Performance Report

JUNE 2020

ROADWAY SAFETY | TRAFFIC CONGESTION | PAVEMENT & BRIDGE

Contents

APPENDICES

FINDING SUMMARY

PM 1 - Roadway Safety			
Performance Metrics	**2016**	**2017**	**2018**
Number of Fatalities	118	116	107
Annual Fatality Rate Per 100 Million VMT	1.75	1.71	1.57
Number of Serious Injuries	292	353	419
Annual Serious Injury Rate Per 100 Million VMT	4.33	5.2	6.17
Number of Non-Motorized Fatalities and Injuries	75	94	95
Fatalities	26	30	38
Injuries	49	64	57
PM 2 – Transportation Asset Management			
Performance Metrics	**2016**	**2017**	**2018**
Pavement Conditions along Interstate of NHS ("Good")	33%	N/A	N/A
Pavement Conditions along Interstate of NHS ("Poor")	7%	N/A	N/A
Pavement Conditions along Non-Interstate of NHS ("Good")	69%	65%	51%
Pavement Conditions along Non-Interstate of NHS ("Poor")	4%	11%	12%
PM 3 – System Reliability, Freight, Congestion, and Air Quality			
Performance Metrics	**2017**	**2018**	**2019**
Travel Reliability along Interstate on NHS	90.6%	91.6%	89.6%
Travel Reliability along Non-Interstate on NHS	87.2%	86.6%	88.2%
Freight Reliability	1.49	1.52	1.56
Performance Metrics	**16/17**	**17/18**	**18/19**
CMAQ Pollutant Emission Reduction			
ROG/VOC	19.32	24.34	16.31
CO	2.84	8.52	0.25
NOx	20.09	22.91	16.86
PM-10	10.28	9.93	8.90
PM-2.5	7.79	7.53	6.77

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PURPOSE OF THIS REPORT

Monitoring our regional roadway system is important for the overall goal of addressing reliability, safety, pavement and bridges maintenance, goods movement, and environmental issues in San Joaquin County. The Federal Government signed Moving Ahead for Progress in the 21st Century act (MAP 21) into law in 2012, requiring the State Department of Transportation (e.g. Caltrans) to establish performance measures targets to achieve national transportation goals.[1] This report supplies the most current conditions for each performance measure.

Federal Requirements

MAP-21 established the "Performance Based Planning & Programming (PBPP)", a performance- and outcome-based program with the objective of investing in projects that will help achieve the national goals for transportation. Fixing America's Surface Transportation Act of 2016 (FAST Act) carries forward the same performance management framework. The Performance Based Planning framework is closely related to performance measurement and target-setting work that has been part of SJCOG's work program for many years, including the Regional Transportation Plan (RTP), Regional Congestion Management Program (RCMP), and Regional Transportation Impact Fee (RTIF). Caltrans has identified a new requirement for Metropolitan Planning Organizations (MPOs) to include Performance Based Planning as a separate work element in the Overall Work Program (OWP), which SJCOG included for FY 19/20.[2]

Performance Based Planning and Programming (PBPP) provides a greater level of transparency and accountability, improved project decision-making, and more efficient investment of State and Federal transportation funds.

Performance Measure (PM)

Beginning in 2018, State Departments of Transportation (DOTs) and MPOs is required to implement the Federal performance measures. These Federal performance measures are thematically split into under the rubric of "Performance Management" (PM):

- PM 1: Roadway Safety
- PM 2: Transportation Asset Management
- PM 3: System Reliability, Freight, Congestion, and Air Quality

For each set of performance measures, Federal Highway Administration (FHWA) has issued a Final Federal Rule identifying the performance metrics that State DOTs and MPOs are responsible to asses. The State DOTs (e.g. Caltrans) are directly responsible to submit performance targets and periodic reports on progress to those targets to Federal agencies on an annual basis. The first year of required target setting for the three performance measure categories (PM 1-3) is 2018, and FHWA will review each state DOT's annual performance in relation to their 2018 targets.

Caltrans Performance Management (PM) Targets

Caltrans established multiple workshops and/or advisory committees via in person on phone with MPOs during the development of statewide PM targets. MPOs, such as SJCOG, are required to establish targets for the same performance measures on all public roads in the MPO planning area within 180 days after the state establishes each target. The MPO may elect to support the statewide targets, establish numerical targets specific to their region, or use a combination of both approaches.[2] SJCOG elected to support the statewide target rather than establishing a region-specific numerical target for PM 1 through 3.

These performance measures serve as indicators for each PM and are updated on an annual basis, but at present time are not intended to set targets. SJCOG reported the region's performance through the performance measures of each PM and is not required to directly assess their contribution to statewide targets of each performance measure.

[1] U.S. Department of Transportation's Federal Highway Administration, https://www.fhwa.dot.gov/map21/

[2] Caltrans Target Reporting Forms PM1, PM2, & PM3

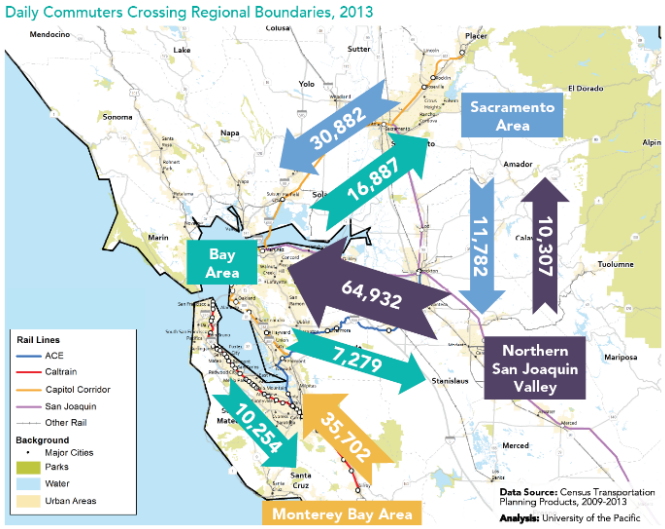
SAN JOAQUIN COUNTY TRANSPORTATION SYSTEM

San Joaquin County's Transportation system supports personal vehicles, freight trucks, buses, trains, bicyclists, and pedestrians.

Regional Roadway Network

San Joaquin County's regional roadway includes three interstate freeways (I-205, I-580, and I-5), six state routes (SR-4, SR-12, SR-33, SR-88, SR-99, SR-120, and SR-132), and numerous local roadways. San Joaquin County residents and goods are transported along this regional roadway network to access within and neighboring counties. Neighboring counties can access San Joaquin or adjacent county along this regional roadway network. Sacramento County accesses the San Francisco Bay Area, particularly Alameda and Santa Clara County, or vice versa along I-5, SR-99, SR-120, and/or I-205. Central Valley accesses Sacramento County along SR-99 or I-5. Central Valley, particularly Stanislaus and Merced Counties, accesses San Francisco Bay Area along SR-99, SR-120, I-580, I-5, and I-205.

Figure 1: Example of Commute Patterns



Source: Bay Area Economic Institute

Transit

Bus and rail service operate in San Joaquin County. Rail service is provided by Altamont Corridor Express (ACE) and bus service is provided by various providers. Most jurisdictions maintain their own bus service.

Tracer serves City of Tracy

Grapeline serves City of Lodi

Manteca Transit serves City of Manteca

E-Trans serves City of Escalon

Blossom Express serves City of Ripon

Regional Transit District (RTD) serves primarily serves City of Stockton and San Joaquin County while also operating in Cities of Lodi, Lathrop, Tracy, and Ripon.

Transit access is also available from/to areas outside of San Joaquin County; including RTD's bus service and ACE's rail service to/from Alameda and Santa Clara County, bus service to/from Stanislaus County via Blossom Express and Modesto Area Express (MAX), and bus/rail service to/from various areas outside of San Joaquin County via Amtrak or Greyhound. *Please see the Reference Section for each transit provider's link.*

Rideshare, like Uber or Lyft, are available in or out of San Joaquin County. RTD funds 50% (up to $5.00) of your Uber ride if starting or ending outside of RTD's service area or at specific transit centers between 4AM & 10AM and 4PM & 10PM.[3] In addition, RTD started an on-demand service, called "Van Go," which transports up to 4 people anywhere within a set zone between 6AM to 6PM Monday through Friday and 6AM to 10PM Saturday & Sunday. "Van Go" program has a set fee for one-way trips and unlimited trips daily, with a transfer to a RTD fixed route being free.[4]

Bicycle Facilities

As of 2018, there are approximately 282 miles of bicycle lanes in San Joaquin County; including bicycle paths (Class 1), bicycle lanes (Class 2), and shared lane (Class 3). An additional 875 miles of bicycle lanes are planned in the future.

[3] San Joaquin Regional Transit District, http://sanjoaquinrtd.com/rtdgo/

[4] San Joaquin Regional Transit District, http://sanjoaquinrtd.com/vango/

Goods Movement

Goods movement is vital for economic vitality and growth in San Joaquin County. Goods can be moved along existing roadway system via trucks, along waterways via boats, and along railroad system via train.

Roadway System – Trucks can travel along any roadway/highway, deemed part of Surface Transportation Assistance Act (STAA) route.

Waterways – Boats can travel along waterways between San Francisco Bay Area and Port of Stockton, northwest of SR-4 and west of I-5. Port of Stockton has millions of square feet of warehousing and has the capability to load or unload Panamax-sized vessels.

Rail System – Trains can travel along rail system, owned by Burlington Northern Santa Fe (BNSF) and Union Pacific (UP). Rail system can transport goods outside San Joaquin County and even California to designations, like New Jersey or Georgia.

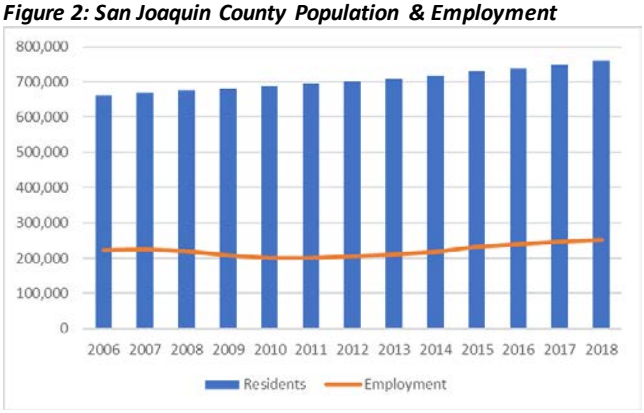
SAN JOAQUIN COUNTY DEMOGRAPHICS

Current and historical population and employment numbers, along with current commute patterns, illustrate the existing conditions and may better foresee future transportation infrastructure projects in San Joaquin County.

Population / Employment

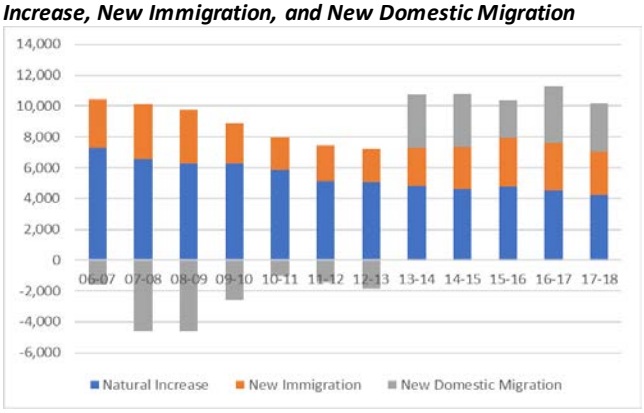
Current data estimates San Joaquin County's population was 760,310 and employment was 253,099 in 2018. Population increased 99,425 from 2006 due to the increasing numbers of new births along with new residents from outside of San Joaquin County and United States. Since July 2013, more people have been entering rather than leaving San Joaquin County, especially from out of county or state.

Figure 2: San Joaquin County Population & Employment



Source: Bureau of Labor Statistics Series ID: ENU0607710010 & Department of Finance E2 - California County Population Estimates and Components of Change by Year—July 1, 2000–2010 and July 1, 2010 – 2019 Reports

Figure 3: San Joaquin County Population Growth by Natural Increase, New Immigration, and New Domestic Migration



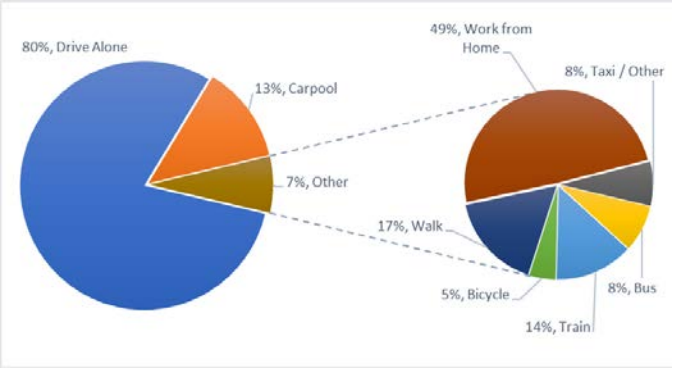
Source: Department of Finance E-2. California County Population Estimates and Components of Change by Year – July 1, 2010 – 2019 Report

Employment increased 31,360 between 2006 to 2018. San Joaquin County experienced reduced employment numbers between 2008 to 2011, which aligns with the unemployment rate. Unemployment increased since 2006 and spiked at 16.5% in 2010, where unemployment gradually continued to decrease over the years.

Commute Patterns

San Joaquin County residents primarily drove alone (80.01%) or carpooled (12.68%) to work. The remainder worked from home (3.60%), walked/biked (1.56%), used public transit (1.59%), or took taxi/other (0.56%).

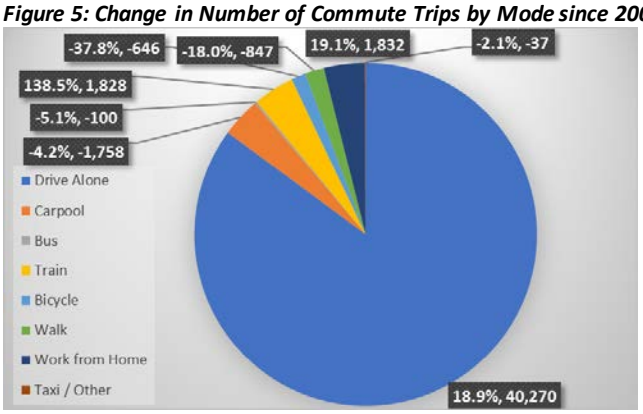
Figure 4: San Joaquin County Journey-To-Work Mode Share



Source: American Factfinder, B08006 – Sex of Workers By Means of Transportation To Work, 2018.

Number of commute trips to work by driving alone, riding train, and working from home increased while walking, bicycling, riding the bus, carpooling, and taxi/other decrease from 2006 to 2018. Train ridership encountered the highest increase with 138.5%, followed 19.1% increase in working from home and 18.9% increase in driving alone. Bicycling reduced 37.8%, followed by a 18% reduction in walking, 5.1% reduction in bus ridership, 4.2% reduction in carpooling, and 2.1 reduction in tax/other.

Figure 5: Change in Number of Commute Trips by Mode since 2006



Source: American Factfinder, B08006 – Sex of Workers By Means of Transportation To Work, 2006 & 2018.

PM 1 - ROADWAY SAFETY

PM 1 - ROADWAY SAFETY

Caltrans established statewide performance targets in accordance with FHWA's Safety Performance Management Final Rule as an implementation of the Highway Safety Improvement Program (HSIP). These statewide targets address fatalities and serious injuries of motorize and non-motorized accidents on roads in San Joaquin County (Table 1).

Table 1: 2019/2020 Caltrans Adopted Safety Performance Targets

Performance Measure	SHSP Base (2016)	2019 Target (5-Yr. Rolling Avg.)	2020 Target (5-Yr. Rolling Avg.)
Number of Fatalities	3,680	3,445.4	3,518.0
Rate of Fatalities (per 100M VMT)	1.057	0.995	1.023
Number of Serious Injuries	13,017	12,688.1	13,740.4
Rate of Serious Injuries (per 100M VMT)	3.889	3.661	3.994
Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	4,485	3,949.8	4,147.4

Source: Metropolitan Planning Organization Agreement 2019 California Safety Performance Management 1 (PM1) Targets MPO Target Report Template, Metropolitan Planning Organization Agreement 2020 California Safety Performance Management 1 (PM1) Targets MPO Target Report Template

These performance targets are the result of Safety Performance Management Workshops in 2017 and 2018 between Caltrans and MPOs, where MPOs supplied feedback to Caltrans on PM 1 targets. The results of March 13, 2018 workshop selected a scenario that aligns 2015-2019 Strategic Highway Safety Plan (SHSP) and helps California reach zero fatalities by 2050 with 2016 as a starting point.[5] 2020-2024 SHSP is in development and should instill the same "zero deaths by 2050" goal.

Caltrans, with help from Office of Traffic Safety, established and reported three performance measures (i.e. number of fatalities, number of serious injuries, and rate of fatalities) to National Highway Safety Administration. In addition, rate of serious injuries and number of non-motorized serious injuries and fatalities were reported to Federal Highway Administration on August 31, 2018.

SJCOG PM 1 Compliance

SJCOG simulated Caltrans' methodology by accessing the data sources, found in Caltrans' 2019 California Performance Management (PM1) Safety MPO Target Reporting Template, to report the most comparable stats for San Joaquin County. The three data sources include Statewide Integrated Traffic Records System (SWITRS), Fatality Analysis Reporting System (FARS), and Highway Performance Monitoring System (HPMS). It should be noted that there was no mention of FARS data being part of the methodology for non-motorized serious injuries and fatalities in Safety Performance Management Targets for 2019, resulting in SWITRS data being used for fatalities in lieu of FARS data.

Table 2: PM 1 Data Source

Agency	Database	Performance Measure
California Highway Patrol	SWITRS	Number of Serious Injuries Rate of Serious Injuries Number of Non-Motorized Fatalities & Serious Injuries
Highway Traffic Safety Administration	FARS	Number of Fatalities Rate of Fatalities
California Department of Transportation	HPMS	Rate of Fatalities Rate of Serious Injuries

Source: 2019 California Performance Management (PM1) Safety MPO Target Reporting Template

Findings

Aligning with the statewide goal of reaching zero fatalities by 2050, 2016 was selected at the starting point for this analysis. 2018 was the most current observation year reported by all data sources at this time.

There were 107 fatalities, 419 serious injuries, and 95 non-motorized serious injuries and fatalities. Of 95 non-motorized accidents, 57 were serious injuries and 38 were fatalities. Fatality rate (per 100 million vehicle miles traveled (VMT)) was 1.57 and serious injury rate (per 100 million VMT) was 6.17.

[5] Caltrans, Safety Performance Management Targets for 2019

Compared with 2016, there were 11 less fatalities, 127 more serious injuries, and 20 more non-motorized fatalities and serious injuries.

Importance Of SJCOG Contribution

The increase in serious injuries and non-motorized fatalities/serious injuries supports the need for SJCOG establishing safety-related policies and programs, along with improved communication and coordination with stakeholders.

2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) for San Joaquin County established one safety-related policy that includes two strategies.

> **Strategy #9** – Facilitate projects that reduce the number of and severity of traffic incidents
>
> **Strategy #10** – Encourage and support projects that increase safety and security. [6]

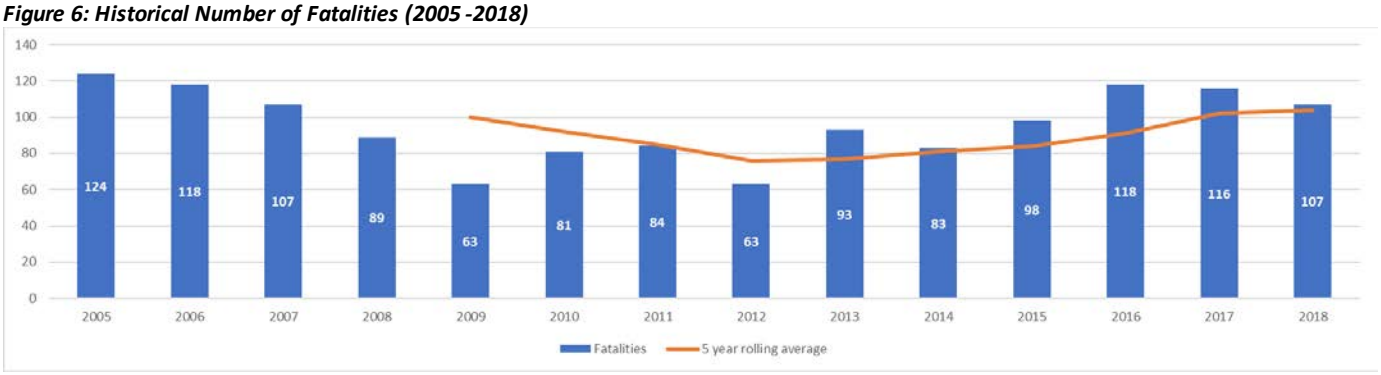
These strategies are captured in SJCOG's Active Transportation program, Alternative Transportation program, and many other programs. In addition, SJCOG funding of various alternative transportation projects, like active transportation project funding.

[6] SJCOG RTP/SCS Executive Summary, https://www.sjcog.org/DocumentCenter/View/3778/Final-Executive-Summary-

Number of Fatalities

Number of fatalities were accounted annually by FARS. In 2018, the five-year rolling average was 104 fatalities with 107 observed during the same year. The five-year rolling average includes two years of decreasing fatalities and three years of increasing fatalities. **Figure 6: Historical Number of Fatalities (2005 -2018)** illustrates annual fatalities in blue and five-year rolling average in orange. The number of fatalities decreased by 9 since 2017.

Figure 6: Historical Number of Fatalities (2005 -2018)

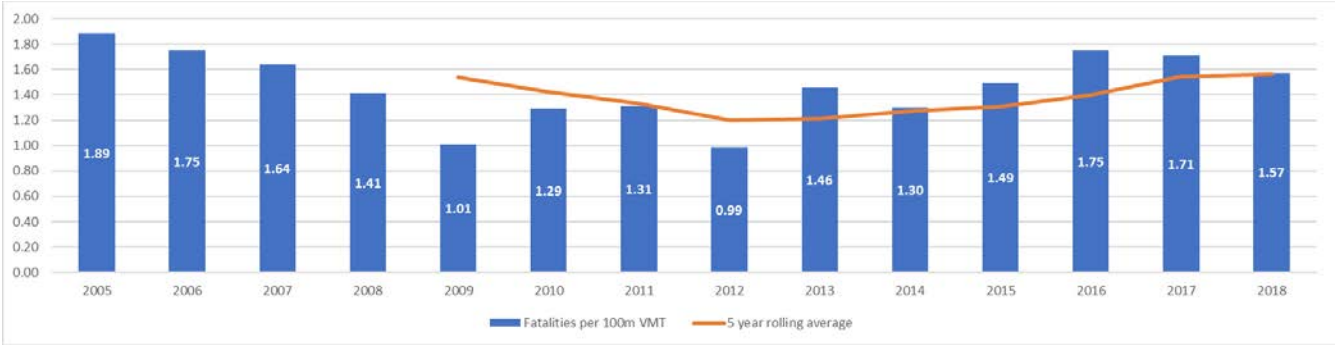


Source: Fatality Analysis Reporting System (FARS)

Annual Fatality Rate (per 100 million VMT)

Annual fatality rate accounted for the number of fatalities per 100 million miles driven. In 2018, the rolling average was 1.57 of 1.57 annual fatality rate per 100 million VMT (AFR/100M) observed during the same year. AFR/100M was calculated by dividing the number of fatalities by VMT. Number of fatalities can vary yearly while VMT steadily increases over the years. AFR/100M reduced by 0.14 since 2017.

Figure 7: Fatality Rate per 100 Million VMT (2005 -2018)

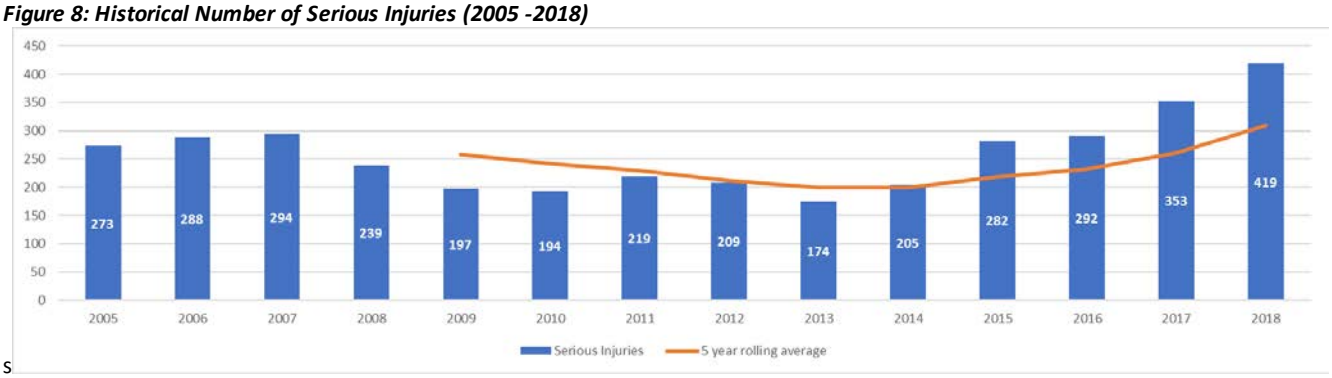


Source: Fatality Analysis Reporting System (FARS), Highway Performance Monitoring System (HPMS)

Number of Serious injuries

Number of serious injuries were accounted for annually by SWITRS. In 2018, the rolling average was 310 of 419 serious injuries observed during the same year. The number of serious injuries increased by 66 since 2017.

Figure 8: Historical Number of Serious Injuries (2005 -2018)



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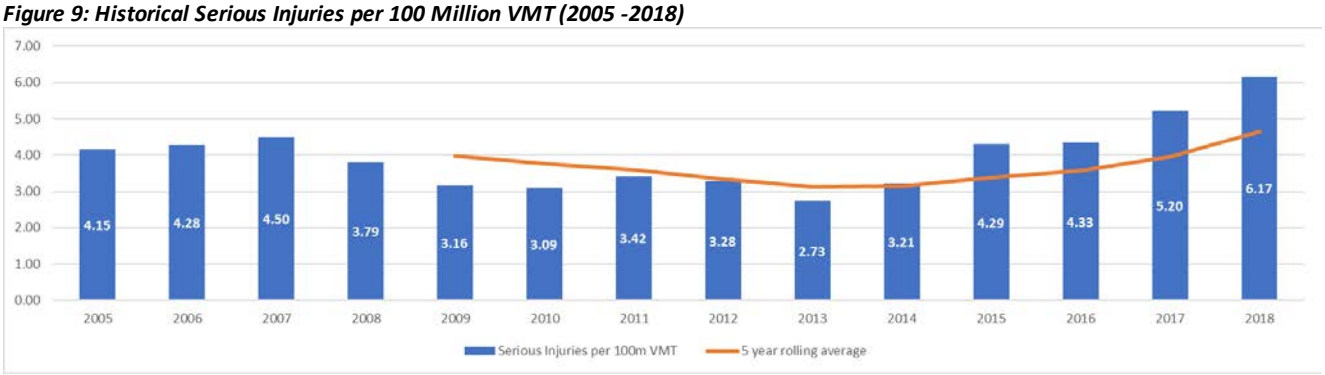
Source: Statewide Integrated Traffic Records System (SWITRS)

Annual Serious Injury Rate (per 100 million VMT)

Annual serious injury rate accounted for the number of fatalities per 100 million miles driven. In 2018, the rolling average was 4.64 of 6.17 annual serious injury rate per 100 million VMT (ASIR/100M) observed during the same year. AFT/100M was calculated by dividing the number of fatalities by VMT. Number of fatalities can vary yearly while VMT steadily increases over the years. AFT/100M increased by 0.97 since 2017.

Figure 9: Historical Serious Injuries per 100 Million VMT (2005 -2018)

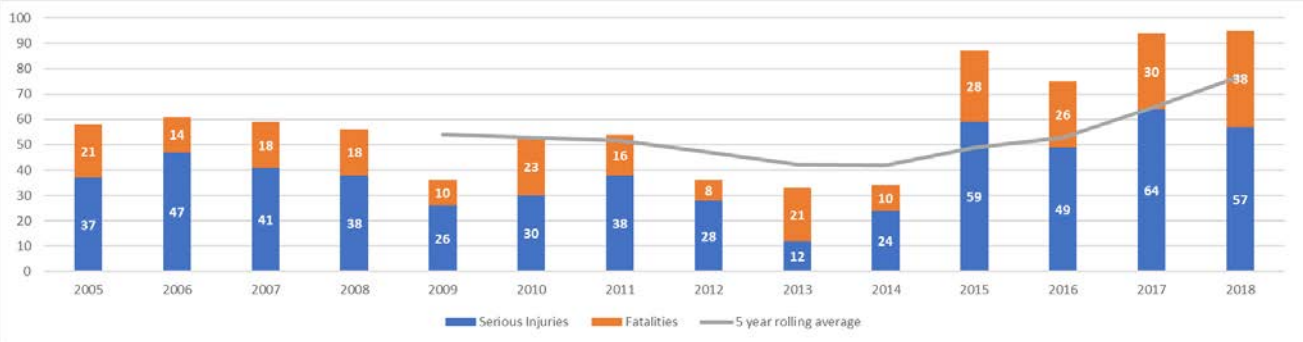


Source: Statewide Integrated Traffic Records System (SWITRS), Highway Performance Monitoring System (HPMS)

Number of Non-Motorized Fatalities and Injuries

Number of non-motorized fatalities and serious injuries were accounted for annually by SWITRS. In 2018, the rolling average was 77 of 95 non-motorized fatalities and serious injuries; of which 57 was serious injuries and 38 were fatalities, observed during the same year. The number of non-motorized fatalities increased by 8 and number of non-motorized serious injuries decreased by 7 since 2017.

Figure 10: Historical Number of Bicycle and Pedestrian Fatalities and Injuries (2005 -2018)



Source: Statewide Integrated Traffic Records System (SWITRS)

PM 2 – Transportation Asset Management

PM 2 – TRANSPORTATION ASSET MANAGEMENT (TAM)

Caltrans' Transportation Asset Management Plan (TAMP) established national performance measures for pavement and bridges with statewide targets in accordance with Federal Regulation (23 U.S.C. 150). 10 years of data are assessed, from 2017/18 to 2027/28, with 2-year (Table 3) & 4-year targets to determine its progress toward 10-year goal.[7] The availability of Senate Bill 1 (SB1) and local measure funding is anticipated to improve current pavement and bridge conditions along National Highway System (NHS) per Caltran's TAMP.[8] NHS includes interstates and other roadways of national importance to mobility, defense, and economy.

Table 3: Caltrans Adopted TAM Performance Targets

Performance Measure	Current 2016 (Pavement) / 2017 (Bridge)		2-Year Target (1/1/18 – 12/31/19)		4-Year Target (1/1/20 – 12/31/21)	
	Good	Poor	Good	Poor	Good	Poor
Pavement on NHS						
Interstate	47.9%	3.1%	45.1%	3.5%	44.5%	3.8%
Non-Interstate	43.5%	2.5%	28.2%	7.3%	29.9%	7.2%
Bridges on NHS						
	69.4%	3.7%	69.1%	4.6%	70.5%	4.4%

Source: 2018 Caltrans Target Setting Methodology for PM2 – National Highway System Pavement & Bridge Targets, 5/21/18 Caltrans Statewide PM2 Target Letter

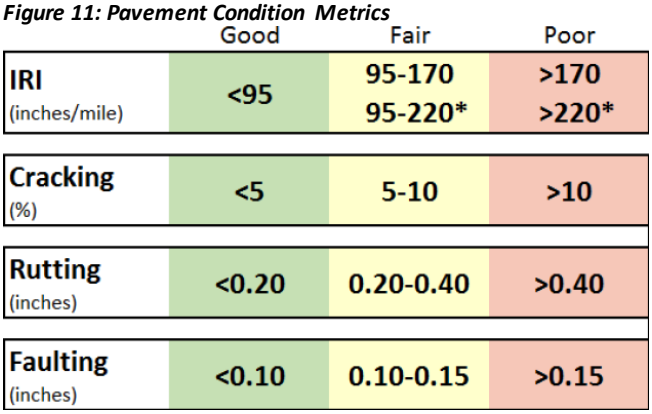
Caltrans held a workshop with MPOs to introduce a preliminary methodology for establishing 10-year NHS pavement and bridge targets in August 2017. A follow-up letter requested MPOs select a target methodology in September 2017. Caltrans accessed 2017 State Highway System Management Plan (SHSMP) deterioration rates and unit costs from 2016 Local Streets and Roads Needs Assessment as factors in determining the targets, based on level of available funding.

5/21/18 PM2 Caltrans statewide target letter included current pavement conditions (2016) and bridge conditions (2017) with 2-year targets (1/1/18-12/31/19) and 4-year targets (1/1/20-12/31/21).

Rating System Explained

Pavement and bridge conditions are rated either a "Good," "Fair," or "Poor." "Good" suggests no need for major investment and "Poor" suggests the need for major reconstruction investment. Pavement conditions are measured by 1) International Roughness Index (inches/mil), 2) Cracking (%), 3) Rutting (inches), and 4) Faulting (inches) (Figure 11).

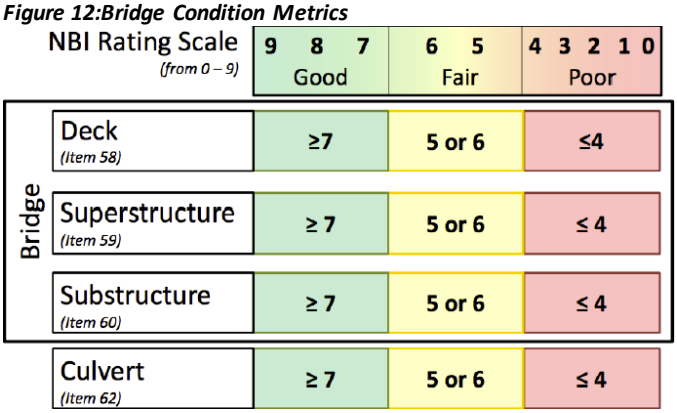
Figure 11: Pavement Condition Metrics



Caltrans Pavement & Bridge Target Setting Webinar (3/29/18)

Bridge conditions rates the 0 to 9 the conditions of deck, superstructure, substructure, and culvert. 0-4 are rated "Poor" and 7-9 are rated "Good."

Figure 12:Bridge Condition Metrics



Caltrans Pavement & Bridge Target Setting Webinar (3/29/18)

For more information on rating system, please refer to March 29, 2018 Webinar for PM2 on http://www.dot.ca.gov/assetmgmt/pm2.html.

[7] Caltrans, http://www.dot.ca.gov/assetmgmt/documents/Webinar_Slides.pdf

[8] Caltrans' 2018 PM2 Pavement and Bridge Target Setting Methodology

SJCOG PM 2 Compliance

Caltran's Transportation Asset Management website, http://www.dot.ca.gov/assetmgmt/pm2.html, provided the guidance on pavement and bridge measures. Pavement data was unavailable online and had to be requested from Caltrans. Caltrans provided "2016_NHS_CA_2" dataset for pavement conditions. Bridge data was found online, under "Local Agency Bridge Inventory List" for 2018.

In 2019/20, SJCOG staff was unable to access updated versions of previously collected pavement and bridge data. Caltrans was contacted for an updated pavement condition dataset, but could not provide one. SJCOG staff decided to defer updating pavement conditions for a year and use 2016 Caltrans dataset. In addition, SJCOG staff found the Local Bridge Inventory List" was removed from Caltrans' website. SJCOG staff found Federal Highway Administration's LTBP InfoBridge database an acceptable replacment. This database includes bridge conditions (i.e. Good, Fair, Poor) between 1993 and 2018.

Findings

As dictated by in Caltrans statewide 2018 target letter, 2016 was selected as the starting point for this analysis. Pavement data was only available for 2016 and only available from Caltrans staff. Through a new bridge database, SJCOG can report from 2016 to 2018 conditions. A comparative assessment for pavement conditions may be performed in the next performance report.

Pavement Conditions

Caltrans "2016_NHS_CA_2" was augmented to separate interstate from the remainder of NHS on-file. Only interstates in San Joaquin County include I-5, I-205, and I-580. The results found 33% of pavement conditions along NHS to be "Good," 61% "Fair," and 7% "Poor."

Table 4: Percentage of Interstate Pavements

Performance Metric	Percentage
Good	33%
Fair	61%
Poor	7%

Of pavement conditions along non-interstate NHS, 31% was found "Good," 62% "Fair," and 7% "Poor" in 2016.

Table 5: Percentage of Non-Interstate Pavement

Performance Metric	Percentage
Good	31%
Fair	62%
Poor	7%

Note: League of California Cities generated California Statewide Local Streets and Roads Needs Assessment, which provides a general overview of pavement and bridge conditions and costs. San Joaquin County overview can be found in **Appendix B**.

NHS Bridge Condition

LTBP InfoBridge database was filtered to NHS. Appendix C illustrates bridge conditions in San Joaquin County between 1993 and 2018. In 2016, there were a total of 264 bridges in San Joaquin County: 69% in "Good" condition, 27% in "Fair" condition, and 4% in "Poor" condition. In 2018, the total bridge numbers increased to 282, with a decrease in "Good" condition bridges (51%) and increase in "Fair" (37%) and "Poor" (12%) condition.

Bridge Condition

Rating	2016		2017		2018	
	#	%	#	%	#	%
Good	183	69%	181	65%	145	51%
Fair	70	27%	68	24%	104	37%
Poor	11	4%	31	11%	33	12%
Total	**264**	**100%**	**280**	**100%**	**282**	**100%**

Federal Highway Administration's LTBP Infobridge

Importance Of SJCOG Contribution

Bridge conditions worsened between 2016 and 2018, with a 18% decrease in "Good" condition bridges and 8% increase in "Poor" condition. Pavement conditions were unavailable for 2018; however, there were concerns on the 7% interstate and 7% non-interstate highways in "Poor" condition in 2016. Thus; SJCOG established

policies for the purpose maintaining San Joaquin County growing inventory of bridges and highways.

RTP/SCS for San Joaquin County established one transportation asset management-related policy that includes one strategy.

> **Strategy #13** – Support the Continued Maintenance and Preservation of the Existing Transportation System.

This strategy is captured in a number of SJCOG administered funding sources, like SB 1 and Regional Transportation Improvement Program (RTIP).

PM 3 - System Reliability, Freight, Congestion, and Air Quality

PM 3 - SYSTEM RELIABILITY, FREIGHT, CONGESTION, and AIR QUALITY

Federal Highway Administration (FHWA) set a final ruling that establishes "performance measures for the performance of Interstate and Non-Interstate National Highway System (NHS), freight movement on Interstate system to carry out on the National Highway Freight Program (NHFP), and traffic congestion and on-road mobile sources emissions for the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) program."[9]

Three performance measures are not in this report due to:

In 2018, The Greenhouse Gas performance metric that analyzes submit the percentage change in tailpipe carbon dioxide (CO2) emissions was repealed.

There are no urbanized area in San Joaquin County that meets the 1 million resident threshold, requiring the reporting of:

1) Annual hours of peak-hour excessive delay per capita
2) Percent of non-single occupancy vehicle (SOV) travel

Table 6: Caltrans PM3 Performance Targets

Performance Measure	Current Conditions (2017)	2-Year Target	4-Year Target
Percent of Reliable Person-Miles Traveled on the Interstate	64.6%	65.1%	65.6%
Percent of Reliable Person-Miles Traveled on the Non-Interstate NHS	73.0%	N/A	74.0%
Percentage of Interstate System Mileage Providing Reliable Truck Travel Time (Truck Travel Time Reliability Index)	1.69	1.68	1.67
Total Emissions Reductions by Applicable Pollutants under the CMAQ Program			
VOC (kg/day)	951.83	961.35	970.87
CO (kg/day)	6,863.26	6,931.90	7,000.54
NOx (kg/day)	1,753.36	1,770.89	1,788.43
PM10 (kg/day)	2,431.21	2,455.52	2,479.83
PM2.5 (kg/day)	904.25	913.29	922.34

Source: Caltrans 2019 Target Reporting Form Performance Management (PM3) System Performance/Freight/CMAQ Targets

These targets are the result of Performance Measure (PM) 3 Technical Advisory Group meetings and webcast workshops in 2017 and 2018 with Caltrans and MPOs, resulting in the establishing the 2-year and 4 -year PM3 performance targets along with current conditions (2017).

Truck Travel Time Reliability Index Explained

Under the federal final rule, FHWA preserved the level of travel time reliability (LOTTR) for freight trucks. In addition, FHWA set the truck travel time reliability threshold at 1.50, which signifies truck travel times below 1.50 are deemed reliable. 1.50 truck travel time reliability occurs when the travel time exceeds 50% of expected travel during non-commute (i.e. 7-9 AM, 4-6 PM) times. For more information, please refer to https://www.federalregister.gov, under "national-performance-management -measures-assessing-performance-of-the-national-highway-system."

SJCOG PM 3 Compliance

Caltrans established a website (https://npmrds.iteris-pems.com/npmrds/) for Metropolitan Planning Organizations (MPO) to access monthly reliability percentages for commuters and freight truck drivers. The average of monthly reliability percentages between January and December generated the annual reliability percentage.

CMAQ pollution reduction statistics account for the categories within the target. These statistics are provided by CMAQ program manager at SJCOG, found in https://fhwaapps.fhwa.dot.gov/cmaq_pub/search.

Findings

As dictated in 2018 Caltrans PM3 Targeting Form, 2017 was selected as the starting point for this analysis. 2019 was the most current observation year reported by all data sources at this time.

[9] 2018 Caltrans Target Reporting Form – PM3 (System Performance/Freight/CMAQ Targets)

Table 7: PM3 Travel and Freight Reliability

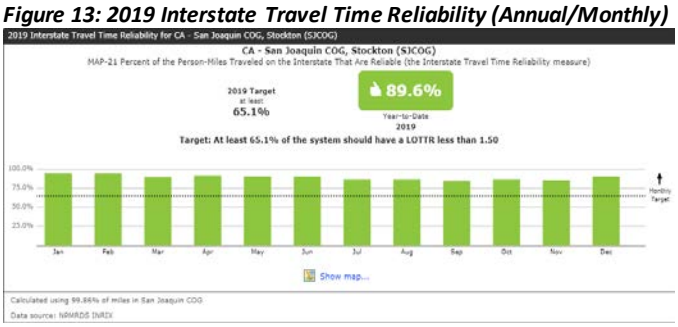
	Annual Average	
	2018	2019
Interstate Reliability	91.6%	89.6%
Non-Interstate Reliability	86.6%	88.2%
Freight Reliability	1.52	1.56

Source: https://npmrds.ritis.org

Travel Reliability: Interstate NHS

Travel reliability along interstate of NHS was 89.6% in 2019, with January being the most reliable month and September being the most unreliable month.

Figure 13: 2019 Interstate Travel Time Reliability (Annual/Monthly)

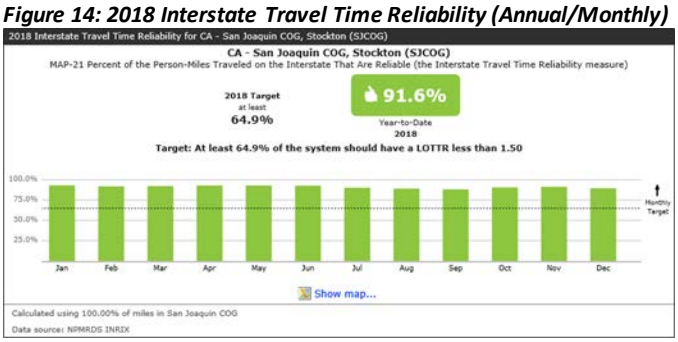


Source: https://npmrds.ritis.org

Travel reliability along interstate of NHS was 91.6% in 2018, with three months (i.e. January, April, May) being the most reliable month and September being the most unreliable month.

2018 statistics were updated from 2019 annual report. January was most reliable month at 93.1%. September was the most unreliable month at 88.2%. Annual travel time reliability along interstate of NHS remained 91.6%.

Figure 14: 2018 Interstate Travel Time Reliability (Annual/Monthly)



Source: https://npmrds.ritis.org

Travel reliability along interstate of NHS reduced between 2018 and 2019 in San Joaquin County. Strategies in the next section (i.e. Importance of SJCOG Contribution) support the need for improving travel reliability into 2020 and beyond.

Travel Reliability: Non-Interstate NHS

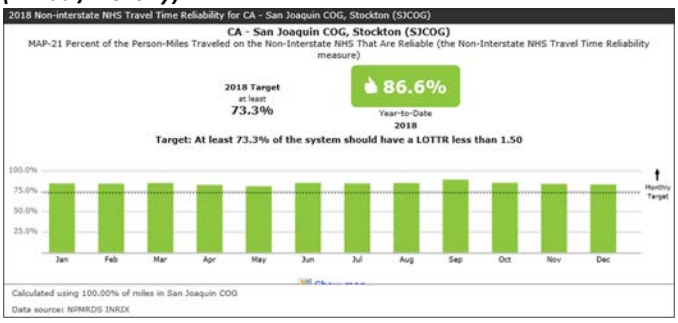
Travel reliability along non-interstate of NHS was 88.2% in 2019, with January being the most reliable month and August being the most unreliable month.

Figure 15: 2019 Non-Interstate Travel Time Reliability (Annual/Monthly)

Source: https://npmrds.ritis.org

Travel reliability along non-interstate of NHS was 86.6% in 2018, with September being the most reliable month and May being the most unreliable month. Note: In 2019, the 2018 travel reliability along non-interstate of NHS was 86.6%.

Figure 16: 2018 Non-Interstate Travel Time Reliability (Annual/Monthly)



Source: https://npmrds.ritis.org

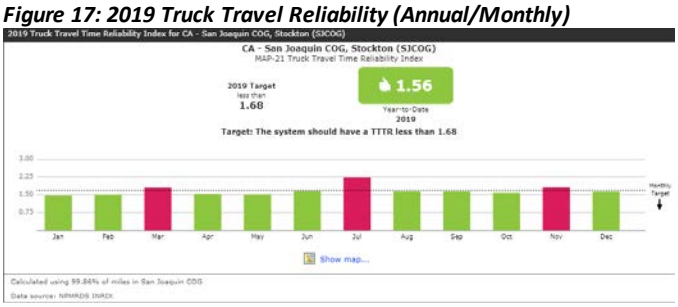
Annual travel reliability along non-interstate of NHS increased between 2018 and 2019 in San Joaquin County. SJCOG RTP/SCS supplied policies that support the improvement of travel reliability in San Joaquin County. Additional information about those strategies can be found in the next section (i.e. Importance of SJCOG Contribution).

Note: Appendix C is provided as an additional assessment that presents NPMRDS in form of buffer time index (BTI) along congested/uncongested corridors.

Travel Reliability: Truck Travel Time (LOTTR)

Truck travel reliability was 1.56 in 2019, with January being the most reliable month and July being the most unreliable month.

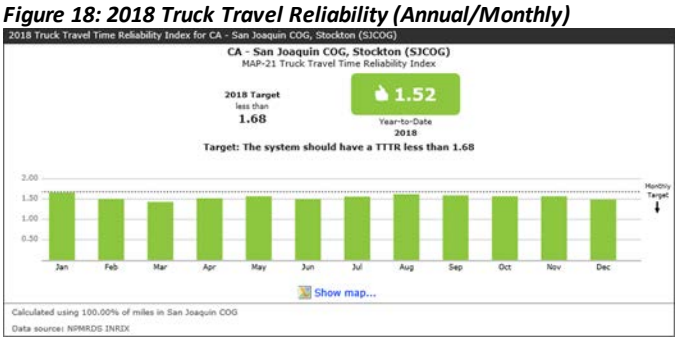
Figure 17: 2019 Truck Travel Reliability (Annual/Monthly)



Source: https://npmrds.ritis.org

Truck travel reliability was 1.52 in 2018, with March being the most reliable month and January being the most unreliable month.

Figure 18: 2018 Truck Travel Reliability (Annual/Monthly)



Source: https://npmrds.ritis.org

Annual freight reliability decreased between 2018 and 2019 in San Joaquin County, warranting the need for investments into goods movement system. Additional information about strategies that improve the goods movement system can be found in the next section (i.e. Importance of SJCOG Contribution).

San Joaquin County, along with other counties within San Joaquin Valley, is one of nation's largest agricultural producers. In addition, San Joaquin Valley plays a vital role in logistics for many companies in San Francisco Bay Area due to the "relatively inexpensive land and low cost labor, good access to the national retail and interstate highway networks, connections to major deepwater ports in Oakland, and proximity to major consumer markets."[10]

Pollution Reduction – CMAQ

SJCOG, as administrator of CMAQ program, funds transportation projects for the purpose of relieving traffic congestion and reducing car/truck emissions in San Joaquin County. SJCOG's fiscal year starts July 1st and end June 30th.

There were 14 program/projects in 18/19 fiscal year. SJCOG's DIBs program, Travel Demand Management (TDM) program for San Joaquin and Merced County, received CMAQ funding. The remainder of the projects lie primarily within the City of Stockton. A complete summary of emission reductions, except Carbon Oxide (CO), was generated. Only a few jurisdictions reported CO emission reductions.

Table 8: Pollutant Emission Reduction thru CMAQ Program

Emission Reduction	FY 16/17	FY 17/18	FY 18/19
ROG/VOC kg/day	19.32	24.34	16.31
CO kg/day	2.84	8.52	0.25
NOx kg/day	20.09	22.91	16.86
PM - 10 kg/day	10.28	9.93	8.90
PM - 2.5 kg/day	7.79	7.53	6.77
Note: CO was reported by many of jurisdictions.			

Total emission reductions thru CMAQ program reported a reduction of 16.31 kilograms per day (kg/day) in volatile organic compound (VOC), 0.25 kg/day in carbon oxide (CO), 16.86 kg/day in nitrous oxide (NOx), 8.90 kg/day in particulate matter (PM) 10, 6.77 kg/day in PM

[10] San Joaquin Valley Regional Planning Agencies, http://sjvcogs.org/wp-content/uploads/2016/01/2013-05-30-Exec-Summ-Goods.pdf

2.5 in fiscal year 2018/19. Pollutant emission reductions reduced by 8.03 kg/day in VOC, 8.27 kg/day in CO, 6.05 kg/day in NOx, 1.03 kg/day in PM 10, and 0.76 kg/day in PM 2.5 since last fiscal year (2016/17).

Importance Of SJCOG Contribution

Annual travel reliability along interstates reducing by 2%, 0.04 increase for annual freight unreliability, and reduction in total emission reductions thru CMAQ supports the need for SJCOG establishing policies and programs, along with improved communication and coordination with stakeholders.

2018 RTP/SCS for San Joaquin County established multiple travel reliability and pollutant-related policies with multiple strategies:

Strategy #3 – Improve Air Quality by Reducing Transportation-Related Emissions

Strategy #4 – Improve Regional Transportation System Efficiency

Strategy #8 – Improve Major Transportation Corridors to Minimize Impacts on Rural Roads

Strategy #12 – Optimize Existing Transportation System Capacity through Available and/on Innovative Strategies

Strategy #14 – Encourage System Efficiency with Transportation Improvements that Facilitate Improvements in the Jobs/Housing Balance

Strategy #15 – Improvement Transportation Options Linking Residents to Employment Centers within and out of the County

Strategy #16 – Improve Freight Access to Key Strategic Economic Centers

These strategies are applied to all projects that SJCOG reviews and supplies funding toward. For example, SR-120 and SR-99 interchange project has the ability to apply all the above strategies.

In relation to Goods Movement, SJCOG holds a multitude of private and public partnerships to be stay ahead of the growing demands of an everchanging goods movement industry. A couple examples of those partnerships includes SJCOG's Goods Movement Task Force and West Coast Corridor Coalition.

In addition, SJCOG has partnered with other neighboring MPOs for the purpose of generating this "mega region," which improves the chance of receiving funding from the state. SJCOG is part of two "mega regions." First "mega region" consists of Sacramento Council of Governments (SACOG), SJCOG, Metropolitan Transportation Commission (MTC), and Association of Monterey Bay Area Governments (AMBAG). Second "mega region' consists of 8 counties of San Joaquin Valley; including SJCOG, Stanislaus COG, Kern COG, Tulare COG, Fresno COG, Kings County Association of Governments (KCAG), Madera County Transportation Commission (MCTC), and Merced County Association of Governments (MCAG).

San Joaquin Valley "Mega Region" produced the 2013 San Joaquin Valley Interregional Goods Movement Plan provides a priority list of highway capacity projects along with set a recommendation to prepare for MAP-21 actions; including:

Table 9: Recommendation #1 of San Joaquin Valley Interregional Goods Movement Plan

Provision	Action
Establishes National Freight Policy	Establishes a national freight policy, including establishing goals for national investment into freight infrastructure.
National Freight Strategic Plan	Calls for development of a National Freight Strategic Plan, that would assess the condition and performance of the national freight highway network. This requires the USDOT to identify highway bottlenecks, issues, and major trade corridors.
State Freight Advisory Committee and State Freight Plans	Encourages states to establish freight advisory committees, and develop state freight plans.
National Freight Network	Calls for the establishment of a National Freight Network. This network would consist of a primary network established by the FHWA, but also portions of the interstate system and critical rural freight corridors.

Source: 2013 San Joaquin Valley Interregional Goods Movement Plan Executive Summary

Figure 19: 2018 Interstate NHS in San Joaquin County

Figure 20: 2019 Interstate NHS in San Joaquin County

Figure 21: 2018 Non-Interstate NHS in San Joaquin County

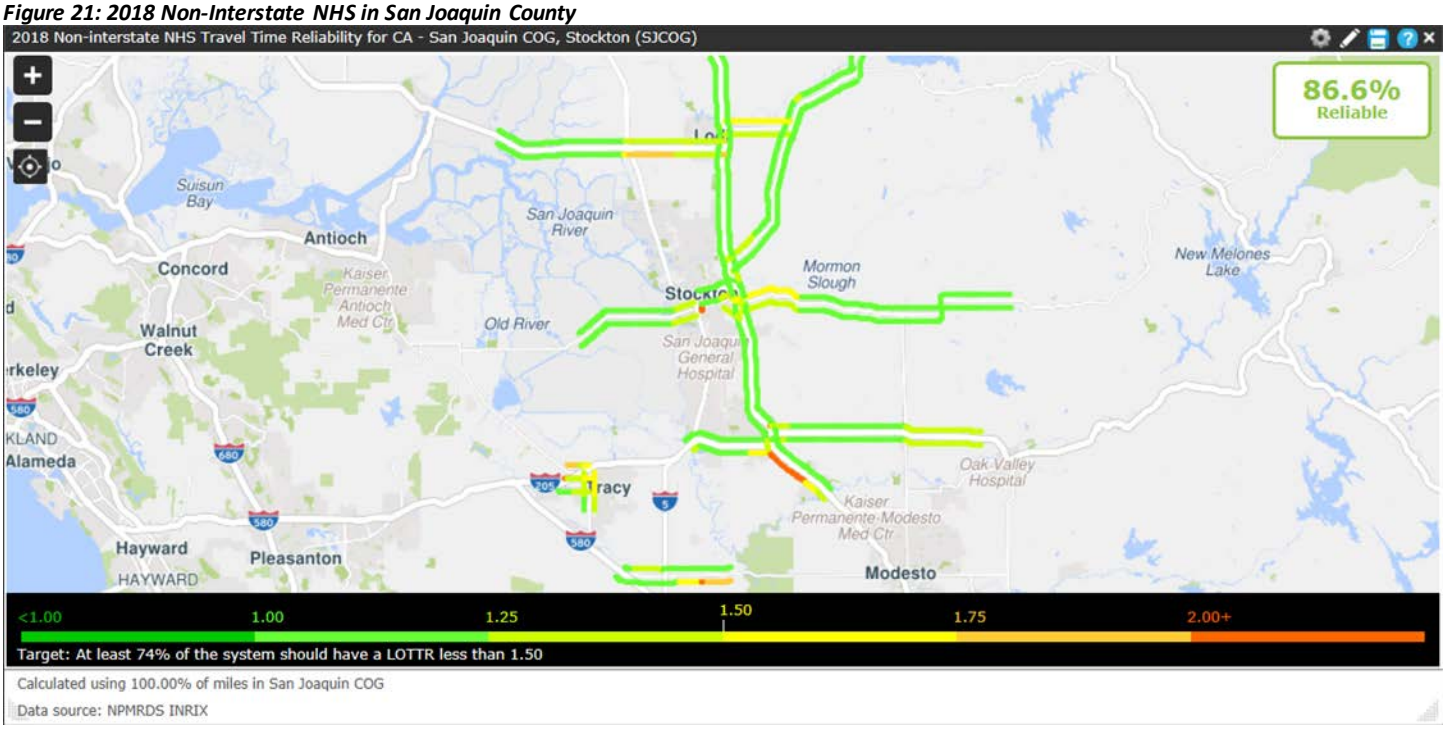


Figure 22: 2019 Non-Interstate NHS in San Joaquin County

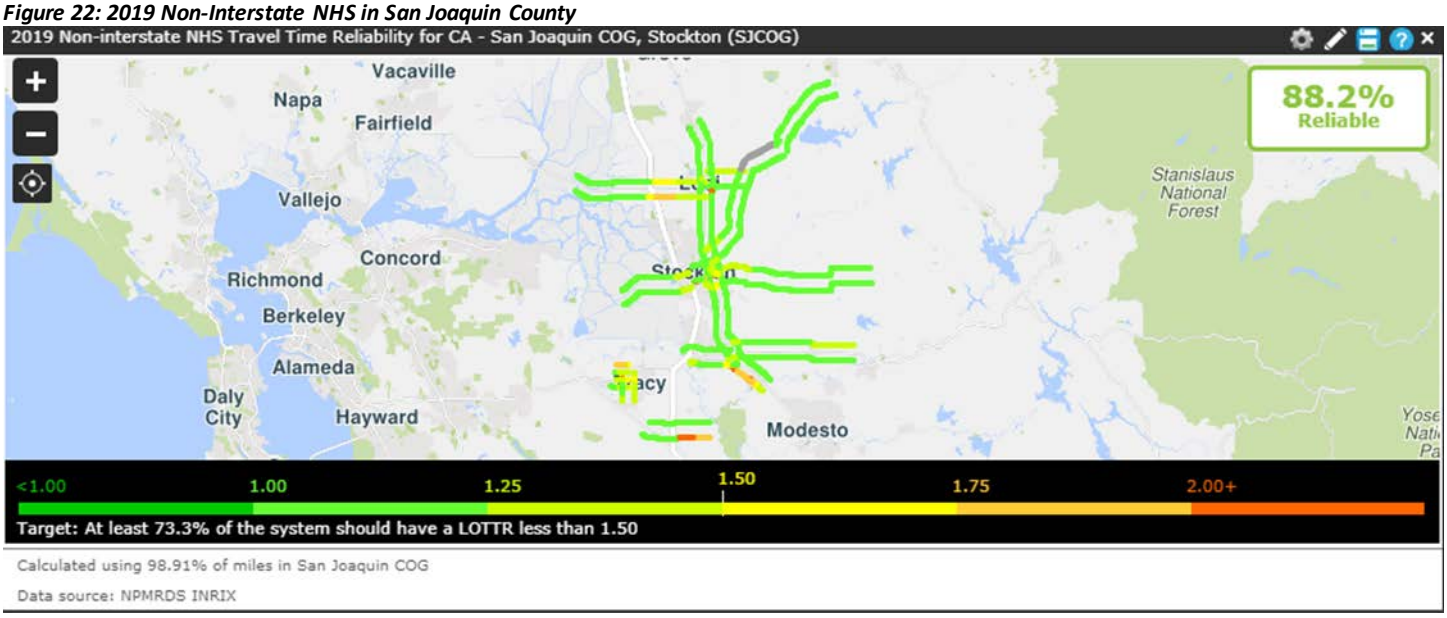


Figure 23: 2018 Truck Travel Time Reliability (LOTTR)

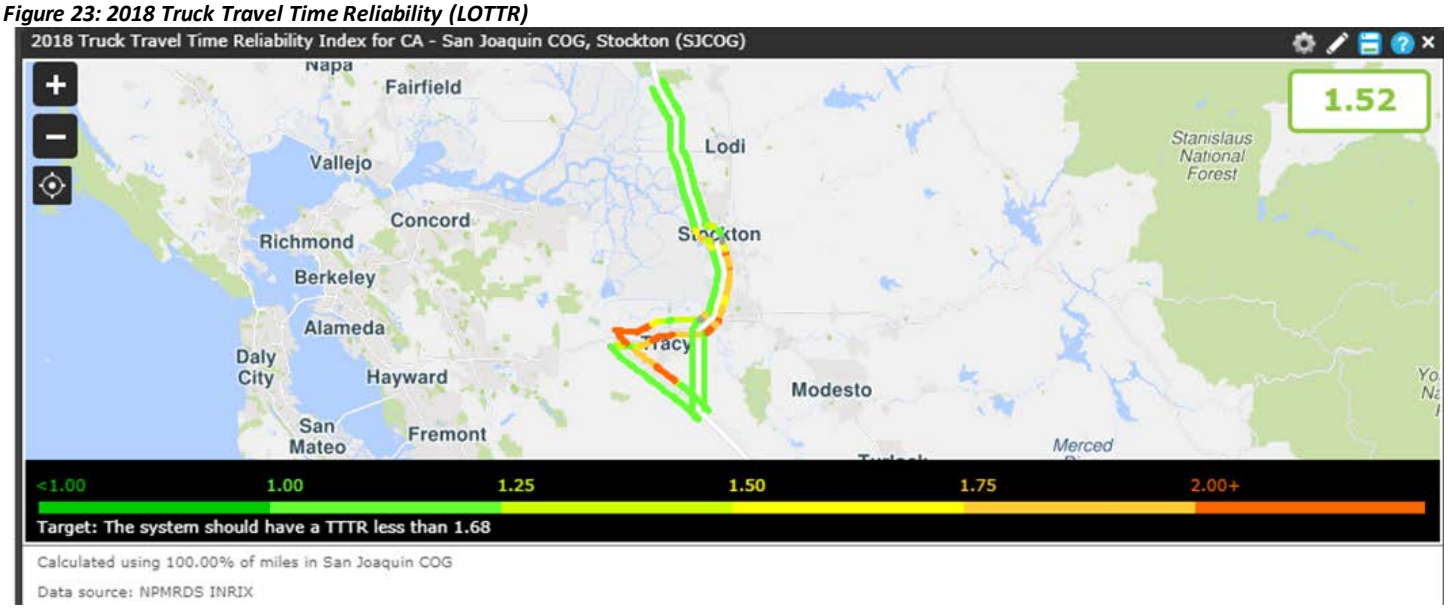
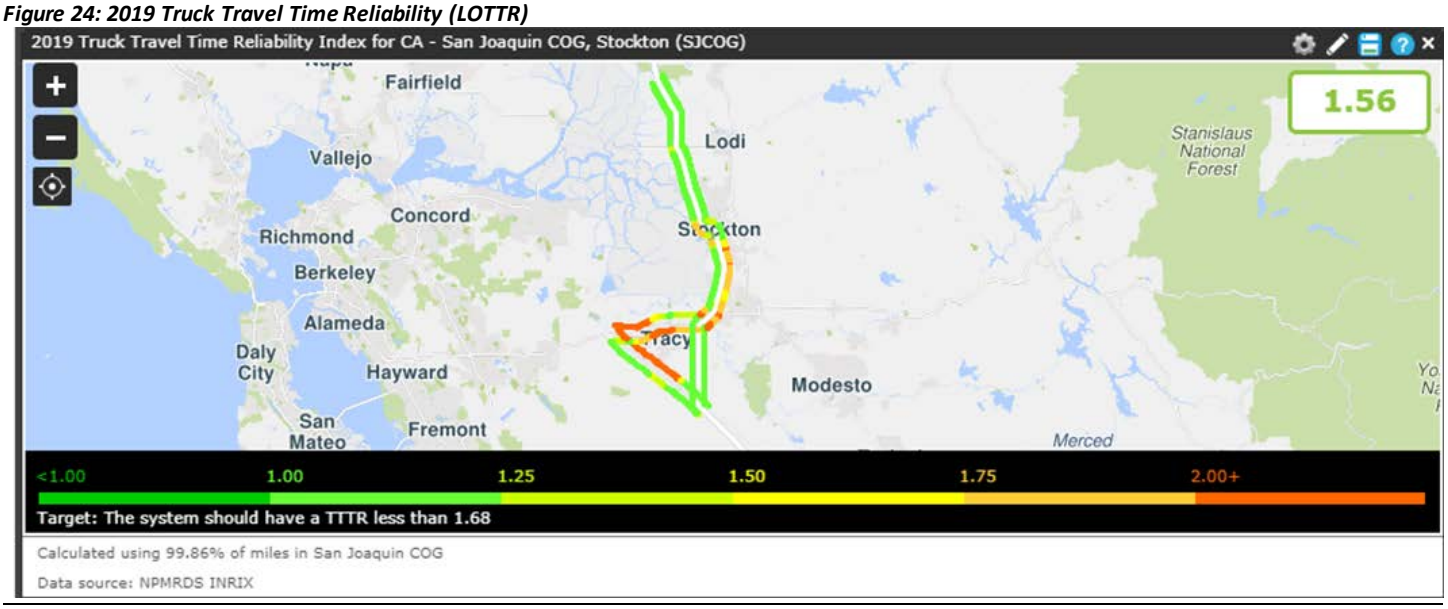


Figure 24: 2019 Truck Travel Time Reliability (LOTTR)



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Amtrak <https://www.amtrak.com>

E-Trans <http://cityofescalon.org/cms/one.aspx?pageId=13056687>

Grapeline <https://www.lodi.gov/469/Transit>

Grayhound <https://www.greyhound.com/>

Manteca Transit <http://www.ci.manteca.ca.us/mantecatransit/>

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Safety (PM 1):

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Safety Performance Management Targets for 2019, Caltrans

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Regional Integrated Transportation Information System, RITIS < https://www.ritis.org>

Appendix A - Safetrek Mapping – PM 1:

Transportation Injury Mapping System (TIMS), Safetrek <https://safetrec.berkeley.edu/tools/transportation-injury-mapping-system-tims>

Appendix B - California Statewide Local Streets and Roads Needs Assessment Overview:

2018 California Statewide Local Streets and Roads Needs Assessment, League of California Cities <http://www.savecaliforniastreets.org/read-the-report/>

Appendix C – Federal Highway Administration's LTBP Infobridge for San Joaquin County (1993 to 2018):

Federal Highway Administration, *LTBP Infobridge*, U.S. Department of Transportation <https://infobridge.fhwa.dot.gov/>

Appendix D – NPMRDS Monthly Travel Reliability Rates

National Performance Management Research Data Set, Caltrans <https://npmrds.iteris-pems.com>

APPENDICES

Appendix A - Safetrek Mapping – PM 1

Appendix B - California Statewide Local Streets and Roads Needs Assessment Overview

Appendix C - Federal Highway Administration's LTBP Infobridge for San Joaquin County (1993 to 2018)

Appendix D - NPMRDS Monthly Travel Reliability Rates

APPENDIX A – Safetrek Mapping – PM 1

University of California Berkeley established SafeTrec, or Safe Transportation Research and Education Center in 2000. SafeTrec's emphasis is on 1) Data Analysis and Data Tools, 2) Technology for Road Safety, and 3) Policy Analysis and Community Outreach.[1] SafeTrec' Transportation Injury Mapping System (TIMS) illustrates Statewide Integrated Traffic Records System (SWITRS) data. TIMS allows the user to filter criteria, like collision severity, with some limitations. One important limitation is TIMS inability to filter more than three criteria of a specific type at one time.

TIMS Limitations: Unable to generate results when applying specific time frame(s) with another set of criteria. For instance, severe injuries along interstates, US highways, & state routes in San Joaquin County during weekdays between 15:00 – 17:59 and 6:00 – 8:59. This error will hopefully be corrected at the time of next performance report

SJCOG staff accessed SafeTrec' TIMS to compare severe injuries from 2018 to 2019 and was able to generate four scenarios in San Joaquin County (for comparison purposes): 1) Severe injuries (SI) collisions, 2) Motorized SI collisions, 3) Motorized SI collisions along interstates, United States (US) highways, & state routes in San Joaquin County, and 3) Motorized SI collisions on weekdays along interstates, US highways, & state routes in San Joaquin County. Heat maps, illustrating the results of the above queries, are shown below. These heat maps illustrate the density of occurrences per each query. For instance, heat maps for 2018 serious injuries in San Joaquin County illustrate most collisions occurred in City of Stockton. *Note: Heat maps do not include collisions where there was no indication of what the motor vehicle was involved.*

	2018	2019	Diff.
Severe Injuries Collisions in SJC County	364	364	0
Severe Injuries between a motor vehicle (MV) and non-pedestrian/bicyclist (NPB) in SJ County	309	297	-12
Severe Injuries between a motor vehicle (MV) and non-pedestrian/bicyclist (NPB) along interstates, US highways, & state routes (I-USH-SR) in SJ County	140	143	3
Severe Injuries between a motor vehicle (MV) and non-pedestrian/bicyclist (NPB) on weekdays along interstates, US highways, & state routes (I-USH-SR) in SJ County	88	94	6

Between 2018 and 2019, there were no new SI collisions in San Joaquin County, 12 less SI collisions between a motor vehicle (MV) and non-pedestrian/bicyclist (NPB), 3 more SI collisions between a MV and NPB along interstates, US highways, & state routes (I-USH-SR), and 6 more SI collisions between MV and NPB on weekdays along I-USH-SR. Maps illustrate growing concentrations of SI collisions period that is observed through any scenario.

	2018	2019	Diff.
Severe Injuries in SJC County	364	364	0
Severe Injuries between a motor vehicle (MV) and pedestrian/bicyclist (PB) in SJ County	55	67	12
Severe Injuries between a motor vehicle (MV) and pedestrian/bicyclist (PB) on weekdays in SJ County	39	51	12

In addition, SJCOG staff performed a three-tier assessment of San Joaquin County that includes Scenarios: 1) SI collisions, 2) SI collisions between MV and pedestrian/bicyclist (PB), and 3) SI collisions between MV and pedestrian/bicyclist (PB) on weekdays.

Between 2018 and 2019, there were no new SI collisions in San Joaquin County, 12 more SI collisions between a motor vehicle MV and PB in SJ County, and 12 more SI collisions between a motor vehicle (MV) and non-pedestrian/bicyclist (NPB) on weekdays in SJ County.

[1] SafeTrek, https://safetrec.berkeley.edu/

It should be noted that this analysis focus on severe injuries, not fatalities, for motorized collisions due to Caltrans' dictating Fatality Analysis Reporting System (FARS) of National Highway Traffic Safety Administration was the source of fatality data for motorized collisions.

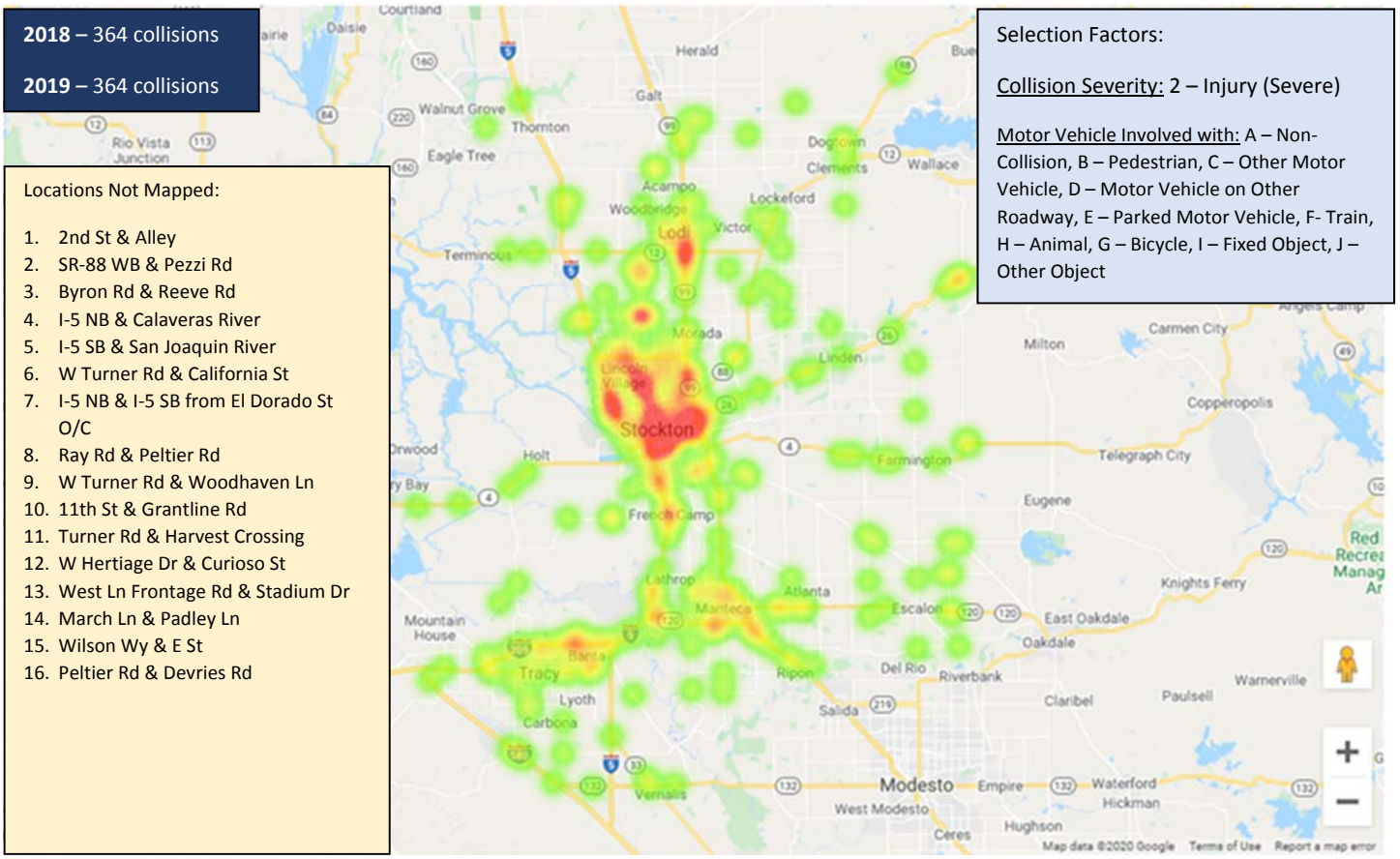
2018 (Jan. to Dec.) Serious Injuries in San Joaquin County (348 of 364 Mapped)

2018 – 364 collisions

2019 – 364 collisions

Locations Not Mapped:

1. 2nd St & Alley
2. SR-88 WB & Pezzi Rd
3. Byron Rd & Reeve Rd
4. I-5 NB & Calaveras River
5. I-5 SB & San Joaquin River
6. W Turner Rd & California St
7. I-5 NB & I-5 SB from El Dorado St O/C
8. Ray Rd & Peltier Rd
9. W Turner Rd & Woodhaven Ln
10. 11th St & Grantline Rd
11. Turner Rd & Harvest Crossing
12. W Hertiage Dr & Curioso St
13. West Ln Frontage Rd & Stadium Dr
14. March Ln & Padley Ln
15. Wilson Wy & E St
16. Peltier Rd & Devries Rd



Selection Factors:

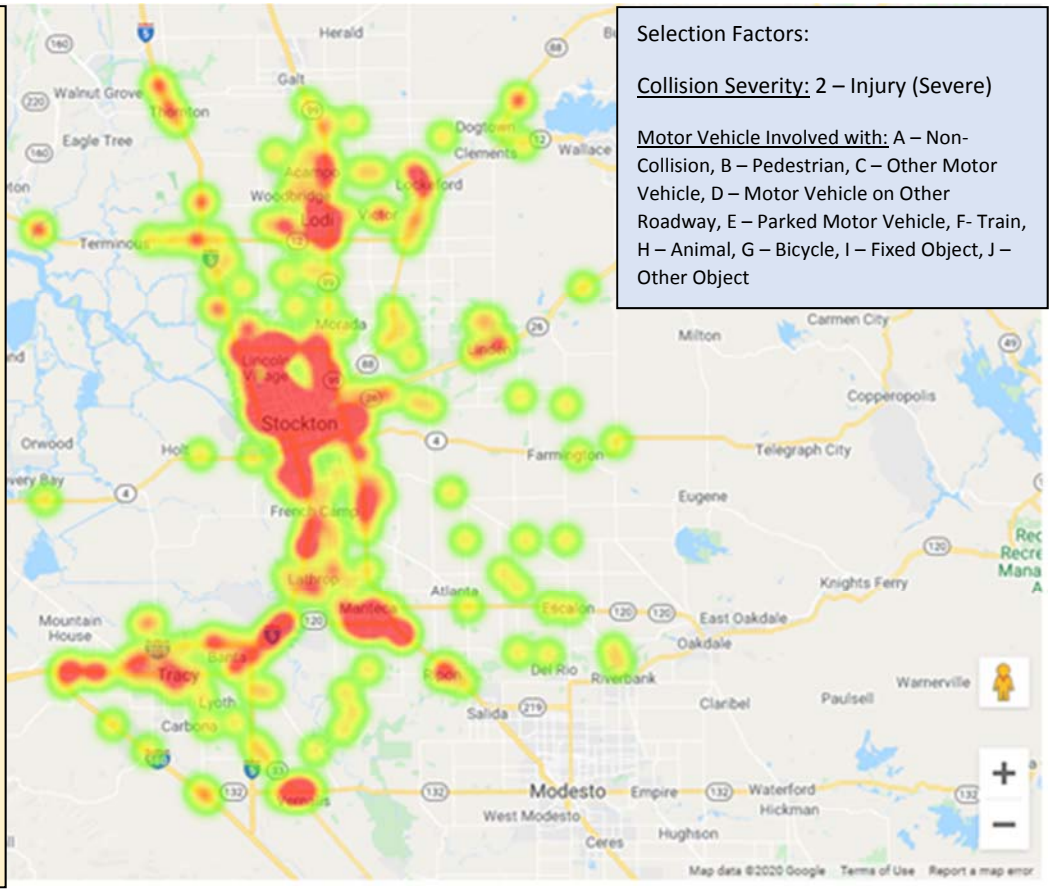
Collision Severity: 2 – Injury (Severe)

Motor Vehicle Involved with: A – Non-Collision, B – Pedestrian, C – Other Motor Vehicle, D – Motor Vehicle on Other Roadway, E – Parked Motor Vehicle, F- Train, H – Animal, G – Bicycle, I – Fixed Object, J – Other Object

2019 (Jan. to Dec.) Serious Injuries in San Joaquin County (337 of 364)

Locations Not Mapped:

1. SB-99 SB & Waterloo Rd
2. W Mossdale Rd & W Mossdale Rd 800
3. I-580 EB & Valpico Rd
4. Lammers Rd & Tracy Blvd
5. SB-99 W Frontage Rd & SR-99 W Frontage Rd
6. Eight Mile Rd & SR-99 E Frontage Rd
7. SR-4 WB to I-5 NB & SR-4 WB
8. I-5 & SR-112
9. International Pkwy & Schulte Rd
10. Schulte Rd & Quality Lane
11. SR-88 & Piccolo Rd
12. Tradition St & Phelps St
13. E. River Rd & N. Ripon Rd
14. Byron Rd & Mountain House Pkwy
15. River Bend Dr & Marina Dr
16. I-5 SB & Louise Ave
17. 11th St & Kasson Rd
18. SB-99 SB & Jack Tone Rd
19. 11th St EB & I-5 NB
20. Byron Rd & Hasen Rd
21. E St & Finland Ave
22. Alpine Ave & & E St
23. Wilson Wy & E St
24. Frontage Rd & Christian Life Wy
25. International Pkwy & Berkeley Rd
26. Thornton Rd & Barber Rd
27. I-5 SB & Alpine Ave



Selection Factors:

Collision Severity: 2 – Injury (Severe)

Motor Vehicle Involved with: A – Non-Collision, B – Pedestrian, C – Other Motor Vehicle, D – Motor Vehicle on Other Roadway, E – Parked Motor Vehicle, F- Train, H – Animal, G – Bicycle, I – Fixed Object, J – Other Object

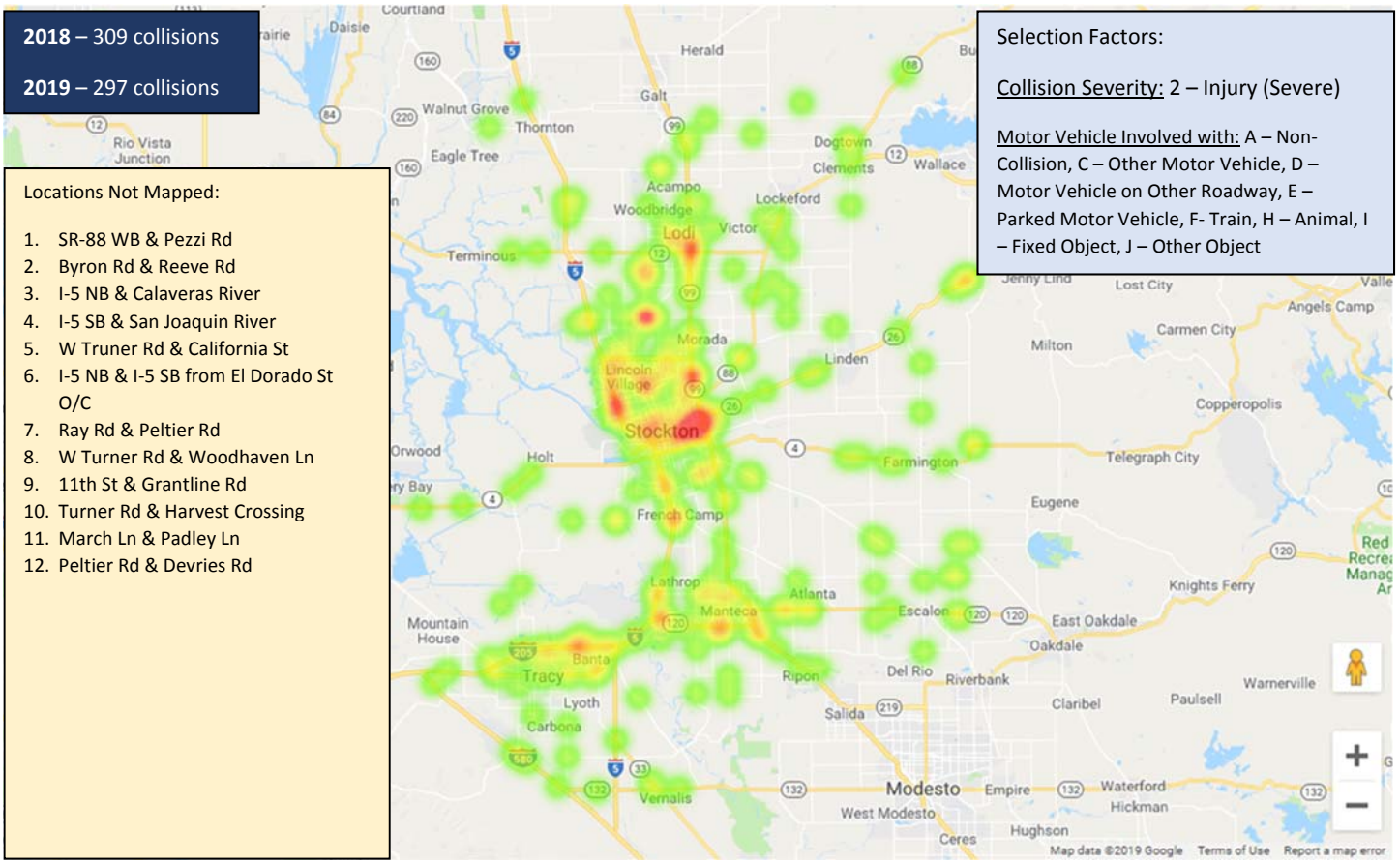
2018 (Jan. to Dec.) Motorized Serious Injuries in San Joaquin County (297 of 309 Mapped)

2018 – 309 collisions

2019 – 297 collisions

Locations Not Mapped:

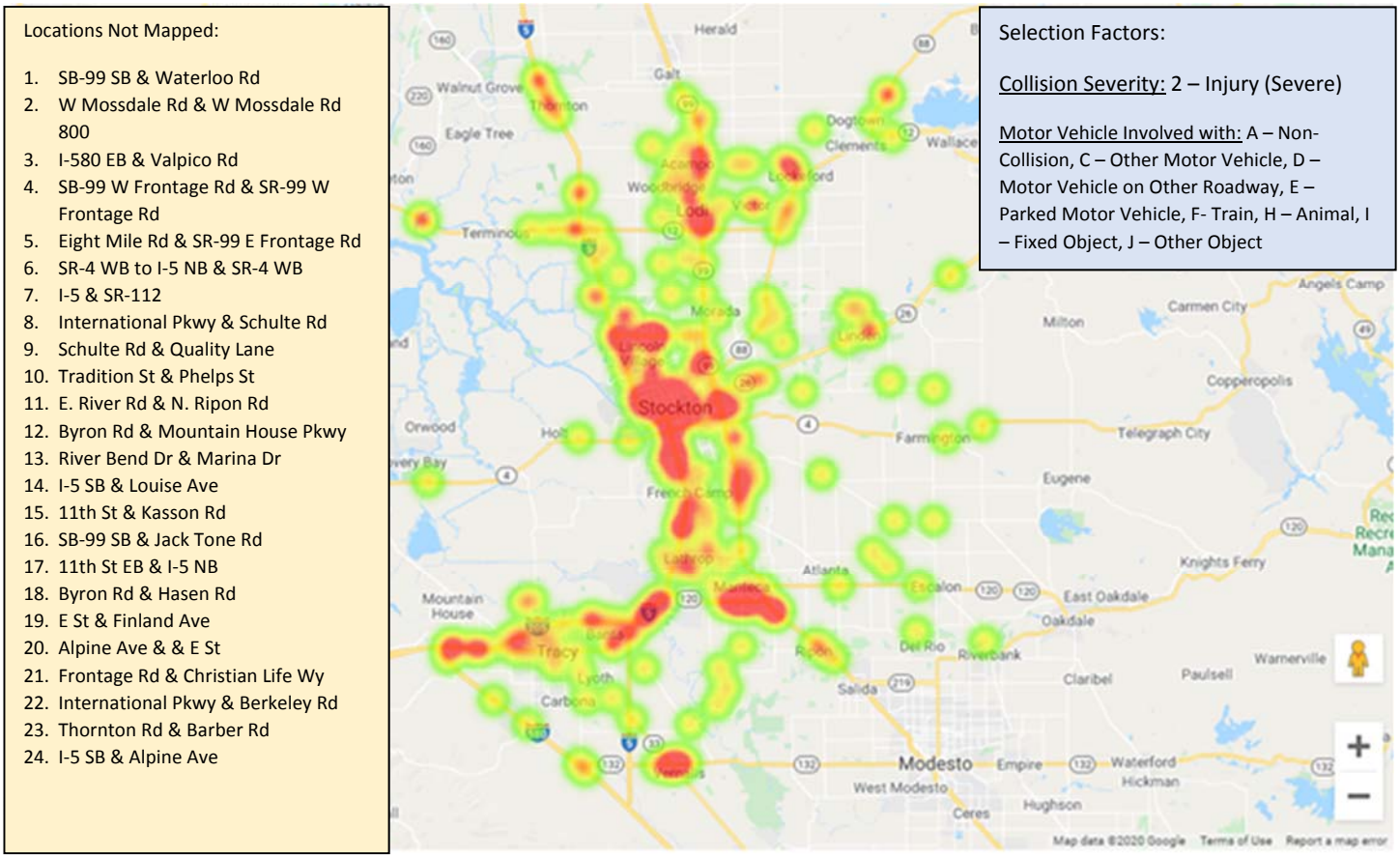
1. SR-88 WB & Pezzi Rd
2. Byron Rd & Reeve Rd
3. I-5 NB & Calaveras River
4. I-5 SB & San Joaquin River
5. W Truner Rd & California St
6. I-5 NB & I-5 SB from El Dorado St O/C
7. Ray Rd & Peltier Rd
8. W Turner Rd & Woodhaven Ln
9. 11th St & Grantline Rd
10. Turner Rd & Harvest Crossing
11. March Ln & Padley Ln
12. Peltier Rd & Devries Rd



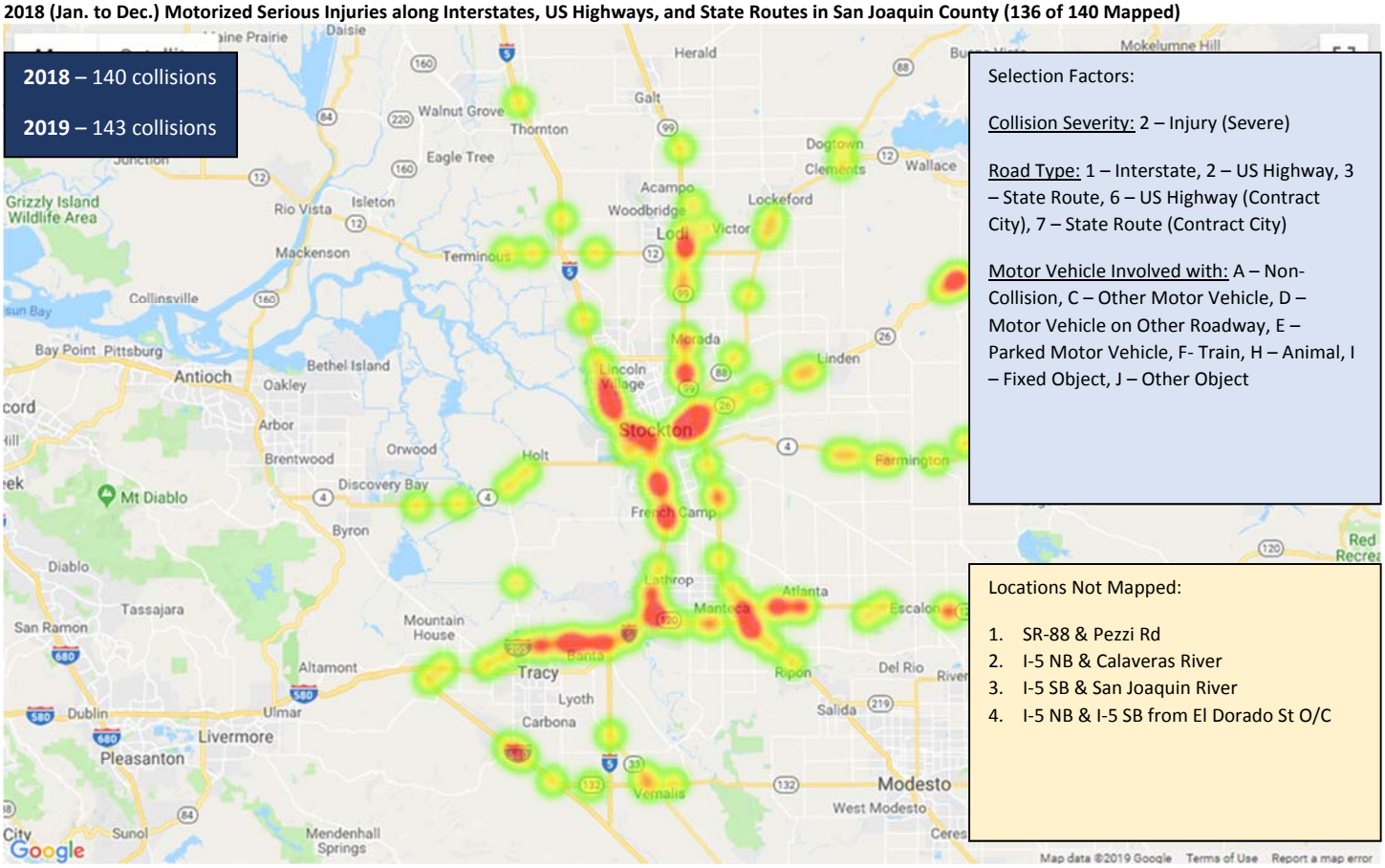
2019 (Jan. to Dec.) Motorized Serious Injuries in San Joaquin County (273 of 297)

Locations Not Mapped:

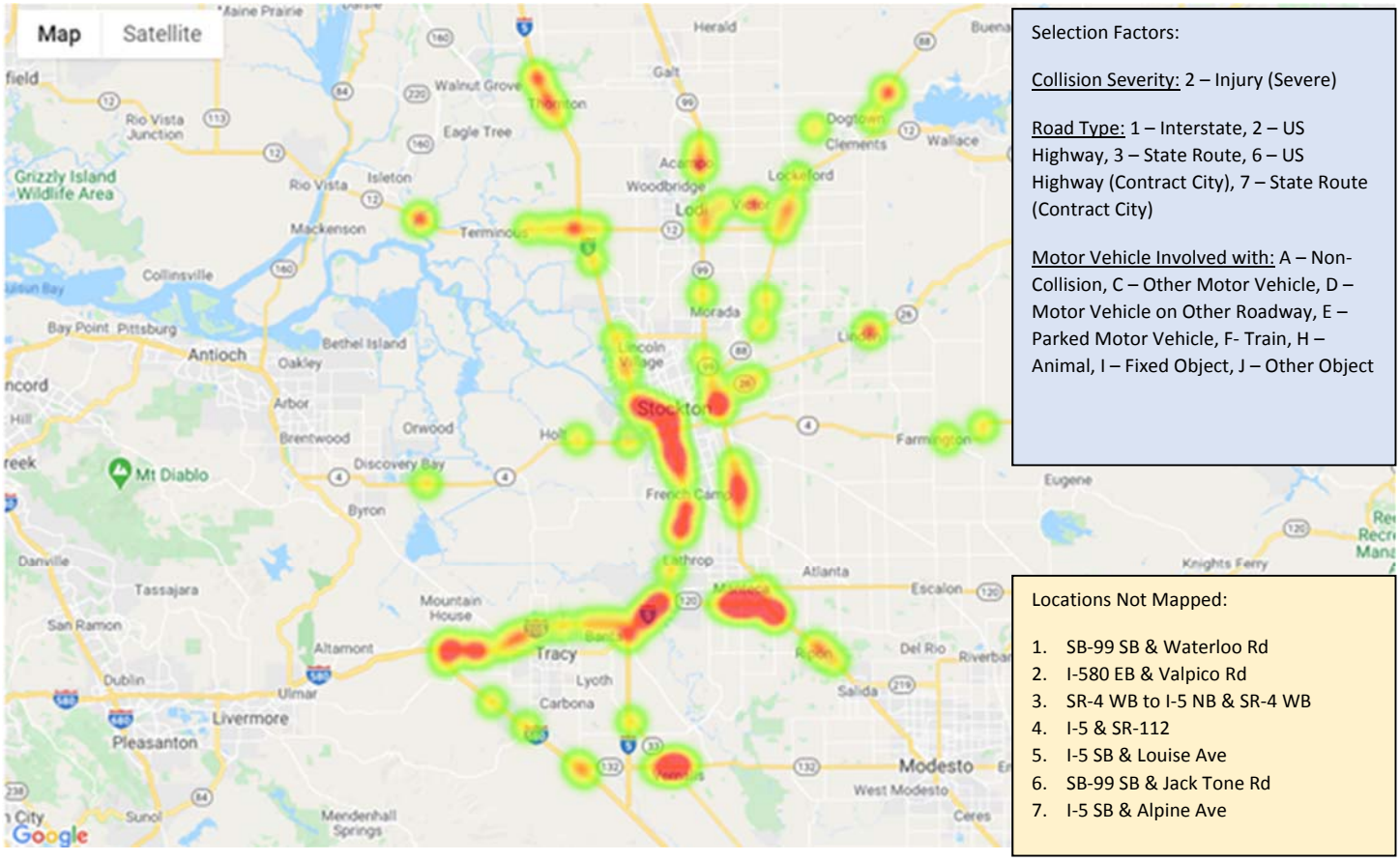
1. SB-99 SB & Waterloo Rd
2. W Mossdale Rd & W Mossdale Rd 800
3. I-580 EB & Valpico Rd
4. SB-99 W Frontage Rd & SR-99 W Frontage Rd
5. Eight Mile Rd & SR-99 E Frontage Rd
6. SR-4 WB to I-5 NB & SR-4 WB
7. I-5 & SR-112
8. International Pkwy & Schulte Rd
9. Schulte Rd & Quality Lane
10. Tradition St & Phelps St
11. E. River Rd & N. Ripon Rd
12. Byron Rd & Mountain House Pkwy
13. River Bend Dr & Marina Dr
14. I-5 SB & Louise Ave
15. 11th St & Kasson Rd
16. SB-99 SB & Jack Tone Rd
17. 11th St EB & I-5 NB
18. Byron Rd & Hasen Rd
19. E St & Finland Ave
20. Alpine Ave & & E St
21. Frontage Rd & Christian Life Wy
22. International Pkwy & Berkeley Rd
23. Thornton Rd & Barber Rd
24. I-5 SB & Alpine Ave



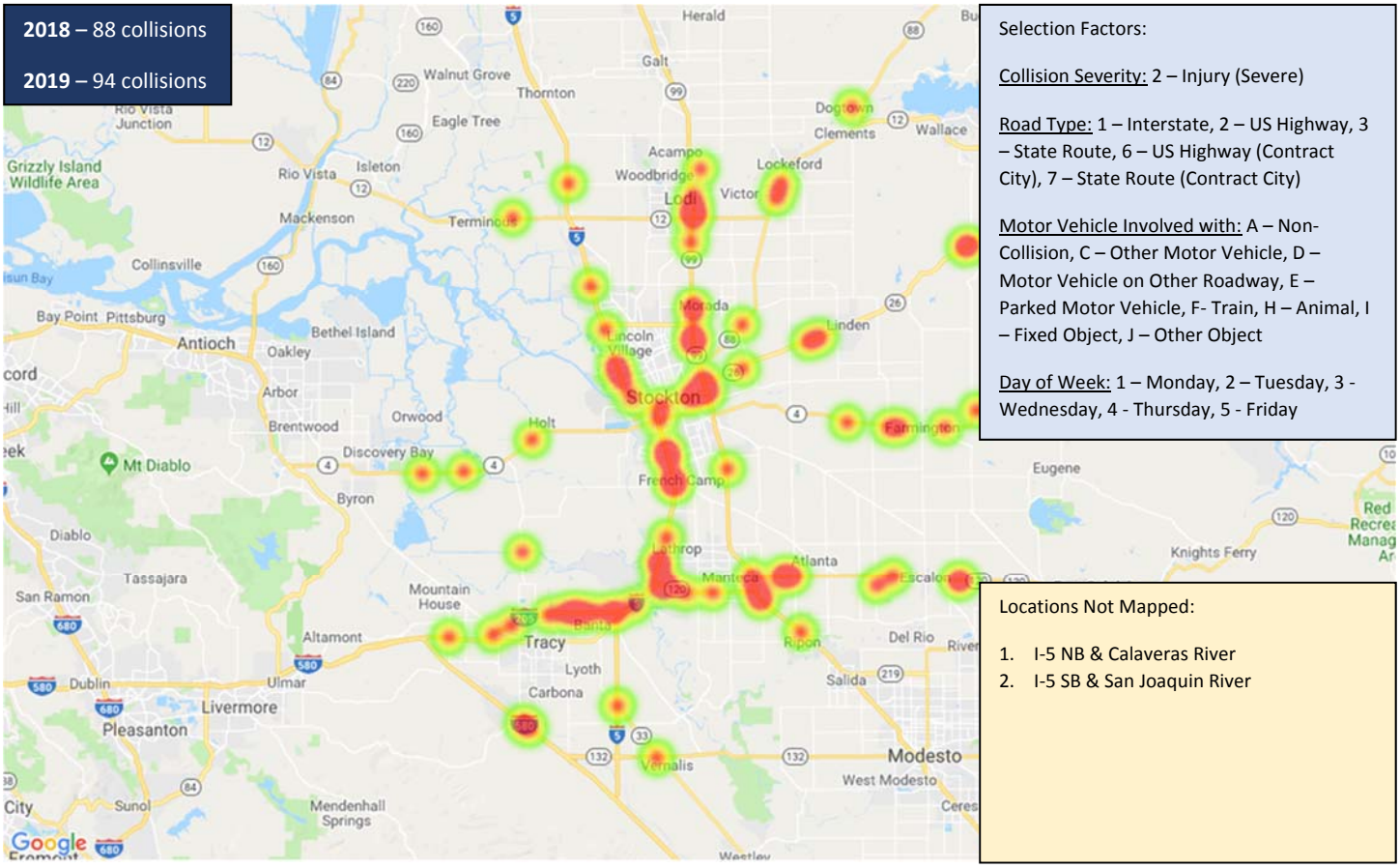
2018 (Jan. to Dec.) Motorized Serious Injuries along Interstates, US Highways, and State Routes in San Joaquin County (136 of 140 Mapped)



2019 (Jan. to Dec.) Motorized Serious Injuries along Interstates, US Highways, and State Routes in San Joaquin County (136 of 143 Mapped)



2018 (Jan. to Dec.) Motorized Serious Injuries on Weekdays along Interstates, US Highways, and State Routes in San Joaquin County (86 of 88 Mapped)



Selection Factors:

Collision Severity: 2 – Injury (Severe)

Road Type: 1 – Interstate, 2 – US Highway, 3 – State Route, 6 – US Highway (Contract City), 7 – State Route (Contract City)

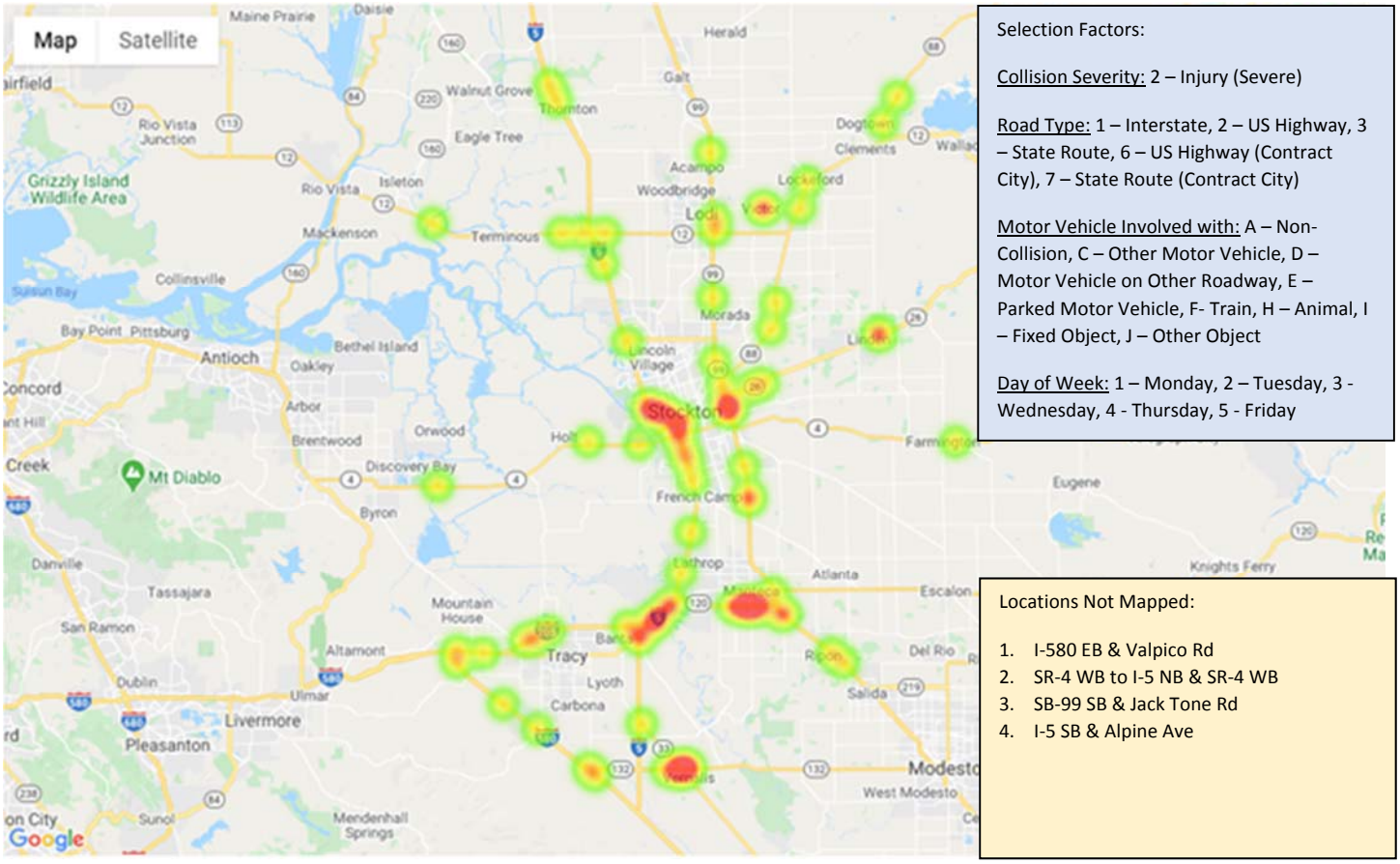
Motor Vehicle Involved with: A – Non-Collision, C – Other Motor Vehicle, D – Motor Vehicle on Other Roadway, E – Parked Motor Vehicle, F- Train, H – Animal, I – Fixed Object, J – Other Object

Day of Week: 1 – Monday, 2 – Tuesday, 3 - Wednesday, 4 - Thursday, 5 - Friday

Locations Not Mapped:

1. I-5 NB & Calaveras River
2. I-5 SB & San Joaquin River

2019 (Jan. to Dec.) Motorized Serious Injuries on Weekdays along Interstates, US Highways, and State Routes in San Joaquin County (90 of 94 Mapped)



Selection Factors:

Collision Severity: 2 – Injury (Severe)

Road Type: 1 – Interstate, 2 – US Highway, 3 – State Route, 6 – US Highway (Contract City), 7 – State Route (Contract City)

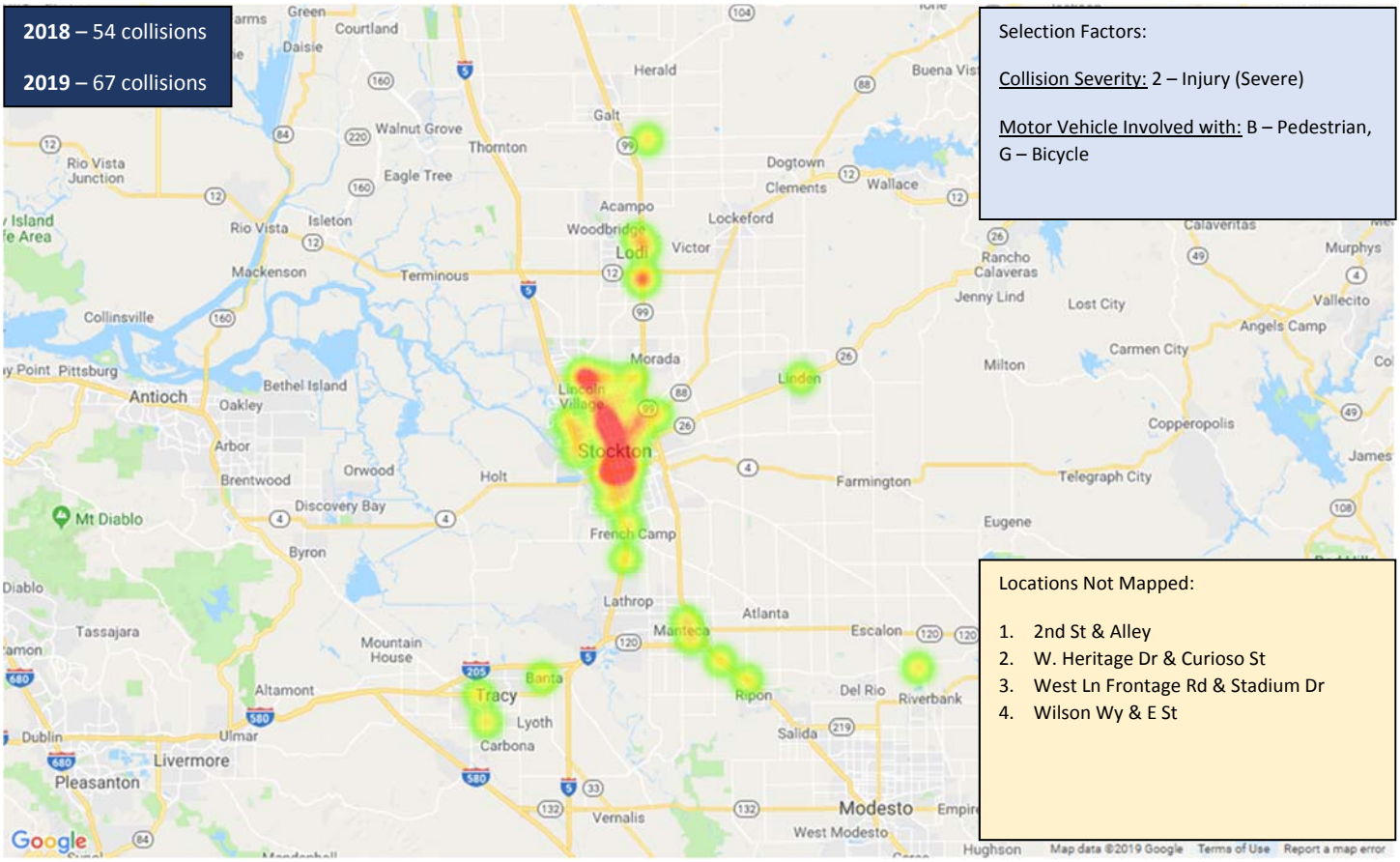
Motor Vehicle Involved with: A – Non-Collision, C – Other Motor Vehicle, D – Motor Vehicle on Other Roadway, E – Parked Motor Vehicle, F- Train, H – Animal, I – Fixed Object, J – Other Object

Day of Week: 1 – Monday, 2 – Tuesday, 3 - Wednesday, 4 - Thursday, 5 - Friday

Locations Not Mapped:

1. I-580 EB & Valpico Rd
2. SR-4 WB to I-5 NB & SR-4 WB
3. SB-99 SB & Jack Tone Rd
4. I-5 SB & Alpine Ave

2018 (Jan. to Dec.) Non-Motorized Serious Injuries in San Joaquin County (50 to 54 Mapped)



Selection Factors:

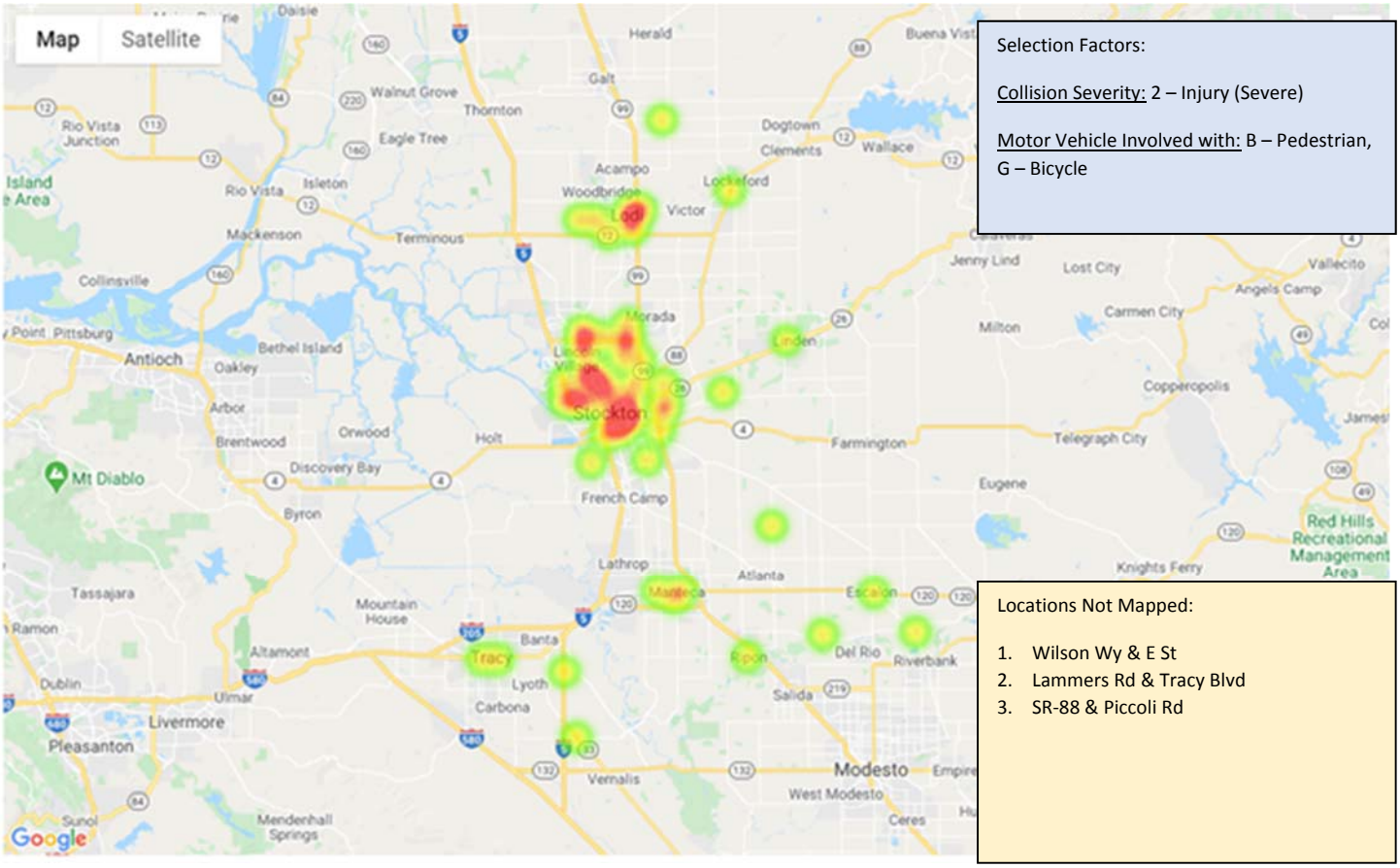
Collision Severity: 2 – Injury (Severe)

Motor Vehicle Involved with: B – Pedestrian, G – Bicycle

Locations Not Mapped:

1. 2nd St & Alley
2. W. Heritage Dr & Curioso St
3. West Ln Frontage Rd & Stadium Dr
4. Wilson Wy & E St

2019 (Jan. to Dec.) Non-Motorized Serious Injuries in San Joaquin County (64 of 67 Mapped)



Selection Factors:

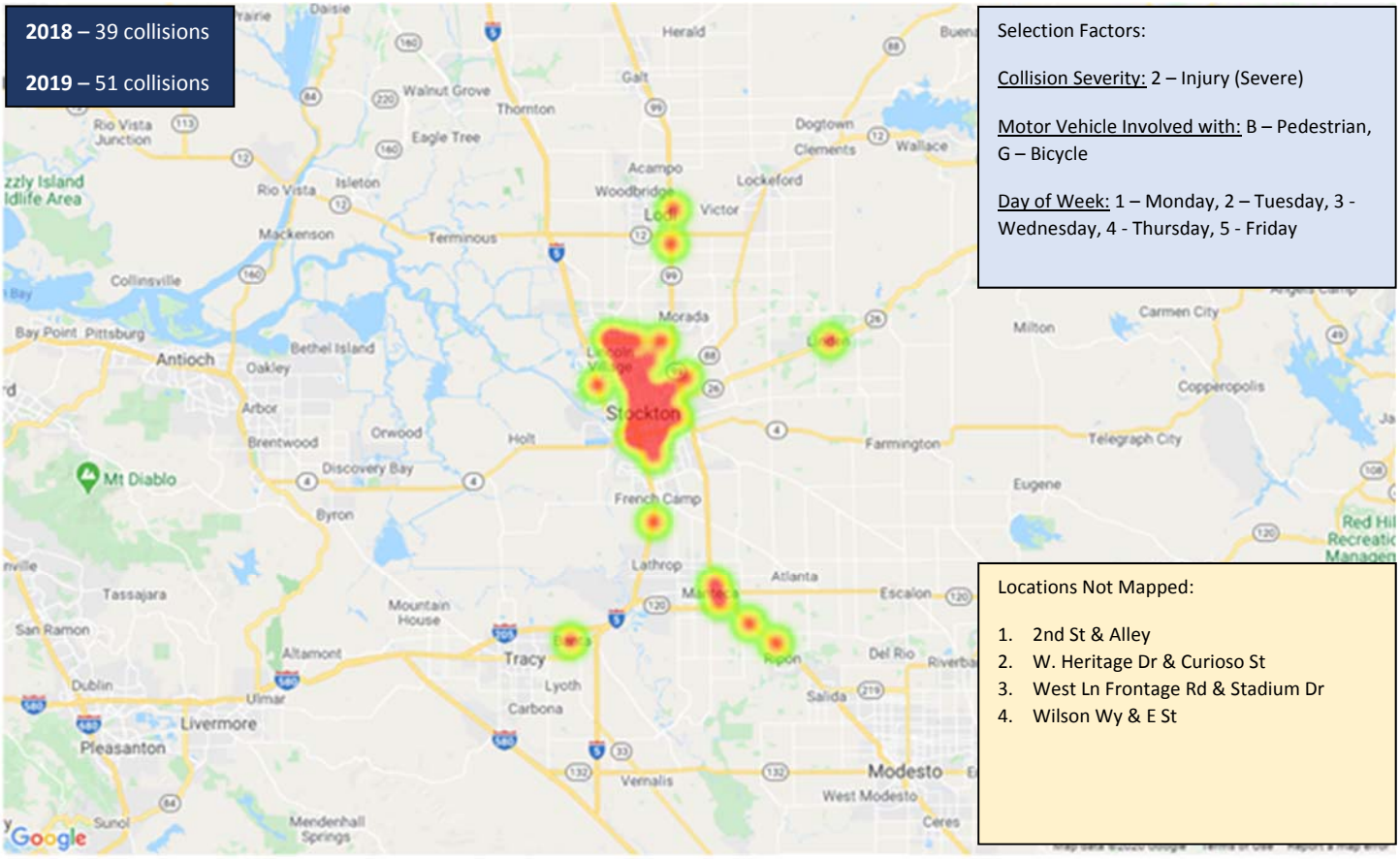
Collision Severity: 2 – Injury (Severe)

Motor Vehicle Involved with: B – Pedestrian, G – Bicycle

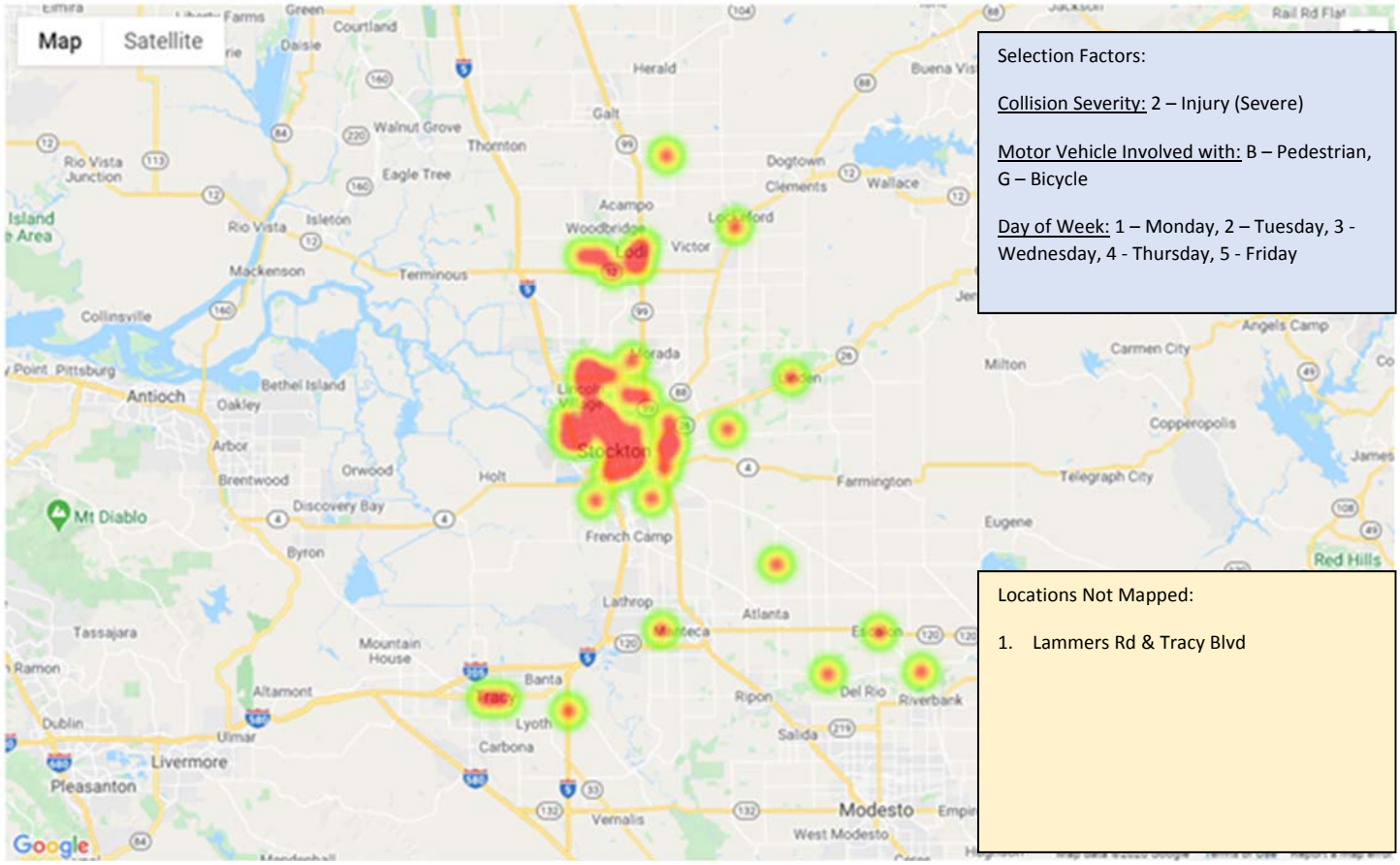
Locations Not Mapped:

1. Wilson Wy & E St
2. Lammers Rd & Tracy Blvd
3. SR-88 & Piccoli Rd

2018 (Jan. to Dec.) Non-Motorized Serious Injuries on Weekdays in San Joaquin County (35 to 39 Mapped)



2019 (Jan. to Dec.) Non-Motorized Serious Injuries on Weekdays in San Joaquin County (50 of 51 Mapped)



APPENDIX B – California Statewide Local Streets and Roads Needs Assessment Overview

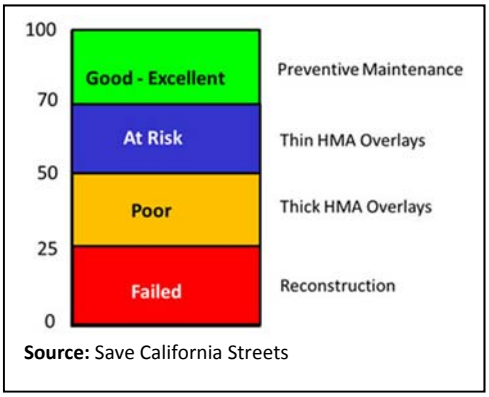
League of California Cities generated biennial California Statewide Local Streets and Roads Needs Assessment report(s). Started in 2008, these reports were meant to determine the funding needed to maintain the roadways and bridges over the next 10 years. This appendix summarizes the findings of 2018 report; in relation to:

- Average Pavement Condition Index (PCI) for San Joaquin County
- San Joaquin County PCI in comparison to neighboring counties
- 10-year funding need for pavement and bridge in San Joaquin County
- Compare San Joaquin County's 10-year funding need for pavement and bridge to neighboring counties
- Sufficiency Rating (SR) for San Joaquin County

For more information, please refer to http://www.savecaliforniastreets.org.

Pavement

Pavement Condition Index (PCI) is the rating system for pavement conditions, 0 being the worst condition and 100 being the best condition. A rating of 25 or less PCI requires reconstruction of street. A rating of 25 to 69 PCI requires a thin or thick overlay of hot mix asphalt (HMA). Lastly, a rating of 70 or over PCI means preventive measures were invoked to ensure the longevity of pavement. This report includes the average PCI for San Joaquin County and even each jurisdiction after 2014.

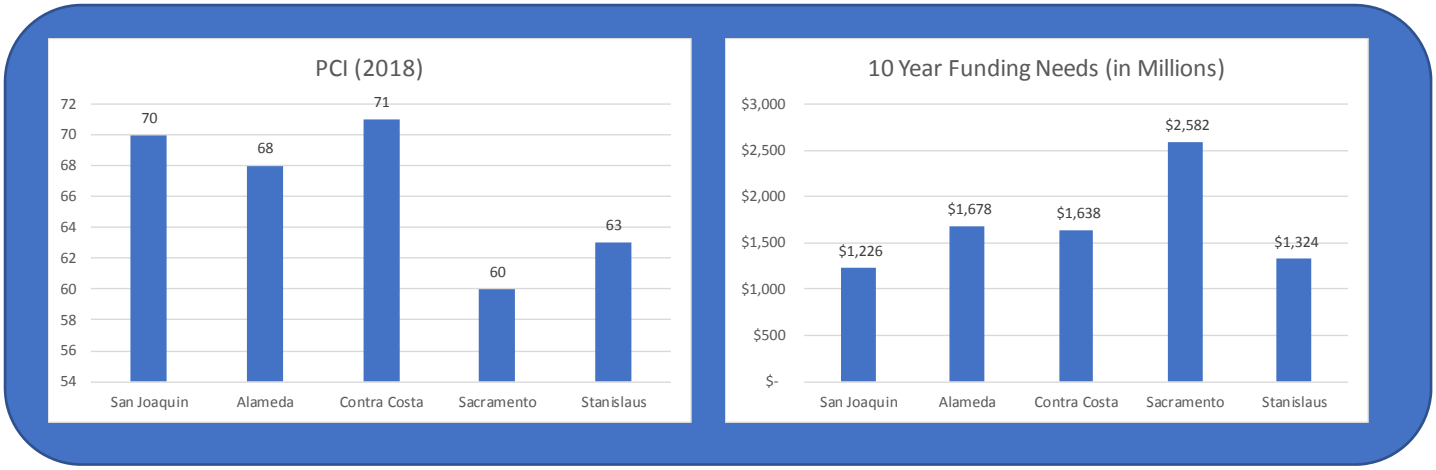


Source: Save California Streets

For more information, please refer to http://www.savecaliforniastreets.org/read-the-report/.

Summary

2018 California Statewide Local Streets and Roads Needs Assessment report indicates the average PCI for San Joaquin County was 70 in 2018; which means no action is needed. Neighboring counties require thin HMA overlay; including Alameda, Contra Costa, Sacramento, and Stanislaus. Only Contra Costa County received a similar average PCI (71). Other than Stanislaus County (5,989 lane miles (LM)), San Joaquin County has the lowest number of LM of previously named counties at 6,773 LM. Sacramento County has the highest number of LM (11,041), followed by Alameda (8,088 LM) and Contra Costa (7,159 LM). These factors are accounted in the estimated funding needed to preserve the existing pavement conditions per County. San Joaquin County needs the least amount at approximately $1,226 million.



Bridges

Sufficiency Rating (SR) is the rating system for "bridge's fitness for the duty that it performs based on factors derived from multiple NBI data fields, including fields that describe its structural evaluation, functional obsolescence, and its

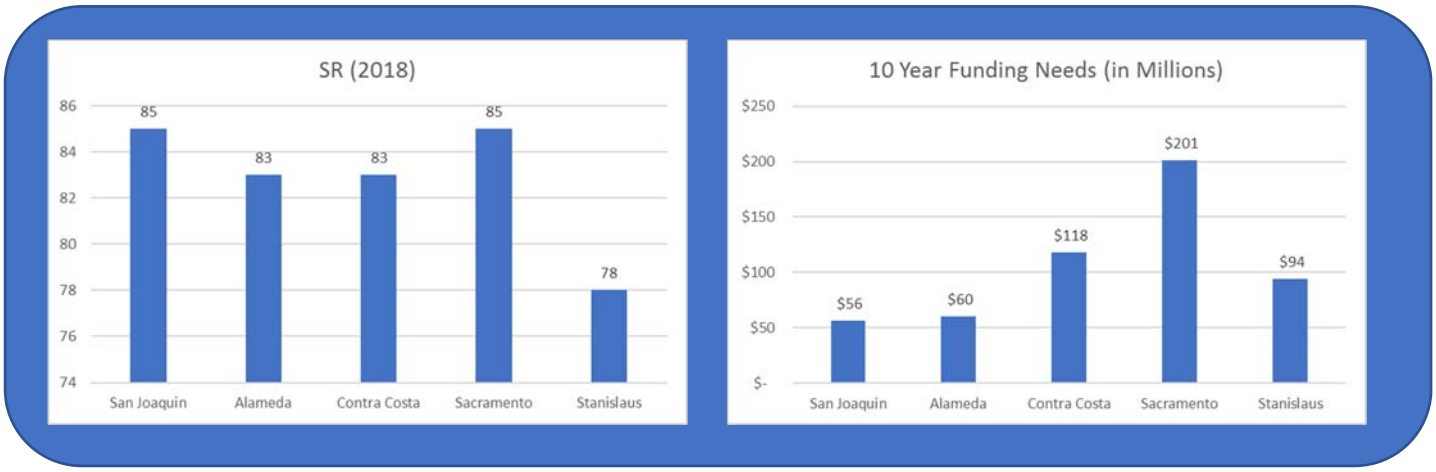
essentiality to the public. 100 is entirely sufficient bridge. 0 is entirely insufficient or deficient bridge."[2] Structurally Deficient (SD) describes one or more defects at bridge deck, substructure, or superstructure. SR with SD may increase a bridge's eligibility for rehabilitation or replacement.

Bridge Replacement Eligibility – SR less than 50 that is structurally or geometrically deficient
Bridge Rehabilitation Eligibility – SR between 50 and 80 that is structurally or geometrically deficient

For more information, please refer to http://www.savecaliforniastreets.org/read-the-report/.

Summary

2018 California Statewide Local Streets and Roads Needs Assessment report indicates the SR for San Joaquin County at 85 in 2018 and one of the highest of neighboring counties; including Alameda, Contra Costa, Sacramento, and Stanislaus. Next to Sacramento County (403 bridges), San Joaquin County has the highest number of bridges at 324. Alameda County has the lowest number of bridges at 205, followed by Stanislaus (247) and Contra Costa County (294). San Joaquin County has the lowest estimated funding needs in the next 10 years at $56 million. Alameda County is second lowest at $60 million. Stanislaus County is third lowest at $94 million, followed by Contra Costa ($118 million) and Sacramento ($201 million).

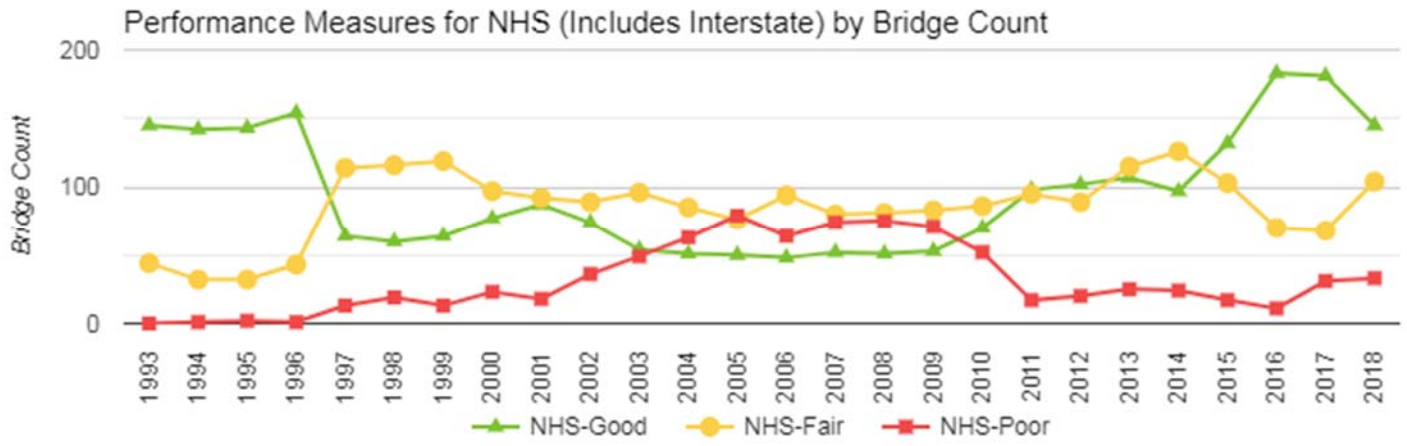


[2] 2018 California Statewide Local Streets and Roads Needs Assessment, page 56.

APPENDIX C – Federal Highway Administration's LTBP Infobridge for San Joaquin County (1993 to 2018)

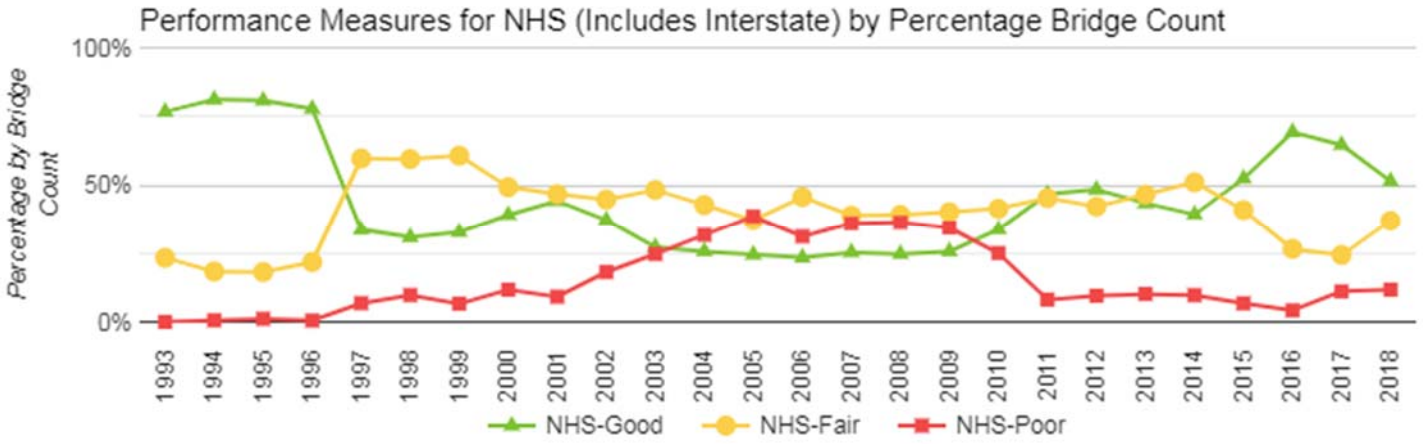
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GOOD	145	142	143	154	64	60	64	77	87	74	54	51	50	48	52	51	53
FAIR	44	32	32	43	114	116	119	97	92	89	96	63	76	94	80	81	83
POOR	0	1	2	1	13	19	13	23	18	36	49	63	79	64	74	75	71
TOTAL	**189**	**175**	**177**	**198**	**191**	**195**	**196**	**197**	**197**	**199**	**199**	**177**	**205**	**206**	**206**	**207**	**207**

	2010	2011	2012	2013	2014	2015	2016	2017	2018
GOOD	70	98	102	107	97	132	183	181	145
FAIR	86	95	89	115	126	103	70	68	104
POOR	52	17	20	25	24	17	11	31	33
TOTAL	**208**	**210**	**211**	**247**	**247**	**252**	**264**	**280**	**282**



	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
GOOD	77%	81%	81%	78%	34%	31%	33%	39%	44%	37%	27%	29%	24%	23%	25%	25%	26%
FAIR	23%	18%	18%	22%	60%	59%	61%	49%	47%	45%	48%	36%	37%	46%	39%	39%	40%
POOR	0%	1%	1%	1%	7%	10%	7%	12%	9%	18%	25%	36%	39%	31%	36%	36%	34%

	2010	2011	2012	2013	2014	2015	2016	2017	2018
GOOD	34%	47%	48%	43%	39%	52%	69%	65%	51%
FAIR	41%	45%	42%	47%	51%	41%	27%	24%	37%
POOR	25%	8%	9%	10%	10%	7%	4%	11%	12%



APPENDIX D – NPMRDS Monthly Travel Reliability Rates

Appendix D includes the raw data from Caltrans' operated https://npmrds.iteris-pems.com that pertains specifically to SJCOG; including 1) Monthly travel reliability percentages along interstates of national highway system (NHS), 2) Monthly travel reliability percentages along non-interstates of national highway system (NHS), and 3) Monthly freight reliability (rated by level of travel time reliability (LOTTR)).

Months of Year	Interstate Reliability		Non-Interstate Reliability		Freight Reliability	
	2018	2019	2018	2019	2018	2019
January	93.7%	94.9%	84.2%	89%	1.57	1.45
February	92.4%	95.1%	84.4%	87.4%	1.49	1.48
March	92.8%	89.8%	83.4%	87.7%	1.4	1.79
April	94.2%	92.7%	80.7%	85.9%	1.49	1.49
May	92.6%	89.9%	80.5%	86.2%	1.54	1.49
June	93.3%	90.7%	83.6%	86.7%	1.47	1.65
July	90.9%	88.2%	84.6%	85.5%	1.53	2.19
August	89.5%	87%	83.9%	84.8%	1.59	1.61
September	88.4%	83.5%	88.5%	85.8%	1.57	1.61
October	90.8%	86.1%	84.8%	87.5%	1.55	1.57
November	86.3%	84.6%	83.6%	85.5%	1.64	1.8
December	90.3%	89.6%	83.5%	86.3%	1.47	1.6