San Joaquin County

Regional Congestion Management Program

2024 Monitoring Report

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

The San Joaquin Council of Governments (SJCOG) is responsible for updating the San Joaquin County's Regional Congestion Management Program (RCMP) and monitoring its implementation. Monitoring congestion is required pursuant to the Federal Congestion Management Process (CMP) (CFR 23 450.320 (c)(3)). Measuring regional congestion and related RCMP multimodal performance measures requires an ongoing systematic monitoring program. The SJCOG RCMP Monitoring Program provides this mechanism by establishing the methodologies, requisite data, and multimodal performance monitoring on a continuous basis (i.e., biennial) basis. All traffic information collected as part of the SJCOG RCMP data monitoring program is made available to member and partner agencies (upon request).

This RCMP Monitoring Report serves to address the following requirements:

- Monitoring of SJCOG's RCMP performance measures.
- Monitoring of the Federal PM 1, PM2, and 3 performance measures.
- Compliance with the SJCOG's Measure K renewal requirements.
- Compliance with the Federal CMP[1].

The RCMP Monitoring Program tracks multimodal performance on the RCMP network. Performance measures serve to gauge system performance and track progress achieving the congestion management objectives. These metrics create a framework for measuring the effectiveness of congestion reduction strategies and projects and the adequacy of alternatives to the Single Occupant Vehicle (SOV) and Transportation Demand Management (TDM) implementation pursuant to Federal requirements: *23 CFR 450.323 (b) and 450.323 (c)(2))*.

The purpose of San Joaquin's 2024 CMP is to update the county's congestion management report by collecting data/monitoring system performance, with the goal of including roadway users (bicyclists, pedestrians, transit riders, motorists) into consideration within the county. This report provides a snapshot of the "state of congestion" on the county's designated RCMP roadway network. This includes roadway segments, multi-modal corridors, bicycle, and transit networks. To best ensure a representative performance assessment, operational and safety metrics were informed by post-COVID-19 2021-2024 data from varied sources where available as needed.

SUMMARY OF FINDINGS

RCMP multimodal performance measures address the following key areas:

- Operational Efficiency (Motorist Travel and Freight)
- Transit System Performance
- Bikeway Network Completion
- Multimodal Corridor Performance

[1] The federal CMP requires an increased multimodal travel demand management

- Travel Demand Management (TDM)
- Safety

A summary of the RCMP multimodal performance measure monitoring results for San Joaquin County is provided below.

OPERATIONAL EFFICIENCY (MOTORIST TRAVEL AND FREIGHT)

Roadway operations for motorists and freight is based upon speed data from the National Performance Monitoring Research Data Set (NPMRDS) from FHWA. The NPMRDS speed data for vehicles and trucks is used to measure congestion levels and the degree of travel time reliability in combination on the RCMP network.

Based on 12 months of passenger vehicle and truck speed data collected between October 2023 to October 2024, 94% of all Interstate Highway System (IHS) and 67% of National Highway System (NHS) RCMP roadway segments operated without congestion during the weekday AM peak commute hour. During the weekday PM peak commute hour, the percentage of congested miles on IHS segments (7%) and non-IHS NHS segments (37%) was greater. Based on the 80th percentile travel time, about 95% of NHS miles operated reliably during both AM and PM peak hours. For truck traffic only, the 95th percentile travel time showed that 94% of IHS and 64% non-IHS NHS miles were reliable for truck travel during the AM peak commute hour. During the weekday PM peak commute hour, the percentage of reliable miles decreased as 86% of IHS and 58% non-IHS NHS miles were reliable for truck travel.

The increase in identified deficient segments compared to previous years is attributed to the expanded availability of truck and passenger NPMRDS data. This enhancement in the data set has allowed for a more comprehensive and detailed analysis, leading to the identification of a greater number of segments.

Based on the combined speed-based congestion and reliability results, a list of deficient corridors was identified and are listed below.

1. Kettleman Lane (SR-12): I-5 to SR-99
2. W Eight Mile Road: Thornton Rd to SR-99
3. Charter Way (SR-4)/Dr Martin Luther King Jr Blvd: S Roberts Rd to E Mariposa Rd
4. I-205: County Limits to Grant Line Rd
5. I-205/I-5/SR-120: N MacArthur Dr to Yosemite Ave
6. SR-99: Main Street Interchange to SR-120 Juncture
7. I-580: Corral Hollow Road to SR-132 Juncture

Traffic Congestion

The overall percent of non-single occupancy vehicle (non-SOV) in the Stockton urban area has increased by 6.5% since 2018. The peak hour excessive delay (PHED) per capita in the Stockton urban area experienced a decrease from 2017 to 2020 (about 3.7 annual hours of excessive delay per capita) and an increase from 2020 to 2023 (about 2.1 annual hours of excessive delay per capita).

TRANSIT SYSTEM PERFORMANCE

The San Joaquin County RCMP contains two transit system performance measures: 1) coverage and 2) frequency. Countywide transit service coverage is evaluated using a half-mile distance from transit stops based on network buffers (roadway distances). The goal of evaluating peak period transit frequency is to determine the likelihood that commuter travelers would use transit regularly.

Currently, about 55% of San Joaquin County's residential households and 39% of jobs are located within a half-mile walking distance to a transit stop with quality-of-service E (less than one hour headway).

BIKEWAY SYSTEM

As regional bikeways are constructed, SJCOG tracks the ratio of completed bikeways relative to the regional network. For each monitoring cycle, a "percent complete" is computed that measures the total number of existing and planned regional bikeway miles relative to the entire network's mileage by type of bike facility.

The existing SJCOG bikeway inventory includes 126 miles of Class I bicycle paths, 152 miles of Class II bicycle lanes, and 63 miles of Class III shared bicycle routes, with a total of 378 miles. The planned bikeway inventory includes 82 miles of Class I, 102 miles of Class II, and 39 miles of Class III.

MULTIMODAL CORRIDORS

There are 19 designated RCMP Multimodal Corridors in San Joaquin County. These designated RCMP Multimodal Corridors are generally located in areas that are characterized by a predominance of shared roadway users (pedestrians, bicyclists, transit passengers, and motorists), and where roadway widening is either infeasible or undesirable. To determine the quality of service for pedestrians, bicyclists, and transit, the Complete Street Quality of Service (CSQOS) methodology (as described in the Highway Capacity Manual) is applied.

TRAVEL DEMAND MANAGEMENT

Travel demand management (TDM) strategies are those that attempt to reduce the number of vehicle miles traveled on the roadway network. SJCOG implements the dibs program to facilitate travel choices and alternatives to driving alone. Estimates of vehicle miles traveled (VMT) reduction by participants of the program that either live or work in San Joaquin County are tracked.

Based on data from SJCOG's dibs program, 164 new vanpools were formed in 2018-19, 60 were added in 2021-22, 109 were added in 2022-23, and 98 were added in 2023-2024. The total number of formalized vanpools has decreased from 446 2022-23 to 399 in 2023-24. San Joaquin experienced about an 11% decrease of vanpool from the prior year and has contributed to 37.6 million vehicle miles reduced, and 355,160 vehicles off the road.

SAFETY

Safety metrics relate to the national goal of significantly reducing traffic fatalities and serious injuries on all public roads. These are expressed in absolute terms (i.e., number of fatal and/or injury collisions) and as rates (i.e., collisions per 100 million VMT). All safety metrics are based on 2022 and 2023 Transportation Injury and Mapping System (TIMS) data.

The number of fatalities on San Joaquin County roadways has been increasing since 2013, but experiences a slight decrease in 2023. The rate of increase for serious injury has grown to a larger extent relative to fatalities. The five-year rolling average for serious injuries has been trending upward since 2013. Fatal collision rates (per 100 million VMT) indicate an increase upward since 2013 with slight variation in 2018 and 2019. Similarly, serious injuries on county roadways are trending up both in absolute and rate terms. Non-motorized (pedestrian and bicycle) fatality and serious injuries have reached a high of 109 (80 pedestrians and 29 bicyclists) in 2023. High-fatality and high-serious injury segments (roadways with fatality rates or serious injury rates of 10 or more fatalities or serious injuries per 100 million VMT) were observed in Stockton, Tracy, Manteca, Lodi, and unincorporated areas in the county.

ASSET MANAGEMENT

The Pavement Condition Index (PCI) system is used to report the quality of roadway surfaces in San Joaquin County. Information on Pavement Conditions on the RCMP network was provided from two primary sources: City databases and the National Highway System Performance and Financial Data, provided by Caltrans. City databases provided PCI scores for segments of locally owned roads. These databases provided raw PCI values for each of the segments, which were then categorized into an ordinal scale (such as excellent, good, poor). Each City, with the exception of Escalon, maintains an inventory of pavement conditions throughout the City. These files did not contain information on Caltrans facilities through these cities. The National Highway System Performance and Financial Data presented scores for Caltrans segments, but these values were only available for segments in unincorporated areas. Raw PCI scores were not included in this dataset. Instead, pavement conditions were provided on an ordinal scale: poor, fair, or good. Bridge conditions were also provided throughout San Joaquin County.

1.0 INTRODUCTION

1.1 PROGRAM BACKGROUND

This report documents the 2023 to 2024 monitoring results for 2024 SJCOG RCMP Update that implements the federal CMP[2]. A CMP is required in metropolitan areas such as San Joaquin County that have population exceeding 200,000, known as Transportation Management Areas (TMAs) (*23 CFR Section 450.320 (a)*). Federal requirements also state that in all TMAs, the CMP shall be developed and implemented as an integrated part of the metropolitan transportation planning process (*23 CFR Section 450.320 (b)*). Given that SJCOG is a designated TMA within a federal air quality non-attainment area; the federal requirements for implementing the federal CMP apply in San Joaquin County.

To reduce state and federal legislative redundancy and improve program efficiency, SJCOG and its member agencies formally opted out of the state CMP requirements in July 2021. The SJCOG 2024 RCMP specifically addresses the federal CMP requirements and is comprised of the eight steps listed below. These steps flow directly from the federal legislative requirements (*23 CFR 450.323 (a)* and *450.323 (b)*). This 2024 RCMP Monitoring Report specifically addresses Step 4 of the CMP.

1. Develop Regional Objectives
2. Define CMP Network
3. Develop Multimodal Performance Measures
4. Collect Data/Monitor System Performance
5. Analyze Congestion Problems and Needs
6. Identify and Assess Strategies
7. Program and Implement Strategies
8. Evaluate Strategy Effectiveness

The SJCOG RCMP process is illustrated in **Figure 1.0-1**. This RCMP Monitoring Report serves to address the following requirements:

- Monitoring of SJCOG's RCMP performance measures;
- Monitoring of the federal PM 1-3 performance measures;
- Compliance with the SJCOG's Measure K renewal requirements; and,
- Compliance with the federal CMP[3]

[2] As of July 2021, San Joaquin County formally opted-out of the state CMP requirements. The SJCOG 2024 RCMP specifically addresses the federal CMP requirements.

[3] The federal CMP requires an increased multimodal TDM and system management emphasis at both the local and regional level to comply. Noncompliance with any of these directives can have local and regional funding implications.

The RCMP Monitoring Program tracks multimodal performance on the RCMP network. Performance measures serve to gauge system performance and track progress achieving the congestion management objectives. These metrics create a framework for measuring the effectiveness of congestion reduction strategies and projects and the adequacy of alternatives to the SOV and TDM implementation pursuant to Federal requirements: *23 CFR 450.323 (b) and 450.323 (c)(2))*.

A key focus of the federal CMP aims to reduce single-occupant-vehicle (SOV) travel while minimizing the need for increasing SOV roadway capacity. It also provides additional resources for the development and deployment of new congestion management technologies. For areas designated as non-attainment of federal air quality standards such as San Joaquin County, the federal CMP stipulates (*23 CFR 450.320 (d)*) that federal funds may not be programmed for any project that results in a significant increase in the carrying capacity of single occupancy vehicles (i.e., new general purpose lanes with the exception of safety improvements or the elimination of bottlenecks) unless the project is addressed through a federally compliant CMP. For SOV capacity increasing projects proposed to be advanced with federal funds, an analysis is required to demonstrate that all reasonable travel demand reduction and operational management strategies have been implemented to the fullest extent possible on the subject roadway (*23 CFR 450.320 (e)*). If the analysis demonstrates that despite these strategies additional SOV capacity is still required, the federal CMP will identify all reasonable strategies to effectively manage the SOV facility in the future.

1.2 RCMP IMPLEMENTATION

SJCOG coordinates with all the local member agencies listed below. **Table 1.0-1** lists the role each agency plays in the RCMP Monitoring Program. SJCOG works collaboratively with its member agencies to address its local, state, and federal transportation planning and programming needs. SJCOG's RCMP process is legislatively integrated with its state and federal planning and programming processes.

California Department of Transportation
County of San Joaquin
City of Stockton
City of Lodi
City of Manteca
City of Tracy
City of Ripon
City of Escalon
City of Lathrop

Ripon Blossom Express
Lodi Grapevine
Tracy Tracer
Manteca Transit
Escalon E-Trans
Altamont Commuter Express
San Joaquin Regional Transit District
San Joaquin Valley Air Pollution Control District

Figure 1.0-1: SJCOG CMP (Source: SJCOG CMP Report 2021

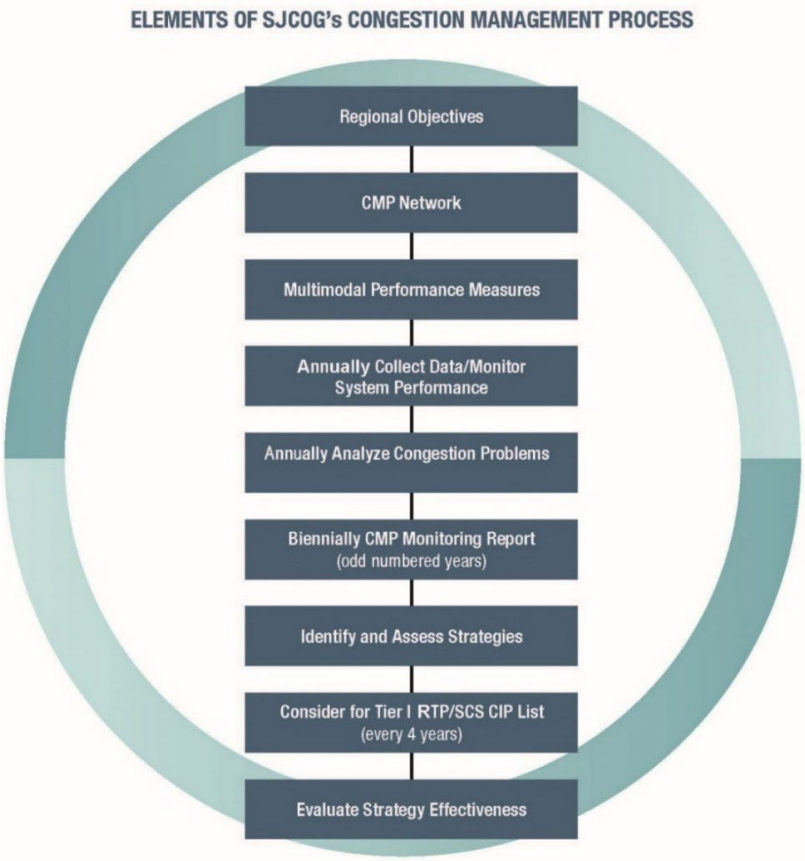


Table 1.0-1: Agency Responsibilities (Source: SJCOG CMP Report 2021)

RCMP Task	SJCOG	Jurisdictions	Caltrans D-10	Public
Prepare Plan/Updates	Lead Agency	Technical Support/Concurrence	Concurrence	Input
Define RCMP Network	Lead Agency	Input	Input	Input
Performance Measure Development	Lead Agency	Input	Input	Input
Monitoring / Data Collection	Lead Agency	Input	Input	Input
Analyze Congestion Problems	Lead Agency	Concurrence	Input	Input
Identify and Assess Improvement Strategies	Lead Agency	Technical Support/Concurrence	Concurrence	Input
Program and Implement Strategies	Lead Agency	Technical Support/Concurrence	Technical Support/Concurrence	Input
Evaluate Strategy Effectiveness	Lead Agency	Technical Support	Concurrence	Input

2.0 REGIONAL TRANSPORTATION SYSTEM

The purpose of the RCMP is to monitor congestion, identify congestion problems, and facilitate programming aimed at reducing congestion. Designation of a regional transportation system supports RCMP monitoring activities and focuses the implementation of the RCMP on a core network of key transportation facilities that facilitate regional travel within and through San Joaquin County.

2.1 RCMP ROADWAY NETWORK

The RCMP network at a minimum reflects all roadways designated as part of the National Highway System (NHS). If the Federal Highway Administration (FHWA) updates the NHS network, SJCOG will amend the RCMP network to reflect such changes. In addition to the NHS designated roadways, SJCOG, in coordination with the RCMP Steering Committee, chose several non-NHS roadways for inclusion in the RCMP network. The RCMP roadway network is built based on SJCOG RCMP Report (2024) and the Federal Highway Administration's National Performance Monitoring Research Data Set (NPMRDS) (2024) shown in

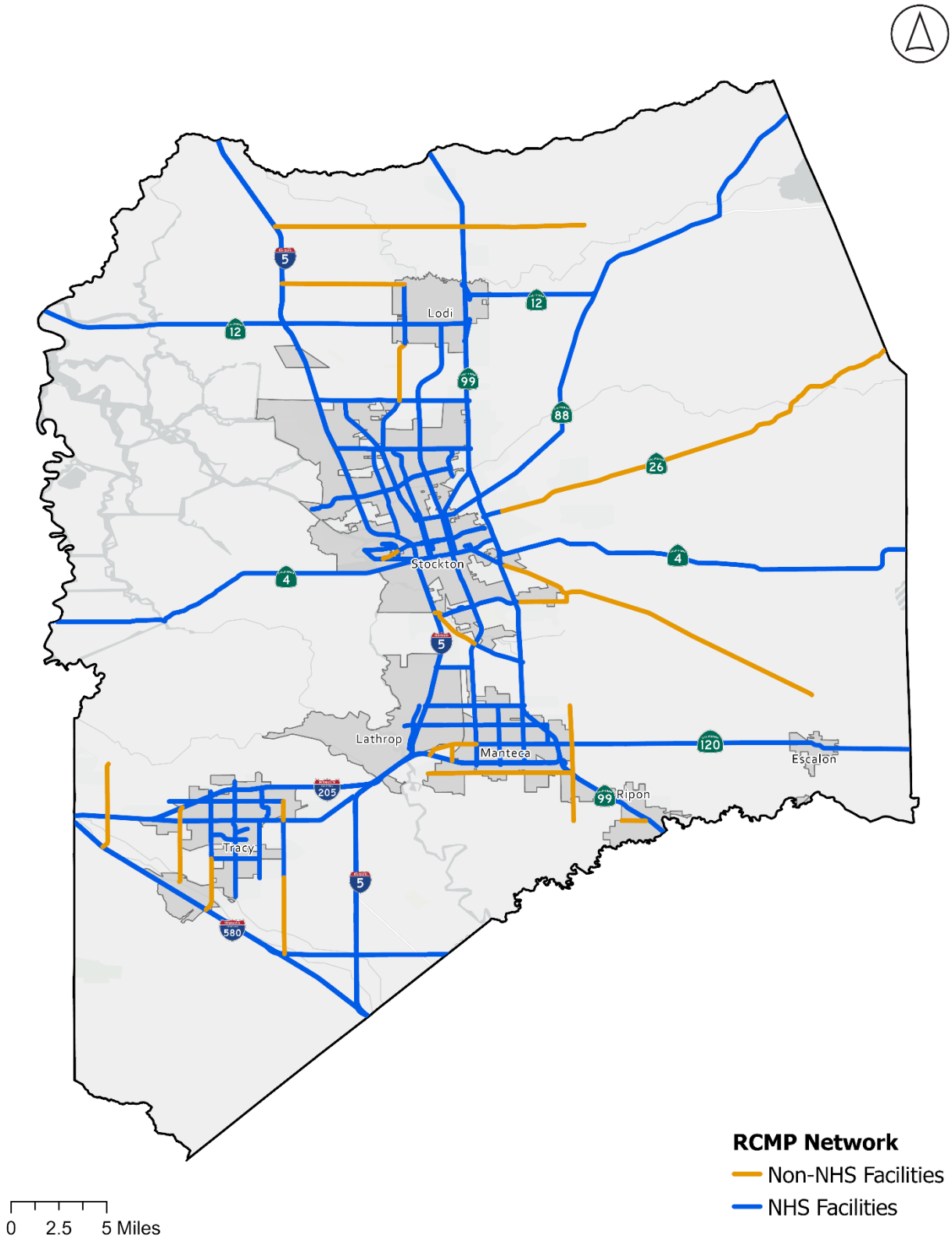
Figure 2.0-1.

As shown in **Table 2.0-1**, the RCMP network consists of total 503 centerline miles of which 415 are on NHS designated roadways and 89 are on non-NHS roadways. Continuous monitoring of vehicular speeds by NPMRDS is available on the NHS and Non-NHS designated roadways.

Table 2.0-1: RCMP Network by Centerline Miles

Jurisdiction	RCMP NHS Centerline Miles	RCMP Non-NHS Centerline Miles	Total RCMP Network Centerline Miles
Escalon	0	0	0
Lathrop	7	0	7
Lodi	7	0	7
Manteca	21	8	29
Ripon	0	1	1
Stockton	66	2	68
Tracy	27	4	31
County	33	57	90
State Highway	253	16	270
TOTAL	**415**	**89**	**503**

Figure 2.0-1: San Joaquin County CMP Roadway Segments



Source: SJCOG RCMP Report, 2024

2.2 RCMP MULTIMODAL CORRIDORS

The Federal CMP requires consideration of all major modes of travel as part of a RCMP. Additionally, the California Complete Streets Act (AB 1358) requires counties and cities to include policies that take all roadway users (bicyclists, pedestrians, transit riders, motorists) into consideration as part of their general plan updates. In recognition of these legislative mandates, SJCOG, in coordination with its member agencies, has identified a sub-set of the RCMP network to be designated as RCMP multimodal corridors. RCMP multimodal corridors are defined as sections of the RCMP roadway network where pedestrian, bicyclist, transit passenger, and motorist levels of service are analyzed. This designation also allows for the use of an expanded toolbox of options to address congestion-related deficiencies that do not rely on increasing vehicular capacity. In addition to the baseline segments that are currently designated, the RCMP also identifies future segments that have a high likelihood of meeting multimodal corridor criteria as they develop. Selection of the multimodal corridors was guided using the following criteria:

- Roadway is a part of the regional network and serves as a city's or community's main street;
- Roadway possess "Complete Streets" characteristics, meaning they have limited additional right- of-way and the existing right-of-way is shared by many types of users (motorists, pedestrians, bicyclists, and transit passengers); and,
- Roadway traverses areas with existing or future urbanized development patterns.

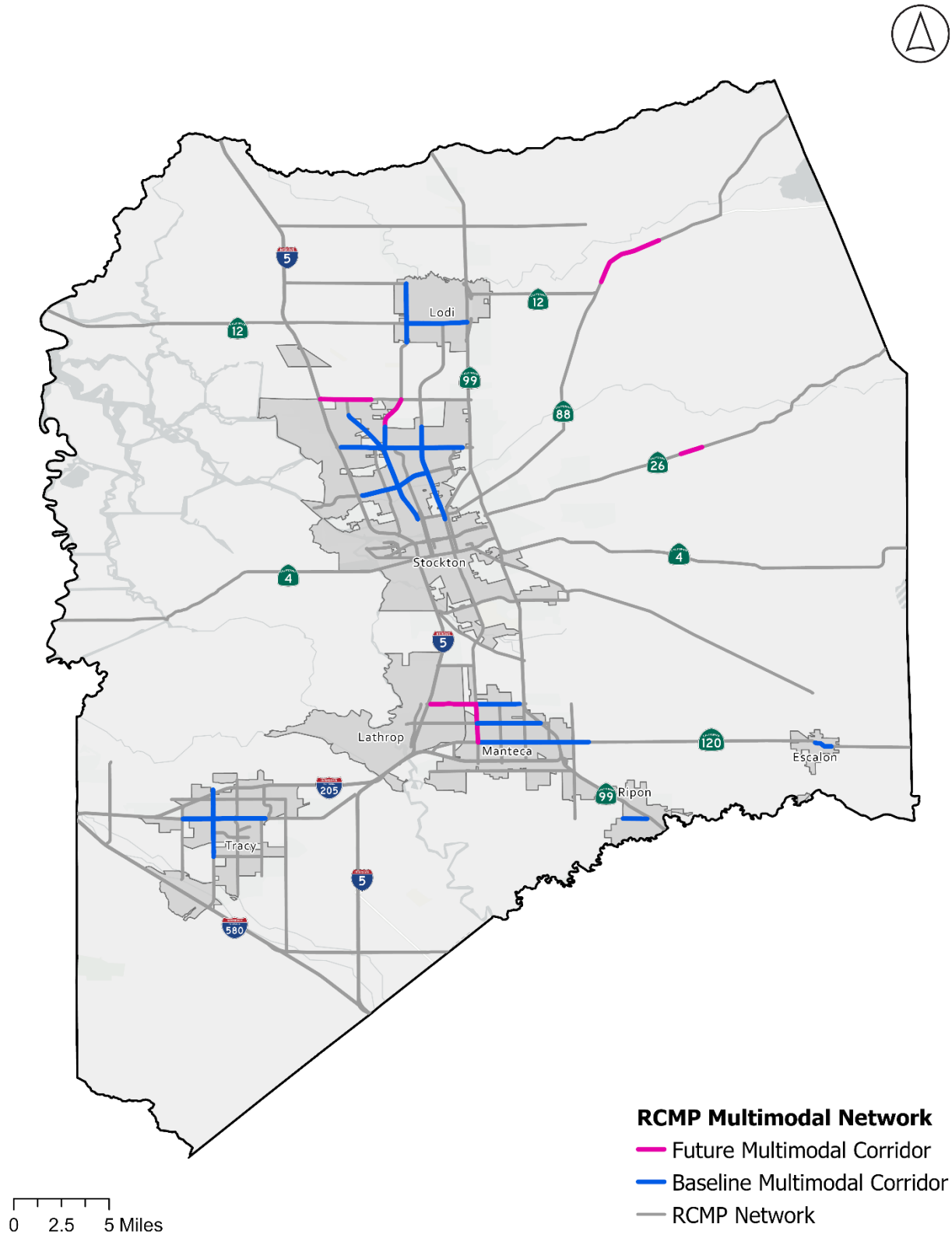
Based on the above guidance, the list of RCMP multimodal corridors is shown in **Figure 2.0-2** and listed by jurisdiction in **Table 2.0-2**. Both the table and figure indicate corridors that will be analyzed by SJCOG to establish baseline conditions and future corridors that will be evaluated when development patterns warrant a multimodal analysis. The potential for new multimodal corridors is evaluated during each four- year RCMP update cycle.

Table 2.0-2: RCMP Multimodal Corridors

ID	Roadway	Multimodal Segment	Status	Jurisdiction
1	SR-120	McHenry Ave-Escalon Bellota Rd to David Dr	Baseline	Escalon
2	SR-88	Brandt Rd to eastern town limit of Lockeford	Future	County
3	SR-26	N Granada Ln to N Market St	Future	County
4	Lathrop Rd	Old Harlan Rd to Airport Wy	Future	Lathrop/ County/ Manteca
		Airport Wy to Crestwood Ave	Baseline	Manteca
5	Airport Rd	Lathrop Rd to Yosemite Ave	Future	Manteca
6	Louise Ave	Airport Wy to SR-99	Baseline	Manteca
7	Yosemite Ave	Airport Wy to Northwoods Ave-Commerce Ave	Baseline	Manteca
8	SR-12/Kettleman Ln	Lower Sacramento Rd to Cherokee Ln	Baseline	Lodi
9	Lower Sacramento Rd	Turner Rd to E Harney Ln	Baseline	Lodi
10	Main St	Jack Tone Rd to Stockton Ave	Baseline	Ripon
11	March Ln	Da Vinci Dr-Quail Lakes Dr to West Ln	Baseline	Stockton
12	Eight Mile Rd	Interstate-5 to Davis Rd	Future	Stockton/ County
13	Pacific Ave	Lower Sacramento Rd to W Harding Wy	Baseline	Stockton
14	Thornton Rd	A G Spanos Blvd to Lower Sacramento Rd	Baseline	Stockton
15	Hammer Ln	Kelley Dr to Maranatha Dr	Baseline	Stockton
16	Lower Sacramento Rd	Royal Oaks Dr to Hammer Ln	Baseline	Stockton
		Eight Mile Rd to Hammer Ln	Future	Stockton
17	West Ln-Airport Wy	E Morada Ln to Roosevelt St	Baseline	Stockton
18	11th St	Lammers Rd to N MacArthur Dr (west)	Baseline	Tracy
19	Corral Hollow Rd	Clover Rd to Valpico Rd	Baseline	Tracy

Source: SJCOG RCMP Report, 2024

Figure 2.0-2: San Joaquin County RCMP Baseline Multimodal Corridors



Source: SJCOG RCMP Report, 2024

2.3 RCMP BICYCLE NETWORK

SJCOG has developed a regional bikeway network as part of the Bicycle, Pedestrian, and Safe Routes to School Plan. The network establishes routes of regional significance for bicyclists. There are many other elements that create a supportive environment for bicycling, including bikeway facilities, parking, shower and locker facilities, and wayfinding signage that are best addressed in the Regional Transportation Plan. The RCMP performance measure will focus on the bikeway network's completion.

The existing San Joaquin County RCMP Bikeways Network is shown in **Figure 2.0-3,** and the proposed routes are shown in **Figure 2.0-4**. This includes both the existing and planned future networks.

2.4 RCMP TRANSIT NETWORK

San Joaquin County is diverse with respect to types of transit service offered and land use types. While Stockton is the most urbanized area in the county, many areas of Stockton and other cities in the county are predominantly suburban, and much of the unincorporated areas of the county are rural. As such, transit providers must tailor their services to balance the diverse needs of residents while managing funding constraints. San Joaquin County is served by several local and regional bus transit providers including:

- San Joaquin Regional Transit District provides fast and frequent service with Bus Rapid Transit (BRT) Express within the Stockton Area, Metro Hopper which is a deviated fixed-route service serving popular destinations in Stockton city, Commuter line which connects San Joaquin to Sacramento and Dublin BART, local fixed-route service within the Stockton Metropolitan Area (SMA) connecting RTD's Express, Hopper, and Commuter services. On demand rideshare services, Van Go! and Dial-A-Ride, are also available to provide safe, convenient, and flexible travel experience for regular passengers and those who qualify under the Americans with Disabilities Act (ADA).
- Lodi Grapeline provides local bus service for Lodi;
- Tracy TRACER provides local bus services for Tracy;
- Manteca Transit provides local bus service for Manteca;
- Escalon eTrans provides service between Escalon and Modesto's Vintage Faire Mall;
- Ripon Blossom Express Transit Services provides local bus service for Ripon and service to Modesto;
- Modesto Area Express provides commuter connections between Modesto and the Lathrop-Manteca ACE train station; and,
- South County Transit provides a connection between Lodi and Galt.

Rail services in San Joaquin County are provided by the Altamont Corridor Express (ACE) commuter rail service and the Amtrak San Joaquin passenger rail service. ACE service has stations in Stockton, Tracy, and Lathrop, and extends to Santa Clara County via Alameda County. The Amtrak San Joaquin provides intercity rail services from Oakland and Sacramento to Bakersfield via San Joaquin County, with two stations in Stockton and one in Lodi, and bus connections to the Lathrop-Manteca ACE Station and Tracy.

Figure 2.0-3: San Joaquin County RCMP Existing Bikeways Network

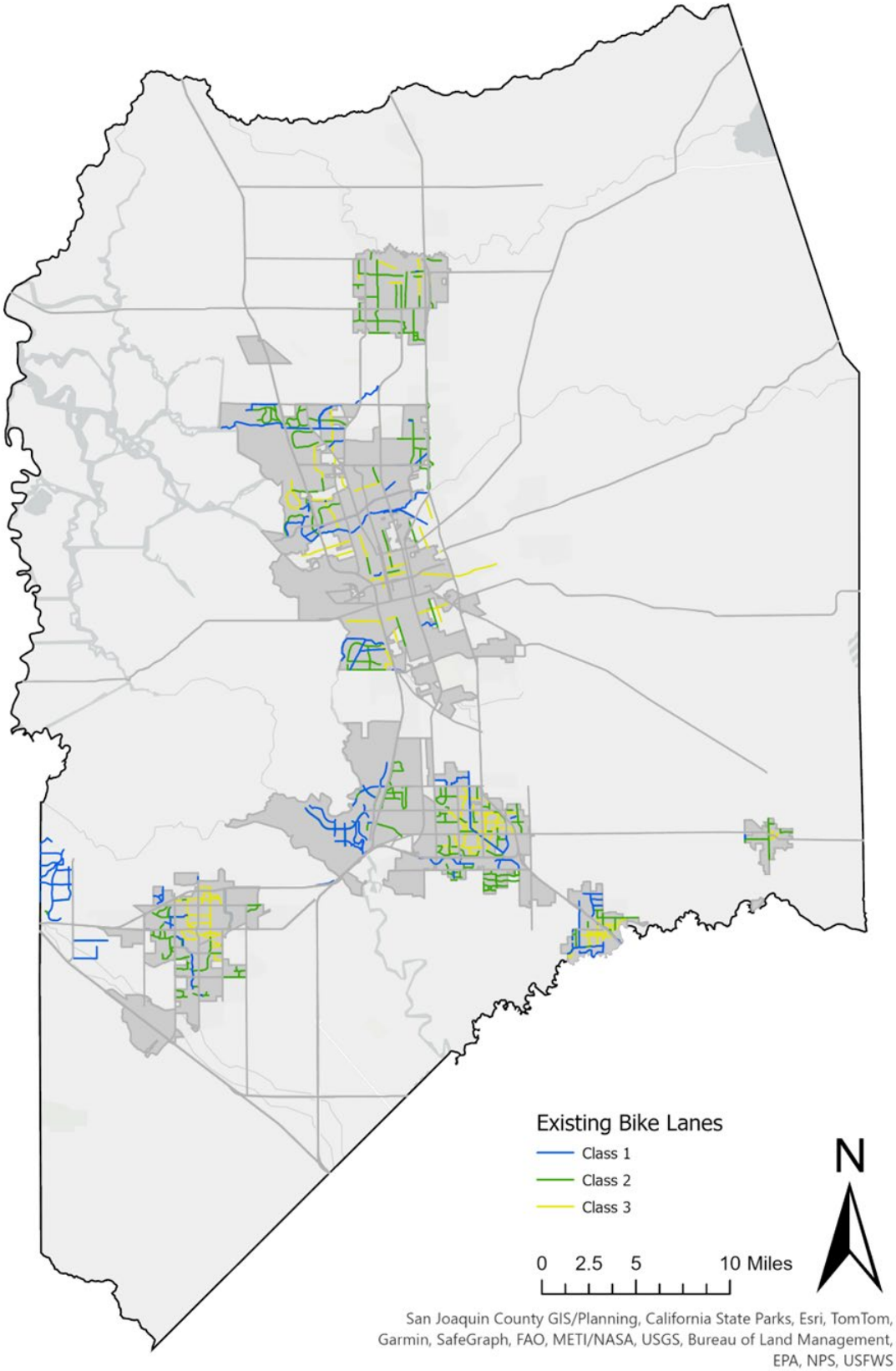
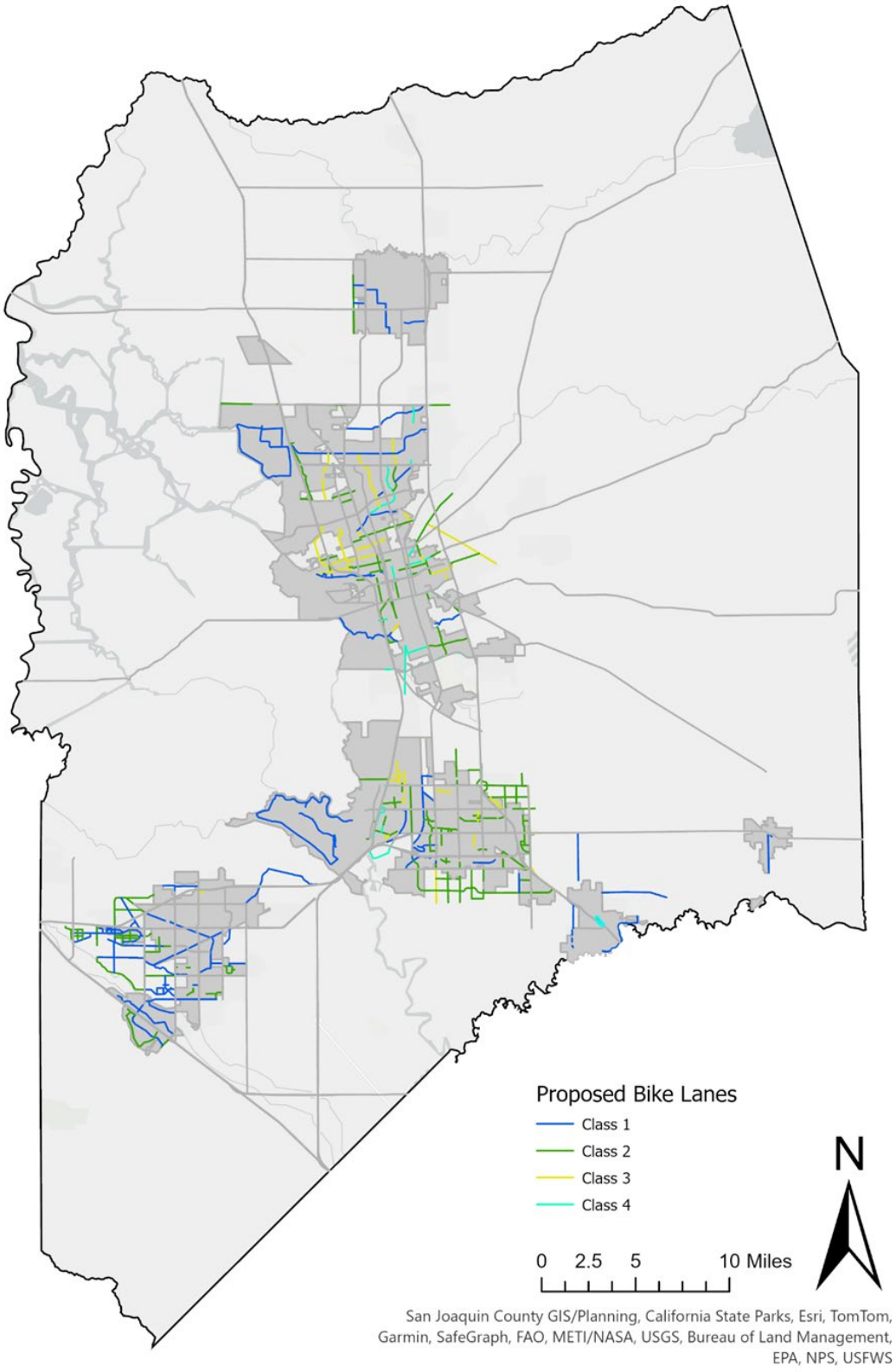


Figure 2.0-4: San Joaquin County RCMP Proposed Bikeways Network



3.0 PERFORMANCE MEASUREMENT

A performance measure is "an analytical planning tool that is used to quantitatively evaluate transportation improvements and to assist in determining effective implementation actions, considering all modes and strategies." Performance measures provide the basis for evaluating the operating conditions of the regional transportation system, identifying the location and severity of congestion, identifying gaps in transit service, indicating insufficient pedestrian or bicycle access, or indicating unsafe facilities or areas.

Establishment of multimodal performance measures is a federal CMP requirement. Federal directives outlined in 23 CRR 450.320 (b) require the CMP to result in multimodal system performance measures and strategies that can be reflected in the regional planning documents, such as the Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). As such, SJCOG's RCMP must include a performance element that includes performance measures to evaluate current and future multimodal system performance for the movement of people and goods. The performance measures should incorporate highway and roadway system performance, measures established for the frequency and routing of public transit, and the coordination of transit service provided by separate operators. These performance measures shall support mobility, air quality, land use, and economic objectives, and shall be used in the development of the capital improvement program.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) established a performance- and outcome-based program, known as "Performance Based Planning," with the objective to invest in projects that will make progress toward national goals for the transportation. This framework has been carried forward in subsequent federal transportation funding bills including the America's Transportation Infrastructure Act legislation. Passage of the federal performance management rule required state departments of transportation (DOTs) and metropolitan transportation organizations (MPOs) to implement the federal performance measures by 2018. State DOTs (e.g., Caltrans) are directly responsible for submitting performance targets and annual progress reports on those targets to federal agencies. MPOs, such as SJCOG, are required to establish targets specific to their planning area, or support the statewide targets, and report annually on progress. SJCOG accepted the statewide targets and per agreement with Caltrans, SJCOG began this reporting in 2019.

To complete the required reporting tasks more efficiently for the federal CMP and the federal performance management rule, SJCOG has integrated many of the federal performance measures as RCMP performance measures. The identified RCMP performance measures, shown in **Table 3.0-1**, will be monitored using analysis tools and software developed to streamline quantification and tracking. As RCMP program implementation continues, refinement of these measures and/or additional performance measures can be established as part of future updates.

Table 3.0-1: RCMP Performance Measure

Category of Objectives	Source	Measure of Effectiveness	Performance Measure	Data Sources
Operational Efficiency	RCMP	Congestion (congested speeds)	Percent of miles (on IHS and non-IHS NHS and RCMP network) that are congested (when congested speed is less than 60% of free flow speed).	FHWA: NPMRDS
Operational Efficiency	PM3	Travel Time Reliability (TTR) Index (80% and 95% travel time) (All vehicles)	Percent of Person-miles of travel (on IHS and non-IHS NHS) that are reliable (TTR)	FHWA: NPMRDS Caltrans: AADT Vehicle Occupancy (Surveys, CHTS)
Operational Efficiency	RCMP	Travel Time Reliability (TTR) Index (80% and 95% travel time) (All vehicles)	Percent of miles (on IHS and non-IHS NHS) that are reliable (TTR)	FHWA: NPMRDS
Operational Efficiency	RCMP	Congestion & TTR (95% travel time)	"Facility Specific" that are congested and/or unreliable. Provides basis for identifying RCMP deficient corridors.	FHWA: NPMRDS
Goods Movement & Operational Efficiency	RCMP	STAA Intersections	Track STAA-compliant intersections listed as part of Interregional Truck Operations on I-5 and SR-99 and STAA Routes Study	SJCOG RCMP
Goods Movement & Operational Efficiency	PM3	Truck Travel Time Reliability Index (80% and 95% travel time)	Percentage of IHS mileage that are reliable (TTTR)	FHWA: NPMRDS
Goods Movement & Operational Efficiency	RCMP	Truck Congestion & TTR (95% travel time)	"Facility Specific" that are congested (congested speed less than 60% of free flow truck speed) and/or unreliable. Provides basis for identifying RCMP deficient corridors.	FHWA: NPMRDS
Traffic Congestion	PM3	Non-Single Occupancy Vehicle (SOV) Travel for Stockton Urbanized Zone Area (UZA)	Percent of Non-Single Occupancy Vehicle (SOV) Travel	US Census: ACS Journey to Work Supporting Data: Replica
Traffic Congestion	PM3	Peak Hour Excessive Delay (PHED) for Stockton UZA	Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita (only for NHS)	FHWA: NPMRDS U.S. Census: population data
Transit System	RCMP	Transit Coverage	Population & employment within ½-mile walking distance of a transit stop	Transit Agencies: transit data U.S. Census: population data Longitudinal Employer-Household Dynamics Data: employment data

Category of Objectives	Source	Measure of Effectiveness	Performance Measure	Data Sources
Transit System	RCMP	Transit Frequency	Level of service for service frequency of transit vehicles per hour (Transit Capacity and Quality of Service Manual)	Transit Agencies: transit line information
Regional Bikeway Network	RCMP	Percent Completed of Regional Bikeway Network	Ratio of completed to total Regional Bikeway Network miles, listed by jurisdiction.	SJCOG: bike network completion
Complete Streets	RCMP	RCMP Multimodal Corridor Quality of Service (transit, bike, pedestrian)	Multimodal quality of service for existing conditions on designated corridors (transit, bike, pedestrian).	HCM 7th Edition – Quality of Service SJCOG: Infrastructure Improvements, transit service schedules, traffic counts
Travel Demand Management	RCMP	Commuter VMT Reduction	Track San Joaquin County employer and employee participation rates for commute to work mode.	SJCOG - Dibs
Travel Demand Management	RCMP	VMT Per Capita	Land Use Efficiency	VMT: HPMS Population: Department of Finance
Safety	PM1	Fatal Collisions & Rates	Number of fatalities Fatalities per 100 million VMT	Collision/incident data: FARS/SWITRS VMT data: HPMS, SJCOG, local counts
Safety	PM1	Serious Injury Collisions & Rates	Number of serious injuries Serious injuries per 100 million VMT	Collision/incident data: TIMS/SWITRS VMT data: HPMS, SJCOG, local counts
Safety	PM1	Number of Collisions	Number of non-motorized fatalities and non-motorized serious injuries	Collision/incident data: SWITRS
System Management	PM2	PCI / PSI / IRI / Qualitative	PM2 Percentage of pavements of the Interstate System in Good Condition & Poor Condition	Local Agency Pavement Management Systems or Caltrans (for State Highways)
System Management	PM2	PCI / PSI / IRI / Qualitative	Percentage of pavements of the non-Interstate NHS in Good Condition & Poor Condition	Local Agency Pavement Management Systems or Caltrans (for State Highways)
System Management	PM2	PCI / PSI / IRI / Qualitative	Percentage of NHS bridges classified as in Good Condition & Poor Condition	Local Agency Pavement Management Systems or Caltrans (for State Highways)

Source: SJCOG RCMP Report, 2021

3.1 OPERATIONAL EFFICIENCY (TRAVEL AND FREIGHT)

Operational efficiency refers to the level of efficiency by which individual passenger cars and trucks are transported in the system. Operational efficiency plays a critical role in maintaining a safe, robust, and effective transportation system. This further affects the quality of life, sustainability, accessibility, and livability of society.

From a traffic operation perspective, operational efficiency management is concerned with congestion mitigation, traffic flow improvement, and capacity of the transportation system. According to the federal highway, congestion and reliability are two interrelated performance measures to monitor the level of efficiency on the roads.

Traffic congestion is one of the largest threats to America's economy and quality of life, which costs about $200 billion a year. Congestion is a major problem in metropolitan areas in general, particularly for commuters, as it extends beyond the urban boundaries in location and the rush hours in time. Congestion harms efficiency in freight delivery by an increase in the driver payment, decrease in fuel efficiency, and increase the vehicle maintenance cost as consequences of stop-and-go driving in congestion. This along with environmental pollution and diminished accessibility lead to social costs in the community (FHWA).

Travel time reliability refers to the extent of an unexpected delay caused by daily congestion and measures the robustness or dependability of travel times. Travel time reliability is critical to all mode users as it significantly affects their travel plan, particularly during rush hours (FHWA).

In this section, we extracted travel time and speed data to measure the operational efficiency of passenger vehicles and heavy-duty trucks in the RCMP network. The rest of this section presents the details for data collection, describes the congestion and reliability measurement methods, and illustrates the results.

Data Collection

National Performance Management Research Data Set (NPMRDS) is an online database containing field - observed travel time and speed data collected from a fleet of passenger cars and trucks equipped with mobile devices. The data is aggregated in 5-minute, 10-minute and 15-minute intervals per traffic message channel (TMC) location on National Highway System (NHS). Each TMC is a directional roadway segment featuring a length range from 0.5 mile to 10 mile depending on the context (e.g., rural, suburban, urban, etc.).

We extracted the peak hour[1] travel time and speed data for passenger cars and heavy-duty trucks from NPMRDS for the RCMP network. Truck data was filtered to TMCs classified as a Surface Transportation Assistance Act (STAA) truck route. The data is monitored from October 2023 to October 2024 (i.e., post-pandemic conditions). Each data record includes items per segment such as speed[2], reference speed[3], and travel time[4]. In addition, each TMC segment is identified by associated metadata describing its geographic location, traffic volume, centerline miles, and facility type.

[1] AM Peak is from 6:00 to 10:00 and PM Peak is from 16:00 to 20:00
[2] Harmonic average speed for all reporting vehicles on the segment
[3] An approximation of free-flow speed for the segment
[4] Ratio between the segment length and the harmonic average speed for all reporting vehicles on the segment

Methodology

Congestion

Following federal highway recommendations, congested TMC segments are identified as those with a peak-hour average speed of less than 60 percent of free-flow speed on the same segment. The results are displayed as percent of congested centerline miles on IHS and non-IHS National Highway System (NHS) RCMP network.

Reliability

For a given TMC, the passenger car travel time reliability is calculated using a cumulative distribution of travel time observations for one year on weekdays and weekends. On weekdays and weekends, the following periods (6:00 to 10:00; 10:00 to 16:00; 16:00 to 20:00) are used to generate travel time observation. Then the level of travel time reliability (LOTTR) is calculated for each period (see Equation 1) [5]:

$$\text{TMC LOTTR (passenger car)} = \frac{80^{th}\ percentile\ travel\ time_i}{50^{th}\ percentile\ travel\ time_i} \qquad (1)$$

where *i* is the TMC segment. Then the maximum LOTTR of all periods is used to determine if the TMC is reliable or unreliable. According to NPMRDS, if the LOTTR exceeds the threshold of 1.5, it is deemed unreliable; TMC is moderately reliable if LOTTR is between 1.25 and 1.5; and it is reliable if LOTTR is less than 1.25. For the heavy-duty trucks, a similar approach to what is described above is followed except that 80th percentile travel time is replaced by 95th nominator (see Equation 2)[6]:

$$\text{TMC LOTTR (heavy} - \text{duty truck)} = \frac{95^{th}\ percentile\ travel\ time_i}{50^{th}\ percentile\ travel\ time_i} \qquad (2)$$

Results

In this section , the congestion and reliability results are presented as percent of congested centerline miles on IHS and non-IHS National Highway System (NHS) RCMP network in 2023/24. **Table 3.0-2** lists the percentages of congested miles on IHS and non-IHS NHS segments in the county. More than 94% and 93% of IHS segments were not congested during the AM and PM peak hour, respectively. Conversely, more than 32% of non-IHS NHS segments were congested during the same period. This percentage was about 3% higher during the PM peak hours.

Table 3.0-3 and **Table 3.0-4** provide percentages of miles on NHS segments that were reliable. Based on the 80th percentile travel time for passenger cars, more than 97% of IHS and 95% of non-IHS NHS miles were reliable during both AM peak hours. The percentages of reliable segments for PM peak hours for IHS and non-IHS NHS were lower, standing at about 95% and 94%, respectively. In the same year, more than 94% and 85% of truck mileage were reliable on the IHS network during AM and PM. Truck routes were only considered if it was in both

[5] U.S. Government Publishing Office. (2012). *Moving Ahead for Progress in the 21st Century Act*, Public Law 112 - 141, U.S. Government Publishing Office, Washington, DC. Available online: https://www.gpo.gov/fdsys/pkg/PLAW-112publ141/content-detail.html, last accessed August 24, 2018.

[6] National Archives. (2017). "National Performance Management Measures; Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program," *Federal Register*, *82*(11), pp. 5,970–6,052, National Archives, Washington, DC. Available online: https://www.federalregister.gov/documents/2017/01/18/2017-00681/national-performance-management-measures-assessing-performance-of-the-national-highway-system, last accessed March 6, 2019.

the RCMP network and San Joaquin County STAA routes.

Table 3.0-2: Percent of Congested Miles on RCMP Network – All Vehicles

Facility	Percent of Congested Centerline Miles	
	AM	*PM*
IHS	5.8%	6.6%
Non-IHS National Highway System (NHS)	32.3%	36.9%

Table 3.0-3: Percent of Reliable Miles on RCMP Network – All Vehicles

Facility	Percent of Reliable Centerline Miles (80th percentile travel time)	
	AM	*PM*
IHS	97.5%	95.2%
Non-IHS National Highway System (NHS)	94.8%	94.2%

Table 3.0-4: Percent of Reliable Miles on RCMP Network – Trucks

Facility	Percent of Reliable Centerline Miles (95th percentile travel time)	
	AM	*PM*
IHS	94.1%	85.8%
Non-IHS National Highway System (NHS)	63.7%	58.4%

Figure 3.0-1 through **3.0-4** provide the detailed segment-based congestion and reliability results combined for the RCMP network during AM or PM peak hour.

Figure 3.0-1 : Congestion/Reliability Map – Autos, AM Peak Hour

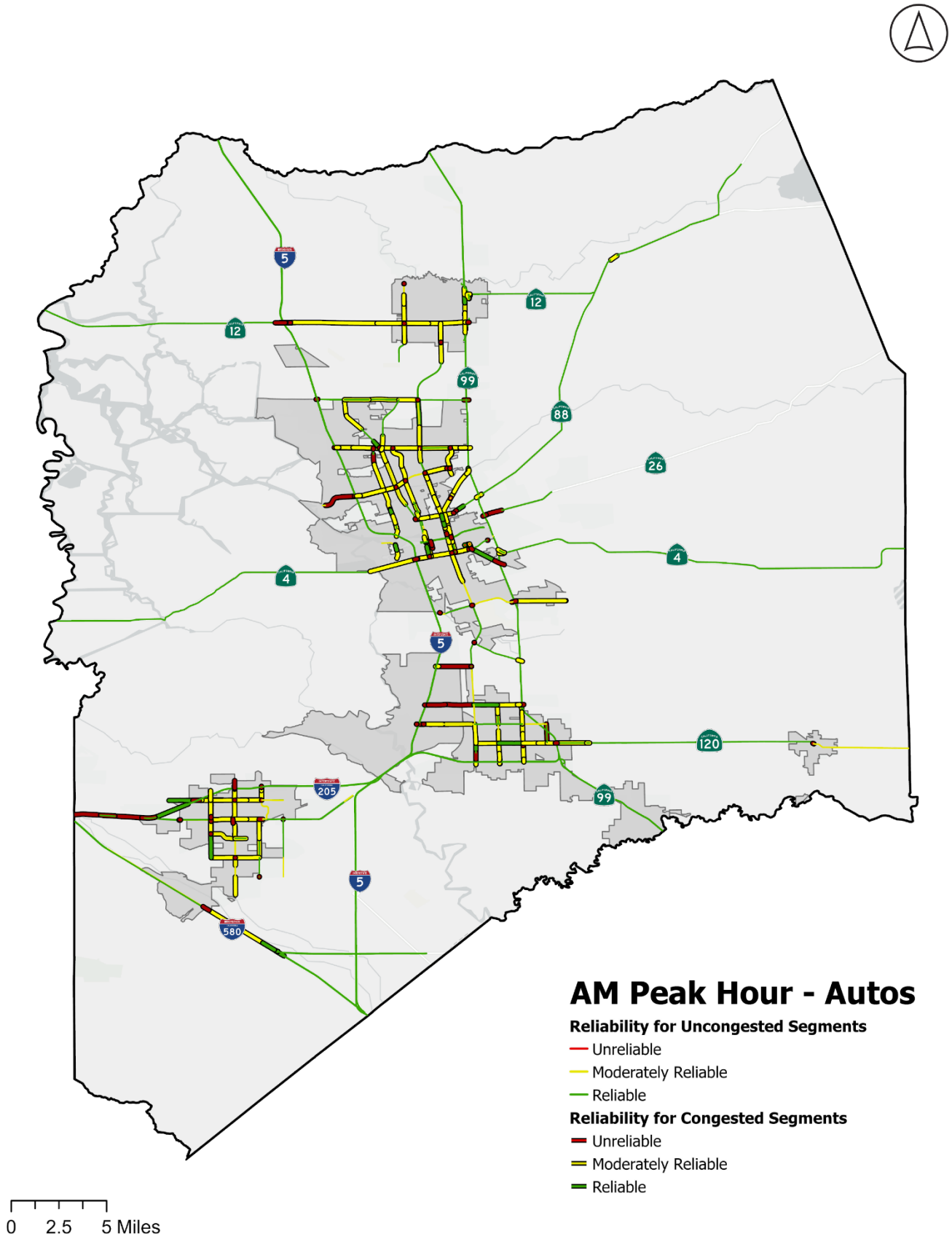


Figure 3.0-2 Congestion/Reliability Map – Autos, PM Peak Hour

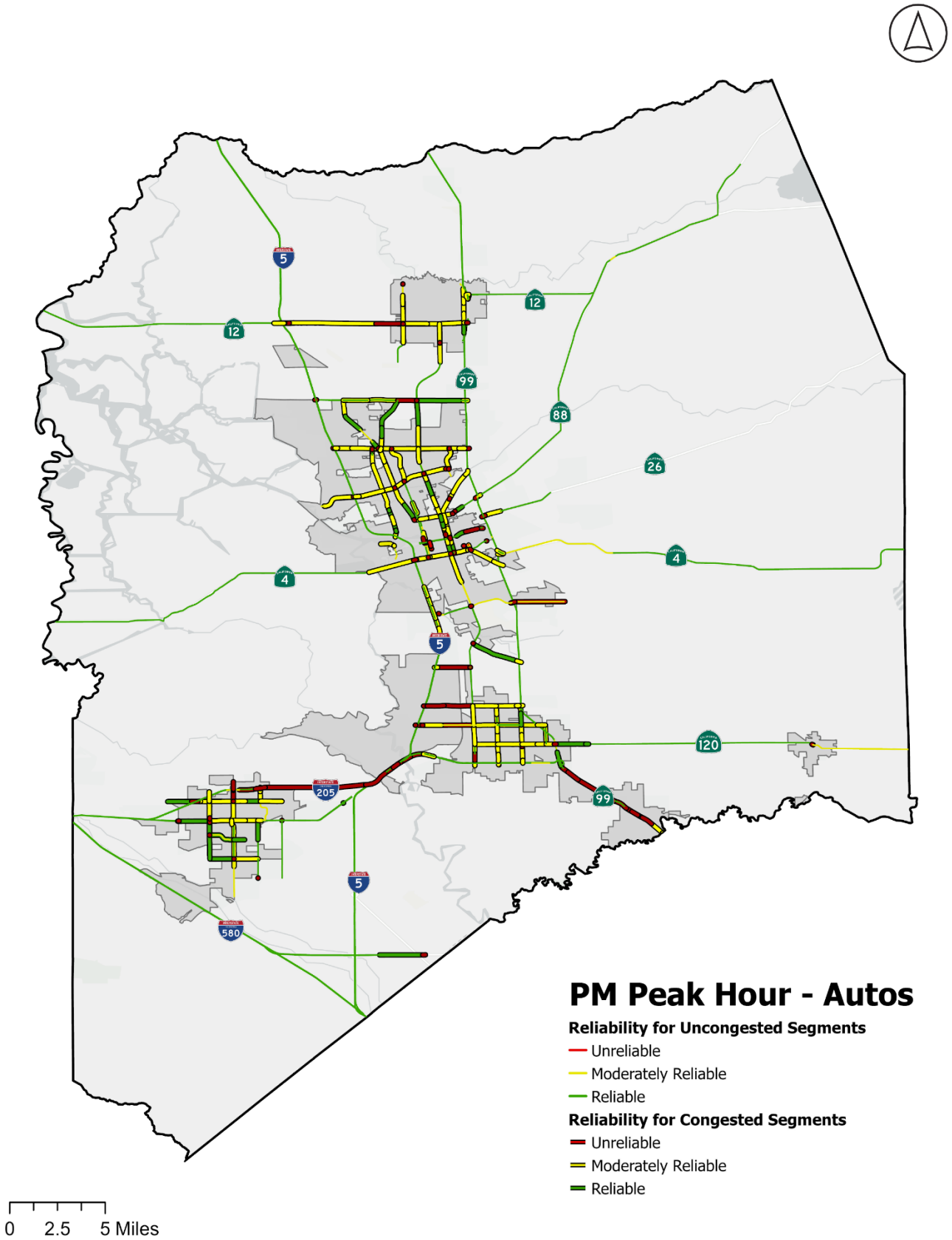


Figure 3.0-3 Congestion/Reliability Map – Trucks, AM Peak Hour

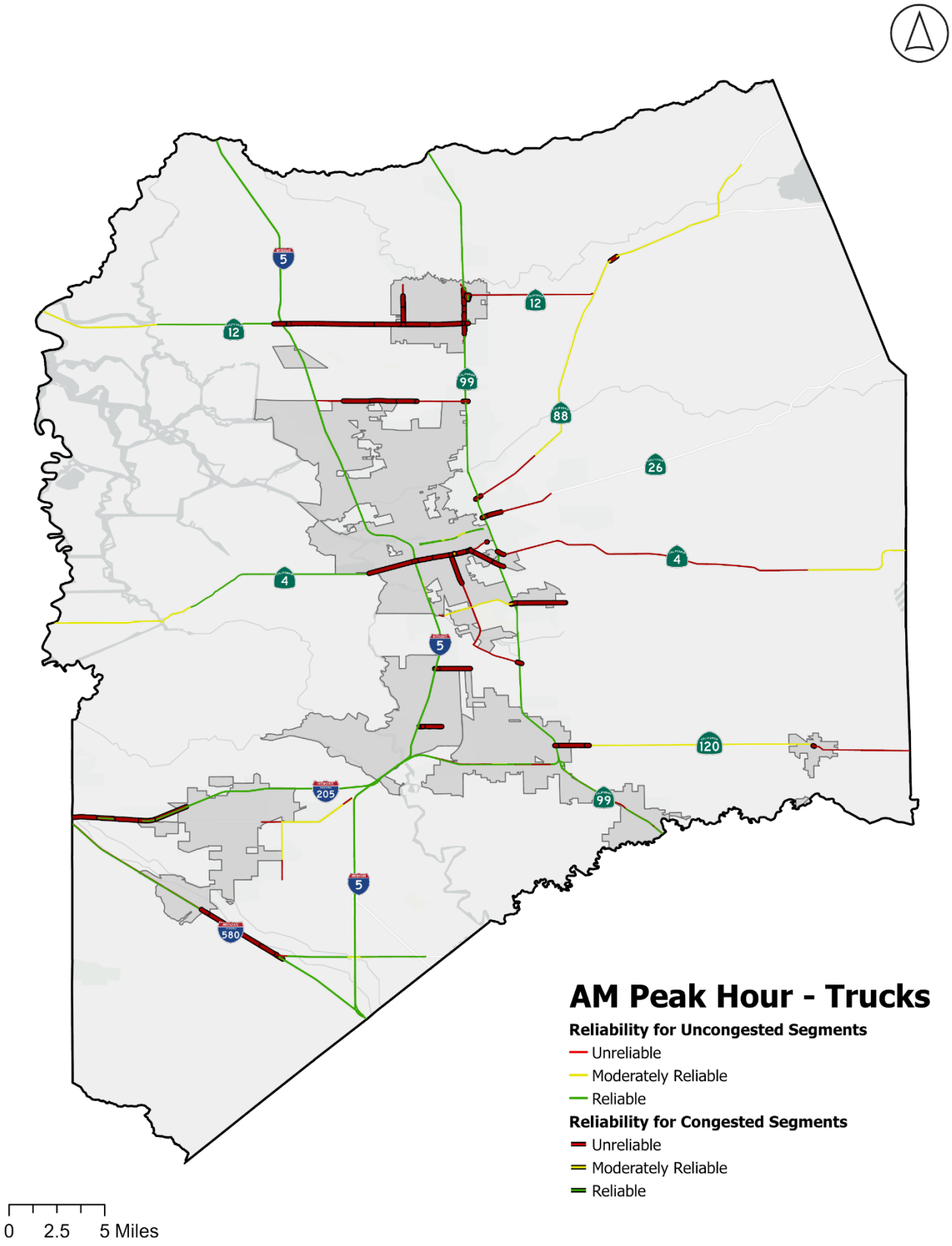
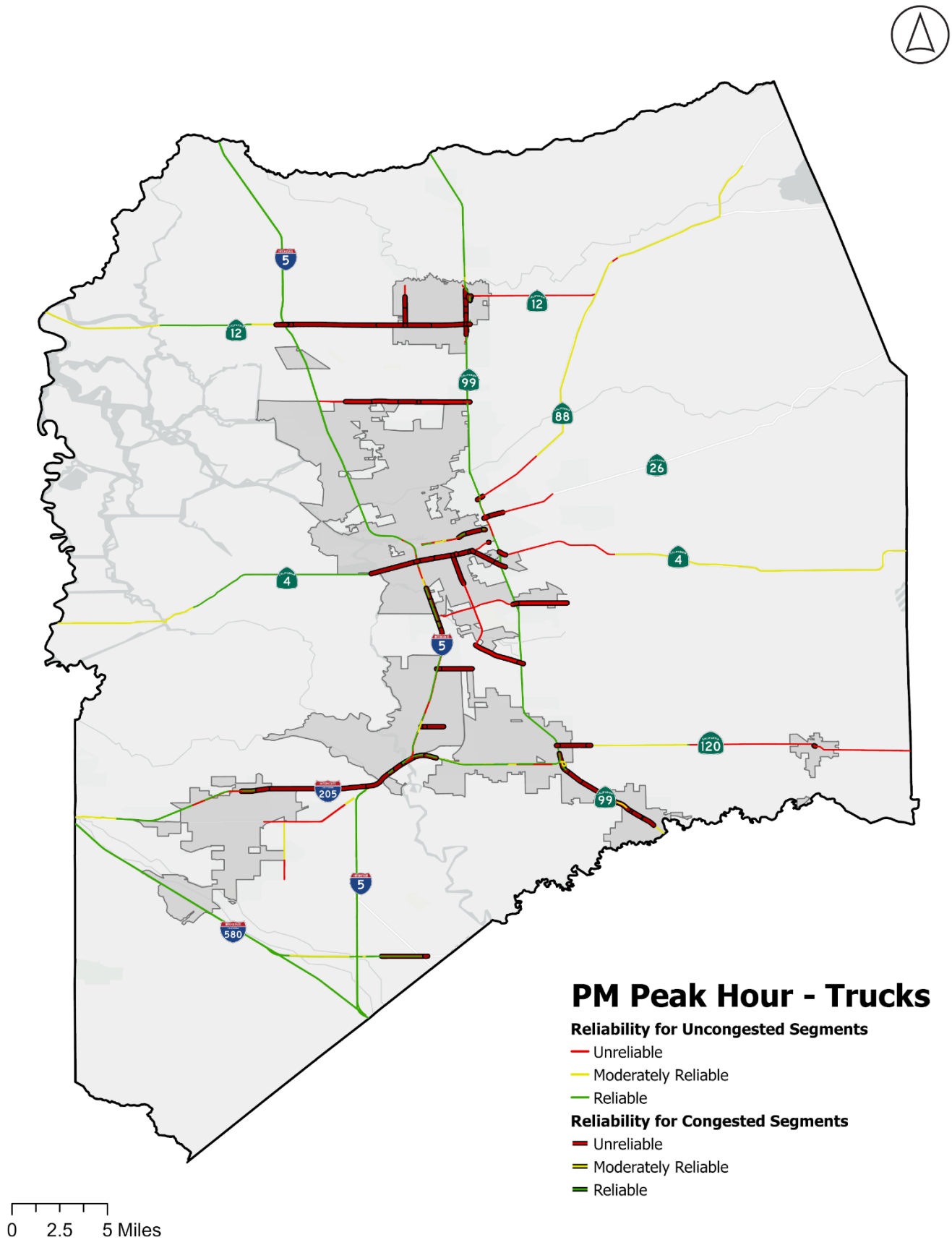


Figure 3.0-4 Congestion/Reliability Map – Trucks, PM Peak Hour



The congestion and reliability results were further used to identify deficient corridors on the RCMP network. For this purpose, two criteria are considered to identify the deficient road segments:

Criteria 1. Segments with congestion during the AM or PM peak period over three miles in length for either total traffic or heavy trucks; and,

Criteria 2. Segments with congestion and unreliable travel time during the AM or PM peak period for either passenger car traffic or heavy-duty trucks.

The increase in identified deficient segments compared to previous years is attributed to the expanded availability of truck and passenger NPMRDS data. This enhancement in the data set has allowed for a more comprehensive and detailed analysis, leading to the identification of a greater number of segments.

Figure 3.0-5 shows the deficient road segments according to criterion 1 and criterion 2. Furthermore, road segments that met both criteria were identified as deficient corridors (see **Figure 3.0-6**).**Table 3.0-5** identifies the congested periods and the unreliability for each deficient corridor.

Table 3.0-5: Deficient Corridor Criteria Results

Deficient Corridor	Criteria 1		Criteria 2			
	AM Congestion	PM Congestion	AM Passenger Reliability	PM Passenger Reliability	AM Truck Reliability	PM Truck Reliability
1. Kettleman Lane (SR-12): I-5 to SR-99	X	X			X	X
2. Eight Mile Rd: Thornton Rd to SR-99	X	X			X	X
3. Charter Way (SR-4): S Roberts Rd to E Mariposa Rd	X	X			X	X
4. I-205: County Limits to Grant Line Rd	X	X	X	X	X	X
5. I-205/I-5/SR-120: N MacArthur Dr to Yosemite Ave	X	X		X		X
6. SR-99: Main Street Interchange to SR-120 Juncture		X		X		X
7. I-580: Corral Hollow Road to SR-132 Juncture	X				X	

Figure 3.0-5 Deficient Road Segments

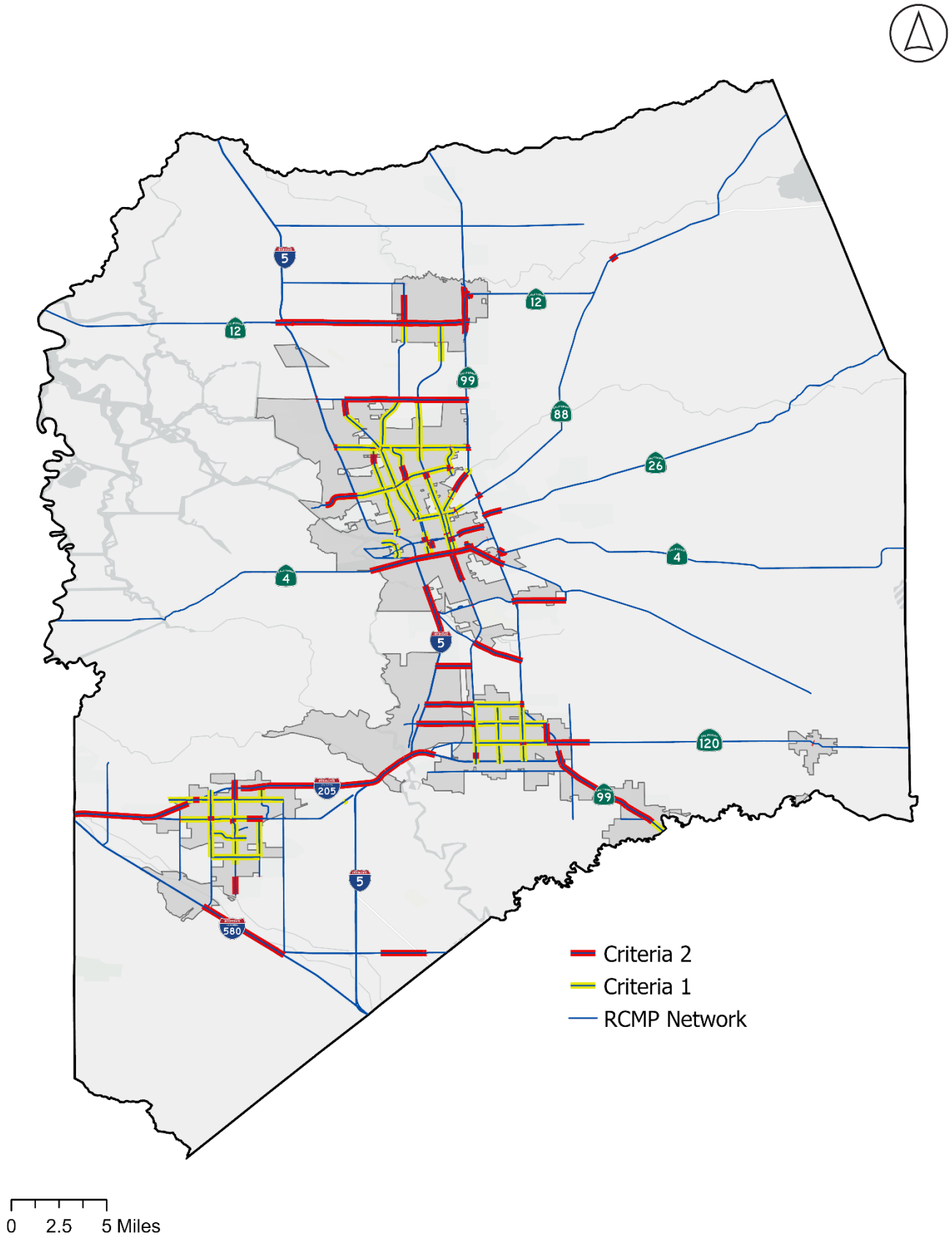
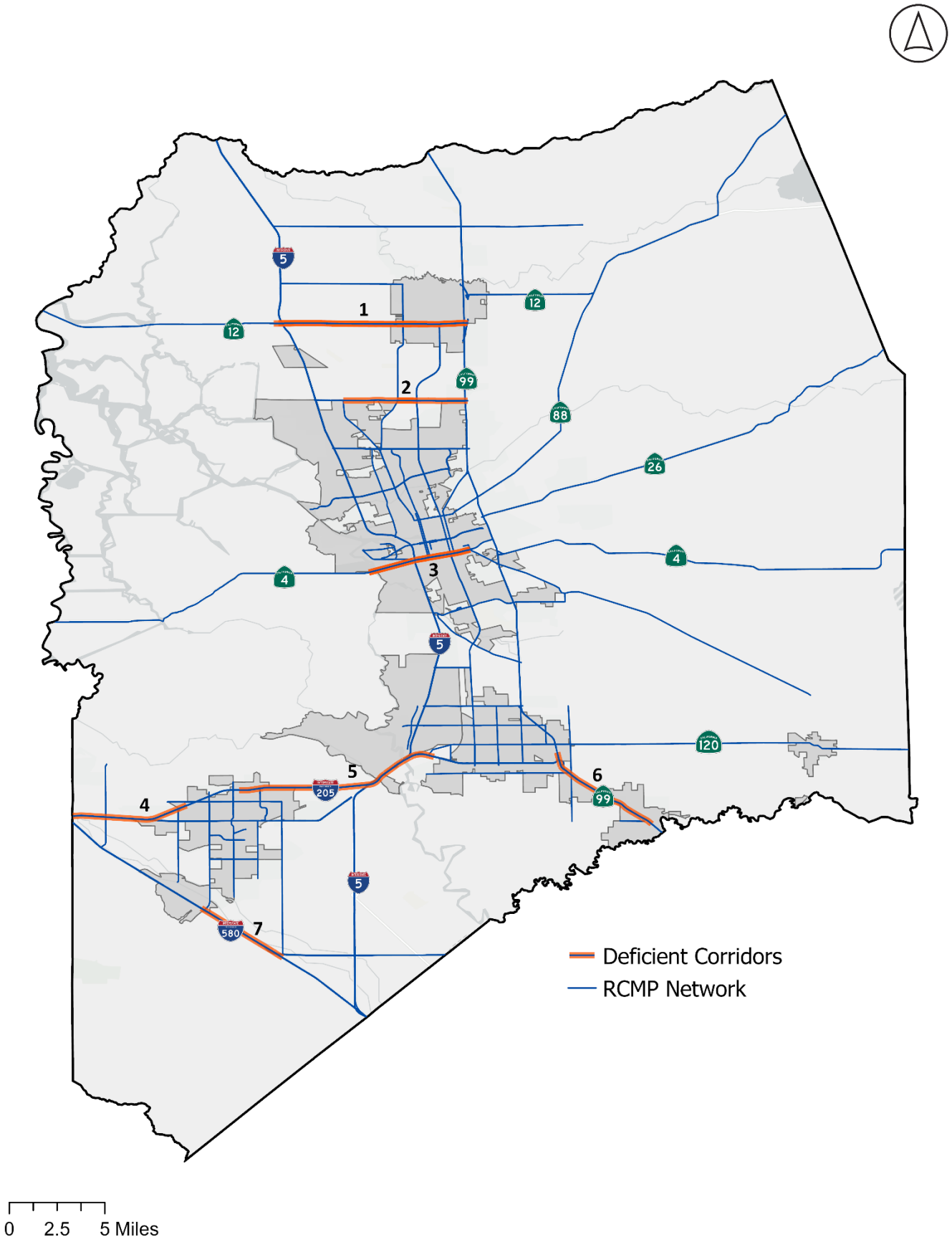


Figure 3.0-6 Deficient Corridors



The Congestion Management Process Guidebook (Federal Highway Administration, 2013) lists applicable CMP congestion reduction strategies to address CMP deficiencies. These strategies are described in detail in the 2024 Update Report. While the individual congestion reduction strategies generally follow the Federal guidance, the strategies are listed in priority order by facility type (i.e., local arterial and freeway) based on greatest applicability.

Local Arterial Priority Congestion Reduction Strategies

- Transportation Demand Management (SJCOG Dibs Program)
- Traffic Operations (signal timing, synchronization, adaptive signal control, control type change (i.e., converting to roundabout)
- Intelligent Transportation Systems
- Transit (New or enhanced frequency of service)
- Active Transportation (Pedestrian/Bike facilities and treatments)
- Single Occupant Vehicle Widening (roadway / intersection widening)

Freeways Priority Congestion Reduction Strategies

- Transportation Demand Management
- Transportation System Management (e.g., Park and Ride Lots, Ramp Metering)
- Integrated Corridor Management (ITS)
- Managed Lanes (e.g., HOV/HOT lanes, Part-Time Use of Shoulder, Toll Lanes, Truck Climbing Lanes)
- Interchange/Ramp Improvements (e.g., non-SOV capacity increasing)
- Regional Transit (New or enhanced frequency of service).
- Passenger Rail Service (New or enhanced frequency of service).
- Add Single Occupant Vehicle Widening (General Purpose Lane, Auxiliary Lanes over a mile in length, Ramp or Interchange Widenings)

An overview of the general strategy types applied to each preliminary RCMP deficient is provided in **Table 3.0-6** below. Strategies are identified as either High / Medium / Low emphasis ranking. The ranking denotes the degree of relevance a selected strategy is anticipated to have on a given corridor. The latter was primarily based on the existing infrastructure characteristics of the corridors (freeway versus local arterial, number of signalized intersections, existing transit service lines, freeway parallel capacity potential, north-south or east-west orientation etc.). For strategies that currently include programmed/planned improvements (see Chapter 8), these strategies were identified as “High” emphasis as these strategies already have planning traction which indicates there is support for implementation.

Table 3.0-6: RCMP Deficient Corridor Strategy

Strategy ID	Strategy Type	Applicability	1. Kettleman Lane	2. Eight Mile Rd	3. Charter Way	4. I-205	5. I-205/I-5/SR-120	6. SR-99	7. I-580
A	Demand Management Strategies	Arterials/Freeways	H	H	H	H	H	H	H
B	Arterial Operational Strategies	Arterials	M	M	H	-	-	-	-
C	Managed Lanes Strategies	Freeways	-	-	-	H	H	H	M
D	Land Use/Growth Management Strategies	Arterials/Freeways	~~H/L~~	~~H/L~~	~~H/L~~	L/TBD	L/TBD	L/TBD	L/TBD
E.1	Rubber Tire Public Transit Strategies	Arterials/Freeways	H	H	H	M	M	M	M
E.2	Passenger Rail Public Transit Strategies	Arterials/Freeways	L	L	L	M	M	M	M
F	Active Transportation Strategies	Arterials	H	H	H	-	-	-	-
G.1	ITS Strategies	Arterials	M	M	M	-	-	-	-
G.2	ITS Strategies (Integrated Corridor Management)	Arterials/Freeways	L	L	M	H	H	H	H
G.3	ITS Strategies (Traveler Information Systems)	Arterials/Freeways	M	M	M	H	H	H	H
H	TSM Strategies	Arterials/Freeways	L	L	L	H	H	H	H
I	Incident Management Strategies	Arterials/Freeways	L	L	L	H	H	H	H
J.1	Safety Improvement Strategies (Rural)	Arterials	-	-	-	-	-	-	-
J.2	Safety Improvement Strategies (Urban)	Arterials	H	H	H	-	-	-	-
K	SOV Roadway Capacity	Arterials/Freeways	H	-	-	H	H	H	-

Degree of Relevance to a Specific Corridor	
	High Relevance
	Medium relevance
	Low Relevance
	Mix of High / Low Relevance - see Corridor Information Sheet
	Low / To Be Determined

3.2 TRAFFIC CONGESTION

There are three performance measures under the Congestion Mitigation and Air Quality Improvement (CMAQ) program.

- Percent of Non-Single Occupancy Vehicle travel;
- Annual Hours of Peak Hour Excessive Delay Per Capita; and
- Total Emissions Reduction.

Total Emission Reduction will not be monitored as part of the RCMP. The purpose of PHED and Non-SOV performance measure is to evaluate the level of traffic congestion. For this monitoring report, only the Stockton urban area will be monitored.

Data Collection

Non-single occupancy vehicle (SOV) data was sourced from the American Community Survey (ACS) Journey to Work data. Non-SOV share measures include walking, biking, and public transit as travel modes. Data for the PHED calculation, travel time and historic speed, was sourced from NPMRDS and population totals were collected using census data.

Methodology

Non-Single Occupancy Vehicle Share

The percentage of non-SOV travel is calculated for the Stockton urbanized area as outlined in *23 CFR Part 490 Subpart G* (see Equation 3):

$$Percent\ of\ Non\ SOV\ Travel = 100\% - SOV\% \qquad (3)$$

where SOV% is the precent of car, truck, or van (“Drove alone” only, no carpool) commuters.

Peak Hour Excessive Delay

Peak hour excessive delay (PHED) is used to quantify the extra time drivers spend in traffic during peak travel periods (6:00 to 10:00 and 16:00 to 20:00) as outlined in *23 CFR Part 490 Subpart G*. It compares observed travel time with a threshold travel time, based on the max value between either 20 mph or 60% of the posted speed limit. When traffic conditions cause the travel time to exceed this threshold, the delay is considered "excessive." PHED is calculated by summing up all excessive delay on congested roads during these peak hours and is presented as a PHED per capita for the urbanized area.

Results

In this section, the percent of non-SOV travel and PHED per capita are presented over time. **Figure 3.0-7** presents the percent of non-SOV travel in the Stockton Urban Area from 2018 to 2023. The percent of non-SOV travel increases every year from 2018 (19.2%) to 2022 (27.5%) but decreases in 2023 (25.7%).

Figure 3.0-7: Percent of Non-SOV Travel in Stockton Urban Area (2018-2023)

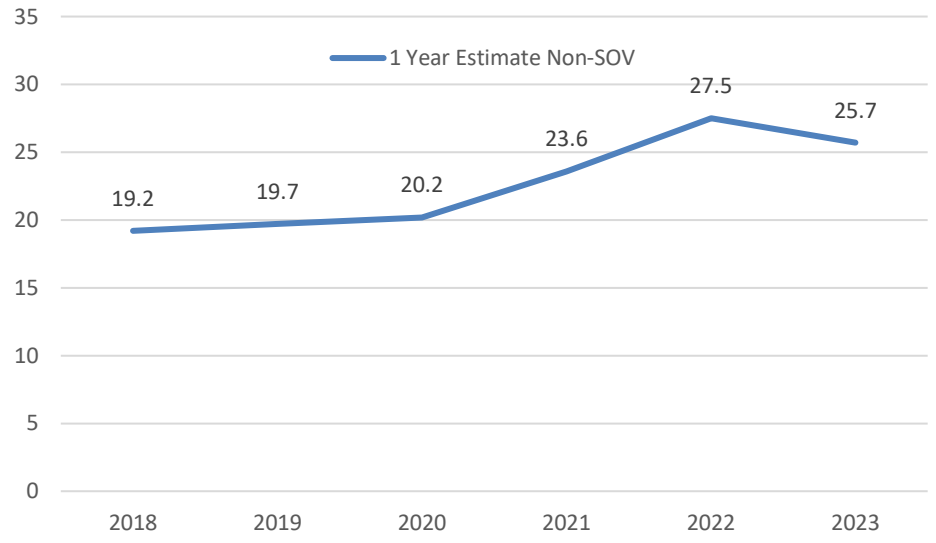
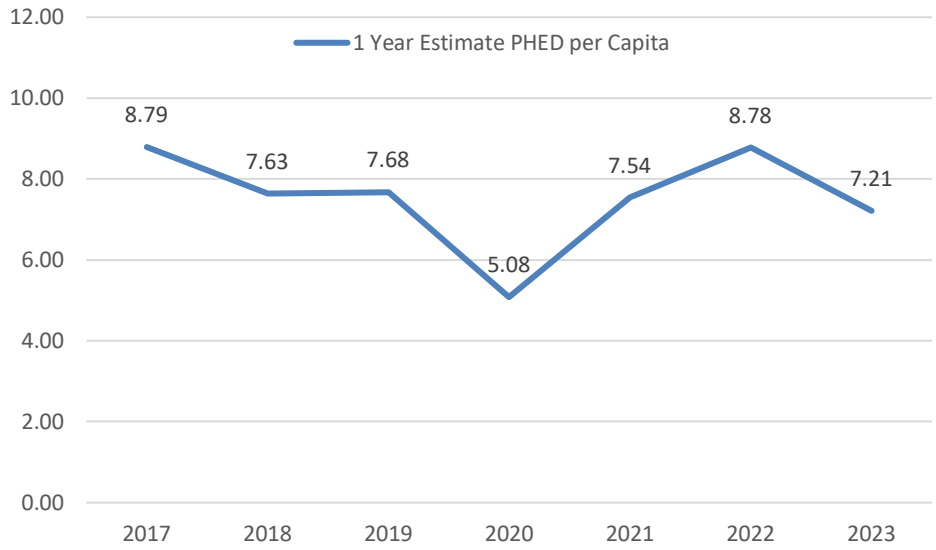


Figure 3.0-8 presents the PHED per capita in the Stockton Urban Area from 2017 to 2023. The PHED per capita decreases from 8.79 annual hours per capita in 2017 to 7.68 annual hours per capita in 2019. The major dip in the PHED per capita in 2020 is due to COVID-19 work from home mandates. After 2020, the PHED per capita increases to 7.54 in 2021 and 8.78 in 2022. In 2023, the annual hours of excessive delay per capita decreases to 7.21.

Figure 3.0-8: Peak Hour Excessive Delay (PHED) in Stockton Urban Area (2017-2023)



3.3 TRANSIT SYSTEM

San Joaquin County considers two performance measures to evaluate transit: 1) service coverage and 2) service frequency. The former uses half mile distance from the bus stops to define coverage for the transit service countywide. While this coverage was identified drawing linear buffers around bus stops, here, network distance service areas were used instead for better accuracy. The latter is based on the number of transit service trips (considering all existing transit lines) per hour at each stop during peak hours in a day. The goal of evaluating peak period transit frequency is to determine the likelihood that commuter travelers would use transit regularly. The peak period transit quality of service assessment may be best described using the thresholds for urban scheduled transit service, as shown in **Table 3.0-7**.

Table 3.0-7: Transit Frequency Quality of Service Thresholds

Level of Service	Adjusted service frequency (vehicles/hour)	Headway (minutes)
A	>6	<10
B	>4	<15
C	>=3	<=20
D	>=2	<=30
E	>=1	<=60
F	<1	>60

Source: FDOT Quality/Level of Service Handbook, 2013

Data Collection

We collected the most recent 2024 transit data and service schedules from SJCOG, San Joaquin Regional Transit District, Altamont Corridor Express, and City Councils. The population and job data were collected from Census, the California Department of Employment Development, and Longitudinal Employer-Household Dynamics data.

Results

Table 3.0-8 shows the transit frequencies in relation to the County's residential population and employment. The numbers of population in each jurisdiction at transit frequency level are shown in **Table 3.0-9** and **Table 3.0-10** respectively. Currently, 64.1% of San Joaquin County's residential households and 45.5% of San Joaquin County jobs are located within a half-mile walking distance to a transit stop with QoS F or better. Only 19.7% of the population is located close to transit stops with peak period service frequency quality of service C or better (20 minute or less headways), but 53.7% more of the residential population are close to transit stops with peak period service frequency quality of service E (60 minute or less headways).

Bus transit accessibility can change from revisions to bus service. The Regional Transit District (RTD) primarily serves Stockton and San Joaquin County, with additional stops in most of the other cities in San Joaquin County and at transit and job centers outside of San Joaquin County. This year, RTD added one service route in the City of Lathrop, a new route along an existing route on Pacific Avenue in Stockton, increased the frequency of 5 routes in Downtown Stockton from one hour to 30 minutes, and extended service hours until 8pm. RTD additionally added 7 new stops throughout its service area on existing routes.

Table 3.0-8: Residential Households and Jobs Located within ½ Mile of Transit Stops

2024 Existing Conditions			2024 Existing Conditions	
Transit Headway	1/2 Mile Walking Distance to Transit Stop		1/2 Mile Walking Distance to Transit Stop	
	Household	Percent	Employees	Percent
≤ 15 minutes	41,355	16.5%	50,878	17.3%
≤ 30 minutes	82,001	32.7%	84,685	28.8%
≤ 60 minutes	139,834	55.7%	115,139	39.2%
All transit service	166,185	66.2%	133,774	45.5%
Total	254,700	100.0%	293,900	100.0%

Table 3.0-9: Population Proximity to Transit

	Rating	QoS F or Better		QoS E or Better		QoS D or Better		QoS C or Better		QoS B or Better		QoS A or Better	
	Total	Served	%	Served	%	Served	%	Served	%	Served	%	Served	%
SJ County	791,408	507,330	64.10%	425,109	53.72%	246,471	31.14%	156,017	19.71%	118,987	15.03%	27,845	3.52%
Escalon	7,570	2,053	27.12%	1,405	18.56%	--	0.00%	--	0.00%	--	0.00%	--	0.00%
Lathrop	30,085	7,667	25.49%	7,631	25.36%	3,852	12.81%	--	0.00%	--	0.00%	--	0.00%
Lodi	67,524	44,394	65.75%	18,494	27.39%	5,942	8.80%	--	0.00%	--	0.00%	--	0.00%
Manteca	85,177	63,969	75.10%	63,969	75.10%	28,426	33.37%	5,828	6.84%	--	0.00%	--	0.00%
Ripon	16,338	8,667	53.05%	--	0.00%	--	0.00%	--	0.00%	--	0.00%	--	0.00%
Stockton	324,916	281,834	86.74%	250,623	77.13%	169,316	52.11%	127,795	39.33%	101,581	31.26%	25,410	7.82%
Tracy	95,462	49,029	51.36%	36,260	37.98%	14,389	15.07%	5,010	5.25%	5,010	5.25%	--	0.00%
Unincorporated	164,335	49,717	30.25%	46,728	28.43%	363,177	221.00%	17,385	10.58%	12,396	7.54%	2,435	1.48%

Table 3.0-10: Employment Proximity to Transit

	Rating	QoS F or Better		QoS E or Better		QoS D or Better		QoS C or Better		QoS B or Better		QoS A or Better	
	Total	Served	%	Served	%	Served	%	Served	%	Served	%	Served	%
SJ County	293,900	133,774	45.52%	115,139	39.18%	84,685	28.81%	60,505	20.59%	50,878	17.31%	28,060	9.55%
Escalon	2,263	1,724	76.18%	--	0.00%	--	0.00%	--	0.00%	--	0.00%	--	0.00%
Lathrop	13,973	1,367	9.78%	1,366	9.78%	597	4.27%	--	0.00%	--	0.00%	--	0.00%
Lodi	27,391	12,573	45.90%	5,085	18.56%	3,026	11.05%	--	0.00%	--	0.00%	--	0.00%
Manteca	23,328	12,123	51.97%	12,045	51.63%	4,497	19.28%	1,537	6.59%	0	0.00%	0	0.00%
Ripon	5,004	2,845	56.85%	--	0.00%	--	0.00%	--	0.00%	--	0.00%	--	0.00%
Stockton	120,083	83,287	69.36%	78,412	65.30%	67,266	56.02%	54,317	45.23%	46,669	38.86%	26,478	22.05%
Tracy	45,803	9,941	21.70%	8,388	18.31%	4,668	10.19%	1,820	3.97%	1,820	3.97%	--	0.00%
Unincorporated	56,055	9,914	17.69%	9,843	17.56%	4,631	8.26%	2,831	5.05%	2,389	4.26%	1,582	2.82%

3.4 BIKEWAY SYSTEM

San Joaquin county has provided the most up to date existing bikeway maps for cities of Tracy, Lathrop, Ripon, Stockton, Manteca, Lodi, and Escalon in the county. In order to summarize proposed bikeway projects, Active Transportation Plans (ATP) and Bike Master Plans (BMP) from specific municipalities were analyzed alongside the COG General Plan, supplementing information for cities without an APT or BMP. The bikeways are categorized into four types: class I, class II, class III and class IV (or on the other side of the road). The total existing and proposed project mileage for each class of bicycle lanes and the city is provided per existing and planned scenarios in **Table 3.0-11**. The San Joaquin County existing and planned bikeways network are shown in **Figure 2.0-3** and **Figure 2.0-4** respectively.

Table 3.0-11: Existing Bicycle Network Mileage Summary (Existing and Planned)

City	Lane Type	Mileage (Existing)	Total	Mileage (Planned)	Total
Tracy	Class 1	22.37	**72.52**	23.75	**35.73**
	Class 2	31.06		11.97	
	Class 3	16.62		--	
	Other	2.47		--	
Lathrop	Class 1	41.59	**32.08**	20.84	**41.63**
	Class 2	30.95		8.84	
	Class 3	20.84		4.32	
	Other	22.06		7.63	
Manteca	Class 1	32.96	**61.20**	12.12	**61.20**
	Class 2	50.88		30.04	
	Class 3	39.37		18.53	
	Other	21.34		0.50	
Lodi	Class 1	0.1	**30.31**	3.76	**33.97**
	Class 2	24.89		28.55	
	Class 3	3.69		7.35	
	Other	1.63		5.29	
Ripon	Class 1	9.15	**44.72**	9.15	**44.72**
	Class 2	5.88		5.88	
	Class 3	6.87		6.87	
	Other	22.82		22.82	
Escalon	Class 1	0.38	**5.74**	3.66	**3.66**
	Class 2	3.98		--	
	Class 3	1.04		--	
	Other	0.34		--	
Stockton	Class 1	57.40	**90.21**	36.56	**90.21**
	Class 2	66.23		45.39	
	Class 3	20.84		--	
	Other	29.10		8.26	
Unincorporated	Class 1	24.30	**41.73**	--	**--**
	Class 2	1.00		--	
	Class 3	16.43		--	
	Other	0		--	
Total	Class 1	125.73	**378.51**	81.96	**258.49**
	Class 2	152.35		102.22	
	Class 3	63.18		39.54	
	Other	37.25		34.77	

3.5 MULTIMODAL CORRIDORS

There are 19 designated RCMP Multimodal Corridors in San Joaquin County. Future updates should be performed if traffic volumes significantly change, major transit scheduling changes occur, or major roadway treatments and improvements are implemented. A few of these conditions have occurred since the 2016 monitoring cycle; therefore, a new analysis CSQOS is conducted for this monitoring report. **Table 3.0-12** and **Table 3.0-13** summarize the AM and PM peak hour analysis results respectively from the previous monitoring cycle.

Table 3.0-12: Complete Street Quality of Service Employment AM Peak Hour

ID	Roadway	From	To	Jurisdiction	AM Peak Hour											
					Pedestrian				Bike				Transit			
					NB/EB		SB/WB		NB/EB		SB/WB		NB/EB		SB/WB	
					CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS
1	SR-120	McHenry Ave-Escallon Bellota Rd	David Dr	Escalon	3.31	C	4.34	E	4.02	D	4.34	E	6.4	F	5.14	F
4	Lathrop Rd	Airport Wy	Crestwood Ave	Lathrop/Manteca	3.59	D	3.8	D	3.61	D	3.08	C	6.44	F	6.51	F
6	Louise Avenue	Airport Wy	SR-99	Manteca	2.62	B	2.6	B	2.86	C	2.84	C	2.79	C	2.79	C
7	Yosemite Avenue	Airport Wy	Northwoods Ave-Commerce Ave	Manteca	3.19	C	3.29	C	4.57	E	3.96	D	4.54	E	4.29	E
8	SR-12/Kettleman Ln	Lower Sacramento Rd	Cherokee Ln	Lodi	2.7	B	2.63	B	1.64	A	1.59	A	1.58	A	1.57	A
9	Lower Sacramento Rd	Turner Rd	E Harney Ln	Lodi	2.99	C	3.23	C	2.91	C	3.11	C	2.91	C	2.91	C
10	Main St	Jack Tone Rd	Stockton Ave	Ripon	2.31	B	2.33	B	4.48	E	4.2	D	6.36	F	6.32	F
11	March Ln	Da Vinci Dr-Quail Lakes Dr	West Ln	Stockton	2.91	C	2.48	B	1.15	A	1.18	A	2.32	B	2.14	B
13	Pacific Avenue	Lower Sacramento Rd	W Harding Wy	Stockton	3.21	C	3.63	D	3.39	C	3.59	D	1.98	A	2.12	B
14	Thorton Rd	A G Spanos Blvd	Lower Sacramento Rd	Stockton	4.21	C	4.63	D	4.39	C	4.59	D	2.98	A	3.12	B
15	Hammer Ln	Kelley Dr	Marantha Dr	Stockton	3.72	D	3.69	D	3.97	D	3.89	D	3.22	C	3.59	D
16	Lower Sacramento Rd	Royal Oaks Dr	Hammer Ln	Stockton	3.51	D	3.93	D	3.49	C	4.51	E	5.01	F	5.07	F
17	West Ln-Airport Wy	E Morada Ln	Roosevelt St	Stockton	3.73	D	3.86	D	4.45	E	4.51	E	2.50	B	2.50	B
18	11th St	Lammers Rd	N Macarthur Dr (West)	Tracy	3.67	D	3.6	D	4.07	D	4.08	D	6.41	F	6.41	F
19	Coral Hollow Rd	Clover Rd	Valpico Rd	Tracy	5.05	F	3.4	C	4.09	D	3.7	D	3.24	B	2.32	B

*Highway Capacity Software (HCS)

Note: Facilities with transit MMLOS results of "F" typically had no transit service or were served by one transit route with hourly headways.

Table 3.0-13: Complete Street Quality of Service Employment PM Peak Hour

ID	Roadway	From	To	Jurisdiction	PM Peak Hour											
					Pedestrian				Bike				Transit			
					NB/EB		SB/WB		NB/EB		SB/WB		NB/EB		SB/WB	
					CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS	CSQOS Score	CSQOS QOS
1	SR-120	McHenry Ave-Escallon Bellota Rd	David Dr	Escalon	3.49	C	4.27	E	4.03	D	4.27	E	6.47	F	5.11	F
4	Lathrop Rd	Airport Wy	Crestwood Ave	Lathrop/Manteca	3.69	D	3.65	D	3.65	D	3.03	C	6.47	F	6.45	F
6	Louise Avenue	Airport Wy	SR-99	Manteca	2.91	C	3.1	C	3.14	C	3.28	C	2.87	C	2.87	C
7	Yosemite Avenue	Airport Wy	Northwoods Ave-Commerce Ave	Manteca	3.41	C	3.3	C	4.57	E	3.96	D	4.55	E	4.27	E
8	SR-12/Kettleman Ln	Lower Sacramento Rd	Cherokee Ln	Lodi	3.13	C	3.12	C	1.93	A	1.92	A	1.73	A	1.73	A
9	Lower Sacramento Rd	Turner Rd	E Harney Ln	Lodi	3.34	C	3.43	C	3.2	C	3.26	C	2.91	C	2.93	C
10	Main St	Jack Tone Rd	Stockton Ave	Ripon	2.31	B	2.32	B	4.48	E	4.18	D	6.36	F	6.34	F
11	March Ln	Da Vinci Dr-Quail Lakes Dr	West Ln	Stockton	3.1	C	2.91	C	1.14	A	1.15	A	2.32	B	2.32	B
13	Pacific Avenue	Lower Sacramento Rd	W Harding Wy	Stockton	4.03	D	3.61	D	3.68	D	3.72	D	2.15	B	2.12	B
14	Thorton Rd	A G Spanos Blvd	Lower Sacramento Rd	Stockton	5.03	D	4.61	D	4.68	D	4.72	D	3.15	B	3.12	B
15	Hammer Ln	Kelley Dr	Marantha Dr	Stockton	3.72	D	3.81	D	4.01	D	4.04	D	3.23	C	3.63	D
16	Lower Sacramento Rd	Royal Oaks Dr	Hammer Ln	Stockton	3.59	D	3.9	D	3.52	D	4.41	E	5.03	F	5.05	F
17	West Ln-Airport Wy	E Morada Ln	Roosevelt St	Stockton	4.09	D	3.86	D	4.58	E	4.51	E	2.49	B	2.50	B
18	11th St	Lammers Rd	N Macarthur Dr (West)	Tracy	3.61	D	3.63	D	4.03	D	4.13	D	6.43	F	6.43	F
19	Coral Hollow Rd	Clover Rd	Valpico Rd	Tracy	3.89	D	5.48	F	3.86	D	4.14	D	2.47	B	3.28	C

*Highway Capacity Software (HCS)
Note: Facilities with transit MMLOS results of "F" typically had no transit service or were served by one transit route with hourly headways.

3.6 TRAVEL DEMAND MANAGEMENT

Travel demand Management (TDM) strategies are those that attempt to reduce the number of vehicle miles traveled on the RCMP network. These can include strategies to group trips such as carpool/vanpooling, removing trips by encouraging telecommuting or reducing trip lengths by developing land uses that allow trips to be made by walking, bicycling, or shorter drives.

All of the counties in the San Joaquin Valley are designated as “severe” to “extreme” non-attainment for the federal health-based pollutants by the EPA and are therefore required to take extra steps to improve air quality, with employer-based travel demand management as a key strategy. San Joaquin Valley Air Pollution Control District (SJVAPD) Rule 9410 (eTrip) requires major employers (with 100 or more employees) in the region to develop and implement TDM strategies. These strategies can include employee shuttles, staggered work hours, telecommute options, transit subsidies, carpool/vanpool programs, and many other strategies.

SJCOG’s dibs Program offers information and several programs to support TDM in the county, as well as supporting Merced county. This inter-county collaboration is highly supportive of regional travel demand management. Programs include employer assistance in developing trip reduction plans, emergency ride home, vanpool formation/subsidies, and community events. It also provides information on benefits and tax credits, connections to other helpful resources, and educational links to traveler information services.

The number of vanpools formed during the fiscal year 2023-24, with 98 new vanpools, and a total of 399 vanpools. San Joaquin experienced about a 10.5% decrease of vanpool from prior year and has contributed to 37.6 million vehicle miles reduced, and 355,160 vehicles off the road. Many of the vanpools commuting destination are composed of employer locations which include Tesla and Defense Distribution Center.

The estimated annual reduction of vehicle miles traveled (VMT) from ‘dibs’ vanpools between 2018 and 2023 is provided in **Table 3.0-14.** The reduction of VMT from vanpools has remained strong over the last six years.

Table 3.0-14: Estimated Annual Reduction of Vehicle Miles Traveled

Year	# of Vans	VMT Reduction Vanpool	VMT Reduction Special Event
2018-19	123	6,654,250	450,980
2019-20	164	9,313,153	362,853
2020-21	321	17,270,150	292,576
2021-22	417	31,000,000	-
2022-23	446	40,000,000	-
2023-24	399	37,600,000	-

Annual VMT reduction based on actual annual vanpools data reported the National Transit Database (NTD)
Special Event VMT reduction based on trip logging for all smart travel modes (carpool, vanpool, transit, bike, walk, telecommute) from dibs trip planning system (discontinued).

Given the shift to vehicle miles of travel (VMT) under CEQA pursuant to Senate Bill 743, there has been greater interest to incorporate VMT into other local and regional transportation planning processes. VMT provides an indication of overall system utilization and is a direct indicator of land use efficiency and on-road mobile source emissions.

The VMT data was sourced from Replica while estimates of population from the California Department of Finance. The Highway Monitoring System (HPMS) program data and Replica are used in conjunction as the source for this report. Replica is a data aggregation service that compiles roadway user information by mode, origin/destination, demographics, and trip purpose using mobile source data such as cell phones and connected vehicles.

Table 3.0-15 shows the 2023 VMT per capita for each jurisdiction in San Joaquin County VMT was estimated by multiply the ADT by the length of the road segment. This method was applied to all roadways in each jurisdiction in San Joaquin County, which resulted in an estimate for each jurisdiction's VMT for 2023. As shown, all incorporated cities have VMT per capita ranging between 11-33 vehicle miles per person per day. This is due to many incorporated area vehicle trips being local in nature (due to greater land use efficiency). Unincorporated cities have VMT per capita values of approximately 73 vehicle miles per person per day. Take as a whole, the county average VMT per capita is just about 28 vehicle miles per person per day.

Table 3.0-15: 2023 Vehicle Miles Traveled (VMT) per Capita by Jurisdiction

Jurisdiction 2022	Total VMT (1,000)	Population (7/1/2023)	Daily VMT Per Capita
Escalon	87.67	7,355	11.92
Lathrop	1,325.39	39,857	33.25
Lodi	929.23	67,679	13.73
Manteca	1,524.55	91,059	16.74
Ripon	517.30	16,068	32.19
Stockton	4,784.33	319,543	14.97
Tracy	1,507.92	98,010	15.39
County (Unincorporated Area)	11,888.29	161,394	73.66
San Joaquin Total	22,564.66	800,965	28.17

3.7 SAFETY

Transportation safety is a key step in transportation planning, seeking to reduce the fatalities and injuries on the roads. Vision Zero aims to ensure that safety is prioritized over other aspects of the transportation system, such as mobility, and to reduce roadway fatalities and serious injuries to zero. A data-driven safety processing approach helps identify safety issues and address them.

Safety Performance Management is a part of the Federal Highway Administration (FHWA) developed Transportation Performance Management (TPM) program to make informed investment and policy decisions. Toward this, Highway Safety Improvement Program (HSIP) needs to regularly assess the state of safety on the roads concerning federal performance measures:

- Number of fatalities (all roadways)
- Rate of fatalities (per 100m VMT) (all roadways)
- Number of serious Injuries (all roadways)
- Rate of serious Injuries (per 100m VMT) (all roadways)
- Number of non-motorized fatalities and serious injuries (all roadways)

Items 1 and 2 refer to crash frequency data analysis to measure the number of crashes per severity type for all users. Item 5 is similar to items 1 and 2 except that it is for the subset of crashes being involved with non-motorized modes (bicyclists and pedestrians). The rate of fatalities and serious injuries for crash type *i* is displayed by R_i per 100 million vehicle miles and is calculated using the equation below (Equation 3):

$$R_i = \frac{C_i \times 100{,}000{,}000}{VMT \times 365} \qquad (3)$$

where C_i is the total number of fatalities or serious injuries for crashes of type *i*; VMT refers to vehicle miles traveled.

Data collection

The Statewide Integrated Traffic Records System (SWITRS) contains all crash data collected and reported to California Highway Patrol (CHP) by local and governmental agencies. SWITRS data consists of detailed crash summaries by year, geography, and crash type. We collected 2022 and 2023 SWITRS crash data for the case study and reported the results by crash severity type and user groups in tables below.

Results

In 2022, there were 135 fatalities and 590 serious injuries involving all users in traffic collisions that occurred on San Joaquin County roads, of which 79 (59%) fatalities and 362 (61%) serious injuries occurred on the RCMP network. In 2023, the numbers decreased in all cases except for the number of serious injuries that occurred on the RCMP network. Fatalities and serious injuries decreased to 110 (19% decrease from 2022) and 581 (0.2% decrease from 2022), respectively.

Table 3.0-16: 2022 Fatal and Serious Injury Collisions – All Users

Facility	All Users (2022)			
	Fatal Crashes	Number of fatalities	Serious Injury Crashes	Number of serious injuries
SJ county	128	135	383	590
RCMP Network				
NHS	60	63	189	310
Non-NHS	15	16	32	52
Non-RCMP Network	53	56	162	228

Table 3.0-17: 2023 Fatal and Serious Injury Collisions – All Users

Facility	All Users (2023)			
	Fatal Crashes	Number of fatalities	Serious Injury Crashes	Number of serious injuries
SJ county	97	110	340	581
RCMP Network				
NHS	42	47	195	348
Non-NHS	7	10	21	35
Non-RCMP Network	48	53	124	198

In 2022, non-motorized (e.g., pedestrians, bicyclists) fatalities and serious injuries accounted for 16% and 13% of total fatalities and serious injuries, respectively. In 2023, the share of non-motorized fatalities rose to 24%, while the share of serious injuries rose to 14%.

Table 3.0-18: 2022 Fatal and Serious Injury Collisions – Non-motorized

Facility	Non-motorized (2022)							
	Bicycle				Pedestrian			
	Fatal Crashes	Number of fatalities	Serious Injury Crashes	Number of serious injuries	Fatal Crashes	Number of fatalities	Serious Injury Crashes	Number of serious injuries
SJ county	2	2	26	27	20	20	46	48
RCMP Network								
NHS	1	1	11	12	15	15	23	25
Non-NHS	0	0	1	1	1	1	3	3
Non-RCMP Network	1	1	14	14	4	4	20	20

Table 3.0-19: 2023 Fatal and Serious Injury Collisions – Non-motorized

Facility	Non-motorized (2023)							
	Bicycle				Pedestrian			
	Fatal Crashes	Number of fatalities	Serious Injury Crashes	Number of serious injuries	Fatal Crashes	Number of fatalities	Serious Injury Crashes	Number of serious injuries
SJ county	6	6	23	23	20	20	59	60
RCMP Network								
NHS	6	6	23	23	20	20	57	58
Non-NHS	0	0	0	0	0	0	2	2
Non-RCMP Network	0	0	0	0	0	0	0	0

As shown in **Figure 3.0-9**, the number of fatalities steadily decreased from 2005 to 2009, and has trended upward since then. Fatalities peaked in 2016 at 120 and has held relatively stable till 2021 when fatalities grew by 13%, holding steady until falling by 19% in 2023.

Figure 3.0-9: Fatality Trend on San Joaquin County Roads (2005-2023)

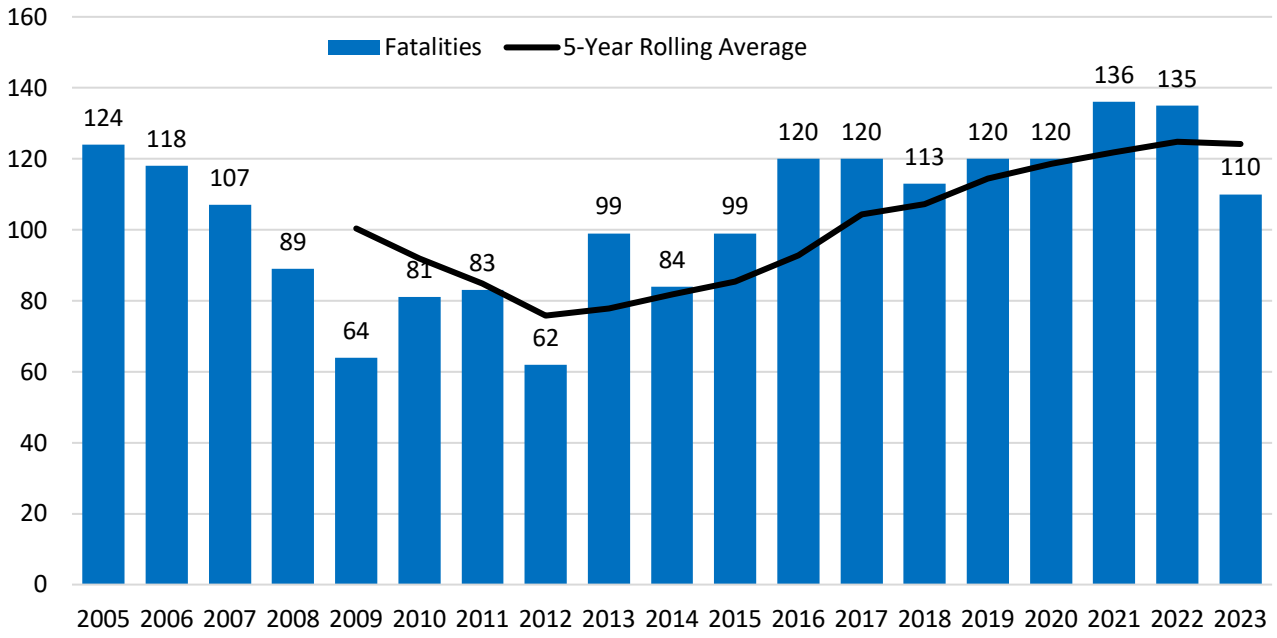


Figure 3.0-10 shows the serious injury trend from 2005 to 2023, which is similar to the fatality trend except that the number of serious injuries increased to a larger extent relative to fatalities. The five-year rolling average has been trending upward since 2013.

Figure 3.0-10: Serious Injury Trend on San Joaquin County Roads (2005-2023)

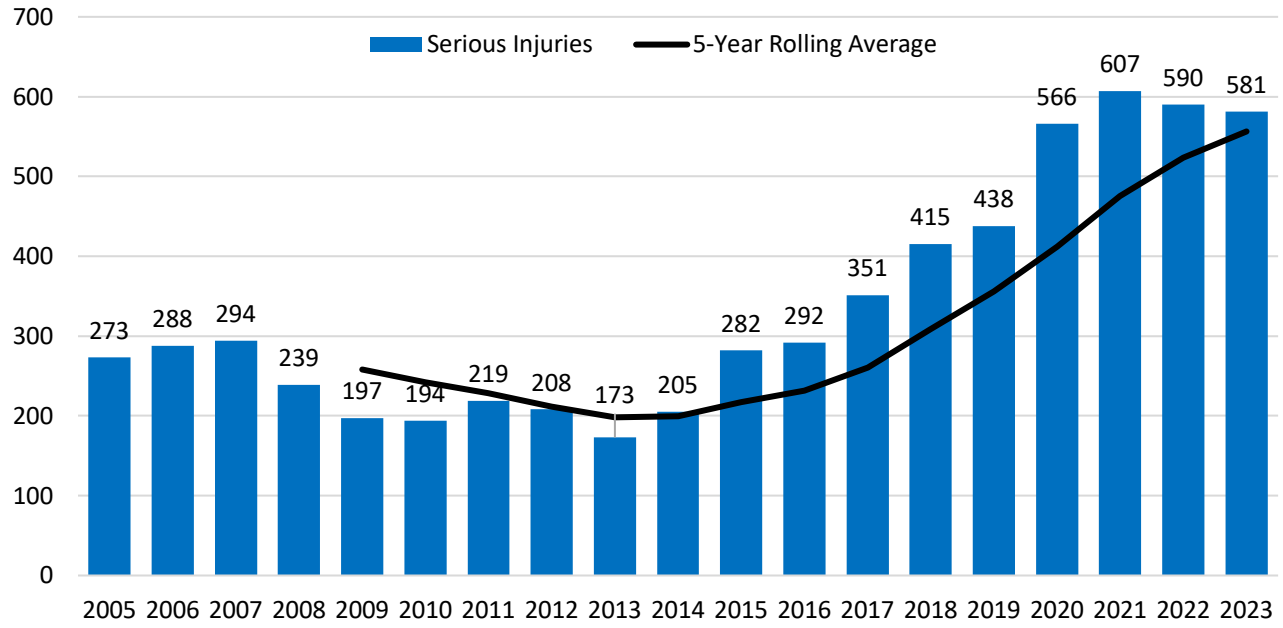


Figure 3.0-11 and **Figure 3.0-12** show the fatal and injury collision rates (per 100 million VMT) based on the same five-year rolling average. These metrics indicate that similar to the absolute numbers, the rates of fatalities and serious injuries per year has trended upwards, peaking in 2021 at 2.09 and falling to 2.04 in 2022. This is significant since the annual average daily vehicle miles of travel decreased significantly by 13% in 2020, increasing by 1.2% in 2021 and by 1.6% from 2021 to 2022, trending downward while collision rates rise. We were unable to generate similar rates for 2023 since the daily vehicle miles of travel is not yet available for this year from Caltrans Highway Performance Monitoring System (HPMS).

Figure 3.0-11: Fatal Collision Rate (Fatalities per 100M VMT) on San Joaquin County Roads (2009-2022)

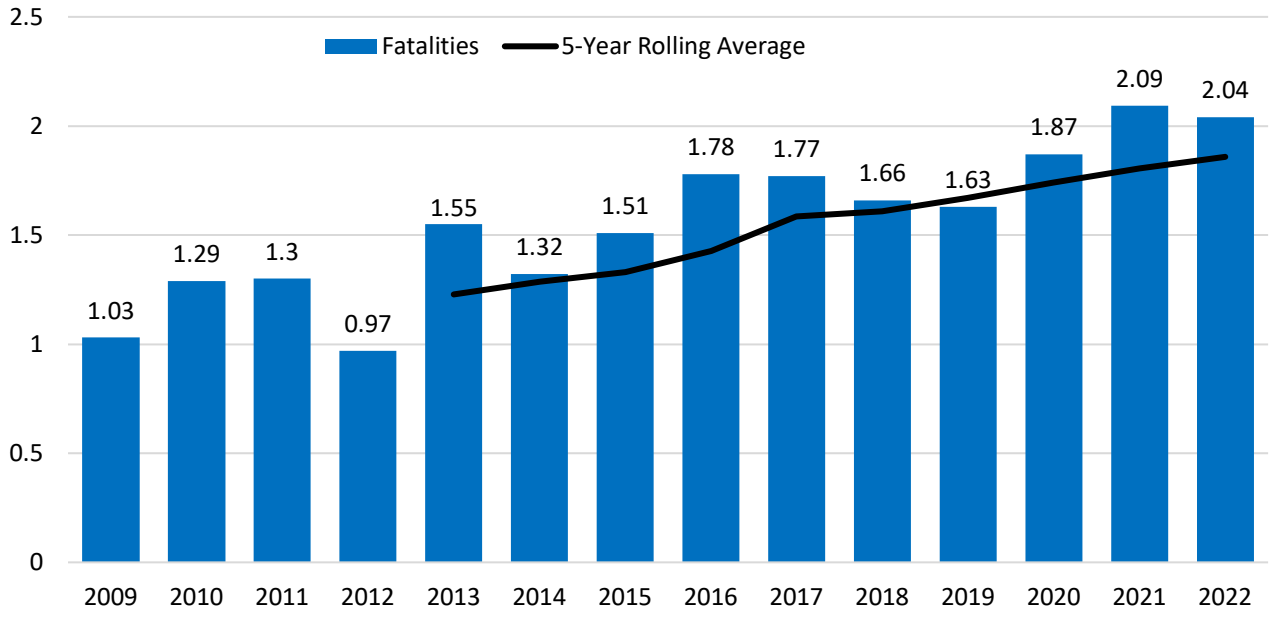


Figure 3.0-12: Serious Injury Rate (Injuries per 100M VMT) on San Joaquin County Roads (2009-2022)

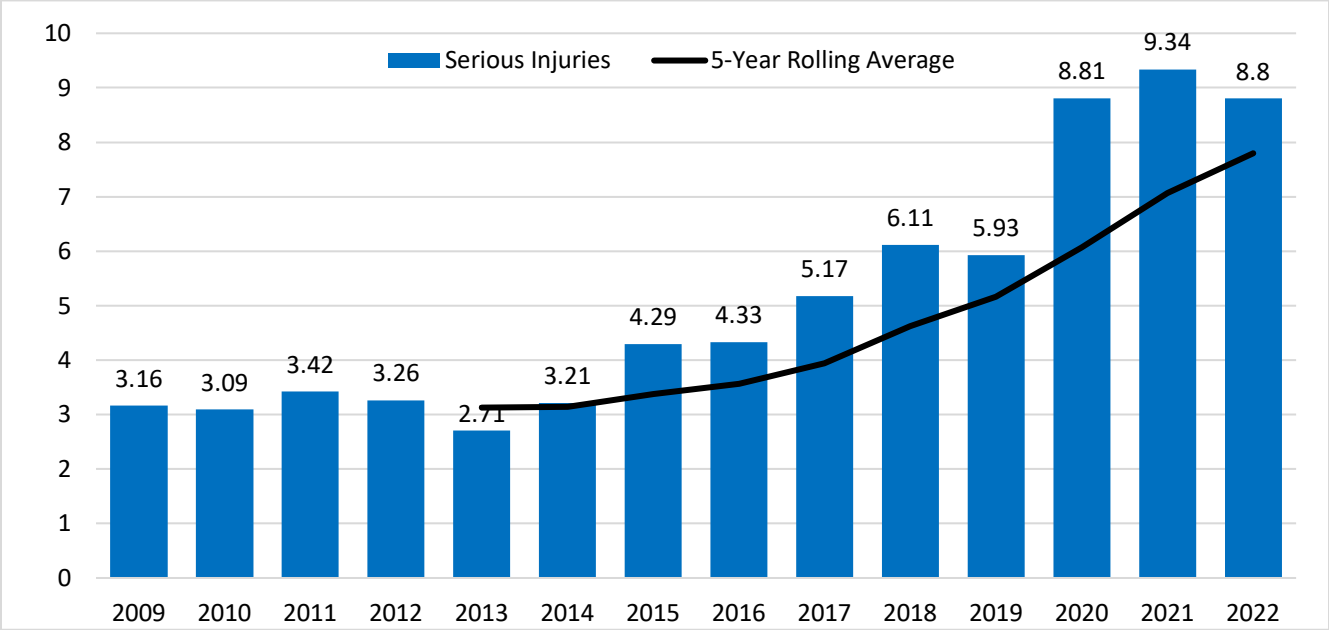
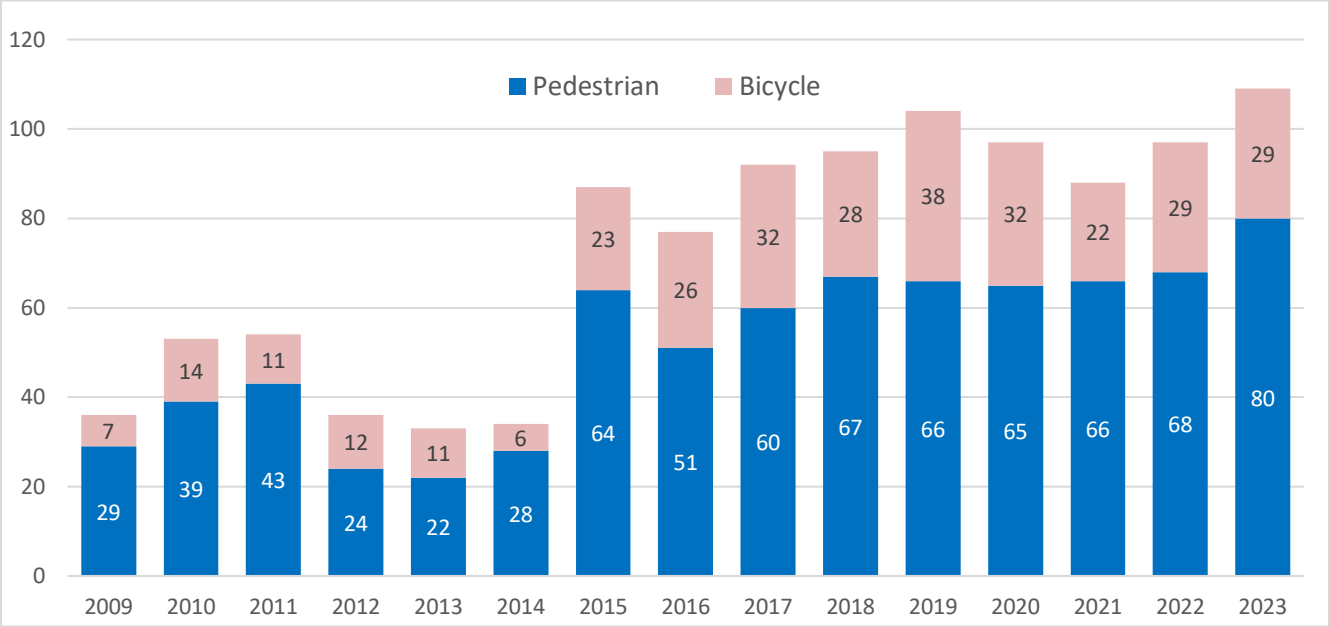


Figure 3.0-13 shows the absolute number of fatalities and serious injury involving pedestrians and bicyclists between 2009 and 2023. Bicycle fatality and serious injuries peaked in 2019 at 38, while the number of fatalities and serious injury involving pedestrians has held stable until a 17.6% increase from 2022 to 2023.

Figure 3.0-13: Pedestrian and Bicycle Fatalities and Serious Injuries on San Joaquin County Roads (2009-2023)



The segment-based fatality rates were mapped in **Figure 3.0-12** and **Figure 3.0-13** The high-fatality segments (roadways with fatality rates of 10 or more fatalities per 100 million VMT) were largely observed in Stockton, Tracy, and unincorporated areas. Specific high-fatality segments in 2023 include:

- Stockton: N Wilson Way: SR-99 to Sanguinetti Ln
- Stockton: W March Lane: El Dorado St to I-5
- Stockton: Airport Way: E Weber Ave to E 7th St
- Stockton: E Fremont St: N Cardinal Ave to Ramsey Ave
- Stockton: S Wilson Way: SR-4 to E Dr Martin Luther King Jr Blvd
- Tracy: E 11th St: I-5 to Holly Dr
- Tracy: N MacArthur Dr: I-205 to E 11th St
- Unincorporated: SR-4: Stockton City limit to Farmington City limit
- Unincorporated: Mariposa Rd: Austin Rd to Temple Creek
- Unincorporated: Vernalis Rd: I-5 to County limit
- Unincorporated: SR-120: Escalon limit to County limit

Severe injury segments (roadways with a severe injury rate of 10 or more per 100 million VMT) were mostly observed in the Stockton, Manteca, Tracy and County Lodi areas. The top high-risk segments, present in 2023, were observed at the following locations:

- Stockton: Ort J Lofthus Fwy: I-5 to S Fresno Ave
- Stockton: W 8 Mile Rd: I-5 to CR-J3
- Stockton: Pacific Ave: Wagner Heights Rd to W Monterey Ave
- Stockton: S Center St: W Dr Martin Luther King Jr Blvd to W Weber Ave
- Stockton: N Wilson Way: Sanguinetti Ln to CA-4
- Stockton: CR-J3: Boeing Way to E Roth Rd
- Stockton: N El Dorado St: E Poplar St to E Dr Martin Luther King Jr Blvd

- Stockton: Waterloo Rd: SR-99 to N F St
- Stockton: E Dr Martin Luther King Jr Blvd: SR-4 to Middle River Bridge
- Manteca: E Woodward Ave: Austin Rd to Bella Lago Way
- Manteca: W Yosemite Ave: Winters Dr to City limit
- Tracy: N Tracy Blvd: I-205 to W Schulte Rd
- Tracy: W 11th St: I-205 to Holly Dr
- Tracy: S Lammers Rd: I-205 to W Schulte Rd
- Tracy: N MacArthur Dr: I-205 to E 11th St
- Lodi: N West Ln: W Kettleman Ln to E Hammer Ln
- Lodi: N Cherokee Ln: Split from SR-99 to rejoin
- Lodi: W Kettleman Ln: SR-99 to I-5
- Lathrop: Golden Valley Pkwy: Sadler Oak Dr to Land Park Dr
- Unincorporated: CR-J10: E Harney Ln to W 8 Mile Rd

Figure 3.0-14: 2023 Fatality Rate Map

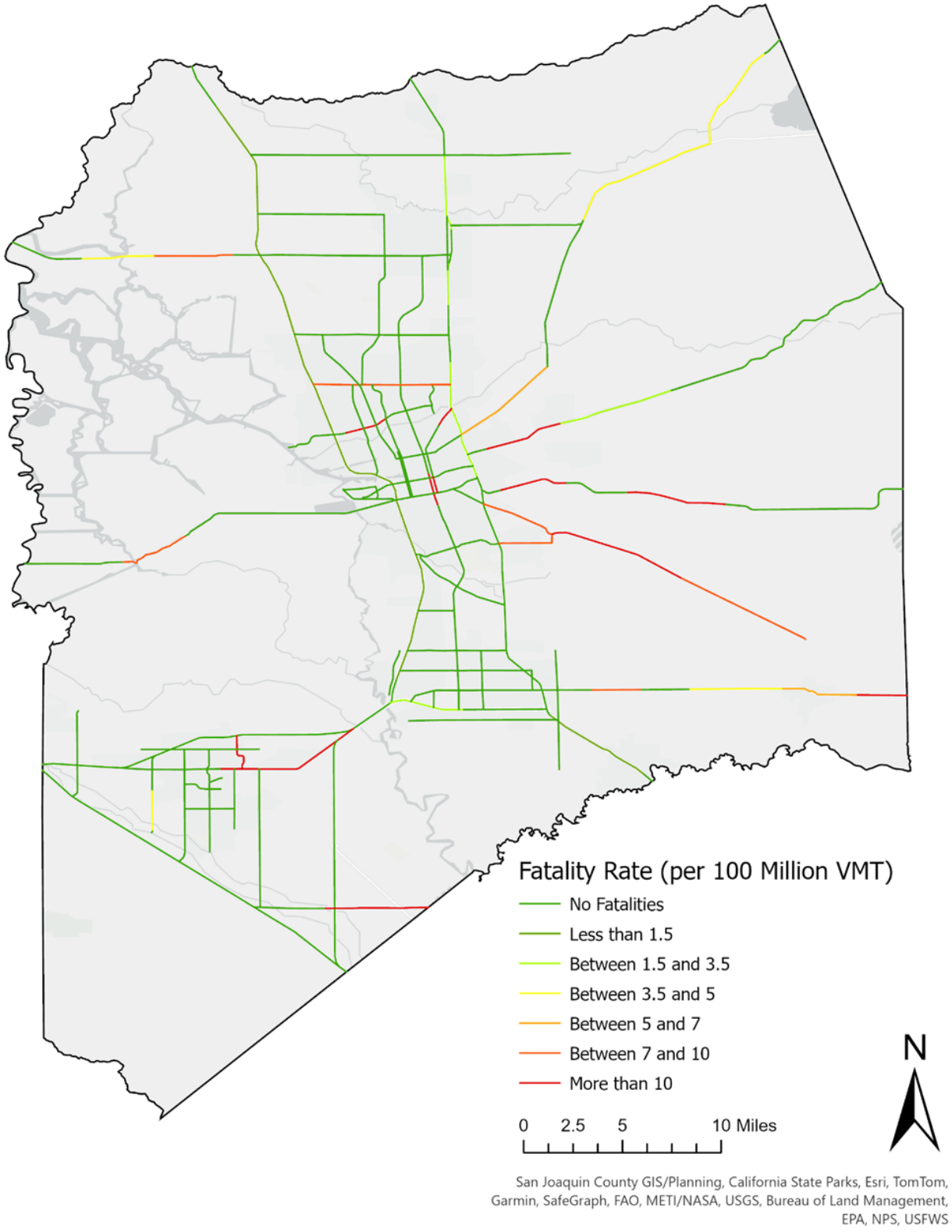
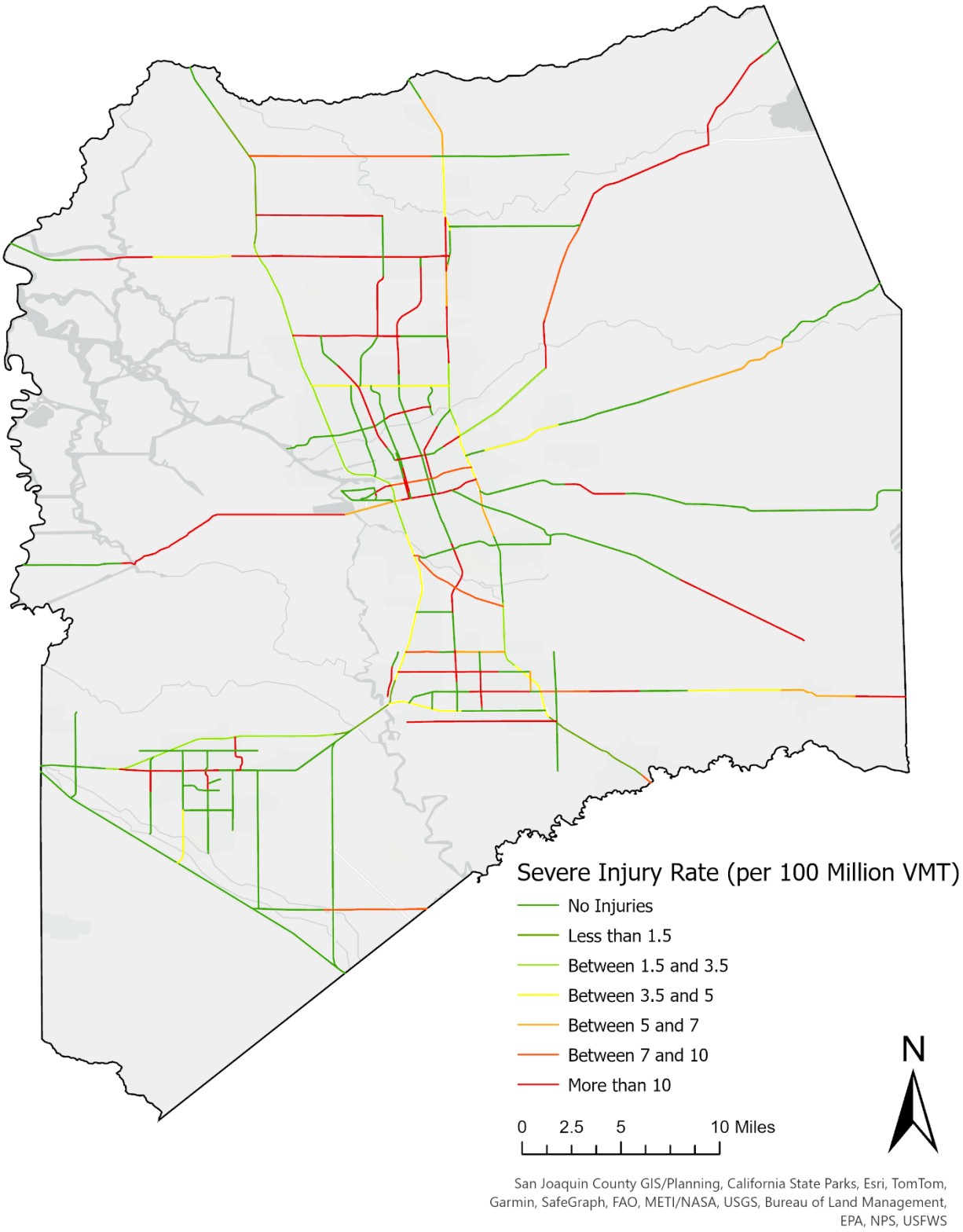


Figure 3.0-15 2023 Severe Injury Rate Map



3.8 TRANSPORTATION ASSET MANAGEMENT

Information on Pavement Conditions on the RCMP network was provided from two primary sources: City databases and the National Highway System Performance and Financial Data, provided by Caltrans. The latter source also provided bridge conditions throughout San Joaquin County. Each City, with the exception of Escalon, maintains an inventory of pavement conditions throughout the City. Most cities provided Pavement Condition Index (PCI) values for locally-owned roads either in shapefile or tabular formats, while Manteca provided a recent Pavement Conditions Report from which values were extracted. These shapefiles or tables features PCI values for each of the roadways in the city, with the exception of any Caltrans facilities that run through each city. Each of these values was symbolized according to the scale below:

- Very Poor: 0 to 29
- Poor: 30 to 45
- Fair: 46 to 59
- Good: 60 to 69
- Very Good 70 to 89
- Excellent: 90 to 100

The resulting map is displayed in **Figure 3.0-16**.

PCI values for RCMP roads throughout the County's unincorporated areas was provided by the cities, however, state highways were not included, leading to gaps in the coverage. The National Highway System Performance and Financial Data, provided by Caltrans, provided more extensive coverage of the aforementioned state highway network in the County's unincorporated areas. However, Federal Code of Regulation Section 490.307 National performance management measures for assessing pavement condition in "Good", "Fair", or "Poor" conditions. Raw PCI values were not provided, but instead each segment of the roadway was classified as "Good", "Fair", or "Poor. Therefore, this was placed on a separate map from the city pavement condition information. These classifications are shown in **Figure 3.0-17**.

Bridge conditions were also collected from the National Highway System Performance and Financial Data for the entirety of San Joaquin County. These are rated on the same "Good". "Fair" and "Poor" rating scheme. These classifications are shown in ***Figure 3.0-18*****.**

Figure 3.0-16: Pavement Condition Index: Cities

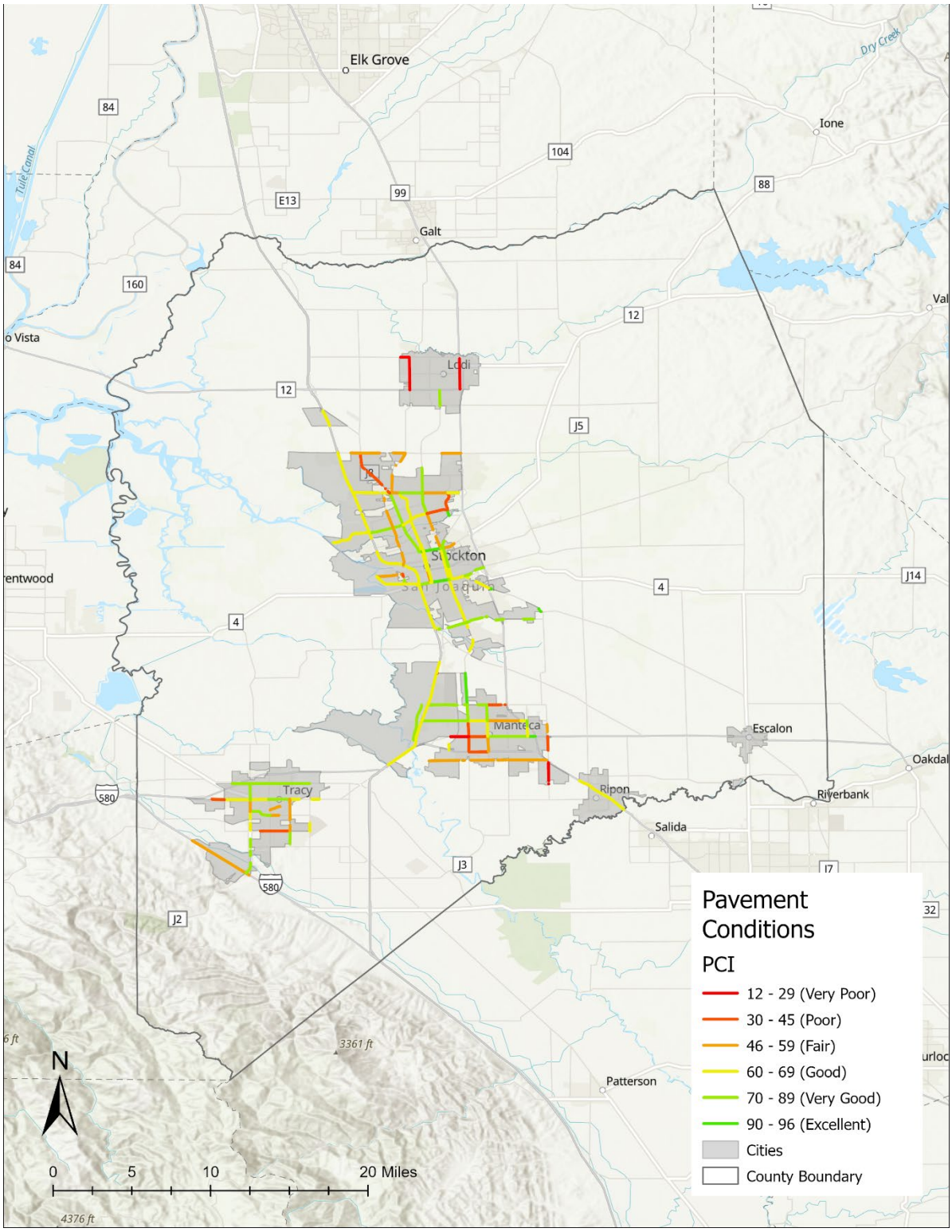


Figure 3.0-17: Pavement Condition Index: Unincorporated

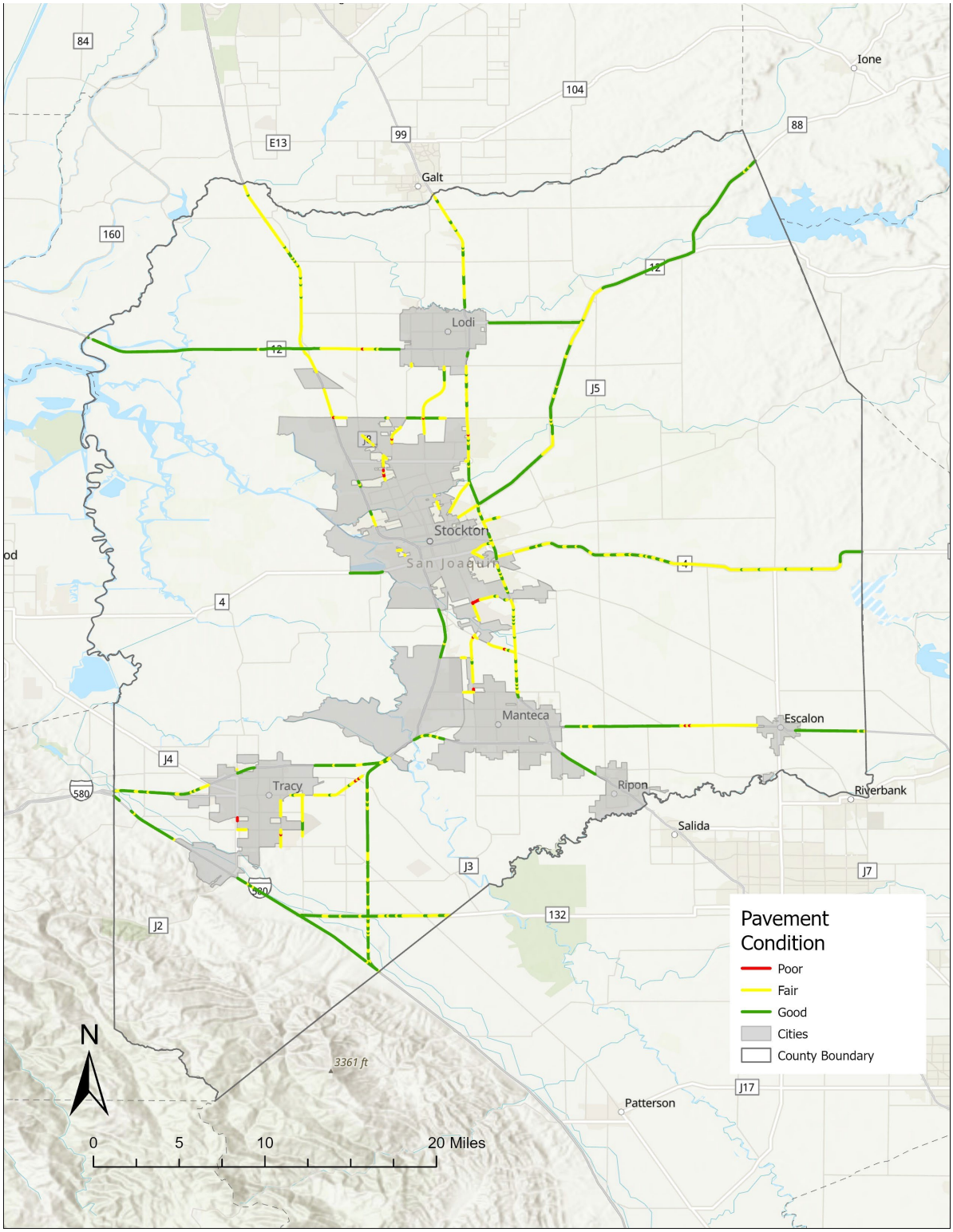
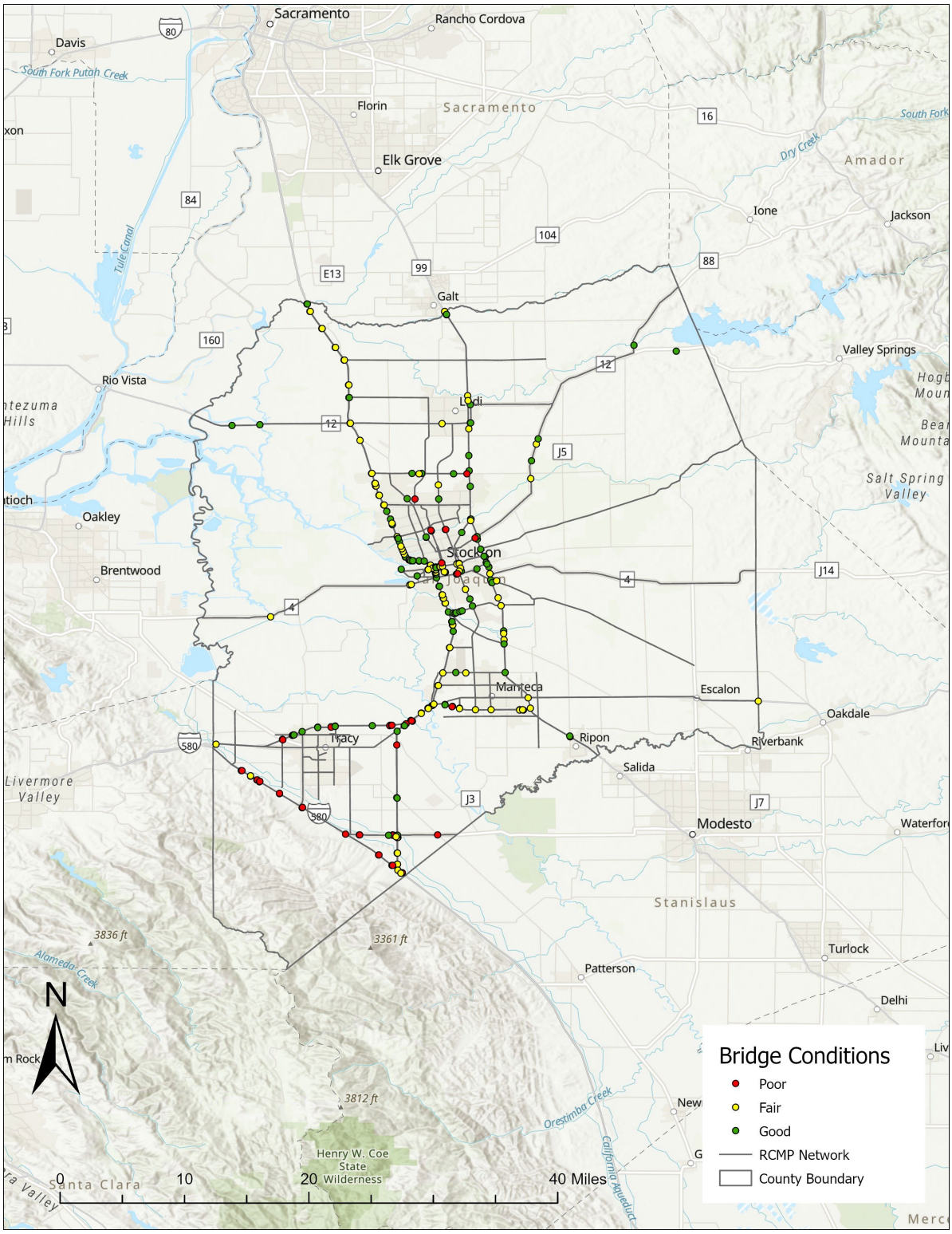


Figure 3.0-18: Pavement Condition Index: Bridges



While the individual congestion reduction strategies generally follow the Federal guidance, the strategies are listed in priority order by facility type (i.e., local arterial and freeway) based on greatest applicability.

4.0 IDENTIFY AND ASSESS STRATEGIES

The purpose of a Federal CMP is to identify actual projects, programs, and strategies to address identified congestion issues. An obvious starting point for RCMP strategy development and prioritization is SJCOG's RTP/SCS financially constrained Tier 1 project list that specifically aims to address congestion on one or more of the preliminary RCMP deficient corridors. The project list of SJCOG RTP Teir I improvements for RCMP deficient corridors is shown in **Table 4.0-1**. For each project the RTP Project ID and RCMP Strategy ID would be provided including a short description. For each preliminary deficient corridor identified, the projects are ordered by RCMP Strategy priority as defined in Chapter 7. It is recommended that at least two rounds of consecutive biennial monitoring be performed to verify the roadway performance by SJCOG and the RCMP Steering Committee. During future RCMP updates, addressing the preliminary RCMP deficient corridors, and adding or removing projects/corridors should be considered for inclusion and prioritization for incorporation into the RTP Tier 1 list of improvements. These include:

- Capital projects intended to reduce congestion on RCMP deficient corridors/roadways regardless of project funding source. This may include projects funded by Measure K funds, Local Transportation Funds, federal funds or developer fees.
- TDM programs that reduce SOV travel or encourage the use of alternates to the SOV.
- Transit related projects designed to increase transit utilization or reduce SOV use.
- Active transportation projects that promote the mode shift from SOV use.
- Projects funded by the Regional Traffic Impact Fee (RTIF).
- Multimodal improvement projects that are not on the RCMP designated network but will improve RCMP network operations or reduce SOV trips (improvements that parallel facilities RCMP deficient corridors).

The RCMP Congestion Management Process Evaluation of RTP Regional Roadway SOV Capacity Increasing Projects process (described in 2024 RCMP Update Chapter 7) should be applied to those improvements that increase single- occupant-vehicle (SOV) capacity. These are projects denoted by RCMP Strategy "K". Note that this is considered the last priority strategy to consider for addressing congestion on the RCMP network. The RCMP Regional Roadway Project Review and Formation Process will be documented as part of each RTP/SCS update.

Table 4.0-1: Improvement Projects and RCMP Deficient Corridors

1. Kettleman Lane (SR-12): I-5 to SR-99					
Improvement Type	**2022 RTP MPO ID**	**Project Name**	**RCMP Strategy ID**	**Project Limits**	**Project Description**
Single Occupant Vehicle Widening	SJ14-8018	Citywide Bicycle Facilities Detection Improvement Project	B	-	Install video detection of bicyclists at and green painted bicycle lanes at signalized intersections
Intelligent Transportation System (ITS)	SJ18-5052	Grapeline Capital	G.1	-	Intelligent Transportation System (ITS) upgrades
Interchange/Ramp Improvements	SJ11-2015	SR-99 at SR-12 West (Kettleman Lane)	K	SR-99 at SR-12 West (Kettleman Lane)	Reconstruct interchange and widen to free-flowing interchange
2. Eight Mile Rd: Thornton Rd to SR-99					
Improvement Type	**2022 RTP MPO ID**	**Project Name**	**RCMP Strategy ID**	**Project Limits**	**Project Description**
Single Occupant Vehicle Widening	SJ07-3094	Eight Mile Rd	B	Thornton Road to Lower Sacramento Rd	Widen from 2 to 4 lanes
Single Occupant Vehicle Widening	SJ11-3061	Eight Mile Rd	B	Lower Sacramento Rd to West Lane	Widen from 2 to 6 lanes
Single Occupant Vehicle Widening	SJ07-3095	Eight Mile Rd	B	West Ln to Holman Rd	Widen from 2 to 6 lanes
Single Occupant Vehicle Widening	SJ11-3051	Eight Mile Rd	B	Holman Rd to SR 99	Widen from 2 to 6 lanes
Interchange/Ramp Improvements	SJ11-2002	SR-99 at Eight Mile Road	K	-	Reconstruct Interchange (PM 35.1-35.5)
3. Charter Way (SR-4)/Dr Martin Luther King Jr Blvd: S Roberts Rd to E Mariposa Rd					
Improvement Type	**2022 RTP MPO ID**	**Project Name**	**RCMP Strategy ID**	**Project Limits**	**Project Description**
Ridesharing and Vanpool Programs	SJ07-9001	Ridesharing and Vanpool Programs	A	San Joaquin County	Trip Reduction Coordination, Guaranteed Ride Home, Vanpool Enhancement, Match lists, TDM marketing, etc.
Intelligent Transportation System (ITS)	SJ18-3074	SR-4 Ramp metering system Installation	G.1	SR 4 various locations	Installing ramp meters
4. I-205: County Limits to Grant Line Rd					
Improvement Type	**2022 RTP MPO ID**	**Project Name**	**RCMP Strategy ID**	**Project Limits**	**Project Description**
Ridesharing and Vanpool Programs	SJ07-9001	Ridesharing and Vanpool Programs	A	San Joaquin County	Trip Reduction Coordination, Guaranteed Ride Home, Vanpool Enhancement, Match lists, TDM marketing, etc.
Managed Lanes	SJ07-1003	I-205 Managed Lanes	C/F	Alameda County Line to Eleventh Street	Widen from 6 to 8 lanes (inside/outside)
Park and Ride Lots	SJ07-9002	Park and Ride Lots	H	San Joaquin County	Construct park and ride lots
Interchange/Ramp Improvements	SJ14-2003	I-205 at Mountain House/International Pkwy	K	I-205 at Mountain House Parkway	Reconstruct interchange
Interchange/Ramp Improvements	SJ11-2010	I-205/Lammers Rd/Eleventh St	K	-	Construct Interchange I-205 at Eleventh street realign and widen Eleventh Street to 6-lanes north of Grant Line to Byron Road. Construct Aux lane Hansen to Eleventh; in WB I-205 Eleventh Street to Grant Line Road
Interchange/Ramp Improvements	SJ11-2011	I-205 at Grant Line Road	K	I-205 at Grant Line Road	Modification of existing interchange
5. I-205/I-5/SR-120: N MacArthur Dr to Yosemite Ave					
Improvement Type	**2022 RTP MPO ID**	**Project Name**	**RCMP Strategy ID**	**Project Limits**	**Project Description**
Ridesharing and Vanpool Programs	SJ07-9001	Ridesharing and Vanpool Programs	A	San Joaquin County	Trip Reduction Coordination, Guaranteed Ride Home, Vanpool Enhancement, Match lists, TDM marketing, etc.
Managed Lanes	SJ14-1002	I-205 Managed Lanes	C/F	MacArthur Drive to I-5	Widen from 6 to 8 lanes (inside/outside)
Managed Lanes	SJ07-1008	I-5 HOV Mossdale	C/F	I-205 to Louise Avenue (P.M. 12.5/R 16.5)	Widen to add HOV lanes with HOV Connector Ramps to I-205 and SR-120
Intelligent Transportation System (ITS)	SJ18-3075	I- 5 various locations I 205 to Mathews Rd	G.1	In San Joaquin County on I-5 from I-205 to Mathew Road	Install ramp meters and ITS elements
Park and Ride Lots	SJ07-9002	Park and Ride Lots	H	San Joaquin County	Construct park and ride lots

Interchange/Ramp Improvements	SJ18-2003	I-205 / MacArthur Interchange modification	K	At MacArthur (PM 7.8 -PM 8.5)	Modification of existing interchange - ENVIRONMENTAL ONLY
Interchange/Ramp Improvements	SJ11-2012	I-205 at Chrisman Rd	K	I-205 at Chrisman Rd	Phase 1: Construct new interchange east-west ramps
Single Occupant Vehicle Widening	SJ07-1014	SR-120	K	I-5 to Main Street (P.M. 5.13)	Widen 4 to 6 lanes (inside)
Interchange/Ramp Improvements	SJ14-2004	SR 120 at Yosemite Ave/Guthmiller Road	K	SR 120 at Yosemite Ave/Guthmiller Road	Reconstruct interchange
6. SR-99: Main Street Interchange to SR-120 Juncture					
Improvement Type	**2022 RTP MPO ID**	**Project Name**	**RCMP Strategy ID**	**Project Limits**	**Project Description**
Ridesharing and Vanpool Programs	SJ07-9001	Ridesharing and Vanpool Programs	A	San Joaquin County	Trip Reduction Coordination, Guaranteed Ride Home, Vanpool Enhancement, Match lists, TDM marketing, etc.
Single Occupant Vehicle Widening	SJ18-1001	SR-99 HOV	B	SR-120 to Stanislaus County Line	Widen 6 to 8 lanes (inside/outside), including reconstruction of SR-99/Main Street and SR-99/Wilma Avenue interchanges and pedestrian overcrossing
Single Occupant Vehicle Widening	SJ14-1004	SR 99/120 Connector Project Phase 1A	B	On SR-120 from Main Street (P.M. 5.13) to SR- 99 and on SR-99 from SR-120 to Olive Avenue (P.M. 6.22)	(Widen the eastbound SR 120 to southbound SR 99 connector ramp from one-lane to two-lanes; Remove the Austin Road overcrossing and replace with a new 4 lane structure spanning SR 99 and UPRR; Add a new connecting road from Austin Road to Woodward Ave and Moffat Blvd and modify the existing UPRR gated crossing at Woodward Ave; Temporarily close the Austin Road northbound entrance and southbound exit ramps, resulting in a partial interchange.)
Single Occupant Vehicle Widening	SJ18-1002	SR 99/120 Connector Project Phase 1B	B	On SR-120 from Main Street (P.M. 5.13) to SR- 99 and on SR-99 from SR-120 to Olive Avenue (P.M. 6.22)	Widen the northbound SR 99 to westbound SR 120 connector ramp from one-lane to two-lanes; Add an auxiliary lane in the existing median of westbound SR 120 from Main Street to SR 99; Convert the existing 99/120 separation structure to two lanes and construct a new separation structure to serve the eastbound 120 to northbound 99 connector ramp.
Single Occupant Vehicle Widening	SJ18-1003	SR 99/120 Connector Project Phase 1C	B	On SR-120 from Main Street (P.M. 5.13) to SR- 99 and on SR-99 from SR-120 to Olive Avenue (P.M. 6.22)	Add braided off ramps from SR 99 and SR 120 to Austin Road; Add loop on ramp from Austin Road to northbound SR 99 and to westbound SR 120; Add auxiliary lane on eastbound SR 120 from Main Street to SR 99; Add an auxiliary lane in each direction on SR 99 from SR 120 to approximately 1.7 mile south of Austin Road and relocate the frontage road.
Single Occupant Vehicle Widening	SJ14-2001	SR-99 at Raymus Expressway	B	SR-99 at Raymus Expressway	Construction of new interchange - ENVIRONMENTAL ONLY
Intelligent Transportation System (ITS)	SJ18-3070	SR-120 TMS Upgrade/Repairs	G.3	On Route 5, 120, and 99 at various locations in San Joaquin County	Upgrade existing communication infrastructure between field elements and District 10 TMC
Park and Ride Lots	SJ07-9002	Park and Ride Lots	H	San Joaquin County	Construct park and ride lots
7. I-580: Corral Hollow Road to SR-132 Juncture					
Improvement Type	**2022 RTP MPO ID**	**Project Name**	**RCMP Strategy ID**	**Project Limits**	**Project Description**
Ridesharing and Vanpool Programs	SJ07-9001	Ridesharing and Vanpool Programs	A	San Joaquin County	Trip Reduction Coordination, Guaranteed Ride Home, Vanpool Enhancement, Match lists, TDM marketing, etc.
Interchange/Ramp Improvements	SJ11-2032	I-580 at Lammers Road	K	I-580 at Lammers Road	Construction of new interchange - ENVIRONMENTAL ONLY
Interchange/Ramp Improvements	SJ11-2031	I-580 at Coral Hollow Road	K	I-580 at Coral Hollow Road	Modification of existing interchange - ENVIRONMENTAL ONLY

5.0 FEDERAL PERFORMANCE MANAGEMENT RULE

5.1 INTEGRATION WITH FEDERAL PERFORMANCE MEASURES

The federal performance management rule required state departments of transportation (DOTs) and metropolitan transportation organizations (MPOs) to implement the federal performance measures by 2018. The federal performance measures were thematically split into the three groupings under the rubric of "performance management" (PM). Depending on the performance measure, different geographic and network representations apply (e.g., all roadways, Interstate Highway System (IHS) only, non-IHS National Highway System, National Highway System). These are noted after each measure. Given that the RCMP is specific to the RCMP network that reflects a mix of IHS, NHS and non-NHS roadways, not all metrics are directly applicable to RCMP reporting. Additionally, some metrics such as those that pertain to vehicular emissions, are outside the scope of the RCMP and are more appropriately addressed as part of other planning efforts (e.g., during RTP/SCS updates) or will be addressed by Caltrans or Caltrans data analysis tools.

The federal performance measures are as follows:

- PM1: Safety
  - Number of fatalities (all roadways)
  - Rate of fatalities (per 100 million VMT) (all roadways)
  - Number of serious injuries (all roadways)
  - Rate of serious injuries (per 100 million VMT) (all roadways)
  - Number of non-motorized fatalities and serious injuries (all roadways)
- PM2: Transportation Asset Management
  - Percent of Interstate Highway System (IHS) pavement in good condition (IHS only)
  - Percent of IHS pavement in poor condition (IHS only)
  - Percent of non-IHS National Highway System (NHS) pavement in good condition (non-IHS NHS)
  - Percent of non-IHS NHS pavement in poor condition (Non-IHS NHS)
  - Percent of NHS bridges by deck area in good condition (NHS only)
  - Percent of NHS bridges by deck area in poor condition (NHS only)
- PM3: System Reliability, Freight, Congestion, and Air Quality
  - Percent of person-miles traveled on the IHS that are reliable (IHS only)
  - Percent of person-miles traveled on the non-IHS NHS that are reliable (Non-IHS NHS)
  - Percent change in tailpipe CO2 emissions on NHS compared to 2017 level (NHS)
  - Truck travel time reliability (TTTR) index (IHS only)
  - Annual hours of peak hour excessive delay (PHED) per capita (NHS only in urbanized TMAs in federal non-attainment areas)
  - Percent of non-single occupancy vehicle (SOV) travel
  - Total emissions reduction (all projects)

State DOTs (e.g., Caltrans) are directly responsible for submitting performance targets and annual progress reports on those targets to federal agencies. To complete the required reporting tasks more efficiently for both federal CMP and the federal performance management rule, SJCOG has integrated many of the PM1-3 federal performance measures as RCMP performance measures.

The RCMP does not report the federal PM3 emissions performance measures. This includes:

- Percent change in tailpipe CO_2 emissions on NHS

Integration of this performance measures may be considered during the next RCMP update. The RCMP monitors and reports on the federal PM1 safety performance measures as well as the federal PM2 asset management metrics (reporting of the IHS and non-IHS NHS system is deferred to Caltrans). SJCOG works with its local agencies to report the PM3 non-NHS system roadways identified in the RCMP.

6.0 STUDY REFERENCES

San Joaquin Council of Governments (SJCOG)

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