Shafter would help improve safety and could also improve travel times by keeping trucks on routes with higher capacities and less land use density.

KEY IMPROVEMENT IMPACTS:

- Reduce vehicle conflicts between freight traffic on SR-43 and vehicles traveling locally within the City of Shafter.
- Connect to and build off other regional improvements, such as Cherry Avenue improvements and Merced Avenue grade separation, that would facilitate freight traffic away from sensitive receptors like schools and residences, local downtown contexts, and corridors with a collision history.
- Merced Avenue would become a more resilient truck route corridor by providing a connection to I-5 to the west (via Brownlee Road) that would reduce the amount of truck traffic through Shafter and Wasco by shifting truck trips to Merced Ave and Wasco Ave.

EXPOSED POPULATION

5,300

PEOPLE LIVING WITHIN 900 FEET OF SR-43 IN WASCO AND SHAFTER

2,000

TRUCK AVERAGE DAILY TRAFFIC (ADT) ON SR-43 IN WASCO AND SHAFTER

10.7 M

TRUCK ADT X POPULATION WITHIN 900 FEET

EMPLOYMENT

1,100

TOTAL JOBS WITHIN 1 MILE OF PROPOSED IMPROVEMENTS

600

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

0.31%

PERCENT OF COUNTY EMPLOYMENT WITHIN 1 MILE

FORECAST OUTCOMES

16%

REDUCTION IN ADT ON SR-43 IN WASCO

34%

REDUCTION IN TRUCK ADT ON SR-43 IN WASCO

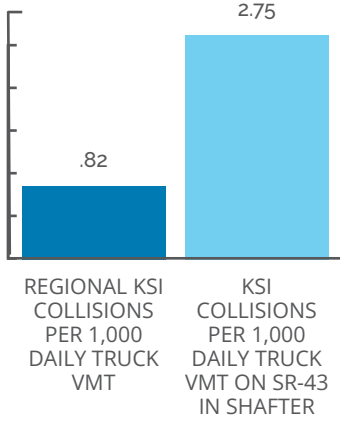
16.7 M

REDUCTION OF TRUCK ADT X FORECAST POPULATION WITHIN 900 FEET

COLLISION ANALYSIS (2018-2022)

11

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES ON SR-43 OCCURRED IN THE MAIN URBAN CORE OF SHAFTER (N SHAFTER BOUNDARY



COMMUNITY CONTEXT

DISTRICT

D3 - N KERN AND D4 - C KERN

COMMUNITIES SERVED

SHAFTER AND WASCO

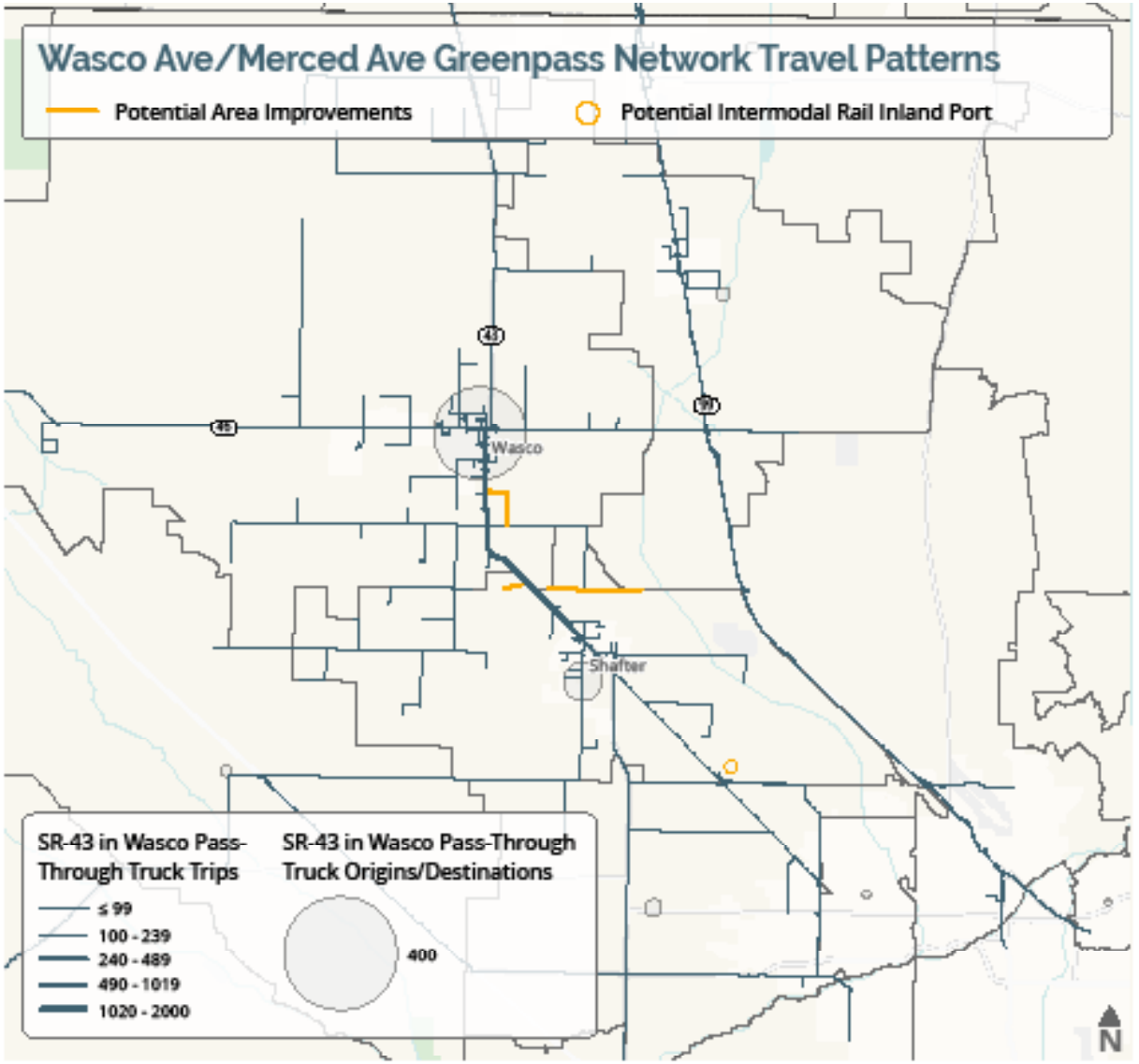
SECTORS SERVED

AGRICULTURE, MANUFACTURING, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
14	74	WASCO AVE (FRONTAGE ROAD) IMPROVEMENTS
15	48	MERCED AVENUE SAFETY REHAB
54	59	WASCO COMPLETE STREETS CORRIDOR
55	67	SHAFTER COMPLETE STREETS CORRIDOR

FIGURE 3-24. Wasco Ave/Merced Ave Green-Pass Network Travel Patterns



Many trips to and from Wasco, Shafter, and the surrounding agricultural and industrial areas must pass through the centers of the towns to connect between key north-south roadways such as SR-43 and key east-west roadways such as SR-46 and Lerdo Hwy. While many trips are to and from these communities, trips from the surrounding areas just passing through expose the local population to additional noise and emissions while providing no economic benefit.

SR-58 California City Boulevard Safety Corridor

California City Boulevard serves as an important corridor that connects California City to other roadways and destinations including US-395 and Barstow to the east and Mojave, Rosamond, Lancaster, and Bakersfield to the west. The current intersection of California City Boulevard & SR-58 is a side-street stop-controlled location. SR-58 serves a significant portion of local, regional, and national truck traffic. Given the high volumes and high speeds along the corridor along with the existing traffic control, there is a higher likelihood for serious collisions at this intersection; there have been three fatalities in three different collisions since 2020. Proposed improvements would address vehicle conflicts and reduce the potential for fatalities that result in death or serious injury at this location by extending Lorraine Avenue two miles to the east. This would allow vehicles to access SR-58 via a grade separated interchange that eliminates the potential for the collisions observed at SR-58 & California City Boulevard.

KEY IMPROVEMENT IMPACTS:

- Remove vehicle conflicts between freight and fast-moving vehicles at SR-58 & California City Boulevard
- Provide freeway access at a modernized interchange at Rosamond Boulevard that is grade separated from SR-58 and provides on-/off-ramps that are easier for large trucks and other vehicles to navigate for freeway ingress/egress

EXPOSED POPULATION

6

PEOPLE LIVING WITHIN 900 FEET OF

500

TRUCK AVERAGE DAILY TRAFFIC (ADT)

3,000

TRUCK ADT X POPULATION

70

TOTAL JOBS WITHIN 1 MILE OF

3

INDUSTRIAL AND AGRICULTURAL JOBS WITHIN 1 MILE

0.02%

PERCENT OF COUNTY EMPLOYMENT

FORECAST OUTCOMES

14,800

FORECAST CALIFORNIA CITY

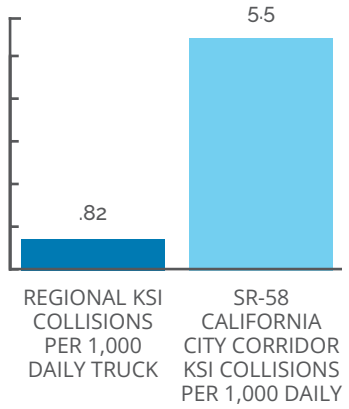
37,000

FORECAST SR-58 ADT

COLLISION ANALYSIS (2018-2022)

6

TOTAL KILLED OR SERIOUS INJURY (KSI) CRASHES ON SR-58 CORRIDOR BETWEEN CALIFORNIA CITY BLVD



COMMUNITY CONTEXT

DISTRICT

D4- E KERN

COMMUNITIES SERVED

CALIFORNIA CITY

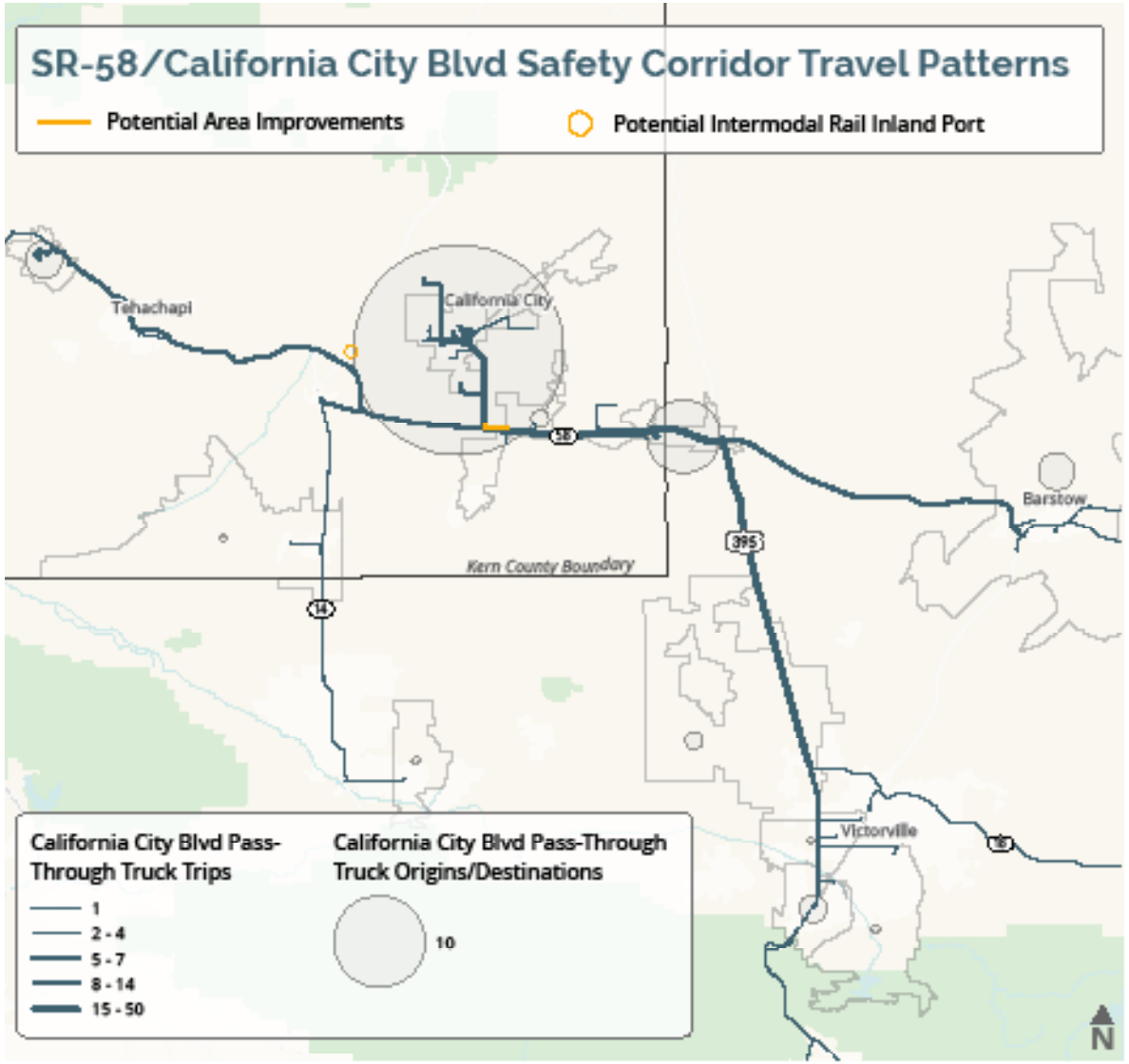
SECTORS SERVED

MANUFACTURING, MINING, QUARRYING, ACCOMMODATION AND FOOD SERVICES, TRANSPORTATION AND WAREHOUSING

PROJECT LIST

#	RANK	PROJECT TITLE
29	56	CALIFORNIA CITY BLVD EXTENSION

FIGURE 3-25. SR-58/California City Blvd Safety Corridor Travel Patterns



California City Blvd serves as the primary connection between California City and SR-58. Most trips using this connection are heading to and from the south as east, connecting to US-395 via SR-58.

3.3 Economic Analysis

Methodology

Travel demand outputs from the Kern COG transportation model were converted into inputs for the TREDIS economic analysis model to evaluate the long-term economic effects of inland port development scenarios. This analysis considers a range of inland port development scenarios across Kern County. Of the nine potential inland port sites identified in this Study, one is currently under construction in Shafter, while the remaining sites are planned or conceptual. The analysis reflects a variety of potential locations and facility sizes to evaluate a range of economic and operational outcomes. For each scenario, modeled travel data were summarized by time of day, vehicle type, and year, and used to estimate changes in travel performance, emissions, and economic activity.

Model outputs reflect a full 24-hour travel day and include roadway characteristics, traffic volumes, and speeds. Passenger travel was categorized by trip purpose using nationally accepted assumptions. These data supported calculation of vehicle-miles traveled (VMT), vehicle-hours traveled (VHT), and travel time reliability, which were aggregated into annual values and scaled over a 30-year analysis period consistent with benefit-cost analysis practices.

Long-distance freight travel, including truck movements between inland ports and the Port of Long Beach, is not fully captured in the regional travel model. As a result, supplemental estimates were developed to represent major freight corridors connecting Shafter, Mojave, and Tejon Commerce Center. These estimates were incorporated to more fully capture regional freight travel, fuel consumption, and emissions impacts. Fuel consumption and emissions were estimated using speed-based factors consistent with statewide planning assumptions. Emissions calculations include major pollutants such as carbon dioxide, nitrogen oxides, and particulate matter, and reflect both regional travel and long-distance freight movements associated with inland port activity.

Employment and Economic Output Results

TREDIS was used to estimate the ongoing operational economic impacts of the modeled inland ports in 2045. As described above, this analysis evaluates inland port development across multiple potential locations and facility scales to capture a range of economic outcomes. Economic impacts include direct, indirect, and induced effects, reflecting on-site port employment, supply-chain activity, and household spending supported by earned income.

Economic impacts include direct, indirect, and induced effects, reflecting on-site port employment, supply-chain activity, and household spending supported by earned income.

Across all scenarios, inland port operations are projected to generate substantial and sustained economic benefits for the regional economy, including employment, labor income, value added, and total economic output:

- **Shafter Inland Port**- In 2045, operations at the Shafter Inland Port are estimated to support 48,454 jobs, generate $6.28 billion in labor income, contribute $8.85 billion in value added, and produce $16.07 billion in total economic output annually.
- **Mojave Inland Port** - In 2045, operations at the Mojave Inland Port are estimated to support 13,385 jobs, generate $1.55 billion in labor income, contribute $2.65 billion in value added, and produce $5.08 billion in total economic output annually.
- **Tejon Commerce Center**- In 2045, operations at the Tejon Commerce Center are estimated to support 7,761 jobs, generate $0.96 billion in labor income, contribute $1.37 billion in value added, and produce $2.53 billion in total economic output annually.

Table 3-1 illustrates the total number of jobs, income generated, value added, and economic output across each scenario.

TABLE 3-1. Inland Port Employment Impacts (2045)

	Employment (2045)	Income ($M)	Value Added ($M)	Output ($M)
Shafter Inland Port				
Direct	18,253	$4,163	$5,411	$10,341
Indirect	18,984	$1,377	$1,949	$3,431
Induced	11,217	$734	$1,487	$2,293
Total	48,454	$6,275	$8,847	$16,065
Mojave Inland Port				
Direct	5,669	$961	$1,776	$3,601
Indirect	5,016	$417	$514	$925
Induced	2,701	$173	$358	$553
Total	13,385	$1,551	$2,648	$5,079
Tejon				
Direct	2,994	$644	$822	$1,617
Indirect	2,946	$201	$308	$542
Induced	1,821	$116	$241	$372
Total	7,761	$961	$1,372	$2,532

Employment Composition

Employment supported by inland port operations spans a broad range of sectors. Core logistics and transportation-related industries, including warehousing and storage, truck and rail transportation, support activities, couriers, and wholesale trade, form the foundation of inland port activity. Across the three scenarios, approximately 50 to 54 percent of total employment is concentrated in these logistics-oriented sectors.

The remaining employment is associated with goods-producing industries, including food and beverage manufacturing, industrial machinery, and transportation equipment manufacturing. These scenario-based employment assumptions were used as inputs to the TREDIS model to estimate total economic impacts, including direct, indirect, and induced employment effects.

Table 3-2 summarizes the assumed employment composition for each inland port scenario in 2045, by major industry subsector. The distribution reflects the role of inland ports as anchors for freight, logistics, and supply-chain activity, with a substantial share of employment concentrated in warehousing, transportation, and related support services.

Accordingly, direct employment effects associated with the projects are assumed to reflect this same distribution across major industry subsectors. In contrast, indirect and induced employment effects are expected to be more broadly distributed across the regional economy, reflecting supply-chain linkages, professional and business services, and household spending that extends beyond the industries directly engaged in inland port operations.

TABLE 3-2. Inland Port Employment Scenarios by Industry (2045)

Subsector	Shafter		Mojave		Tejon		Total	
	Percent of Employment	Direct Jobs Created	Percent of Employment	Direct Jobs Created	Percent of Employment	Direct Jobs Created	Percent of Employment	Direct Jobs Created
Warehousing & Storage	16%	2,920	16%	907	16%	471	16%	4,299
Truck Transportation	16%	2,920	16%	907	16%	471	16%	4,299
Support Activities for Transportation	6%	1,095	6%	340	6%	177	6%	1,612
Rail Transportation	3%	548	3%	170	3%	88	3%	806
Couriers & Messengers	3%	548	3%	170	3%	88	3%	806
Food & Beverage Manufacturing	25%	4,563	6%	340	6%	177	19%	5,080
Industrial Machinery Manufacturing	11%	2,008	22%	1,247	29%	854	15%	4,109
Transportation Equipment Manufacturing	10%	1,825	22%	1,247	15%	442	13%	3,514
Wholesale	10%	1,825	6%	340	6%	177	9%	2,342
TOTAL	**100%**	**18,253**	**100%**	**5,669**	**100%**	**2,946**	**100%**	**26,868**

Workforce Implications of Automation and Living-Wage Jobs

The transition toward logistics automation and advanced manufacturing has important implications for job quality, wages, and long-term economic mobility in Kern County. As described in Chapter 1, the region is experiencing increased economic output per employee due to technological advancement, along with continued growth in the warehousing, transportation, and logistics sectors. While automation may reduce demand for some entry-level positions, such as warehouse sorting or repetitive manual labor, it also creates new opportunities in higher-skilled occupations, including equipment technicians, industrial maintenance, data analysis, and supply chain management

These emerging occupations generally provide higher wages and more stable career pathways compared to traditional agricultural and entry-level warehouse jobs. Agricultural and warehouse positions are often characterized by lower hourly wages and less consistent employment patterns. In contrast, automation-related roles typically require technical skills and offer more stable, year-round employment with opportunities for advancement. Workforce development programs identified in this study, including industrial automation certifications and supply chain education pathways, are essential to enabling local residents, particularly those in disadvantaged communities, to access these higher-quality jobs.

However, the economic benefits associated with automation depend on the degree to which local workers can access training and career pathways. Without targeted workforce development and equitable access to education, there is a risk that existing residents may not fully benefit from emerging job opportunities. Continued investment in training programs, apprenticeships, and partnerships with local educational institutions and industry employers will be necessary to support workforce transition.

From a household perspective, higher-wage logistics and automation jobs can contribute to improved economic stability. However, they do not independently ensure housing affordability or the ability to support a household with dual incomes. These outcomes depend on a combination of factors, including wage levels, housing costs, and overall cost of living conditions. As such, the Study's emphasis on workforce development, economic diversification, and equitable access to employment opportunities is critical to ensuring that the benefits of goods movement growth are broadly shared across Kern County communities.

CHAPTER 4 | Project Prioritization



4.1 Project Prioritization

Methodology

The KARGO Community Prosperity/ Protection Study advances the vision of a climate-resilient transportation network by transitioning from strategic planning to implementation. Building upon earlier phases, candidate projects were selected to undergo a screening process that evaluated and ranked each project by investment priority. This process included defining performance measures, collecting local and regional data, and applying a scoring framework that best aligns with the Study's overarching goals and objectives.

The project prioritization approach incorporated a multi-criteria framework to score candidate projects. These projects represented a diverse mix of project types and improvement strategies. The intent of the approach was not only to compare projects on equal footing, but also to identify and rank projects that offer the greatest potential for co-benefits, resilience to climate-related hazards, and alignment with community-identified needs.

Over 80 candidate projects across Kern County were scored and ranked using five key performance measures. For each measure, projects could earn up to a weighted score of 20, resulting in a maximum cumulative score of 100. Projects with lower cumulative scores were assigned a higher investment priority.

The performance measures used in the methodology included both quantitative and qualitative criteria:

- **Climate Vulnerability**: Assessed climate change vulnerabilities such as extreme heat, flooding, and wildfire, and prioritized projects that implement adaptive climate mitigation measures.
- **Economic and Goods Movement Benefits**: Analyzed regional transportation data and community impacts and prioritized projects that facilitate economic development, improve goods movement, and have low pollution exposure.
- **Deliverability**: Assessed project readiness and prioritized projects positioned for expedited implementation.
- **Community Support:** Incorporated public feedback to prioritize projects that reflected community needs and priorities.
- **Disadvantaged Community Co-Benefits:** Assessed public health and equity data to prioritize investments that directly benefit disadvantaged communities.

Project Prioritization Methodology

Performance Measure	Investment Priority	Weight
 Climate Vulnerability	Project reduces exposure to climate risk. Low — High	20%
 Economic & Goods Movement	Project reduces congestion and collisions, and increases employment and freight accessibility. Low — High Project generates more pollution exposure. Low — High	20%
 Deliverability	Project is feasible, and positioned for expedited implementation. Low — High	20%
 Community Support	Strong public support documented through outreach and engagement. Low — High	20%
 Disadvantaged Communities	Delivers direct, measurable benefits to disadvantaged communities and advances equity goals. Low — High	20%

The scoring and ranking process resulted in a prioritized list of projects across Kern County. The final list highlights projects that not only address immediate infrastructure needs but also contribute to broader regional goals related to sustainability, mobility, and community well-being.

Climate Vulnerability

Based on findings from the Climate Vulnerability Assessment, candidate projects were scored based on cross-hazard prioritization scores to determine the highest-priority areas.

To identify the transportation network vulnerabilities, climate data were combined with spatial transportation network data to understand climate exposure. Transportation network attributes, such as average traffic volumes or asset condition ratings, were used to identify consequences. Each asset was ranked relative to other assets of the same type (grouped by roads, railways, bridges, large culverts, and small culverts) based on its unique climate exposures and consequences.

Both hazard-specific and cross-hazard scores and priority rankings were generated by asset class. The metric and weighting system used by Caltrans for the District 6 Adaptation Priority Report was used as a foundation, with weights refined to reflect the specific Kern County geography, climate risks, asset types, and stakeholder input.

Figure 4-1 shows Kern County roads prioritized by cross-hazard climate risk. Roadways include local roads, collectors, arterials, and highways. Highway corridors, 1-5 over the Tejon Pass and SR-155 near Lake Isabella, show the highest cross-hazard climate risk and have significant flooding risk scores relative to other areas.

Figure 4-2 shows Kern County railways prioritized by cross-hazard climate risk. Railway corridors north of Arvin and the Tehachapi Loop show the highest cross-hazard climate risk and have significant landslide risk scores relative to other sections of railways.

Economic and Goods Movement

Candidate projects were evaluated using a set of metrics that capture their contributions to goods movement efficiency, economic vitality, and community impacts:

- **Level of Service:** Assessed roadway congestion impacts using Kern COG's traffic demand model.
- **Safety:** Analyzed collision history associated with truck traffic using California SWITRS data (2019–2023).
- **Population Exposure:** Estimated air quality and noise impacts by analyzing truck traffic near population centers, based on traffic volumes and population within 900 feet of the project.
- **Job Accessibility:** Evaluated a project's ability to improve access to employment centers by quantifying jobs within a one-mile radius.
- **Freight Accessibility:** Measured connectivity to freight generators by calculating industrial and agricultural employment within one mile and validating proximity to major freight hubs.

Disadvantaged Communities

A spatial analysis was conducted to evaluate potential impacts and benefits to historically underserved populations. Disadvantaged communities were idenitified from state and regional data sources:

- **USDOT ETC:** Uses 2020 census tracts and data to explore cumulative burdens from underinvestment in transportation, including transportation insecurity, climate and disaster risk, environmental burden, health vulnerability, and social vulnerability. Census tracts scoring above the 65th percentile nationally are considered disadvantaged.
- **CalEnviroScreen 4.0:** Assesses cumulative burdens using 21 demographic indicators grouped into exposure, environmental effects, sensitive populations, and socioeconomic factors. Census tracts scoring above the 75th percentile statewide are considered disadvantaged.
- **Median Household Income:** HUD defines low-income households as

earning less than 80% of the statewide median income. For California, this threshold is $73,524 based on U.S. Census data.

Figure 4-3 illustrates census tracts in Kern County that meet the criteria of a disadvantaged community according to the CalEnviroScreen and US DOT Equitable Transportation Comunity (TCS) metrics, and census tracts with a median household income lower than the statewide average.

The spatial analysis prioritized candidate projects that would benefit disadvantaged communities through proximity and connectivity of existing infrasfrastructure. If a proposed project fell within or directly served a disadvantaged census tract, it received a higher priority score. This approach ensured that investments target areas with the greatest need, addressing transportation inequities and improving access to jobs, freight corridors, and essential services for historically underserved populations.

Deliverability

Candidate projects were evaluated based on its level of scoping and progress toward implementation, ensuring that projects with advanced planning stages receive higher priority. Higher priority projects were those closer to construction phase. By focusing on readiness, the study aims to allocate resources efficiently and accelerate the delivery of critical infrastructure improvements that address immediate transportation and community needs.

Community Support

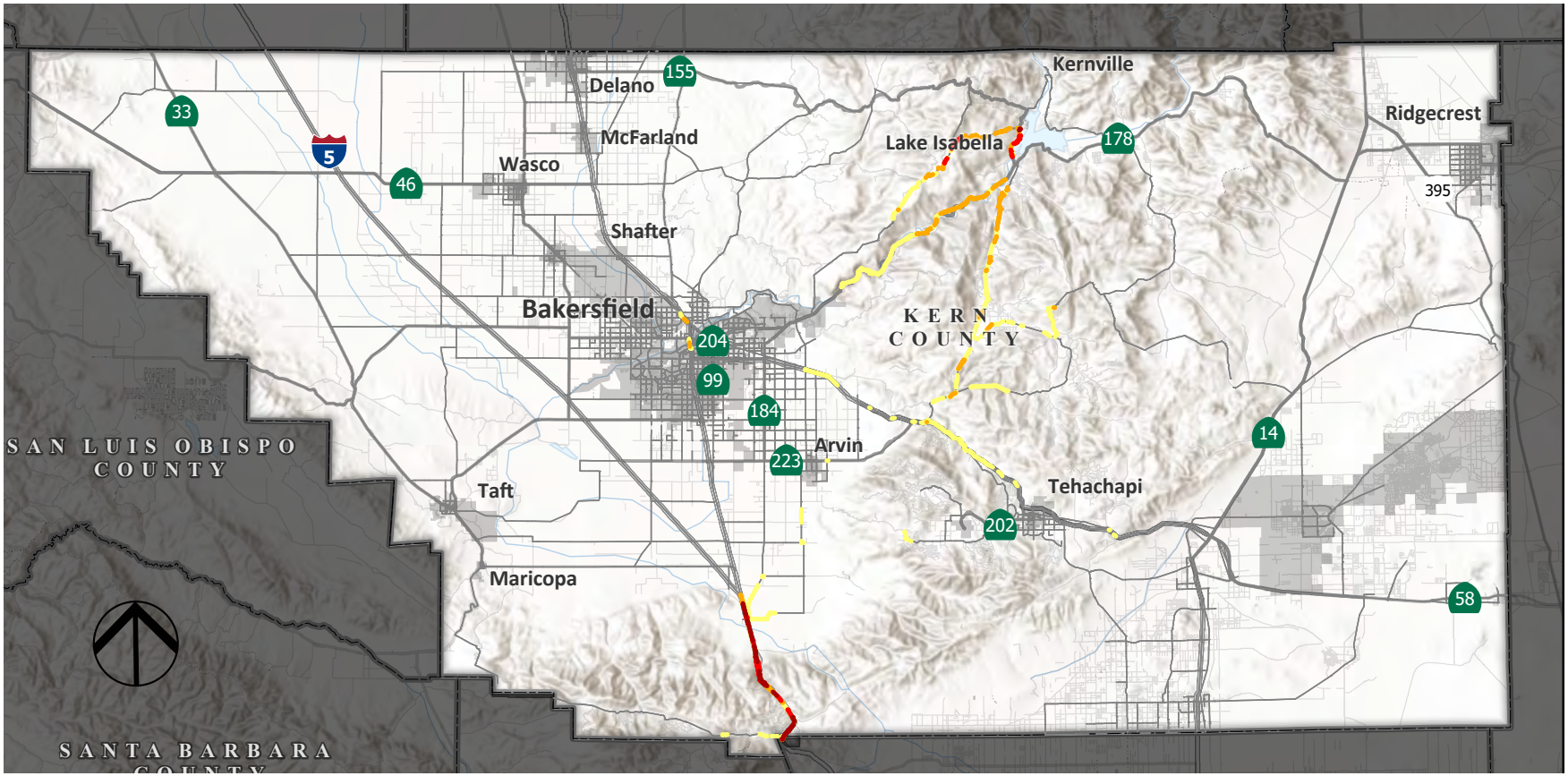
Community support emphasized the importance of aligning project priorities with public needs and preferences. To measure this, candidate projects were ranked based on the level of community support gathered during extensive public engagement activities conducted in the summer of 2024. These activities included hybrid workshops, online surveys, and the collection of public comments, providing a comprehensive understanding of stakeholder perspectives. This approach ensured that the selected projects reflect the priorities of the community, and promoted a collaborative decision-making planning process.

4.2 Project Rankings

The project prioritization framework was designed to reflect relative priority with lower total scores indicating projects that are more advanced in planning, can deliver greater benefits, and align closely with regional goals making them eligible for expedited implementation. Conversely, higher scores signify projects that require additional development or potentially offer less immediate impact.
After applying this methodology, projects were ranked by region to ensure geographic equity and strategic investment.

Table 4-1 highlights the ranked projects in each region, representing those that scored lowest overall and therefore emerged as the highest priority for advancement. These projects will move forward to the next stages of planning and funding consideration, supporting Kern County's objectives for mobility, safety, and economic vitality.

FIGURE 4-1. Roadways and Cross-Hazards Climate Risk

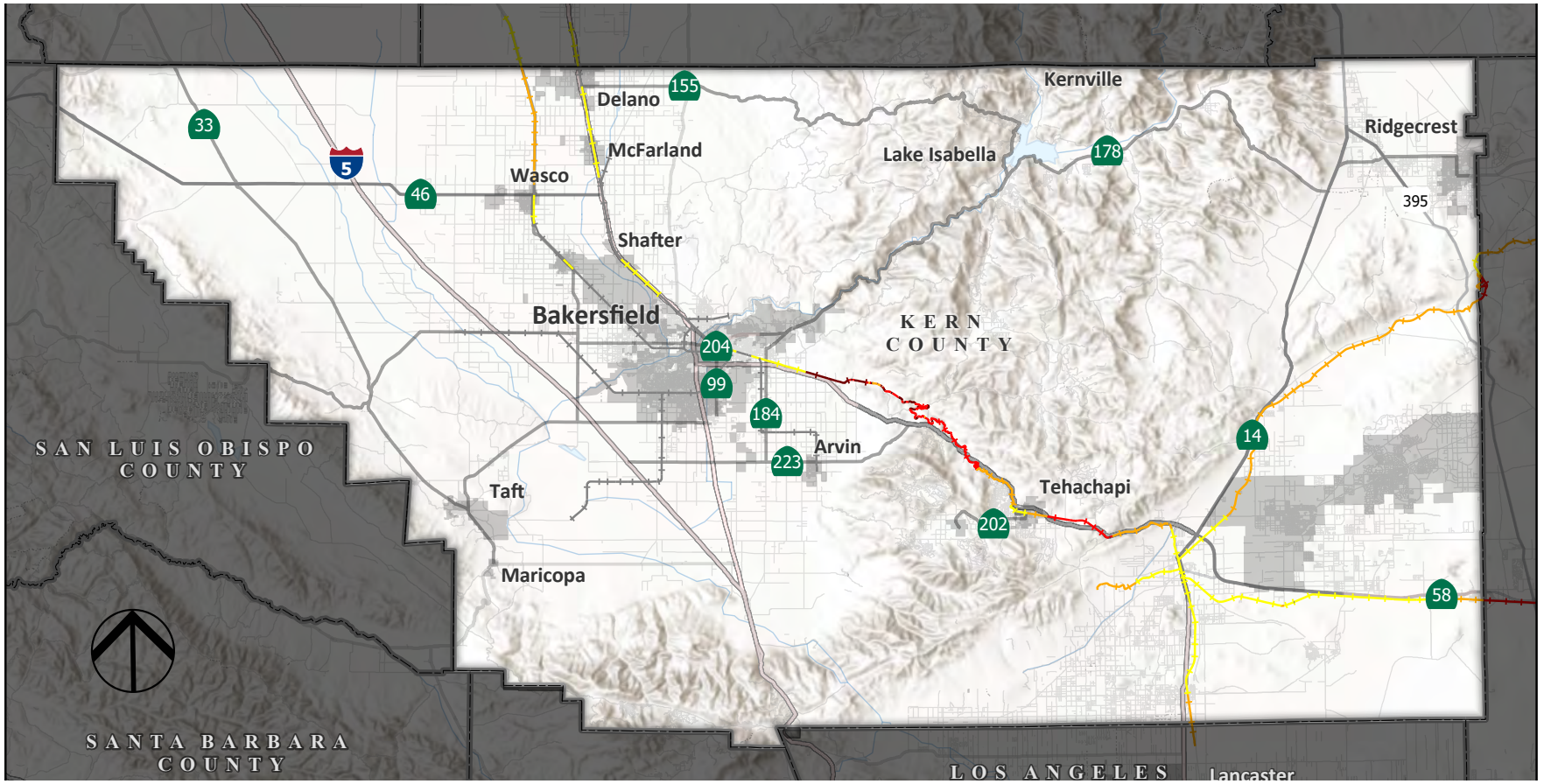


Cross-hazard Climate Risk Score Index

1
2
3
4
5

Cross-hazard climate risk categories range from 1 (highest relative risk) to 5 (lowest relative risk), reflecting each asset's combined exposure to multiple climate hazards and the potential consequences of disruption.

FIGURE 4-2. Railways and Cross-Hazards Climate Risk



Cross-hazard Climate Risk Score Index

1
2
3
4
5

Cross-hazard climate risk categories range from 1 (highest relative risk) to 5 (lowest relative risk), reflecting each asset's combined exposure to multiple climate hazards and the potential consequences of disruption.

FIGURE 4-3. Kern County Disadvantaged Communities

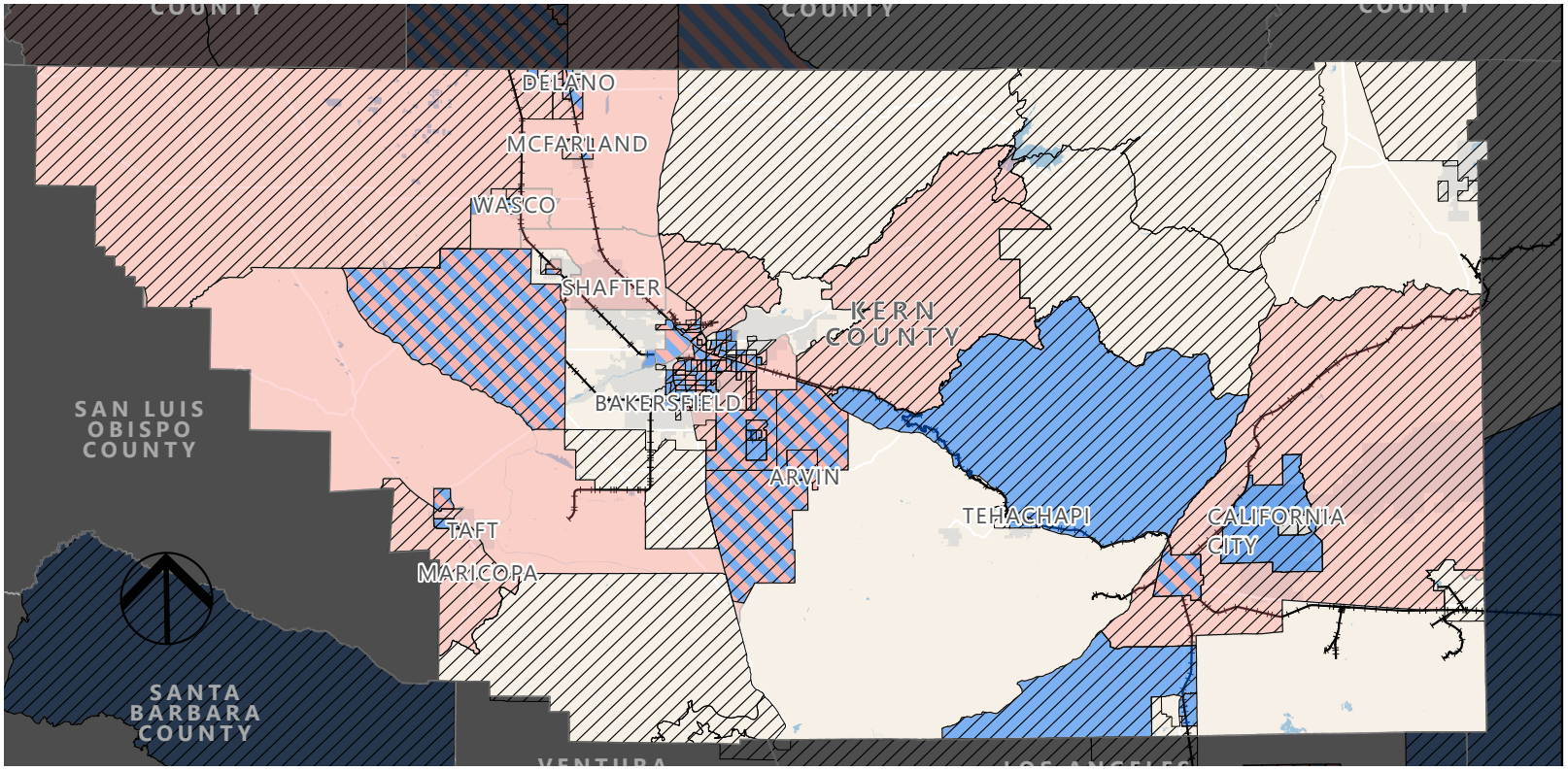


TABLE 4-1. Ranked Projects and Performance Scores

RANK*	PROJECT NAME	PERFORMANCE SCORES**					TOTAL SCORE***
		Economic	Climate Resiliency	Deliverability	Community Support	Disadvantaged Communities	
ARVIN/MARICOPA/TAFT GREENPASS NETWORK							
1	Phase 1.1: S Arvin Corridor Green-Pass	12.80	8.00	4.00	4.00	8.00	36.80
5	Phase 1.2: Green-pass: Copus/David Rd I-5-Wheeler Ridge Rd	12.00	16.00	12.00	4.00	6.67	50.67
35	Phase 1.3: Arvin-Tejon Commerce Center Rail Spur	13.60	4.00	20.00	20.00	8.00	65.60
36	Phase 1.4: Copus Rd Safety Realignment	12.80	12.00	12.00	20.00	9.33	66.13
37	Phase 1.5: Realign SR 166 to Copus Rd via Old River Rd	10.40	8.00	20.00	20.00	8.00	66.40

** Rank reflects the relative priority of each phase within the project, with rankings listed from highest priority (Rank 1) to lowest priority based on total weighted score.*

***Projects were scored using a uniform scale ranging from zero (0) to five (5) across the assigned evaluation criteria, and total weighted scores were calculated on a 100-point scale, as described in Section 4.1.*

*** Total Score represents the weighted sum of scores across all five performance measures, with lower scores indicating a higher priority.*

RANK*	PROJECT NAME	PERFORMANCE SCORES**					TOTAL SCORE***
		Economic	Climate Resiliency	Deliverability	Community Support	Disadvantaged Communities	
SR 58 TEHACHAPI GRADE IMPROVEMENTS							
2	Phase 2.1: US-395 Safety Passing Lanes	12.80	8.00	4.00	16.00	5.33	46.13
8	Phase 2.2: Shafter/Bakersfield Green-Pass: Enos Road Corridor	12.80	4.00	12.00	16.00	9.33	54.13
11	Phase 2.3: Tehachapi-Willow Springs Road Corridor Green Pass	11.20	8.00	12.00	16.00	9.33	56.53
13	Phase 2.4: 7th Standard Road/Lerdo Hwy Safety Rehab	12.80	12.00	4.00	20.00	9.33	58.13
15	Phase 2.5: SR-58 Eastbound Weigh Station	13.60	4.00	12.00	20.00	9.33	58.93
32	Phase 2.6: HSR Tunnel Tailing Repurposing	14.40	8.00	12.00	20.00	9.33	63.73
20	Phase 2.7: UP Tehachapi Pass Additions - Segment 1	14.40	8.00	12.00	20.00	5.33	59.73

** Rank reflects the relative priority of each phase within the project, with rankings listed from highest priority (Rank 1) to lowest priority based on total weighted score.*

***Projects were scored using a uniform scale ranging from zero (0) to five (5) across the assigned evaluation criteria, and total weighted scores were calculated on a 100-point scale, as described in Section 4.1.*

*** Total Score represents the weighted sum of scores across all five performance measures, with lower scores indicating a higher priority.*

**Lower scores indicate higher priority*

RANK*	PROJECT NAME	PERFORMANCE SCORES**					TOTAL SCORE***
		Economic	Climate Resiliency	Deliverability	Community Support	Disadvantaged Communities	
20	Phase 2.7: UP Tehachapi Pass Additions - Segment 2	14.40	8.00	12.00	20.00	5.33	59.73
20	Phase 2.7: UP Tehachapi Pass Additions - Segment 3	14.00	4.00	12.00	20.00	9.33	59.73
20	Phase 2.8: UP Tehachapi Pass Improvements	14.40	4.00	12.00	20.00	9.33	59.73
DELANO/MCFARLAND GREENPASS NETWORK							
3	Phase 3.1: Delano Green-Pass: Pond Road	12.00	12.00	4.00	16.00	5.33	49.33
26	Phase 3.2: McFarland Resiliency Route: Driver Road	12.80	12.00	12.00	20.00	5.33	62.13
41	Phase 3.3: SR-99/Pond Road Interchange	12.80	16.00	12.00	20.00	6.67	67.47
I-5 GRAPEVINE IMPROVEMENTS							
4	Phase 4.1: I-5 Southbound Weigh Station	12.80	4.00	4.00	20.00	9.33	50.13
7	Phase 4.2: I-5 Truck Safety Passing Lanes Grapevine to Lebec	12.00	4.00	8.00	20.00	9.33	53.33

** Rank reflects the relative priority of each phase within the project, with rankings listed from highest priority (Rank 1) to lowest priority based on total weighted score.*

***Projects were scored using a uniform scale ranging from zero (0) to five (5) across the assigned evaluation criteria, and total weighted scores were calculated on a 100-point scale, as described in Section 4.1.*

*** Total Score represents the weighted sum of scores across all five performance measures, with lower scores indicating a higher priority.*

RANK*	PROJECT NAME	PERFORMANCE SCORES**					TOTAL SCORE***
		Economic	Climate Resiliency	Deliverability	Community Support	Disadvantaged Communities	
LAMONT/SE BAKERSFIELD GREENPASS NETWORK							
6	Phase 5.1: Lamont Green-Pass: Edison Road	9.60	16.00	4.00	16.00	6.67	52.27
16	Phase 5.2: Panama Ln Green-Pass/Mt Vermon-Edison Rd	9.60	16.00	12.00	16.00	5.33	58.93
26	Phase 5.3: Bakersfield Green-Pass: Mt Vermon Ave Extension	12.80	16.00	12.00	16.00	5.33	62.13
33	Phase 5.4: Bakersfield Green-Pass: Mt Vermon Ave	11.20	20.00	12.00	16.00	5.33	64.53
37	Phase 5.5: S Lamont Green-Pass: Edison Road/222-S Arvin Green-Pass	10.40	12.00	20.00	16.00	8.00	66.40
72	Phase 5.6: SR 58 Edison Rd Interchange/SR 58 - 223 Green-Pass	16.00	12.00	20.00	20.00	12.00	80.00

** Rank reflects the relative priority of each phase within the project, with rankings listed from highest priority (Rank 1) to lowest priority based on total weighted score.*

***Projects were scored using a uniform scale ranging from zero (0) to five (5) across the assigned evaluation criteria, and total weighted scores were calculated on a 100-point scale, as described in Section 4.1.*

*** Total Score represents the weighted sum of scores across all five performance measures, with lower scores indicating a higher priority.*

RANK*	PROJECT NAME	PERFORMANCE SCORES**					TOTAL SCORE***
		Economic	Climate Resiliency	Deliverability	Community Support	Disadvantaged Communities	
US 395 GOODS MOVEMENT/SAFETY IMPROVEMENTS							
8	Phase 6.1: US 395 Passing Lanes	12.80	4.00	12.00	16.00	9.33	54.13
5	Phase 6.2: US 395/China Lk Bl Interchange ****						
59	Phase 6.3: US 395 Searles Station Intermodal Rail Facility	12.80	8.00	20.00	20.00	12.00	72.80
NW BAKERSFIELD GREENPASS NETWORK							
10	Phase 7.1: Shafter/Bakersfield Green-Pass: Enos Road Corridor	12.80	16.00	4.00	16.00	6.67	55.47
41	Phase 13.7: Shafter Green-Pass: Merced Avenue-Expressway	12.80	16.00	12.00	16.00	10.67	67.47
49	Phase 13.9: Shafter Green Pass: Cherry Avenue-Expressway	11.20	20.00	12.00	16.00	10.67	69.87
65	Phase 7.2: Shafter/Bakersfield West Urban Corridor	12.00	16.00	12.00	20.00	16.00	76.00
71	Phase 7.3: Sante Fe Way, Burbank-Rosedale Hwy	12.00	20.00	20.00	16.00	10.67	78.67

** Rank reflects the relative priority of each phase within the project, with rankings listed from highest priority (Rank 1) to lowest priority based on total weighted score.*

***Projects were scored using a uniform scale ranging from zero (0) to five (5) across the assigned evaluation criteria, and total weighted scores were calculated on a 100-point scale, as described in Section 4.1.*

*** Total Score represents the weighted sum of scores across all five performance measures, with lower scores indicating a higher priority.*

***** Project was identified and supported by stakeholders after the project prioritization was conducted.*

RANK*	PROJECT NAME	PERFORMANCE SCORES**					TOTAL SCORE***
		Economic	Climate Resiliency	Deliverability	Community Support	Disadvantaged Communities	
ROSAMOND GREENPASS NETWORK							
12	Phase 8.1: Tehachapi-Willow Springs Road Corridor Green Pass	12.80	12.00	4.00	20.00	8.00	56.80
SR 33/7TH STANDARD RD SAFETY CORRIDOR IMPROVEMENTS							
17	Phase 9.1: Lerdo Hwy Safety Rehab	12.80	12.00	8.00	20.00	6.67	59.47
20	Phase 9.2: Rowlee Rd Safety Rehab	14.40	12.00	8.00	20.00	5.33	59.73
29	Phase 9.3: 7th Standard Road Safety Rehab	12.80	16.00	8.00	20.00	6.67	63.47
41	Phase 9.4: Sahfeter Green-pass: 7th Standard Road Passing Lanes	12.80	16.00	12.00	20.00	6.67	67.47
44	Phase 9.5: I-5/7th Standard Road Interchange	12.60	12.00	16.00	20.00	6.67	68.27
45	Phase 9.6: Shafter Green-pass: 7th Standard Road Concrete Rehab	11.20	16.00	12.00	20.00	9.33	68.53
13	Phase 9.9: Main Drain Road Safety Rehab	12.80	12.00	8.00	20.00	5.33	58.13

** Rank reflects the relative priority of each phase within the project, with rankings listed from highest priority (Rank 1) to lowest priority based on total weighted score.*

***Projects were scored using a uniform scale ranging from zero (0) to five (5) across the assigned evaluation criteria, and total weighted scores were calculated on a 100-point scale, as described in Section 4.1.*

*** Total Score represents the weighted sum of scores across all five performance measures, with lower scores indicating a higher priority.*

RANK*	PROJECT NAME	PERFORMANCE SCORES**					TOTAL SCORE***
		Economic	Climate Resiliency	Deliverability	Community Support	Disadvantaged Communities	
SR 58/STOCKDALE HWY CONNECTION TO I-5 SAFETY CORRIDOR IMPROVEMENTS							
17	Phase 10.2: I-5/SR 58 Stockdale Hwy Interchange	12.80	12.00	12.00	16.00	6.67	59. 47
29	Phase 10.3: SR 58 Stockdale Hwy Safety Passing Lanes	12.80	12.00	12.00	20.00	6.67	63.47
WASCO AV/HSR FRONTAGE RD							
48	Phase 11.1: Merced Avenue Safety Rehab	12.80	16.00	8.00	20.00	12.00	68.80
74	Phase 11.2: Wasco Ave (Frontage Road) Improvements	12.80	16.00	20.00	20.00	12.00	80.80
CALIFORNIA CITY BL EXTENSION TO EAFB NORTH GATE SAFETY CORRIDOR							
56	Phase 12.1: California City Blvd Extension	12.80	8.00	20.00	20.00	10.67	71.47

** Rank reflects the relative priority of each phase within the project, with rankings listed from highest priority (Rank 1) to lowest priority based on total weighted score.*

***Projects were scored using a uniform scale ranging from zero (0) to five (5) across the assigned evaluation criteria, and total weighted scores were calculated on a 100-point scale, as described in Section 4.1.*

*** Total Score represents the weighted sum of scores across all five performance measures, with lower scores indicating a higher priority.*

CHAPTER 5 | Implementation



5.1 Implementation Strategy

This chapter presents planning-level cost estimates, organizes projects by implementation timeframe, and identifies funding opportunities to support phased delivery. The Study identifies priority infrastructure investments to improve goods movement efficiency, strengthen regional resiliency, and enhance community safety across Kern County.

Recommended improvements involve significant capital investment and coordination among multiple agencies. To support implementation, projects are grouped into tiers based on readiness, cost, and delivery complexity. This framework enables KernCOG and partner agencies to advance near-term improvements while continuing to plan and pursue funding for longer-term, large-scale corridor projects. Implementation will occur over time and depend on the availability of federal, state, regional, and local funding sources.

Consistent with the KARGO Phase II Sustainability Study, a range of funding mechanisms, such as regional impact fees, state and federal programs, and alternative financing tools, should be considered to support project delivery.

Cost Estimates by Improvement Type

Planning-level cost estimates were developed at the project level to reflect major corridor investments recommended in the Study. These estimates represent comprehensive infrastructure programs intended to improve goods movement efficiency, strengthen regional connectivity, enhance roadway safety, and improve system resiliency across Kern County. Improvements include roadway capacity upgrades, safety rehabilitation projects, interchange improvements, and the development of connecting resiliency routes that provide redundancy during emergencies or climate-related disruptions.

Connecting Resiliency Routes

Connecting resiliency routes are projects that provide alternate routes during emergencies or severe weather conditions. Improvements typically include roadway upgrades and realignments that enhance regional redundancy and ensure continuity of goods movement during climate-related disruptions. These routes strengthen the resilience of the transportation network by maintaining connectivity when primary freight corridors are affected by incidents, flooding, or other disruptions.

Several major resiliency corridor projects were identified in the study. The South Arvin Corridor Green-Pass, estimated at $608.4 million, represents the largest resiliency investment and would establish a new corridor designed to improve regional connectivity between key freight and industrial areas. Additional resiliency improvements include the Tehachapi–Willow Springs Road Corridor Green Pass ($128.4 million) and the California City Boulevard Extension corridor ($55.8 million). Together, these projects expand network redundancy and provide alternative routes that support freight mobility and emergency response across Kern County.

Roadway Improvements

Roadway improvement projects increase transportation capacity and operational efficiency along key freight corridors. Typical improvements include rebuilding roadbeds to accommodate heavier truck traffic and reduce maintenance costs, adding passing and climbing lanes, safety widening, and upgrading intersections and interchanges.

These projects are intended to improve travel reliability for both passenger and freight vehicles while addressing operational bottlenecks on major regional corridors.

The largest roadway improvement identified in the study is the SR-58 Truck Climb and Safety Passing Lanes project, estimated at $661.2 million, which would improve safety and traffic operations along a critical freight corridor through the Tehachapi Pass. Other significant roadway improvements include the Shafter/Bakersfield Green-Pass Enos Road Corridor ($415.8 million), the I-5 Grapevine Improvements project ($176.9 million), and the US-395 Safety Passing Lanes project ($168.2 million). A smaller but strategically important project, the I-5/SR-58 Stockdale Highway interchange

improvements ($51.5 million), would improve access and traffic operations at a key interchange serving regional freight activity.

Rail Improvements and Intermodal Integration

Rail improvement projects expand rail infrastructure and support modal shifts from truck to rail. Investments are intended to improve freight movement efficiency, reduce greenhouse gas emissions, and strengthen climate resilience. Rail corridors are strategically selected to connect major industrial centers and support sustainable goods movement across the region.

Although the priority projects focus on roadway and resiliency improvements, several projects included in the broader KARGO study incorporate rail infrastructure components as part of larger corridor programs. These improvements help support intermodal freight movement and provide opportunities to shift freight traffic from highway to rail where feasible, improving regional goods movement efficiency and reducing congestion on major highway corridors.

Safety Rehabilitation Improvements

Safety rehabilitation projects address critical safety concerns at high-risk intersections and roadway segments with elevated collision rates. Improvements may include roadway realignments, enhanced signage, and traffic calming measures designed to reduce accidents and improve overall roadway safety. These projects focus on improving safety conditions along corridors that are important for both regional travel and freight movement.

Several major safety rehabilitation projects were identified in the study, including the 7th Standard Road/Lerdo Highway Safety Rehabilitation project ($382.7 million) and the Lamont Green-Pass Edison Road improvements ($280.0 million). Additional safety-focused projects include the Delano Green-Pass Pond Road improvements ($171.8 million) and the Merced Avenue Safety Rehabilitation project ($53.4 million). These improvements will enhance roadway safety in key agricultural and industrial freight corridors while improving travel reliability and reducing crash risks across the regional transportation network.

Cost Development Assumptions and Limitations

Individual project costs are summarized at the corridor level to reflect how improvements may be implemented in phases over time. Detailed cost assumptions and methodologies used to develop planning-level estimates were prepared to support project prioritization and long-range infrastructure planning.

Planning-level cost estimates may vary based on final design decisions, environmental review requirements, right-of-way acquisition needs, utility relocation, and construction phasing considerations. As projects advance through preliminary engineering and environmental clearance, more refined cost estimates will be developed to reflect corridor-specific constraints and delivery strategies.

Costs associated with programmatic initiatives and policy recommendations identified in the study are not included in these estimates, as these initiatives may vary substantially in scope and delivery approach. Prior to implementation, Kern Council of Governments and partner agencies will refine project scopes and identify funding strategies to advance the recommended improvements.

5.2 Arvin/Maricopa/Taft Green-Pass Network

The Arvin/Maricopa/Taft Green-Pass Network Program is a multi-phase infrastructure project totaling approximately 50.1 miles of roadway and rail improvements designed to enhance regional connectivity, freight movement, and climate resilience in Kern County.

- Phase 1.1 includes a new 14.5-mile roadway connecting State Route 223 to North Wheeler Ridge Road, linking SR 223, SR 99, and I-5, along with upgrades to the Arvin Tejon Commerce Center Rail Spur and flood control infrastructure.
- Phase 1.2 rehabilitates 10.6 miles of Copus Road between North Wheeler Ridge Road and Old River Road, raising the roadway and adding culverts to prevent flood closures and strengthen emergency access.
- Phase 1.3 extends the Arvin Subdivision rail line by 20.8 miles to the Tejon Ranch Commerce Center, improving freight connectivity and reducing highway congestion.
- Phase 1.4 realigns 1.2 miles of Copus Road between Basic School Road and Cadet Road to eliminate hazardous turns and improve safety.
- Phase 1.5 realigns 3 miles of State Route 166 along Old River Road between Copus Road and SR 166, enhancing regional connectivity and emergency detour capacity.
- Phase 1.6 and 1.7 include passing lanes along SR-119 to improve safety and connectivity between Taft and Bakersfield.

Table 5-1 summarizes the total project cost estimate to support implementation of the Arvin/Maricopa/Taft Green-Pass Network improvements, and *Figure 5-1* illustrates the proposed improvements.

TABLE 5-1. Cost Estimate: Arvin/Maricopa/Taft Green-Pass Network

COST CATEGORY*	PROJECT PHASE						
	1.1	1.1 (Alt 1)	1.1 (Alt 2)	1.2	1.3	1.4	1.5
Project Approval & Environmental Document (PA/ED)	$7,630	$9,010	$6,420	$17,440	$7,190	$1,560	$1,070
Plans, Specifications & Estimates (PS&E)	$10,680	$12,610	$8,990	24,410	$10,060	$2,190	$1,500
Right-of-Way (ROW)	$4,279	$4,499	$4,079	$8,454	$1,707	$483	$472
Construction (CON)	$69,569	$82,650	$58,059	$160,303	$67,820	$14,606	$9,888
Total Cost**	$92,200	$109,000	$77,600	$211,000	$86,800	$18,850	$12,950

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-1. Arvin/Maricopa/Taft Green-Pass Network



5.3 SR-58 Tehachapi Grade Improvements

The SR 58 Tehachapi Grade Improvements Project is a multi-phase initiative aimed at enhancing roadway and rail infrastructure along the Tehachapi Pass in Kern County. Spanning over 47.24 miles, the project includes key roadway upgrades such as 5.2 miles of truck climbing and safety passing lanes between Tower Line Road and SR 233, and 6.5 miles of similar improvements between Keene and Cable to address steep grades and improve traffic flow. It also features the rehabilitation of 2.7 miles of Bena and Bealville Roads and 2.4 miles of SR 58, including a new interchange at SR 58/SR 223 to replace an at-grade rail crossing.

Additional enhancements include a new Cultural Biological Interpretive Center, relocation of the SR 58 eastbound weigh station, and sustainable reuse of tunnel tailings from the California High-Speed Rail project. Rail corridor improvements include the construction of three new sidings totaling 5.14 miles across three segments near Caliente and Keene, and slope stabilization through a retaining wall between Bealeville Road and Keene.

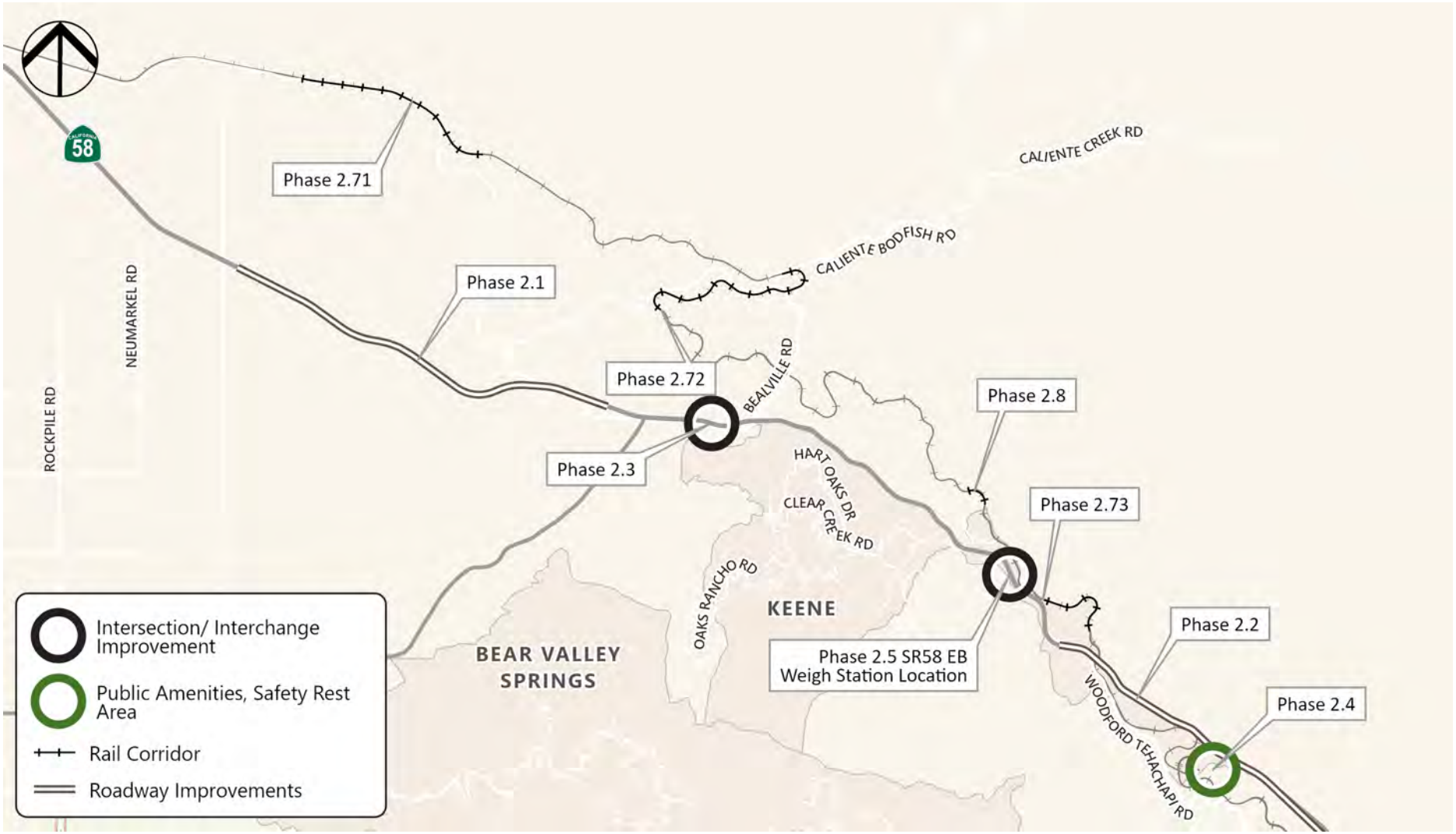
Table 5-2 summarizes the total project cost estimate to support implementation of the SR 58 Tehachapi Grade Improvements, and *Figure 5-2* illustrates the proposed improvements.

TABLE 5-2. Cost Estimate: SR-58 Tehachapi Grade Improvements

COST CATEGORY*	PROJECT PHASE						
	2.1	2.2	2.3	2.4	2.5	2.7	2.8
Project Approval & Environmental Document (PA/ED)	$12,810	$16,820	$13,650	$2,080	$2,580	$5,790	$920
Plans, Specifications & Estimates (PS&E)	$17,940	$23,540	$19,100	$2,900	$3,600	$8,100	$1,280
Right-of-Way (ROW)	$2,060	$3,228	$2,922	$340	$960	$930	$150
Construction (CON)	$122,108	$159,665	$129,149	$19,718	$23,932	$55,035	$8,702
Total Cost**	$155,000	$204,000	$165,000	$25,050	$31,100	$69,900	$11,100

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-2. SR-58 Tehachapi Grade Improvements



5.4 Delano/McFarland Greenpass Network

The Delano/McFarland Greenpass Network Program includes three key projects totaling 13.52 miles of realignment and rehabilitation to strengthen east-west mobility, support freight movement, and improve roadway safety.

- Phase 3.1 (Delano Green-Pass: Pond Road) realigns 13.52 miles of State Route 155 to Pond Road, creating a direct link from Richgrove Drive/SR-155 to SR-43 and rehabilitating pavement from SR-99 to Pond Road.
- Phase 3.2 (McFarland Resiliency Route: Driver Road) provides safety rehabilitation along Driver Road from Pond Road to Famoso Road, including new passing lanes to improve emergency and detour capacity.
- Phase 3.3 (SR-99/Pond Road Interchange) upgrades the on-ramp to improve merging conditions and freight access.

Table 5-3 summarizes the total project cost estimate to support implementation of the Delano/McFarland Greenpass Network, and *Figure 5-3* illustrates the proposed improvements.

TABLE 5-3. Cost Estimate: Delano/McFarland Green-Pass Network

COST CATEGORY*	PROJECT PHASE		
	3.1	3.2	3.3
Project Approval & Environmental Document (PA/ED)	$6,480	$7,640	$100
Plans, Specifications & Estimates (PS&E)	$9,070	$10,690	$140
Right-of-Way (ROW)	$1,612	$1,439	$20
Construction (CON)	$61,081	$72,466	$903
Total Cost**	$78,300	$92,300	$1,170

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-3. Delano/McFarland Green-Pass Network



5.5 I-5 Grapevine Improvements

The I-5 Grapevine Improvements Program encompasses two critical infrastructure improvements along the I-5 corridor to enhance freight efficiency, roadway safety, and regional mobility. These improvements will alleviate congestion on steep grades, enhance operational efficiency for freight and passenger vehicles, and strengthen the resiliency of this critical interstate corridor.

- Phase 4.1 (I-5 Southbound Weigh Station Relocation) involves moving the existing weigh station from the base of the Tehachapi Mountains to the Tejon Pass summit. This strategic relocation enables earlier truck screening, reducing the incidence of overweight vehicles on steep grades, improving safety, minimizing pavement deterioration, and lowering emissions.
- Phase 4.2 (I-5 Truck Safety Passing Lanes from Grapevine to Lebec) includes constructing 4.7 miles of additional truck passing lanes in each direction and reconstructing the Lebec Road interchange with full-access ramps and proper acceleration/deceleration lanes. The project also includes enhanced wildlife crossings and mudslide prevention.

Table 5-4 summarizes the total project cost estimate to support implementation of the I-5 Grapevine Improvements, and *Figure 5-4* illustrates the proposed improvements.

TABLE 5-4. Cost Estimate: I-5 Grapevine Improvements

COST CATEGORY*	PROJECT PHASE	
	4.1	4.2
Project Approval & Environmental Document (PA/ED)	$3,720	$10,860
Plans, Specifications & Estimates (PS&E)	$5,210	$15,200
Right-of-Way (ROW)	$600	$1,854
Construction (CON)	$35,416	$103,216
Total Cost**	$44,950	$132,000

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-4. I-5 Grapevine Improvements



5.6 Lamont/SE Bakersfield Green-Pass Network

The Lamont/SE Bakersfield Green-Pass Network Program is a multi-phase infrastructure project totaling approximately 23.9 miles of roadway improvements and safety rehabilitation designed to enhance connectivity, reduce flood-related closures, and improve regional mobility in the Lamont and Arvin areas.

- Phase 5.1 rehabilitates 9.3 miles of Edison Road between State Route 58 and State Route 223, including intersection upgrades, culvert installations, and railroad crossing improvements.
- Phase 5.2 reconstructs 4.8 miles of roadway and intersections along Panama Lane, incorporating flood-control measures to improve reliability during storm events.
- Phase 5.3 adds a new 3-mile roadway segment from Planz Road to Panama Lane, improving north-south connectivity and reducing congestion on parallel corridors.
- Phase 5.4 rehabilitates 1.9 miles of roadway from State Route 58 to Planz Road to enhance safety and pavement conditions.
- Phase 5.5 improves 3.9 miles of Edison Road from south of State Route 223 to the South Arvin Green-Pass diagonal, strengthening connectivity between Lamont and Arvin.
- Phase 5.6 upgrades the SR-58/Edison Road junction with new roundabouts, pedestrian facilities, and safety enhancements to improve traffic flow and multimodal access.

Table 5-5 summarizes the total project cost estimate to support implementation of the Lamont/SE Bakersfield Green-Pass Network, and *Figure 5-5* illustrates the proposed improvements.

TABLE 5-5. Cost Estimate: Lamont/SE Bakersfield Green-Pass Network

COST CATEGORY*	PROJECT PHASE					
	5.1	5.2	5.3	5.4	5.5	5.6
Project Approval & Environmental Document (PA/ED)	$9,150	$4,560	$3,750	$1,250	$3,750	$680
Plans, Specifications & Estimates (PS&E)	$12,810	$6,380	$5,250	$1,750	$5,250	$950
Right-of-Way (ROW)	$2,212	$1,125	$1,227	$386	$968	$212
Construction (CON)	$86,309	$42,937	$35,065	$11,651	$35,292	$6,360
Total Cost**	$111,000	$55,100	$45,300	$15,050	$45,300	$8,250

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-5. Lamont/SE Bakersfield Green-Pass Network



5.7 US 395 Goods Movement/ Safety Improvements

The US 395 Goods Movement/Safety Improvements Program in Indian Wells Valley is a multi-phase infrastructure project designed to enhance safety, improve traffic flow, and support regional freight mobility.

- Phase 6.1 will add 5.79 miles of new passing lanes in both directions north of Garlock Road near the Cyril Station Cutoff, reducing delays and improving safety along this rural corridor.
- Phase 6.2 will construct a new interchange at Brown Road and China Lake Boulevard, incorporating a roundabout and additional passing lanes on US-395 and China Lake Boulevard to improve connectivity and traffic operations.
- Phase 6.3 will establish a new intermodal facility at the Union Pacific/Trona Railway transfer point, including a siding, parking area, and prefabricated building to support container handling and freight transfer between rail and truck.

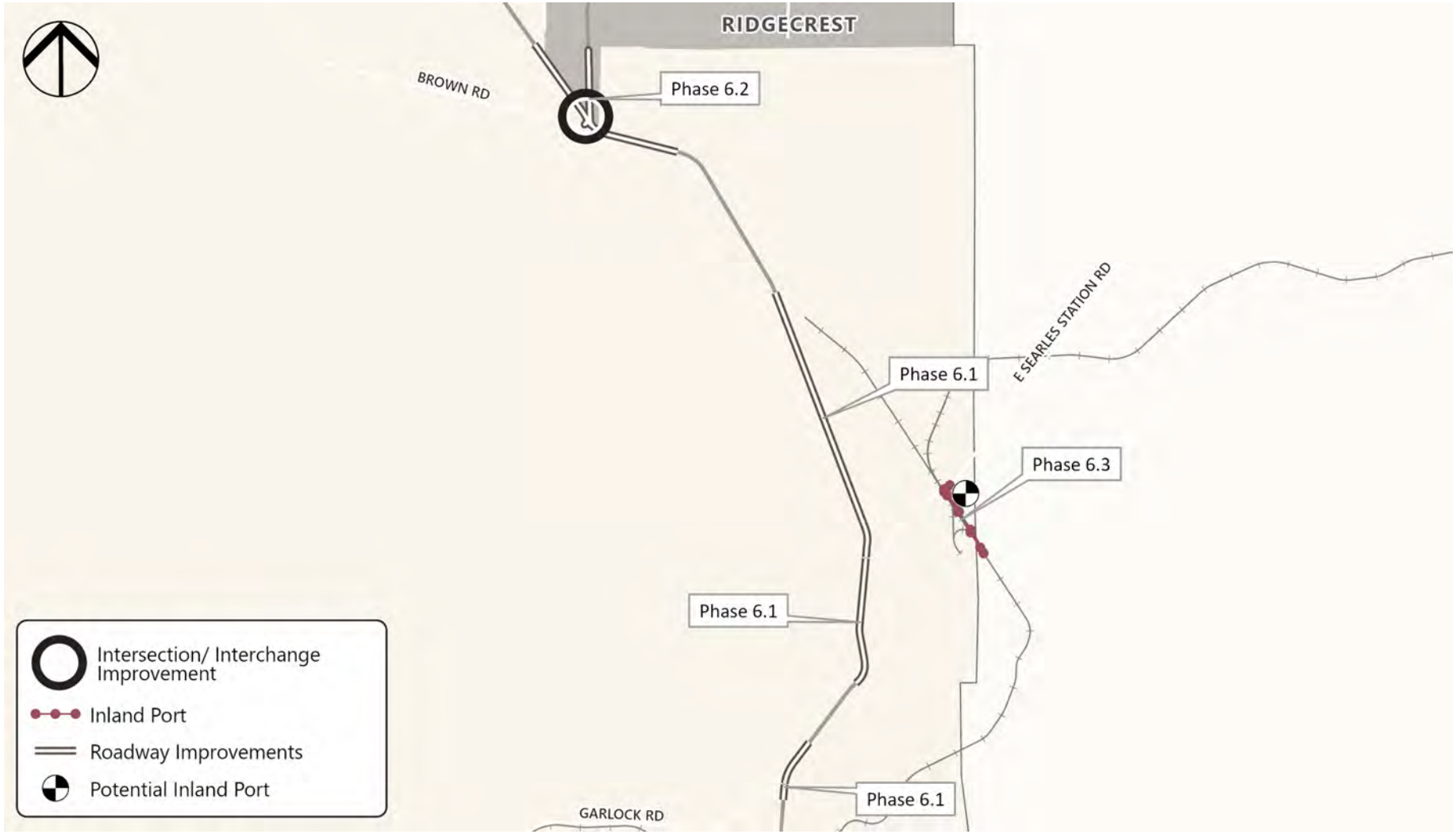
Table 5-6 summarizes the total project cost estimate to support implementation of the US 395 Goods Movement/Safety Improvements, and *Figure 5-6* illustrates the proposed improvements.

TABLE 5-6. Cost Estimate: US 395 Goods Movement/Safety Improvements

COST CATEGORY*	PROJECT PHASE		
	6.1	6.2	6.3
Project Approval & Environmental Document (PA/ED)	$4,520	$3,320	$6,080
Plans, Specifications & Estimates (PS&E)	$6,320	$4,650	$8,510
Right-of-Way (ROW)	$730	$540	$1,087
Construction (CON)	$42,950	$31,565	$57,759
Total Cost**	$54,600	$40,100	$73,500

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-6. US 395 Goods Movement/Safety Improvements



5.8 Bakersfield Green-Pass Network

The NW Bakersfield Green-Pass Network Program consists of multiple roadway improvement projects totaling over 10.8 miles of new and upgraded corridors to enhance freight mobility, regional connectivity, and community safety.

The Shafter/Bakersfield Green-Pass: Enos Road Corridor will construct a 3.8-mile expressway from Enos Lane to Cherry Avenue, including one new grade separation and upgraded intersections to provide an alternative truck route.

The Shafter Green-Pass: Merced Avenue Expressway will add a new canal bridge along Merced Avenue between SR-43 and SR-99 to strengthen resiliency and goods movement.

The Shafter Green-Pass: Cherry Avenue Expressway will deliver two new grade separations between Merced Avenue and 7th Standard Road to improve traffic flow and safety.

The Shafter/Bakersfield West Urban Corridor will reserve right-of-way for a future expressway and upgrade Kratzmeyer Road to a four-lane expressway with a median, improving east-west truck movement.

Finally, the Santa Fe Way/Burbank-Rosedale Highway project will upgrade 7 miles of Santa Fe Way from Hagman Road to Cherry Avenue into a four-lane expressway, enhancing access to intermodal rail hubs and supporting regional mobility.

Table 5-7 summarizes the total project cost estimate to support implementation of the NW Bakersfield Green-Pass Network Improvements, and *Figure 5-7* illustrates the proposed improvements.

TABLE 5-7. Cost Estimate: Bakersfield Green-Pass Network

COST CATEGORY*	PROJECT PHASE				
	7.1	7.2	7.3	13.7	13.9
Project Approval & Environmental Document (PA/ED)	$5,260	$17,130	$10,420	$1,010	$580
Plans, Specifications & Estimates (PS&E)	$7,370	$23,980	$14,580	$1,420	$810
Right-of-Way (ROW)	$1,604	$4,018	$2,100	$170	$100
Construction (CON)	$49,322	$161,747	$98,683	$9,619	$5,459
Total Cost**	$63,600	$207,000	$126,000	$12,250	$6,950

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-7. Bakersfield Green-Pass Network



5.9 Rosamond Green-Pass Network

The Rosamond Green-Pass project will construct a new 15.1-mile east-west connection in Rosamond by extending 10th Street West to Avenue A and construct a new crossing over the UPRR tracks. This project improves local circulation, provides a critical secondary route during flood events or emergencies, and support future infrastructure needs related to the California High-Speed Rail. Planned intersection improvements, including a new roundabout at Rosamond Boulevard and Willow Springs Road, will further improve traffic flow and safety.

Table 5-8 summarizes the total project cost estimate to support implementation of the Roasmond Green-Pass Network, and *Figure 5-8* illustrates the proposed improvements.

TABLE 5-8. Cost Estimate: Rosamond Green-Pass Network

COST CATEGORY*	PROJECT PHASE	
	8.1	8.2
Project Approval & Environmental Document (PA/ED)	$6,810	$3,820
Plans, Specifications & Estimates (PS&E)	$9,530	$5,350
Right-of-Way (ROW)	$3,360	$3,343
Construction (CON)	$62,485	$33,632
Total Cost**	$82,000	$46,150

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-8. Rosamond Green-Pass Network



5.10 SR 33/7th Standard Rd Safety Corridor Improvements

The SR 33/7th Standard Rd Safety Corridor Improvements Program is a multi-phase initiative that consists of roadway and safety rehabilitation projects totaling over 30 miles of improvements across Lerdo Highway, Rowlee Road, 7th Standard Road, and Main Drain Road in the Shafter and Rosedale areas.

- Phase 9.1 will rehabilitate approximately 78,908 feet (15 miles) of roadway from SR-33 to Rowlee Road, add passing lanes at major intersections, and replace an existing bridge.
- Phase 9.2 will rehabilitate 21,576 feet (4.1 miles) of roadway between Lerdo Highway and 7th Standard Road, including bridge replacement.
- Phase 9.3 will add 0.5-mile passing lanes at the I-5 interchange and Enos Lane intersection, while Phase 9.4 project adds another 0.5 miles of passing lanes between I-5 and SR-43.
- Phase 9.5 will reconstruct the interchange, add missing ramps, and widen the bridge for additional lanes.
- Phase 9.6 will rehabilitate 9,478 feet (1.8 miles) of pavement on 7th Standard Road between State Route 43 and State Route 99 and extend Wings Way by 1.5 miles to connect with Imperial Ave and SR-65.
- Phase 9.9 will rehabilitate 50,923 feet (9.6 miles) of roadway along Main Drain Rd from Lerdo Highway to 7th Standard Road.

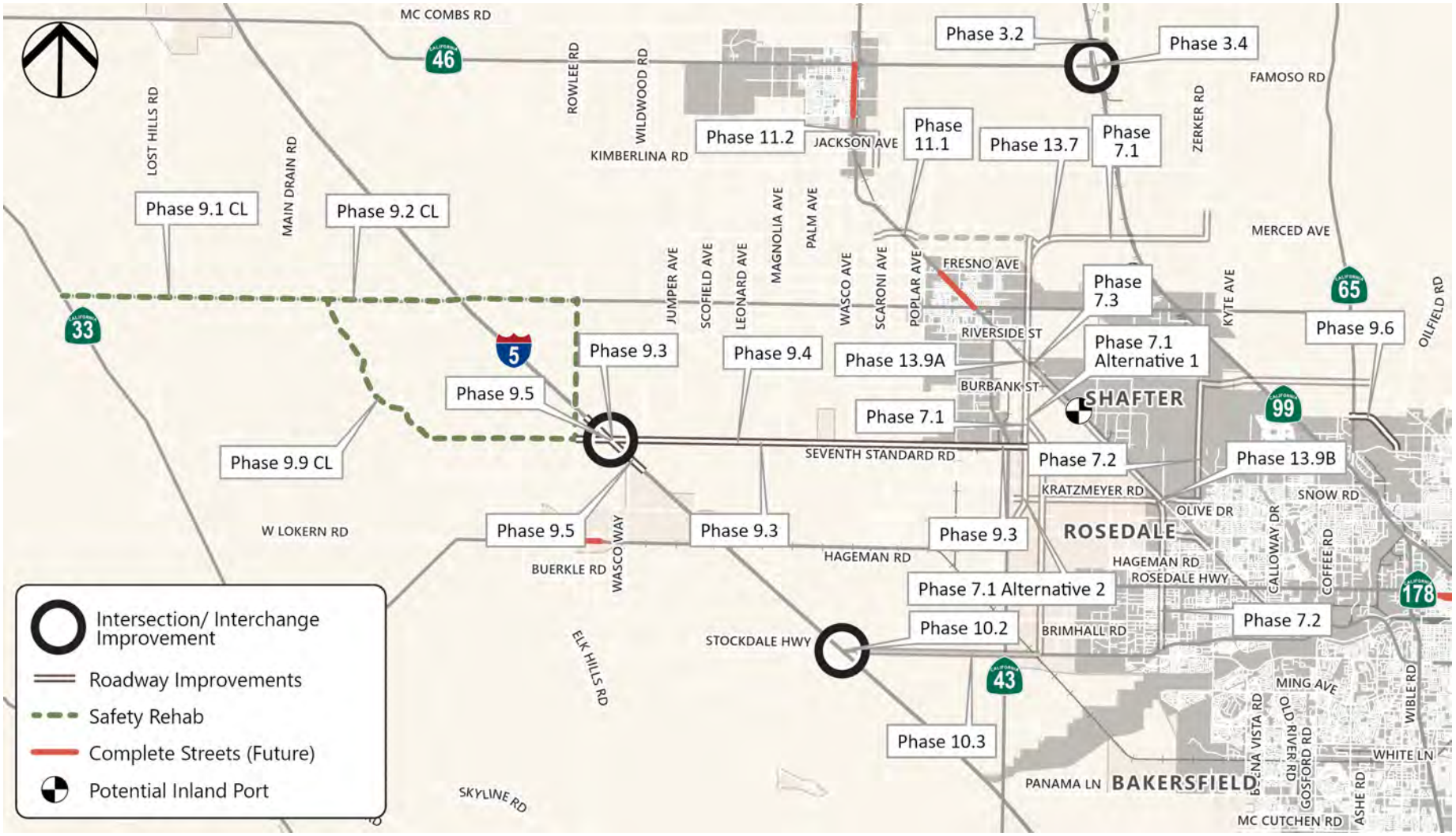
Table 5-9 summarizes the total project cost estimate to support implementation of the SR 33/7th Standard Rd Safety Corridor Improvements, and *Figure 5-9* illustrates the proposed improvements.

TABLE 5-9. Cost Estimate: SR 33/7th Standard Rd Safety Corridor Improvements

COST CATEGORY*	PROJECT PHASE						
	9.1	9.2	9.3	9.4	9.5	9.6	9.9
Project Approval & Environmental Document (PA/ED)	$9,060	$2,640	$1,560	$9,790	$3,920	$1,250	$3,360
Plans, Specifications & Estimates (PS&E)	$12,680	$3,690	$2,180	$13,710	$5,480	$1,750	$4,710
Right-of-Way (ROW)	$1,450	$430	$250	$1,570	$1,169	$200	$540
Construction (CON)	$86,197	$25,070	$14,792	$93,187	$36,712	$11,895	$31,985
Total Cost**	$110,000	$31,850	$18,800	$119,000	$47,300	$15,100	$40,600

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-9. SR 33/7th Standard Rd Safety Corridor Improvements



5.11 SR 58/Stockdale Hwy Connection to I-5 Safety Corridor Improvements

The SR 58/Stockdale Hwy Connection To I-5 Safety Corridor Improvements Program focuses on improving safety and traffic flow along the I-5/SR-58 corridor, a critical national goods movement route. These upgrades will reduce congestion, improve safety, and support efficient freight movement through this key corridor.

- Phase 10.2 will enhance access and circulation by adding new safety passing lanes, dedicated turn pockets, and a signalized intersection, while converting one driveway to right-in/right-out access.
- Phase 10.3 will construct 5.0 miles of passing lanes between I-5 and SR-43/ Enos Lane, including improvements at the I-5 interchange and the SR-43 roundabout.

Table 5-10 summarizes the total project cost estimate to support implementation of the SR 58/Stockdale Hwy Connection To I-5 Safety Corridor, and *Figure 5-10* illustrates the proposed improvements.

TABLE 5-10. Cost Estimate: SR 58/Stockdale Hwy Connection to I-5 Safety Corridor Improvements

COST CATEGORY*	PROJECT PHASE	
	10.2	10.3
Project Approval & Environmental Document (PA/ED)	$550	$3,720
Plans, Specifications & Estimates (PS&E)	$770	$5,200
Right-of-Way (ROW)	$12	$688
Construction (CON)	$5,210	$35,251
Total Cost**	$6,550	$44,900

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-10. SR 58/Stockdale Hwy Connection to I-5 Safety Corridor Improvements



5.12 Wasco Ave/HSR Frontage Rd

The Wasco Av/HSR Frontage Rd Program delivers critical safety and connectivity improvements across two key corridors in Shafter and Wasco, totaling 13.94 miles of new and rehabilitated roadway. Together, these projects will improve roadway durability, enhance traffic safety, and strengthen regional mobility.

- Phase 11.1 will upgrade 12.39 miles of Merced Avenue between State Route 99 and State Route 43, including pavement rehabilitation and realignment west of SR-43 to integrate with the California High-Speed Rail corridor.
- Phase 11.2 will construct 1.55 miles of new alignment connecting Jackson Avenue to Kimberlina Road, providing a safer, more direct route and reducing reliance on local side streets.

Table 5-11 summarizes the total project cost estimate to support implementation of the Wasco Av/HSR Frontage Rd Program, and *Figure 5-11* illustrates the proposed improvements.

TABLE 5-11. Cost Estimate: Wasco Av/HSR Frontage Road

COST CATEGORY*	PROJECT PHASE	
	11.1	11.2
Project Approval & Environmental Document (PA/ED)	$3,470	$960
Plans, Specifications & Estimates (PS&E)	$4,850	$1,340
Right-of-Way (ROW)	$888	$396
Construction (CON)	$32,635	$8,832
Total Cost**	$41,850	$11,550

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-11. Wasco Ave/HSR Frontage Road



5.13 California City Boulevard Extension

The California City Boulevard Extension Project will construct 2.26 miles of new roadway to extend California City Boulevard to 140th Street, creating a safer and more direct connection to the SR-58 interchange. This improvement will enhance local and regional mobility, provide an alternative route for emergency access, and strengthen the resiliency of the transportation network in eastern Kern County.

Table 5-12 summarizes the total project cost estimate to support implementation of the California City Boulevard Extension, and *Figure 5-12* illustrates the proposed improvements.

TABLE 5-12. Cost Estimate: California City Boulevard Extension

COST CATEGORY*	PROJECT PHASE	
	12.1	12.2
Project Approval & Environmental Document (PA/ED)	$3,220	$1,400
Plans, Specifications & Estimates (PS&E)	$4,500	$1,960
Right-of-Way (ROW)	$520	$230
Construction (CON)	$30,588	$13,271
Total Cost**	$38,850	$16,900

* Values shown in $000s; actual values are in millions.
** Total Cost includes capital outlay and delivery costs per the estimate, actual values are in millions.

FIGURE 5-12. California City Boulevard Extension



5.14 Funding Strategy and Program Alignment

The total planning-level cost of the priority infrastructure projects identified in the Study is approximately $3.15 billion in current-year dollars, representing a portfolio of major corridor investments intended to improve goods movement efficiency, enhance regional resiliency, and strengthen transportation safety across Kern County.

These estimates reflect comprehensive freight corridor improvement programs that include roadway capacity expansions, safety rehabilitation projects, interchange improvements, and the development of connecting resiliency routes that provide redundancy during emergency events or severe weather disruptions. Major investments include the SR-58 Truck Climb and Safety Passing Lanes project ($661.2 million), the South Arvin Corridor Green-Pass resiliency route ($608.4 million), and the Shafter/Bakersfield Green-Pass Enos Road Corridor improvements ($415.8 million). Additional large investments include the 7th Standard Road/Lerdo Highway Safety Rehabilitation project ($382.7 million) and the Lamont Green-Pass Edison Road improvements ($280.0 million).

Several mid-scale infrastructure improvements are also recommended to enhance safety and operational efficiency across key freight corridors. These include the I-5 Grapevine Improvements project ($176.9 million), Delano Green-Pass Pond Road improvements ($171.8 million), and US-395 Safety Passing Lanes project ($168.2 million).

Smaller but strategically important projects include the Tehachapi–Willow Springs Road Corridor Green Pass ($128.4 million), California City Boulevard Extension resiliency corridor ($55.8 million), Merced Avenue Safety Rehabilitation ($53.4 million), and the I-5/SR-58 Stockdale Highway Interchange improvements ($51.5 million).

At the time of the Study, none of the proposed projects have dedicated or programmed funding for implementation. Advancing these projects will require a strategic and coordinated approach that relies on competitive grant funding, supplemented where feasible by regional, state, and federal resources.

Table 5-13 summarizes the primary federal and state funding programs that may support implementation of the proposed projects. Programs are organized to reflect realistic, recurring funding pathways available for roadway, freight, rail, and safety-focused infrastructure investments in California. The matrix illustrates how typical project elements correspond with program eligibility and priorities, providing a strategic framework to guide funding pursuit as projects advance in readiness and scope. These funding programs represent potential opportunities rather than assignments of specific projects and may be leveraged individually or in combination depending on project scale, timing, and competitiveness.

Funding Cycle Calendar and Grant Planning Timeline

To support proactive grant planning and coordinated project delivery, *Table 5-14* summarizes the typical annual funding cycles for key federal, state, regional, and local programs applicable to the Study. The calendar illustrates common Notice of Funding Opportunity (NOFO) release and application submittal windows by month, providing a planning tool to help align project readiness, environmental clearance, design development, and partnership coordination with anticipated funding opportunities.

By visualizing funding timelines across programs, the table helps identify near-term grant opportunities for rapid safety improvements as well as longer-term capital funding cycles for major corridor investments. This approach supports strategic packaging of projects, sequencing implementation phases, and efficient allocation of local matching resources over time.

TABLE 5-13. Funding Sources and Applicability by Project Type

FUNDING PROGRAM	PRIMARY/ ACCESS FOCUS	IMPROVEMENT TYPES				AGENCY
		Connecting Resiliency Routes	Roadway Improvements	Rail Improvements	Safety Rehabilitation	
BUILD (RAISE) Discretionary Grant	A	•	•	•	•	USDOT
Safe Streets and Roads for All (SS4A)	P	-	-	-	•	USDOT
Rural Surface Transportation Grant Program	P	•	•	-	•	USDOT
Transportation Alternatives (TA) Program	P	-	-	-	•	FHWA/Caltrans
Congestion Mitigation & Air Quality (CMAQ)	P	•	•	•	-	FHWA
Surface Transportation Block Grant (STBG)	P	•	•	•	•	FHWA
Highway Safety Improvement Program (HSIP)	P	-	-	-	•	FHWA
Federal Lands Access Program (FLAP)	A	•	•	-	•	FHWA
Active Transportation Program (ATP)	P	-	-	-	•	Caltrans
State Transportation Improvement Program (STIP)	A	•	•	•	•	CTC
Trade Corridor Enhancement Program (TCEP)	P	•	•	•	-	CTC
State Highway Operation & Protection Program (SHOPP)	P	-	•	-	•	Caltrans
Sustainable Communities Grant Program	P	•	•	-	•	Caltrans
Office of Traffic Safety (OTS) Grants	P	-	-	-	•	CA OTS
County Transportation Funds	P	•	•	-	•	Kern County
Local Development Impact fees	A	•	•	-	•	Local
SB 1 Road Maintenance & Rehabilitation Program (RMRA)	P	-	•	-	•	CTC/Local Agencies
PROTECT Formula and Discretionary Grants (FHWA)	P	•	•	-	-	FHWA
INFRA Grant Program (USDOT)	A	•	•	•	•	USDOT
Solutions for Congested Corridors Program (SCCP)	P	•	•	-	-	CTC
Local Transportation Climate Adaptation Program	P	•	•	-	-	Caltrans

● = Strong applicability; — = Typically not a primary funding focus; P = Primary program focus; A = Accessory/secondary focus

TABLE 5-14. Typical Funding Cycle Calendar

Funding Program	Typical Frequency	J	F	M	A	M	J	J	A	S	O	N	D
BUILD / RAISE	Annual				•	•	•						
Safe Streets & Roads for All (SS4A)	Annual					•	•	•					
Rural Surface Transportation Grant Program	Annual					•	•	•					
Transportation Alternatives Program (TA)	Annual			•	•	•							
Surface Transportation Block Grant (STBG/RSTP)	Annual			•	•	•							
Highway Safety Improvement Program (HSIP)	Biennial (approx.)			•	•	•							
Congestion Mitigation & Air Quality (CMAQ)	Annual			•	•	•							
Federal Lands Access Program (FLAP)	Periodic (2-3 years)					•	•	•					
Active Transportation Program (ATP)	Odd Years			•	•	•							
State Transportation Improvement Program (STIP)	Even Years				•	•	•						
Trade Corridor Enhancement Program (TCEP)	Odd Years						•	•	•				
Solutions for Congested Corridors Program (SCCP)	Odd Years						•	•	•	•			
Office of Traffic Safety (OTS) Grants	Annual			•	•								
Local Partnership Program (LPP-C)	Odd Years						•	•	•				
LPP-Formulaic	Biennial Allocation				•	•							
Sustainable Communities Grant Program	Annual			•	•								
Strategic Partnerships / STP Planning Grants	Annual		•	•									
Urban Greening Grant Program	Periodic				•	•							
Transformative Climate Communities (TCC)	Periodic					•	•						

Note: Actual funding schedules may vary by year and are subject to program guidance, legislative appropriations, and agency priorities.

TABLE 5-14. Typical Funding Cycle Calendar

Funding Program	Typical Frequency	J	F	M	A	M	J	J	A	S	O	N	D
PROTECT	Annual				•	•							
INFRA	Annual					•	•	•					
LPP-C (SB1)	Odd Years						•	•	•	•			
County Transportation Funds	Ongoing	•	•	•	•	•	•	•	•	•	•	•	•
State Highway Operation & Protection Program (SHOPP)	Ongoing	•	•	•	•	•	•	•	•	•	•	•	•
Development Impact Fees	Ongoing	•	•	•	•	•	•	•	•	•	•	•	•
SB1 Road Maintenance & Rehabilitation Program (RMRA)	Ongoing	•	•	•	•	•	•	•	•	•	•	•	•
Local Transportation Climate Adaptation Program (LTCAP)	Periodic				•	•	•						
SB1 - Local Partnerships & State of Good Repair Programs	Annual			•	•	•							
Consolidated Rail Infrastructure and Safety Improvements (CRISI)	Annual				•	•	•	•					
Nationally Significant Multimodal Frieght & Highway Projects (MEGA)	Annual				•	•	•	•					
Bridge Investment Program (BIP)	Annual				•	•	•	•					
Rural Surface Transportation Program (RSTP)	Annual			•	•	•							

Note: Actual funding schedules may vary by year and are subject to program guidance, legislative appropriations, and agency priorities.

5.15 Next Steps

Successful implementation of the Community Prosperity/Protection Study will depend on sustained regional coordination and alignment among transportation investments, land use policy, and evolving freight demands. Continued collaboration among Kern COG, Caltrans, local jurisdictions, transportation agencies, and regional partners will be essential to advance priority projects, align funding strategies, and integrate recommended improvements into planning, programming, and capital delivery processes, including competitive discretionary grant programs. Near term efforts will focus on advancing project readiness by building upon previously developed planning level cost estimates and 30% design concepts, identifying feasible early action safety and operational improvements, and establishing clear pathways for longer term capital investments.

Implementation will also require coordinated policy action at the local and regional level. Assembly Bill 98 (AB 98), as amended by Senate Bill 415 (SB 415), establishes statewide standards for the siting and operation of large warehouse and logistics developments to reduce impacts on nearby communities. The legislation addresses both physical design considerations, such as required buffers and setbacks from sensitive receptors, orientation of loading bays, and screening measures, as well as broader planning and policy actions. In particular, AB 98/SB 415 requires counties and cities to formally adopt truck route ordinances that designate appropriate freight routes and limit heavy-duty truck traffic on residential streets, ensuring that logistics operations are supported by suitable roadway infrastructure. While existing conditions in some areas may already meet buffer requirements, full compliance with the legislation also depends on coordinated local adoption of truck routing policies and integration of these requirements into regional and local planning efforts.

A key implementation priority is advancement of the I 40 Extension from I 15 to I 5 Corridor Plan for State Route 58. As one of California's most critical east–west freight corridors and the only year round, all weather Sierra Nevada crossing, State Route 58 plays a central role in regional and statewide goods movement. With expanded intermodal rail facilities in Shafter, Mojave, and Barstow expected to increase first and last mile truck activity, the corridor plan will advance multimodal and interstate feasibility studies to identify improvement projects, refine planning level cost estimates, phase and prioritize investments, and evaluate delivery strategies. Coordinated across Caltrans Districts 6, 8, and 9 and in partnership with local jurisdictions, freight operators, and rail stakeholders, this effort will establish a clear, phased implementation framework that enables near term safety and operational improvements while positioning longer term interstate upgrades for funding and delivery.

Appendix A - Technical Studies

- Wildlife Connectivity Across 7th Standard Road Technical Memorandum
- Wildlife Connectivity in the Twin Passes (Tejon and Tehachapi) Across Interstate 5 and State Route 58 Combined Technical Memorandum
- Wildlife Connectivity Across Willow Springs Road Technical Memorandum
- Kern County Economic Profile
- Kern County Vulnerability/Resiliency Assessment Report
- KARGO Community Prosperity/Protection Study – Technical Analyses and Project Prioritization
- KARGO Community Protection/Prosperity Study Project Priority List For Applying Conceptual Design Resources
- Forecasting and Transportation Analysis Approach and Results for KARGO Memorandum
- Economic Analysis Overview

Appendix B - Public Engagement

- KARGO Community Prosperity/Protection Study – Public Engagement Summary Phase 1
- KARGO Community Prosperity/Protection Study – Public Engagement Summary Phase 2
- KARGO Community Prosperity/Protection Study - Transportation Technical Advisory Committee May 2026
- Kern COG KARGO Study - Agency Comments and Responses

Appendix C - Cost Estimates

- Summary Combined Total
- Arvin/Maricopa/Taft Greenpass Network
- TSR 58 Tehachapi Grade Improvements
- Delano/Mcfarland and Greenpass Network
- I-5 Grapevine Improvements
- Lamont/SE Bakersfield Greenpass Network
- US 395 Goods Movement/Safety Improvements
- NW Bakersfield Greenpass Network
- Rosamond Greenpass Network
- SR 33/7th Standard Rd Safety Improvements
- SR 58/Stockdale Hwy Connection to I-5 Safety Corridor Improvements
- Wasco AV/HSR Frontage Rd
- California City Bl Extension to EAFB North Gate Safety Corridor

Appendix D - Conceptual Plans

- Arvin/Maricopa/Taft Greenpass Network
- TSR 58 Tehachapi Grade Improvements
- Delano/Mcfarland and Greenpass Network
- I-5 Grapevine Improvements
- Lamont/SE Bakersfield Greenpass Network
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- Rosamond Greenpass Network
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