SR 166 COMPREHENSIVE CORRIDOR STUDY

FINAL STUDY

JANUARY 2026

PHOTO CREDIT: SBCAG (Fred Luna)

PREPARED FOR:

SANTA BARBARA COUNTY ASSOCIATION OF GOVERNMENTS

SBCAG SANTA BARBARA COUNTY ASSOCIATION OF GOVERNMENTS

Caltrans

SR 166 COMPREHENSIVE CORRIDOR STUDY Guadalupe to Santa Maria

one COUNTY one FUTURE

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PREPARED FOR SANTA BARBARA COUNTY ASSOCIATION OF GOVERNMENTS

SBCAG

SANTA BARBARA COUNTY ASSOCIATION OF GOVERNMENTS

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PSOMAS

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EXECUTIVE SUMMARY

ES1 EXECUTIVE SUMMARY

This Executive Summary provides a brief overview of the following ***State Route 166 Comprehensive Corridor Study (CCS)*** report and highlights the resulting preferred corridor improvement concept. While this Executive Summary was prepared to convey an overall summary of the study, the study and its appendices should be referenced for additional detail on methodology and findings.

The SR 166 CCS evaluates a 7.4-mile portion of SR 166 from SR 1 in the City of Guadalupe to Depot Street in the City of Santa Maria. The study corridor is shown in **Figure ES. 1**.

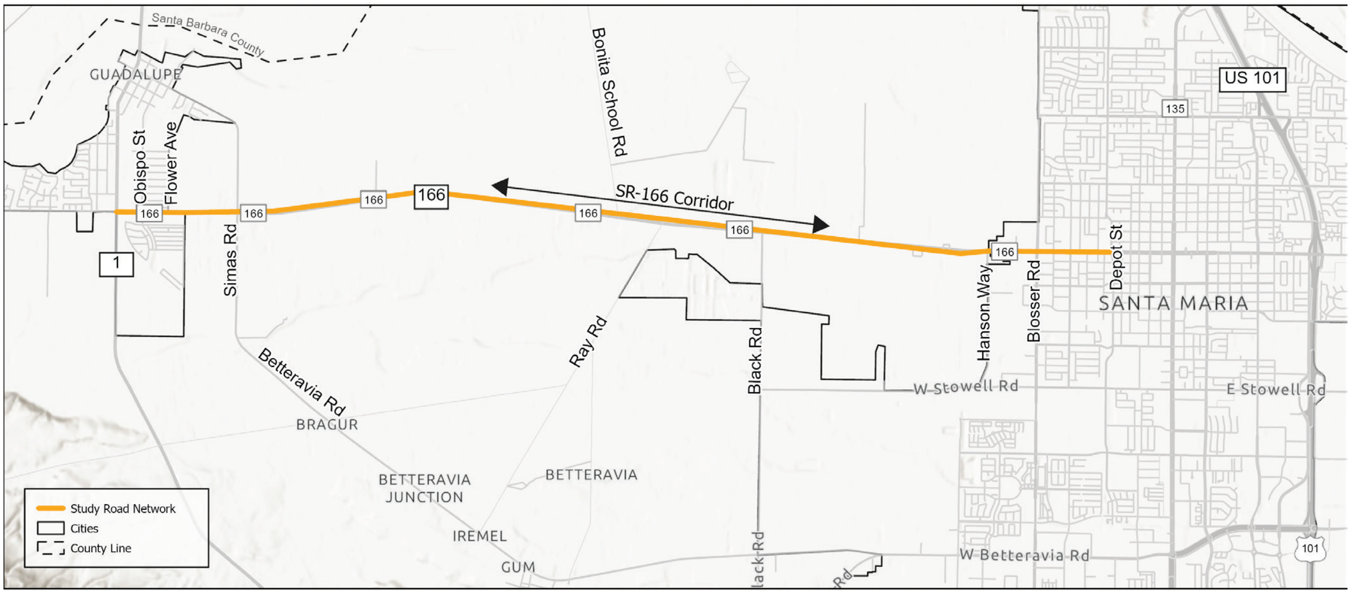


FIGURE ES. 1 SR 166 CCS STUDY AREA

ES1.1 STUDY OBJECTIVE

The objective of the SR 166 CCS is to develop a comprehensive multimodal package of prioritized improvements that address the corridor's pre-eminent issues, including:

- Need for accommodating increased presence of heavy-duty trucks required for goods movement;
- Traffic congestion and delay on the east end of the corridor in/near the City of Santa Maria;
- Increased crash risks for all users;
- Lack of low-stress multimodal connectivity; and,
- Reduced travel time reliability.

The preferred multimodal improvement package will serve to guide future SR 166 corridor programming decisions over the next 20-year timeframe based on available funding. Developing the requisite technical information consistent with State and Federal grant program guidelines was also a key element of the study.

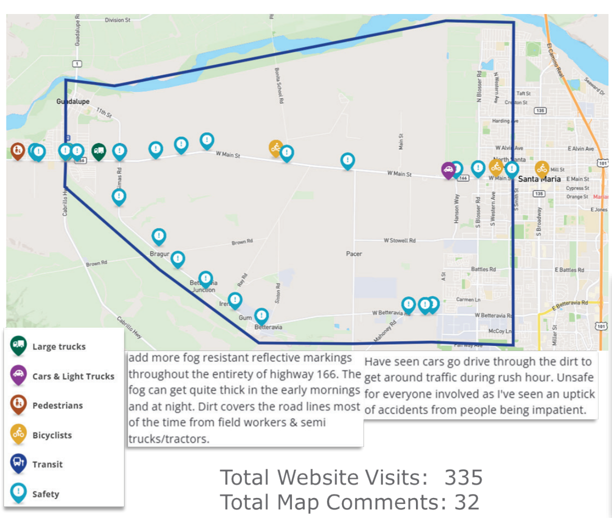
ES1.2 STUDY APPROACH

The SR 166 CCS examines the existing and future operational and safety performance of SR 166 using the Caltrans Smart Mobility Framework approach, a performance-based analysis for evaluating alternative corridor improvement concepts. The results of the performance assessment were considered along with input from the public, stakeholders, and the SR 166 Advisory Committee to select a recommended package of multimodal improvements. The preferred SR 166 corridor concept with associated multimodal, operational, and safety improvements establishes the funding priorities for the corridor that best meet both the local and regional goals while providing a positive return on investment (benefit-cost) of limited regional transportation funding over the next 20 years.

The SR 166 CCS builds on a solid foundation of related plans, policy documents, and community outreach efforts already completed. In particular, the SR 166 CCS is a continuation of the Route 166 Safety and Operational Improvements–Project Development Plan (SBCAG 2012) and serves as an adjunct to the Guadalupe Active Partnership for Signalization (GAPS) and the Caltrans SR 166 Capital Preventative Maintenance (CAPM) project. The GAPS-CAPM project is currently proposed for construction from spring 2028 to fall 2030.

ES1.3 PUBLIC OUTREACH OVERVIEW

The SR 166 CCS included a comprehensive community engagement effort aimed at reaching the diverse communities that use the SR 166 corridor. The goals of the community engagement efforts were to elicit support from the community to help identify opportunities and challenges, identify projects/strategies to improve reliability, safety, and multimodal options in the corridor, and to integrate these results into the SR 166 CCS final improvement recommendations. This outreach effort included developing a project website (via SBCAG Website), an on-line/paper community survey, an interactive web-based mapping tool for public input, use of social media and traditional media outlets, and project ID cards with QR codes to access the project website, online survey, and the interactive mapping tool.



Total Website Visits: 335
Total Map Comments: 32

The outreach effort also included traditional engagement strategies including five pop-up events and two in-person community workshops. An Advisory Committee was formed comprising of key stakeholders. This committee met three times during the study to provide direction and guidance to help shape the study and its recommendations.

ES1.4 EXISTING CONDITIONS

This Section provides an overview of the corridor's current conditions, including socioeconomic characteristics, goods movement, traffic operations, safety and collision history, multimodal accessibility, and climate change vulnerability. The assessment aims to inform future improvements to enhance safety, mobility, and connectivity on SR 166.

ES1.5 CORRIDOR IMPROVEMENTS

Based on a review of past planning and other corridor-related documents, a technical assessment of existing conditions (Section 2 of the report), and input received from the public input (Section 3 and 4) a set of multimodal corridor improvements was identified for further analysis (Section 4).

ES1.6 PERFORMANCE ASSESSMENT

Performance metrics were applied to "measure" corridor performance and ultimately how improvement concepts benefit one or more of the six Smart Mobility Framework objectives. Application of the SMF better ensures that the resulting improvement recommendations provide a balanced, sustainable, and multimodal assessment of current and forecasted corridor conditions. Selected performance metrics include:

- Mode shift and vehicle miles travelled;
- Level of traffic stress scores;
- Vehicular delay and travel time reliability benefits;
- Collision reduction benefit;
- Greenhouse gas and health-based criteria pollutant emission reduction benefit;
- Societal cost and benefit monetization factors (per Caltrans Economic Parameters); and,
- Return on investment (i.e. benefit-cost).

Equal attention is given to the beneficial outcomes of measures not directly reflected in the benefit-cost assessment. These include: Plan Consistency (with existing

plans); Policy Consistency (State, regional and local); Environmental/Institutional Sensitivity; Climate Change and Adaptation; Economic Development and, Community Acceptance. Consideration of ancillary benefits such as improved gross regional product, job creation, dust abatement and expediting transport of perishable products is also provided.

ES1.7 BENEFIT MONETIZATION ASSESSMENT

The societal costs and benefits for each proposed improvement were monetized based on the societal cost information from the most recent Caltrans Economic Parameters resident in the Caltrans Cal-B/C analysis tool. All quantified benefits were annualized and projected to reflect a 20-year design year condition (i.e., life-cycle costs). These monetized benefits were then combined with currently available planning level improvement cost opinions to yield a holistic benefit-cost estimate for each improvement concept. The total estimated benefit for the proposed corridor improvements was $107.0 million over 20 years.

Preliminary planning-level costs were developed or sourced from previous planning documents, reviewed and adjusted to be consistent with existing costs. The individual corridor improvement cost estimates are presented in the report. The total estimated life-cycle costs for the proposed corridor improvements is $42.2 million.

Combining full life-cycle improvement costs and monetized benefits yields a holistic benefit-cost of **2.66,** indicating a positive return on investment over the 25-year planning horizon.

ES1.8 PREFERRED CORRIDOR IMPROVEMENT PACKAGE

The Preferred Corridor Improvement Package is listed below and graphically shown in **FIGURE ES. 2**. The package of prioritized multimodal improvements is the achieved outcome of this study. It was informed through public input, input received from the SR 166 CCS Advisory Committee, and application of the Smart Mobility Framework. This aligns with current State and Federal grant application requirements to yield a competitive multimodal package of improvements.

1. **GAPS/CAPM Project**

Caltrans GAPS/CAPM project addresses operational and safety issues on the west (City of Guadalupe) and east (City of Santa Maria) ends of SR 166 CCS study corridor. This includes installing new signals at the intersections of SR 166/SR 1 and SR 166/Obispo Street, four-way stop control at SR 166/Fowler Avenue and Class II Bike lanes and curb ramp upgrades on SR 166 (Main Street) between Hanson Way and US 101 ramps in the City of Santa Maria. Given that is already fully funded through construction, the CAPM improvements are included in the SR 166 CCS for information purposes only.

2. **SR 166/Simas Road**

This improvement entails replacing the existing all-way-stop-controlled intersection with a traffic signal. Left turn lane channelization will be added on all approaches and right turn lanes on the SR 166 approaches. Improvement will provide operational and safety benefits. See also Improvement 7 Enhanced Lighting and Visibility.

3. **SR 166/Bonita School Road**

This improvement entails widening Bonita School Road to include a two-way-left-turn lane and add a left turn lane at the existing traffic signal. Install electronic speed feedback signs on both SR 166 approaches to the intersection. The project also formalizes school parking along Bonita School Road. Improvement will provide operational and safety benefits.

4. **SR 166/Ray Road**

This improvement entails widening Ray Road to add a right turn lane and replace existing stop sign with a flashing LED stop sign. Improvement will provide operational and safety benefits. See also Improvement #7 Enhanced Lighting and Visibility.

5. **SR 166/Hanson Way**

This improvement entails extending the existing merge lane on SR 166 by approximately 1,100'. Improvement will provide operational and safety benefits. See also Improvement #7 Enhanced Lighting and Visibility.

6. **SR 166 Paved Driveway Aprons**

This improvement entails paving permitted driveway entrances along SR 166 that are currently unpaved with asphalt or concrete aprons. Improvement provides safety benefits by 1) enhancing traction, (reduces the chance of wheel spin and loss of control); 2) improving visibility (dust abatement and provides clearer sightlines for all road users); and, 3) facilitating smoother transitions (i.e., consistent surface allows for safer and more predictable vehicle movements when entering or exiting the roadway).

7. **SR 166 Intersection Lighting**

This improvement provides or upgrades intersection lighting at several intersections within the study area, including SR 166/SR 1, SR166/Obispo Avenue, SR 166/Flower Avenue, SR 166/Simas Road, SR 166/Bonita School Road, SR 166/Ray Road, SR 166/Black Road, SR 166/Hanson Way, and Betteravia Road/Mahoney Road. Installation of reflective delineators along two horizontal curves on SR 166 between Simas Road and Bonita School Road is also proposed Improvement provides a safety benefit by enhancing visibility for all users of the roadway.

8. **SR 166 Vanpool/Transit Improvements**

This improvement entails increasing CalVans service for agricultural field workers by leasing 15 additional CalVan vehicles. It also includes purchasing an additional 35-foot Santa Maria Regional Transit (SMRT) bus to increase the service frequency of bus service between the cities of Guadalupe and Santa Maria (formally the Guadalupe Flyer service line) from 1-hour headways to 30-minute headways. Improvement provides greater multimodal options to reduce VMT and improve air quality and dust abatement goals.

9. **SR 166 Safety/Truck Improvements**

Currently, there is a lack of Surface Transportation Assistance Act (STAA) Terminal Access Route (T-Route) connectivity between the agricultural areas between Guadalupe and Santa Maria to US 101 (National Network STAA Route). The California Highway Patrol (CHP) and Caltrans both recognize that an effort is needed to create a contiguous network that supports agricultural business and other industrial centers and current. This lack of STAA network connectivity promotes use of non-STAA roadways that are not designed to accommodate the turn-radii requirements of STAA-sized trucks. This results in trucks off-tracking (i.e., lane and curb overrides) which can create safety issues with motorists and/or cause property damage (curbside light poles, signage, utility boxes, etc.). Historically, efforts to address freight concerns in the SR 166 corridor have been isolated and not holistic across the region. Several alternative T-Access Route networks are described for consideration. Electronic speed feedback signs and signal timing safety enhancements are also proposed along high speed sections of SR 166.

10. Betteravia Road/Mahoney Road

This improvement entails modifying the intersection geometrics and replacing the existing intersection one-way-stop-control with either a signal or a roundabout. Improvement will provide operational and safety benefits. See also Improvement #9.

11. Betteravia Road/US 101 Interchange Improvements

This improvement entails extending grade separated bike lanes on Betteravia Road through the US 101 interchange area. Removing the existing northbound off-ramp and associated signalized intersection. Installing a roundabout at the intersection of Betteravia Road/Nicholson Avenue to facilitate northbound highway movements. Adding a new mobility hub/park-and-ride lot along Nicholson Avenue in the interchange area and a new freight electric charging station along Betteravia Road in the interchange area. This improvement will provide operational and safety benefits and greater multimodal options to reduce VMT and improve air quality. See also Improvement #9.

12. Santa Maria River Trail

This improvement entails installing a 6.7-mile multi-use path along the Santa Maria River between Blosser Road in Santa Maria and Guadalupe Street in Guadalupe. Improvement provides greater multimodal options to reduce VMT and improve air quality.

13. SR 166 4-Lane Widening and Class I Multipurpose Trail (Santa Maria-Guadalupe)

This long-term improvement entails widening SR 166 to a four-lane divided highway from Santa Maria to Guadalupe with a bi-directional Class I Multipurpose Trail on the south side of SR 166.

This study does not make any commitment to further financing and is not legally binding as per CEQA exemption 1538(b)(2).

ES1.9 SR 166 CCS REPORT STRUCTURE

The SR 166 CCS contains the following seven sections:

- **Section 1. Introduction**, provides context of the study's purpose and objectives.
- **Section 2. Existing Conditions**, examines the current state of the SR 166 corridor over a range of analyses and selected performance metrics.
- **Section 3. Community Engagement Phase 1**, describes public input on corridor issues, needs and suggestions for potential improvements.
- **Section 4. Improvement Concept Development**, describes identified improvement concepts that address existing deficiencies (Section 2) and community input (Section 3).
- **Section 5. Community Engagement Phase 2,** describes public input focused on receiving input/reactions to identified improvement concepts.
- **Section 6. Performance Assessment**, describes the benefit-cost analysis and results for each improvement concept and for the package as a whole.
- **Section 7. Implementation**, describes implementation phasing and State and Federal funding opportunities for implementation.

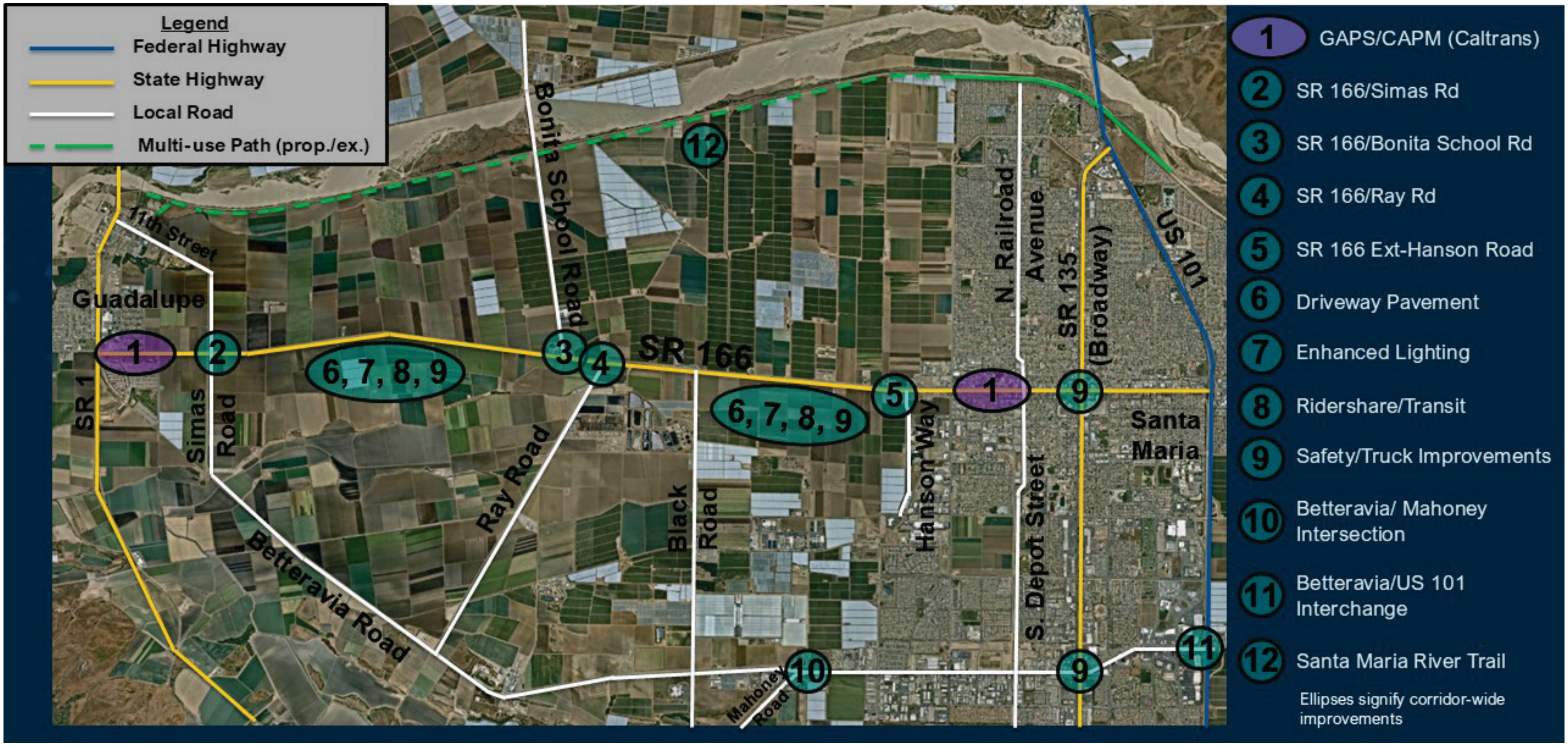
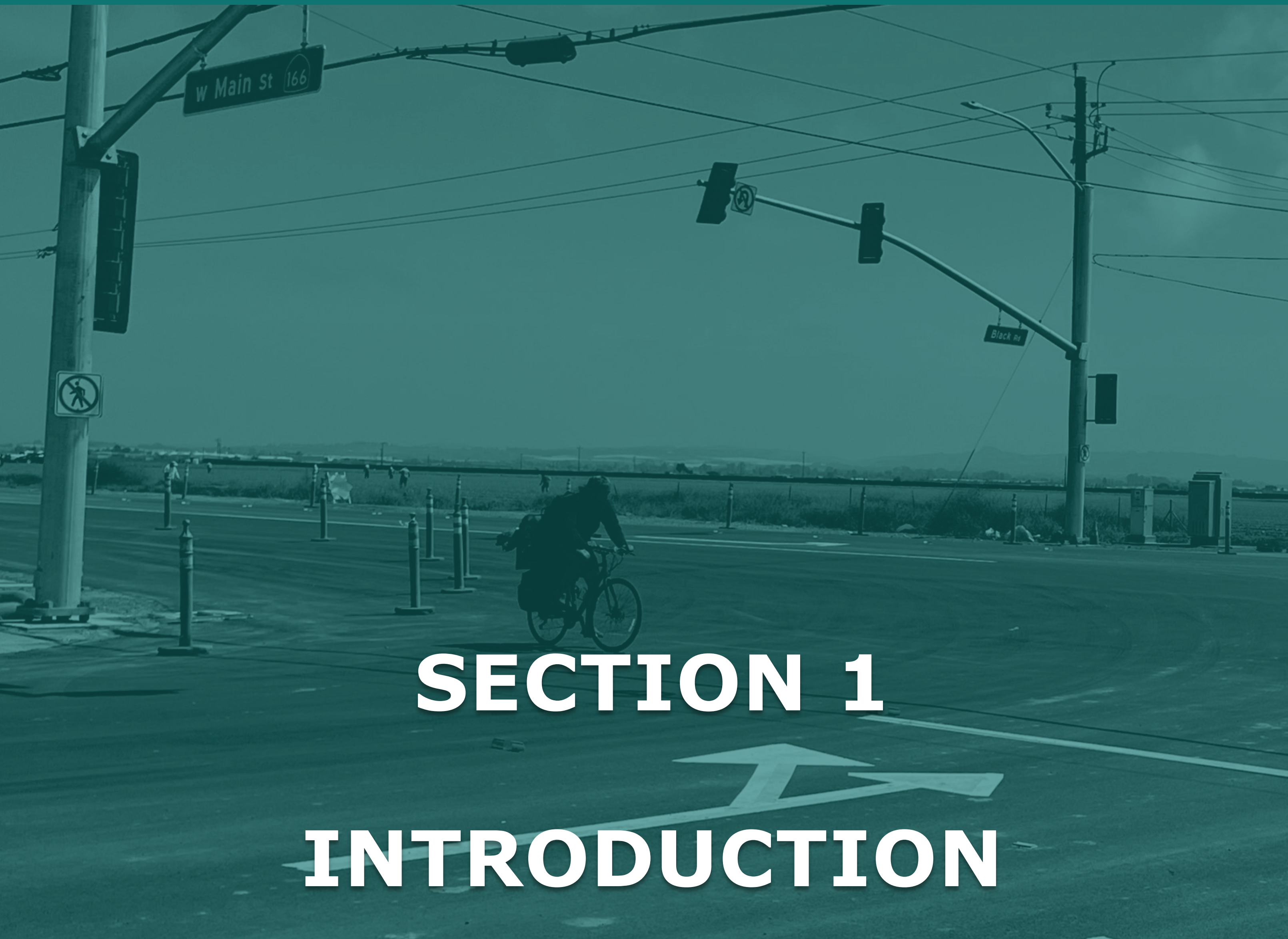


FIGURE ES. 2 MAP OF PREFERRED CORRIDOR IMPROVEMENT PACKAGE (DOES NOT INCLUDE LONG-TERM IMPROVEMENTS)



SECTION 1

INTRODUCTION

1 INTRODUCTION

On behalf of the Cities of Guadalupe and Santa Maria and the County of Santa Barbara, the Santa Barbara County Association of Governments (SBCAG) led the development of the State Route (SR) 166 Comprehensive Corridor Study (CCS). The purpose of the State Route 166 CCS is to identify a package of prioritized multimodal system improvements to improve safety and mobility while facilitating essential agricultural trucking operations on SR 166 between the Cities of Guadalupe and Santa Maria and the surrounding area. The study addresses all road users while considering safety, mobility, access management, vehicle emissions reduction, dust abatement, and agricultural goods movement. Implementation of the study will benefit the lives of those in the study area, including disadvantaged and under-resourced communities.

1.1 PROJECT LEADERSHIP

Funded through a Caltrans planning grant with matching funds provided by SBCAG, SBCAG in coordination with the participating agencies administered the SR 166 CCS. To assist in this effort SBCAG formed a Project Development Team (PDT) with representation from each of the following participating agencies:

- Santa Barbara County Association of Governments
- Caltrans
- Santa Barbara County
- City of Guadalupe
- City of Santa Maria

The PDT was tasked with providing technical oversight and direction, reviewing interim deliverables, providing input on the needs and priorities of their respective jurisdictions, and ultimately participating in the consensus building process to recommend the multimodal improvement packages for ultimate consideration by the SBCAG Board. The PDT met on a bi-weekly basis throughout the duration of the study to track progress and facilitate planning coordination during development of the study.

SBCAG also formed the SR 166 CCS Stakeholder Advisory Committee. This committee includes an expanded list of public and private stakeholder representatives beyond those from the participating agencies to ensure that a broad spectrum of perspectives and insights are provided to guide the development of the study. Representatives from the following stakeholders comprised the SR 166 CCS Stakeholder Advisory Committee:

- Grower Shipper Association
- California Highway Patrol
- Santa Maria Valley Railroad
- Guadalupe Business Association
- County Sheriff’s Department
- MOVE Santa Barbara County
- Bonipak Produce.

1.2 STUDY AREA

SR 166 is a critical east-west commuter and goods movement corridor connecting the Cities of Guadalupe and Santa Maria. Extending east of Santa Maria SR 166 connects the Central Coast to the southern San Joaquin Valley at I-5. The SR 166 CCS focuses on a seven-mile segment of SR 166 from Guadalupe to Depot Street in Santa Maria shown in **Figure 3**. This segment of SR 166 supports vital functions, including agricultural trade, goods movement, and regional connectivity for diverse users, including motorists, freight operators, pedestrians, bicyclists, and transit riders.

Within the Santa Maria city limits, SR 166 from Depot Street to Kathleen Court has 2 lanes in each direction with a shared Two-Way-Left-Turn-Lane with a posted speed limit of 35 mph. This portion of SR 166 is prone to recurring travel delays during the traditional AM/PM commuter peak hours as well as an early-morning 6 AM agricultural worker commute which creates observed westbound delays and queuing between Blosser Road and Depot Street in western Santa Maria. West of Kathleen Court, SR 166 has one travel lane in each direction with a posted speed limit of 55 mph until just west of Simas Road intersection where posted speeds are reduced to 45 mph with intersection controls and channelization reducing speeds further to the intersection with SR 1. The portion of SR 166 between Hanson Way and Simas Road that is posted at 55 mph is a designated safety corridor with a posted daylight headlight section. There are several turning lanes but there are no passing lanes or center median dividers. There are several signalized, 2-way and 4-way stop-controlled intersections. In addition, there are numerous unofficial intersections that exist where unimproved dirt roads connect to SR 166. As SR 166 approaches the Santa Maria city limits, the speed limit drops to 45 MPH then 35 MPH.

As a route providing connectivity to the National Surface Transportation Assistance Act (STAA) network at US 101, SR 166 is frequently and routinely used by large trucks and agricultural vehicles (48 to 53 ft. from kingpin to rear axle sized vehicles), often at slower speeds than passenger vehicles, and enter/exit the road at unpaved and unmarked locations. Agricultural workers routinely commute and park alongside the route while working in the adjacent fields.

The Bonita Elementary School is located in the middle of the corridor at SR 166 and Bonita School Road. The Santa Maria-Bonita School District provides student bus service to the school. All the students who attend Bonita Elementary School live in Santa Maria area. Additional transit is provided within study corridor between the cities of Guadalupe and Santa Maria by the Guadalupe Flyer which merged with Santa Maria Regional Transit (SMART) in 2025.

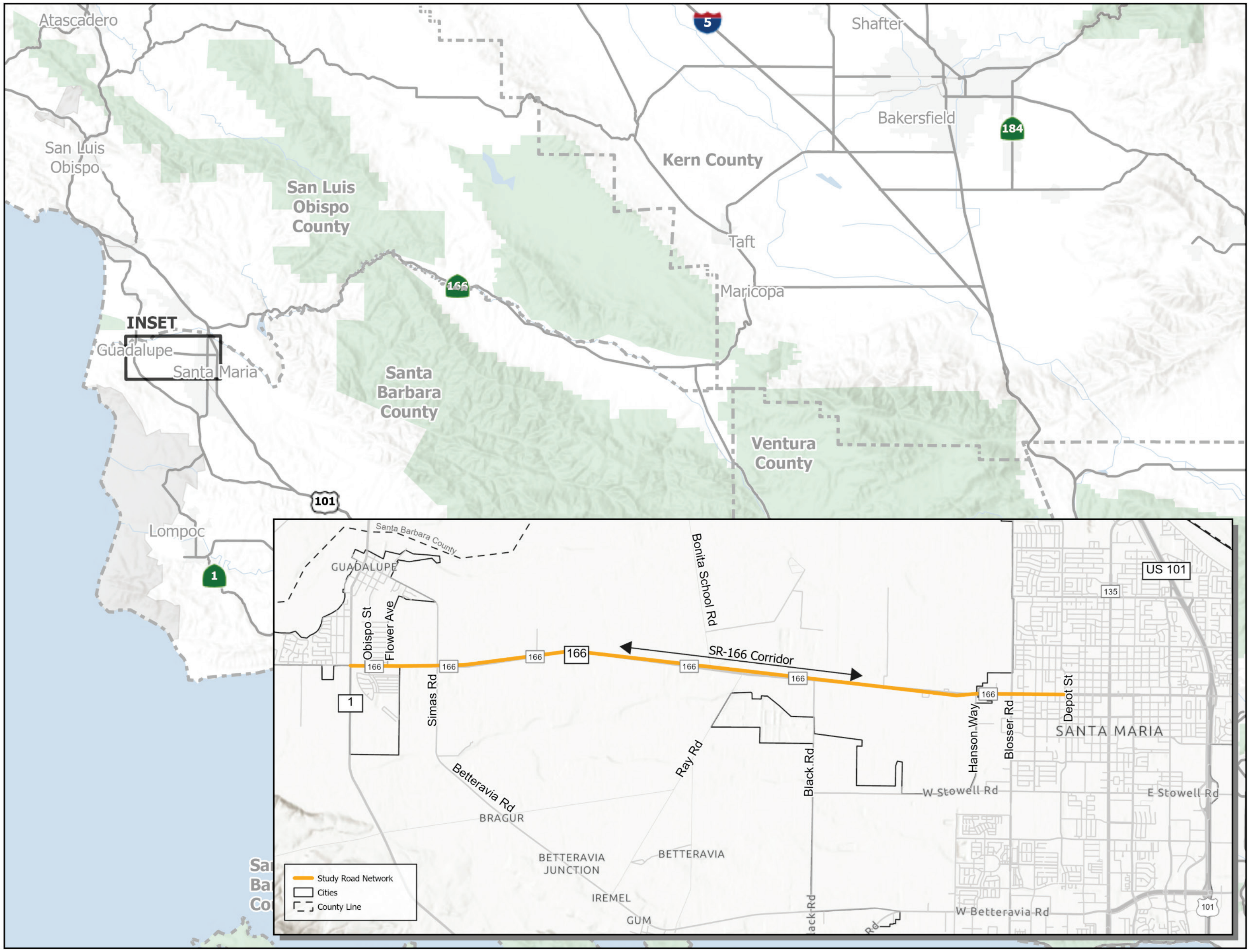


FIGURE 3: SR 166 CCS STUDY AREA

1.3 PLANNING CONTEXT

The SR 166 CCS will evaluate the multimodal performance of this corridor (including parallel routes and access roads) consistent with the latest State planning guidelines governing corridor studies in California. Consistency with State corridor planning guidance ensures future eligibility for State SB-1 competitive grant programs. The operative State corridor planning guidance documents include:

- Corridor Planning Process Guide (Caltrans, 2022)
- Comprehensive Multimodal Corridor Plan Guidelines (California Transportation Commission; 2025); and,
- SB-1 Accountability and Transparency Guidelines (California Transportation Commission, 2023)

These guidelines were all developed based on the Caltrans Smart Mobility Framework: A Call to Action for the New Decade (Caltrans, 2010; updated in 2021). The Smart Mobility Framework (SMF) provides a broad planning framework to help guide multimodal and sustainable transportation planning and development along with providing tools and techniques to assess how well plans, programs, and projects meet 'smart mobility' goals. The fundamental premise of the SMF is to ensure that planning or programming decisions for transportation are performance based (i.e., quantitative), transparent, and address sustainable outcomes and objectives.

Numerous state, regional, and local studies have been developed that are relevant to the SR 166 CCS. These studies are listed below and are summarized in **Appendix A**.

Caltrans

- Guadalupe Active Partnership for Signalization and CAPM to Santa Maria
- Climate Action Plan for Transportation Infrastructure (2021)
- Caltrans System Investment Strategy (CSIS)
- Caltrans District 5 State Route 166 Transportation Concept Report (TCR 2017)
- Caltrans District 5 Active Transportation Plan (November 2022)
- US 101 Business Plan (2021)
- U.S. 101 Central Coast Freight Strategy (Caltrans, 2016)
- Central Coast Commercial Flows (2012)

Regional / SBCAG / Central Coast

- Connected 2050 Regional Transportation Plan (RTP) (SBCAG 2021)
- California Central Coast Sustainable Freight Study (AMBAG, 2024)
- Route 166 Safety and Operational Improvements–Project Development Plan (SBCAG 2012)
- SR 166/Black Road Intersection Improvements Project (SBCAG 2024)
- Understanding Regional Travel Patterns (SBCAG 2024)
- Regional Active Transportation Plan (SBCAG 2015)
- Northern Santa Barbara County Interim California Coastal Trail Study (SBCAG 2020)
- Highway 166 Truck Study Final Report (SBCAG 2003)

County of Santa Barbara

- Active Transportation Plan (2023)
- Local Road Safety Plan (2021)

City of Guadalupe

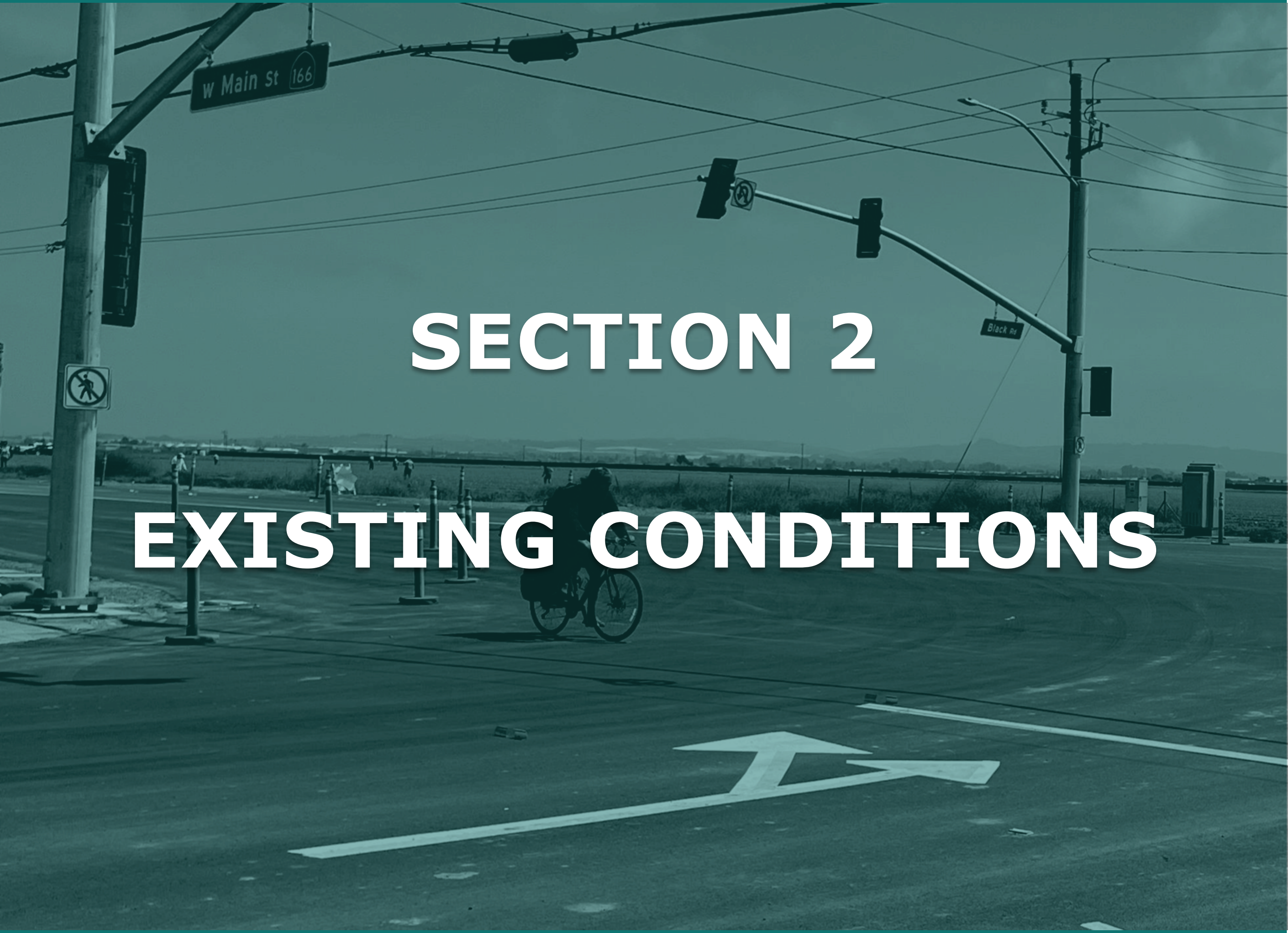
- 2042 General Plan (2022)
- Local Road Safety Plan (2022)
- Short Range Transit Plan (2014)
- Guadalupe Mobility + Revitalization Plan (2020)
- City of Guadalupe Bicycle and Pedestrian Master Plan (2014)

City of Santa Maria

- Santa Maria General Plan (Imagine) Comprehensive General Plan Update (current)
- Major Development Activity (July 2024)
- Local Road Safety Plan (2022)
- Active Transportation Plan (2019)
- Short Range Transit Plan for Santa Maria Area Transit (2020)
- Bus Rapid Transit Study, Phase 1 (Santa Maria Regional Transit, 2024)
- Safer Streets for Santa Maria – Local Road Safety Plan (2022)

These studies provide the basis and context from which this study builds upon.

The next section provides an overview of the corridor's current conditions, including socioeconomic characteristics, goods movement, traffic operations, safety and collision history, multimodal accessibility, and climate change vulnerability. This information will facilitate the identification of improvements to enhance safety, mobility, and connectivity in the study corridor.



SECTION 2

EXISTING CONDITIONS

2 EXISTING CONDITIONS

The SR 166 CCS aims to enhance safety, mobility, and connectivity along SR 166, from SR 1 in Guadalupe to Depot Street in Santa Maria. The goal of the study will be to identify a package of multimodal improvements that support efficient goods movement, enhance safety, and improve connectivity for all users, including pedestrians, bicyclists, and transit riders.

This section documents the corridor's current conditions within the study area. This includes demographic and socio-economic profiles of the two cities connected by SR 166 as well as the socio-economic and travel characteristics of those who travel on SR 166 within the study corridor. An overview of existing infrastructure characteristics, corridor operations, collision history, multimodal travel patterns within the corridor is also provided. The existing condition assessment will serve to inform and facilitate selection of multimodal improvements that address identified deficiencies and mobility constraints.

2.1 DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILE

SR 166 connects the communities of Guadalupe to the west and Santa Maria to the east. **Figure 4** and **Figure 5** provide demographic profiles for the cities of Guadalupe and Santa Maria respectively. This data, which reflects 2024 ESRI data and 2018-2022 data Americal Community Survey, includes population, age, household income, home value, languages spoken, disability, poverty level, and business information.

Based on this data source, Santa Maria is a city of approximately 110,400 residents with approximately 29,000 households. Median age is 32.2 years. The median household income is $78,719, and 12% of residents live below the poverty line which aligns with the California average of 12.2%[1]. There are 3,789 total businesses.

Conversely, the City of Guadalupe is home to approximately 8,300 residents and 2,100 households. Median age is 31.8 years. The median household income of $61,731 and 28% of the population lives below the poverty line, nearly double the poverty rate of the Santa Maria-Santa Barbara Metro Area and more than twice the California average. There are 114 total businesses in the City of Guadalupe.

Both cities have a significant Spanish-speaking populations. However, in Guadalupe, a larger proportion of the population aged 65 and over speaks Spanish and no English (191 people) compared to Santa Maria (1,062 people). Santa Maria has a much larger daytime population, indicating a larger influx of people for work or other activities. This is likely due to a larger number of businesses in the city.

SBCAG Environmental Justice Communities

Regional transportation planning must comply with Title VI of the 1964 Civil Rights Act. SBCAG's Connected 2050 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS) provides a regional definition of Environmental Justice (EJ) communities, using block group-level

[1] U.S. Census Bureau. (n.d.). *Santa Maria CCD, Santa Barbara County, California: Profile data.* Retrieved November 18, 2024, from https://data.census.gov/profile/Santa_Maria_CCD,_Santa_Barbara_County,_California?g=060XX00US0608392908

census demographic data. To identify EJ communities, SBCAG created an Environmental Justice Score based on several indicators: concentrations of minority populations, low-income households, poverty levels, vehicle ownership, elderly and youth populations, English proficiency, education levels, and housing cost burden. Regions scoring in the top 25% for these indicators are designated as EJ communities, ensuring coverage of both rural and urban areas. This scoring method prioritizes population density and indicator concentration over total population size, allowing for a more precise reflection of community needs.

Figure **6** illustrates the SR 166 study corridor in relation to EJ communities in the surrounding area, ranked by percentile. A color gradient from yellow to dark red indicates varying levels of EJ priority, with darker colors representing higher EJ scores based on SBCAG's definition. Overall, SR 166 serves several high-priority EJ communities, both rural and urban. High EJ priority areas (20-25 percentile) are present near Santa Maria and Guadalupe, reflecting significant concentrations of minority, low-income, and vehicle-limited populations.

Other Definitions and Indicators

This section examines the environmental and socioeconomic vulnerabilities of communities surrounding SR 166 using alternative definitions, including CalEnviroScreen4.0 and AB 1550 criteria. These analyses highlight areas of high environmental health risks, economic challenges, and social inequities, particularly around Guadalupe and parts of Santa Maria. Results are summarized as follows:

CalEnviroScreen4.0 Results **(Figure 7)**: The area around Guadalupe ranks within the 80-90 percentile for environmental and socioeconomic vulnerability, indicating higher relative levels of pollution and other environmental justice issues. Santa Maria and surrounding areas fall within the 60-70 percentile, suggesting moderate to high vulnerability.

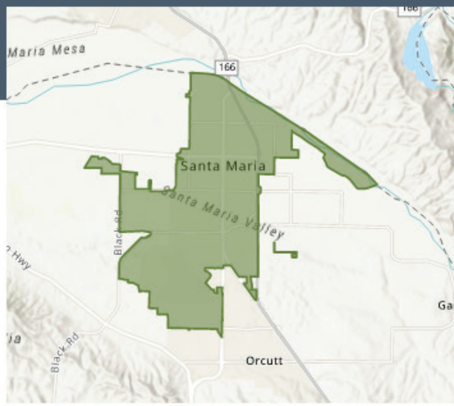
AB 1550 Low-Income Communities **(Figure 8):** The Santa Barbara County Active Transportation Plan identifies areas west of and around SR 166 as disadvantaged communities under AB 1550 criteria, based on income levels below state-designated thresholds.

AT RISK POPULATION PROFILE

Santa Maria City, CA

esri

Geography: Place



110,402	29,238	3.75	32.2	$78,719	$485,701	80	66	81
Population	Households	Avg Size Household	Median Age	Median Household Income	Median Home Value	Wealth Index	Housing Affordability	Diversity Index

AT RISK POPULATION

- 8,767 Households With Disability
- 13,335 Population 65+
- 1,749 Households Without Vehicle

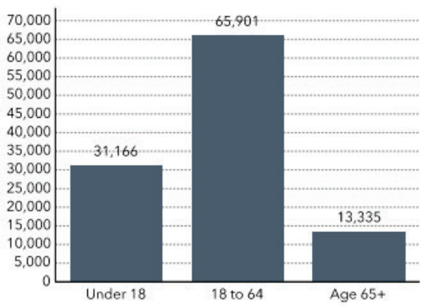
POVERTY AND LANGUAGE

- 12% Households Below the Poverty Level
- 3,367 Households Below the Poverty Level
- 1,062 Pop 65+ Speak Spanish & No English

POPULATION AND BUSINESSES

- 99,861 Daytime Population
- 3,789 Total Businesses
- 41,081 Total Employees

POPULATION BY AGE



Language Spoken (ACS)	Age 5-17	18-64	Age 65+	Total
English Only	7,503	19,356	7,004	33,863
Spanish	15,715	40,512	3,710	59,937
Spanish & English Well	14,346	22,598	1,955	38,899
Spanish & English Not Well	997	6,142	693	7,832
Spanish & No English	372	11,772	1,062	13,206
Indo-European	0	342	83	425
Indo-European & English Well	0	300	79	379
Indo-European & English Not Well	0	42	4	46
Indo-European & No English	0	0	0	0
Asian-Pacific Island	294	2,317	941	3,552
Asian-Pacific Isl & English Well	248	2,025	652	2,925
Asian-Pacific Isl & English Not Well	20	271	212	503
Asian-Pacific Isl & No English	26	21	77	124
Other Language	425	1,257	18	1,700
Other Language & English Well	343	530	0	873
Other Language & English Not Well	28	85	1	114
Other Language & No English	54	642	17	713

Source: This infographic contains data provided by Esri (2024, 2029), ACS (2018-2022), Esri-Data Axle (2024).

Source: This infographic contains data provided by Esri (2024, 2029), ACS (2018-2022), Esri-Data Axle (2024).

FIGURE 4: AT RISK POPULATION PROFILE FOR SANTA MARIA

Source: This infographic contains data provided by Esri (2024, 2029), ACS (2018-2022), Esri-Data Axle (2024).

FIGURE 5: AT RISK POPULATION PROFILE FOR GUADALUPE

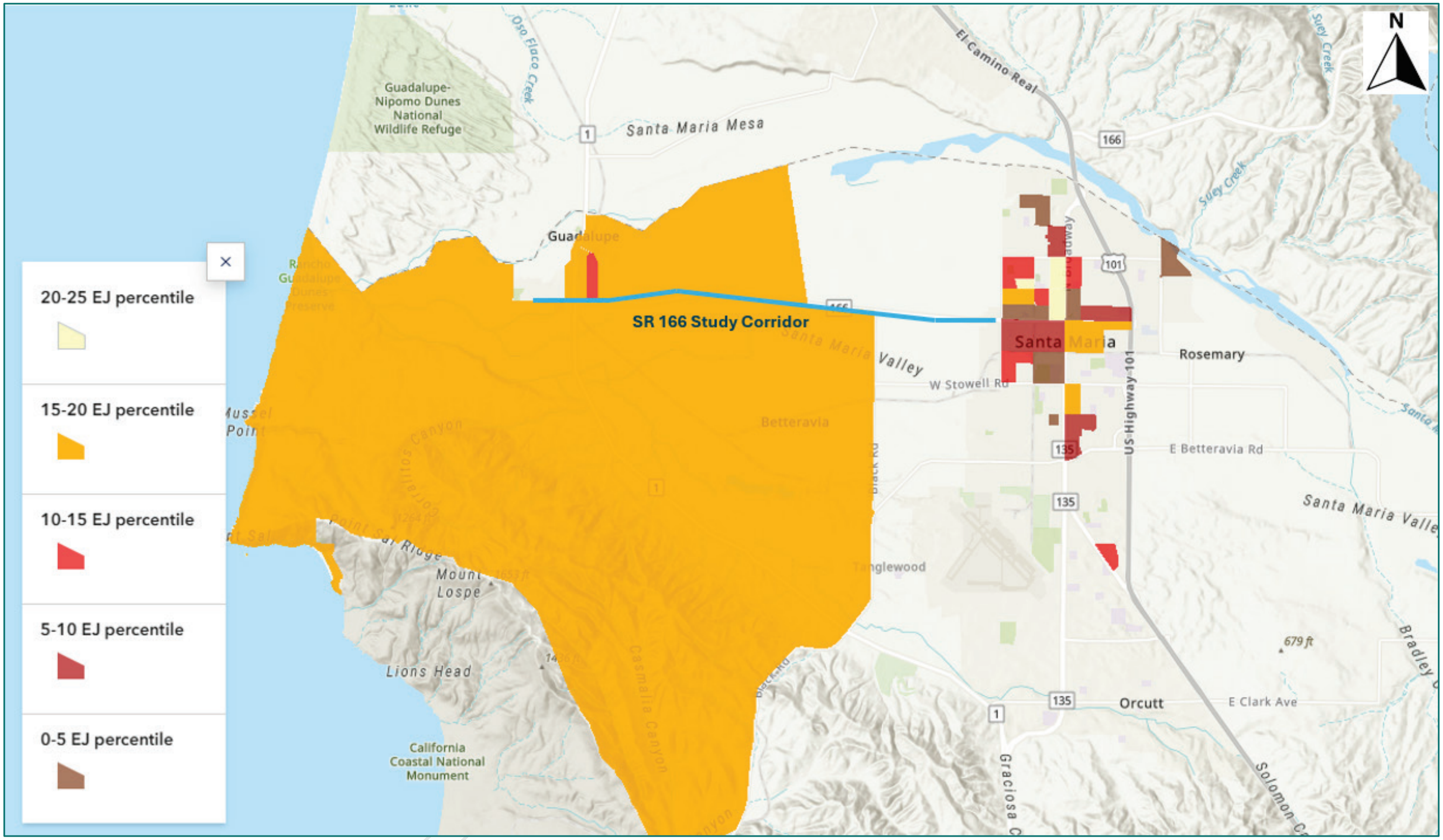


FIGURE 6: SBCAG EJ COMMUNITIES RELATIVE TO STUDY CORRIDOR

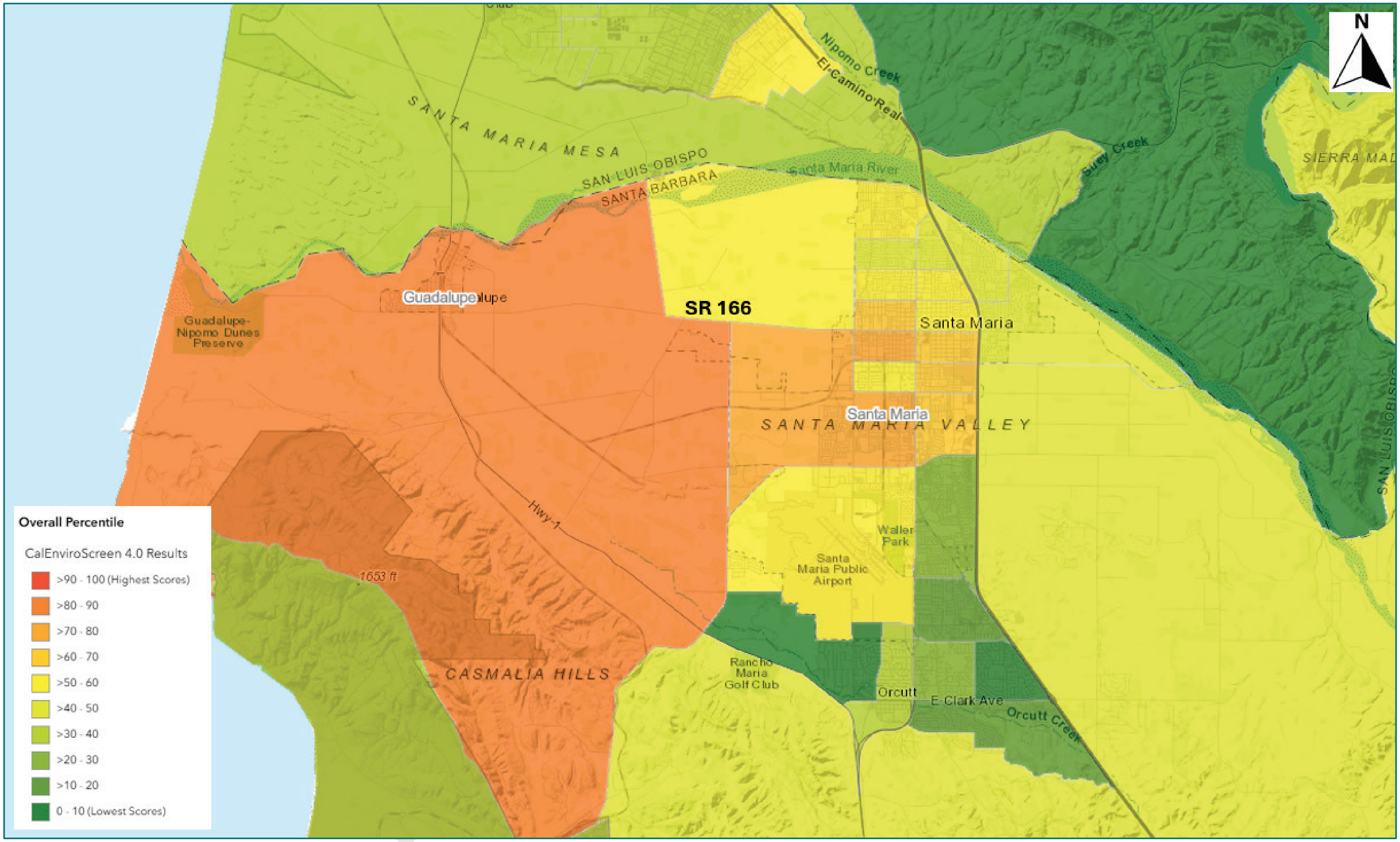


FIGURE 7: CALENVIROSCREEN 4.0 ENVIRONMENTAL VULNERABILITY SCORES FOR AREAS SURROUNDING SR 166

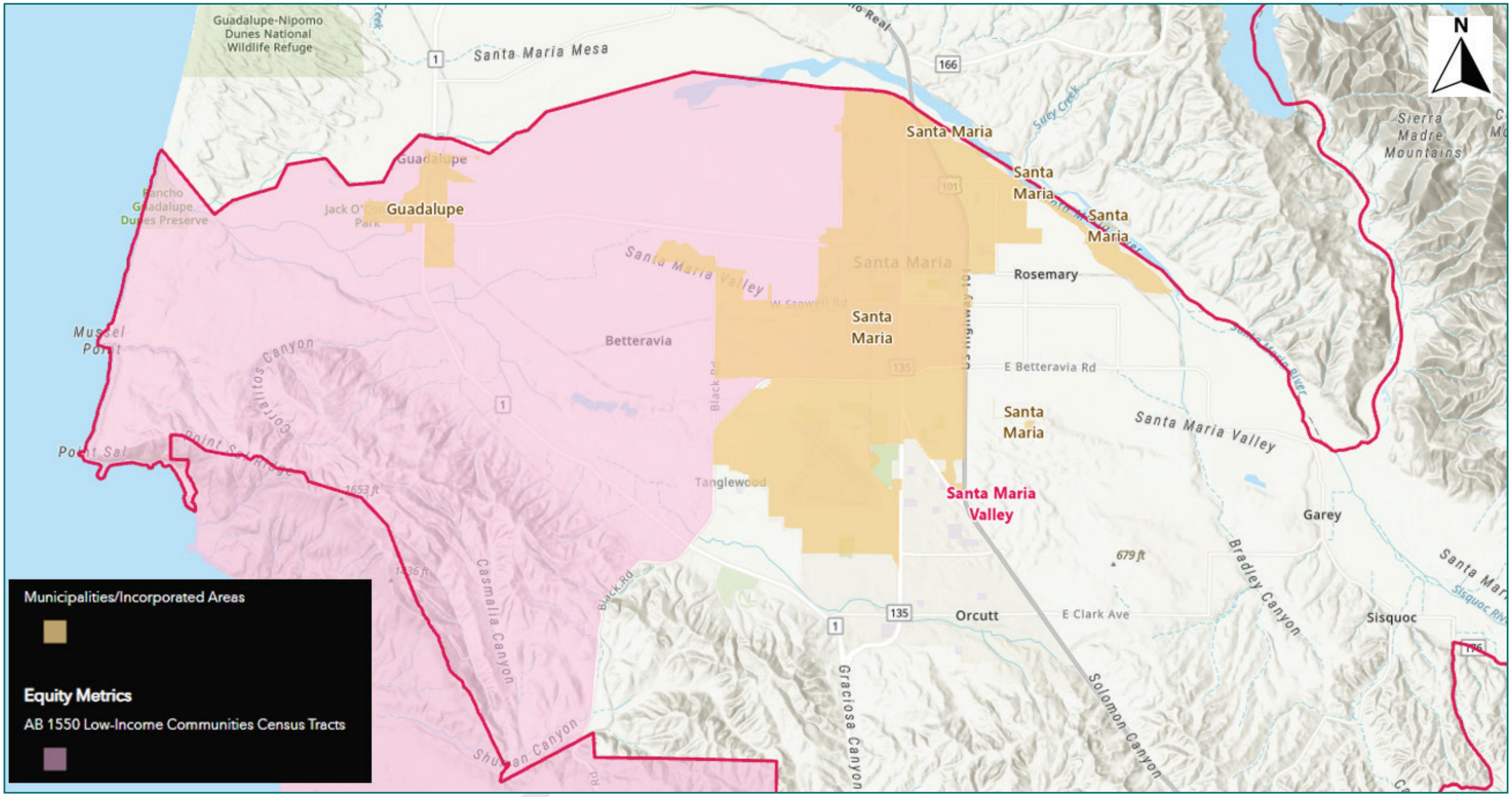


FIGURE 8: AB 1550 LOW-INCOME COMMUNITIES CENSUS TRACTS

2.2 SR 166 TRAVELER CHARACTERISTICS

This section describes the demographic profiles of motorists who use SR 166 within the study corridor and their trip making characteristics. The analysis is based on 2023 cell data from Replica. Replica is a big data platform designed for urban planning and analysis of the built environment. It provides insights into mobility patterns, land use, and human activity including traveler demographics such as language, age, income, and race/ethnicity, as well as trip details like purpose, length, and travel modes. This analysis reflects typical weekday travel conditions[2].

Travel Demographics and Trip Summaries

Replica generates comprehensive datasets on the built environment, mobility trends, and spatial dynamics across cities and regions. High-level key findings from the Replica data analysis on SR 166 include:

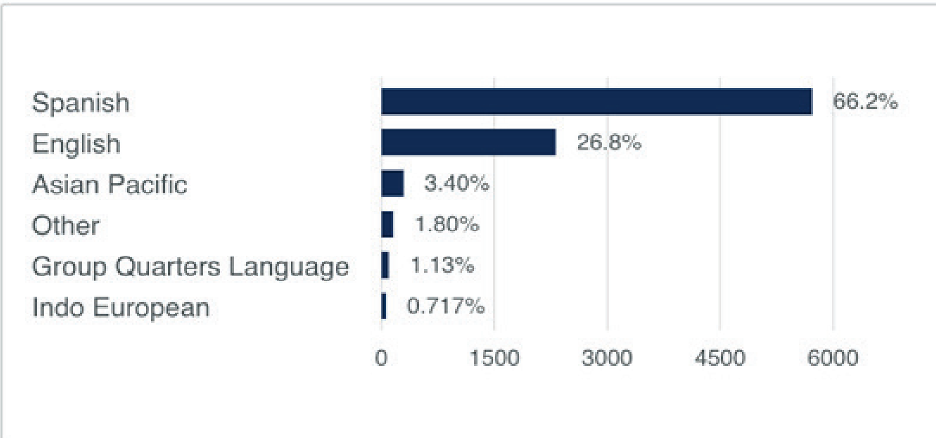
- Demographics: SR 166 primarily serves a middle-income, working-age population with a significant Hispanic/Latino population (72.1%), where Spanish is the primary language for 66.2% of travelers. The age distribution is largely within the 18-49 range, reflecting a middle-aged, active commuting population.
- Travel Mode and Purpose: The corridor is predominantly used by private vehicles (89.7%), with commercial freight composing 8.8% of trips. Key travel purposes are home-related (32.9%) and work commutes (20.7%), with additional trips for shopping and commercial freight.
- Trip Characteristics: Most trip lengths are within an 8 to 16 mile range. The average trip distance is 11.5 miles, with trips originating primarily from single-family homes (36.5%) and retail locations (25.8%).
- Freight Activity: The relatively high proportion of commercial vehicle trips (8.8%) highlights SR 166 as a key route for freight, critical for supporting regional agricultural and commercial activities.

The travel demographic and trip characteristic data highlight SR 166's function as a key corridor for freight, daily commuting and regional access between Guadalupe and Santa Maria. The data also show a significant percentage of commercial vehicle trips, emphasizing SR 166’s importance as for goods movement, particularly within the agricultural and commercial sectors. This combination of personal and commercial travel underscores the corridor’s role in supporting both community mobility and economic activity.

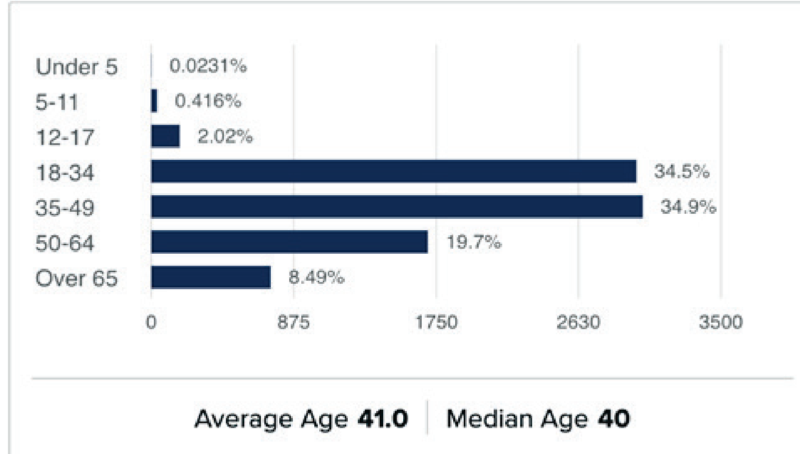
Traveler demographics distributions are illustrated in **Figure 9**: Travel Demographic Distributions (Source : REPLICA) and SR 166 trip characteristics are shown in **Figure 10**.

[2] Given the proprietary nature of Big Data platforms – sample size and confidence levels for the SR 166 user demographics and travel characteristics was not made available for reporting purposes herein.

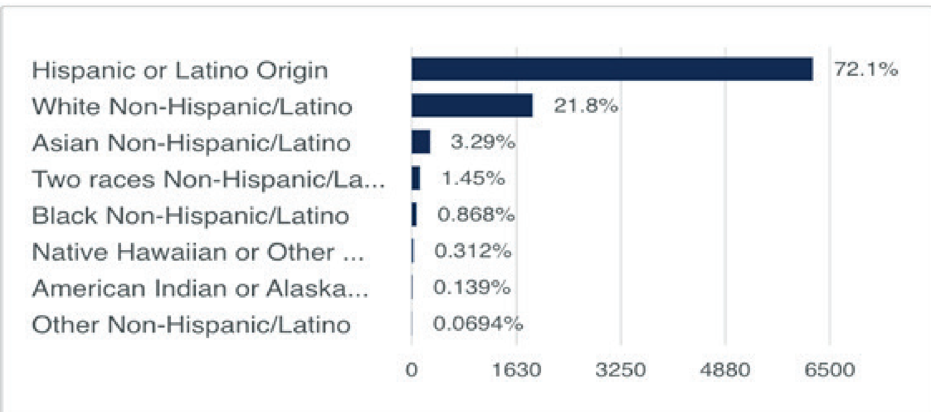
Language



Age



Race & Ethnicity



Household Income

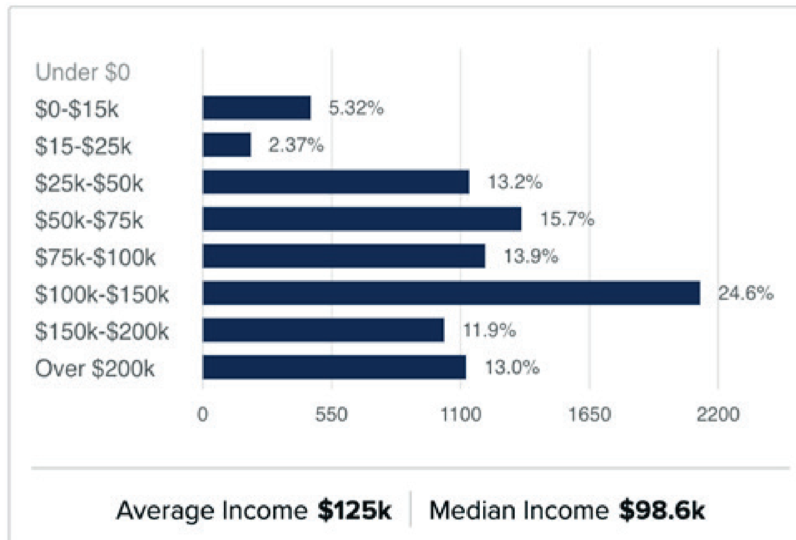


FIGURE 9: TRAVEL DEMOGRAPHIC DISTRIBUTIONS (SOURCE : REPLICA)

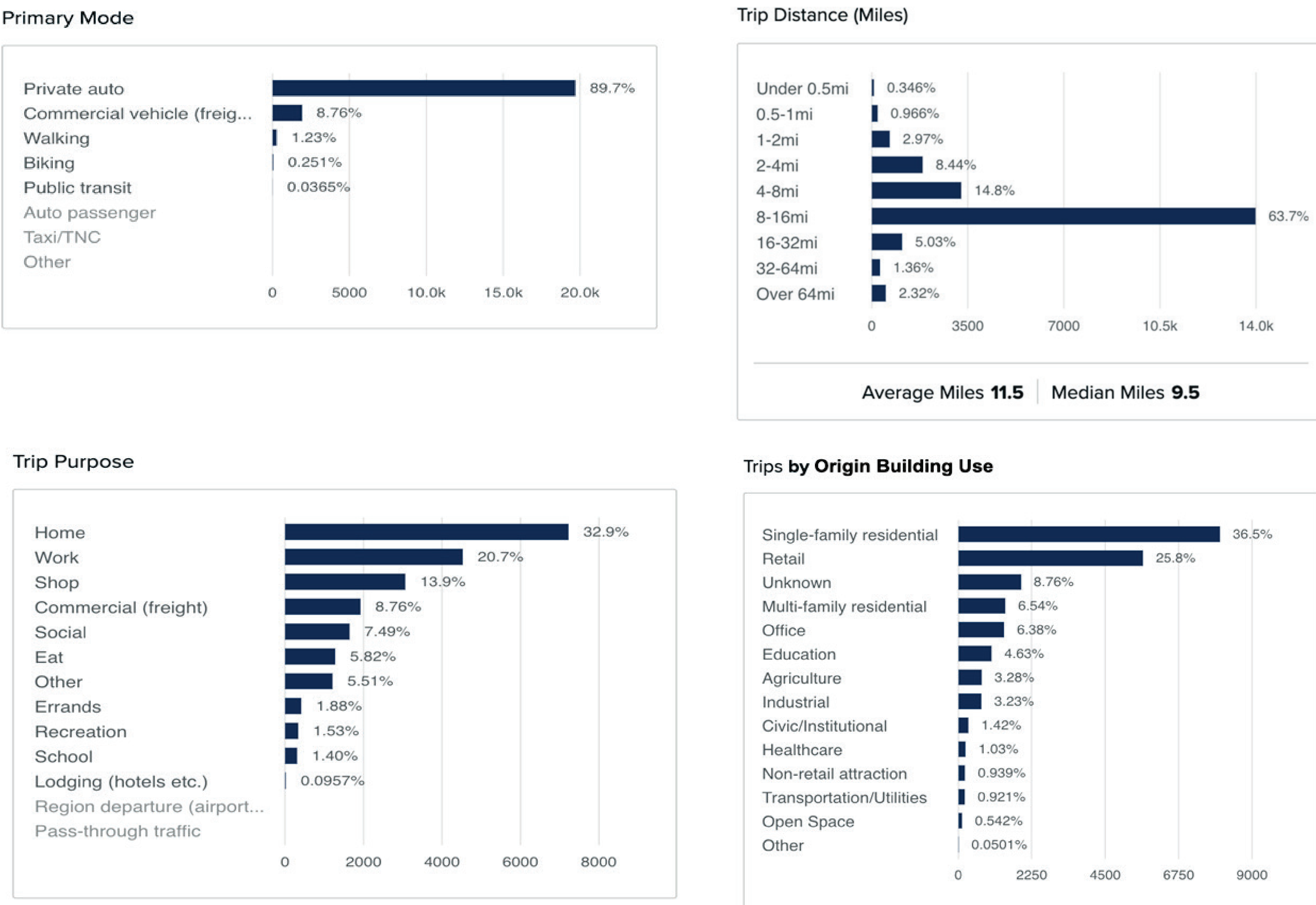


FIGURE 10: TRIP CHARACTERISTICS SUMMARY (SOURCE: REPLICA)

2.3 GOODS MOVEMENT

The SR 166 corridor serves as a critical access route for local processing facilities, cooling facilities, packing sheds, and logistics hubs, meeting the seasonal and high-volume demands of the agricultural industry. It is an important east-west route that connects US 101 to I-5, which provides access to major ports and the larger state and national highway system. It supports a significant proportion of commercial truck traffic and is frequently used by agricultural vehicles, which often travel at slower speeds than passenger vehicles and access the roadway via unpaved, unmarked points. Time saving is a significant focus for agriculture related freight given that produce is a time sensitive commodity.

The *California Central Coast Sustainable Freight Study* (2024)[3] and the *US 101 Central Coast California Freight Strategy* (2016)[4] establish a vision for improving freight movement in the region that align with broader state freight and climate goals. These studies focused on identifying regional bottleneck locations and included extensive stakeholder engagement through interviews with representatives from the agricultural and shipping industries. Both studies identify Santa Maria as a freight/agriculture hub and specifically SR 166 as a critical east-west corridor connecting SR 1, US 101, and I-5. SR 166 is frequently cited in both studies as an example of an important freight route that experiences congestion and reliability challenges. The *US 101 Central Coast California Freight Strategy* emphasizes that key connector routes such as SR 166 play a crucial role in boosting commerce between the Central Coast and the Central Valley, which serves as a key trading partner and a vital component of the national freight network.

Stakeholders for both studies suggested several improvements for SR 166. Recommendations include adding passing lanes, redesigning intersections, expanding capacity, and creating bypasses to reroute freight around urbanized areas. The juncture of US 101 and SR 166 in Santa Maria was identified as a high-priority location for upgrades. The *California Central Coast Sustainable Freight Study* recommended operational enhancements such as adding passing lanes on SR 166 to reduce congestion and improve safety. Similarly, the *US 101 Central Coast California Freight Strategy* recommended widening SR 166 from Guadalupe to Santa Maria to four lanes and incorporating access control measures to enhance truck mobility and alleviate congestion.

Truck Volumes and Facilities

Summarized in **Table 1,** daily traffic volumes on SR 166 between the cities of Guadalupe and Santa Maria range from under 9,000 vehicles near Guadalupe to nearly 23,400 vehicles at east end of the study corridor (Caltrans, Published 2023 State Highway Volumes). Daily truck traffic volumes within the corridor range from about 1,115 near Guadalupe to just under 1,870 at Depot Street in Santa Maria. When considering the impact of truck activity, it is important to categorize the truck volumes by vehicle size and trip purpose. Trucks are categorized by the number of axles on the vehicle, ranging from 2 axles to 5+ axles. In general, 5+ axle trucks reflect Surface Transportation Assistance

[3] Association of Monterey Bay Area Governments. (2024). *California Central Coast Sustainable Freight Study*. https://ambag.org/plans/regional-freight-planning

[4] Association of Monterey Bay Area Governments. (2016). *US 101 Central Coast California Freight Strategy*. https://ambag.org/reports

Act (STAA)-sized vehicles which range from 48-53 feet from kingpin to rear axle (KPRA) as shown below.

STAA Truck Tractor-Semi Trailer

Semitrailer length:	48 feet maximum
KPRA:	no limit
Overall length:	no limit

Semitrailer length:	Over 48 feet up to 53 feet maximum 40 feet maximum for two or more axles 38 feet maximum for single axle trailers
KPRA:	no limit

Since 2000, average daily traffic on SR 166 has grown by 20%, with a significant increase in 5+ axle heavy-duty trucks (on average 61%) contributing to operational and safety challenges on the corridor (**Table 1**). Agricultural storage and cooling facility locations along the corridor, shown in **Figure 12**, are significant generators of truck traffic, contributing to the heavy-duty vehicle presence on SR 166.

STAA Enforcement

STAA truck routes are designated roadways that allow large trucks to operate in accordance with the *Surface Transportation Assistance Act* of 1982. These routes are specifically designed to accommodate longer and wider trucks than those typically allowed on standard roads. The Act permits motor carrier operation of 48-foot and 53-foot semi-trailers on the national highway network and allowed states to permit these "STAA vehicles" on state and local routes as well. Designation of STAA routes is premised on engineering and safety standards (i.e., adequate footprint to accommodate truck turn radius requirements, gross vehicle weight, vertical clearance height etc.)[5]. In California, Caltrans administers these regulations while the California Highway Patrol (CHP) is charged with enforcement. The CHP has the authority to issue citations for violations that involve operating STAA sized equipment on routes that are not formally designated as STAA routes (National Network or Terminal Access Routes) such as SR 166 between the cities of Guadalupe and Santa Maria. An STAA violation typically costs $300.

Alternatives to accessing the National Network without using SR 166 include Betteravia Road for southbound trucks, and SR 1 to Willow Road for northbound trucks. Betteravia Road is a California Legal truck route, and Willow Road is a County-designated truck route from SR 1 to US 101.

As shown in **Figure 11**, SR 166 between Guadalupe and Santa Maria is not a designated STAA Terminal Access (T) route. Despite this, the truck data provided in **Table 1** indicates a substantial and growing proportion of truck traffic on SR 166 to be 5+ axle commercial vehicles. According to the American Truck Research Institute, the vast majority of 5+ axle vehicles are STAA-sized.

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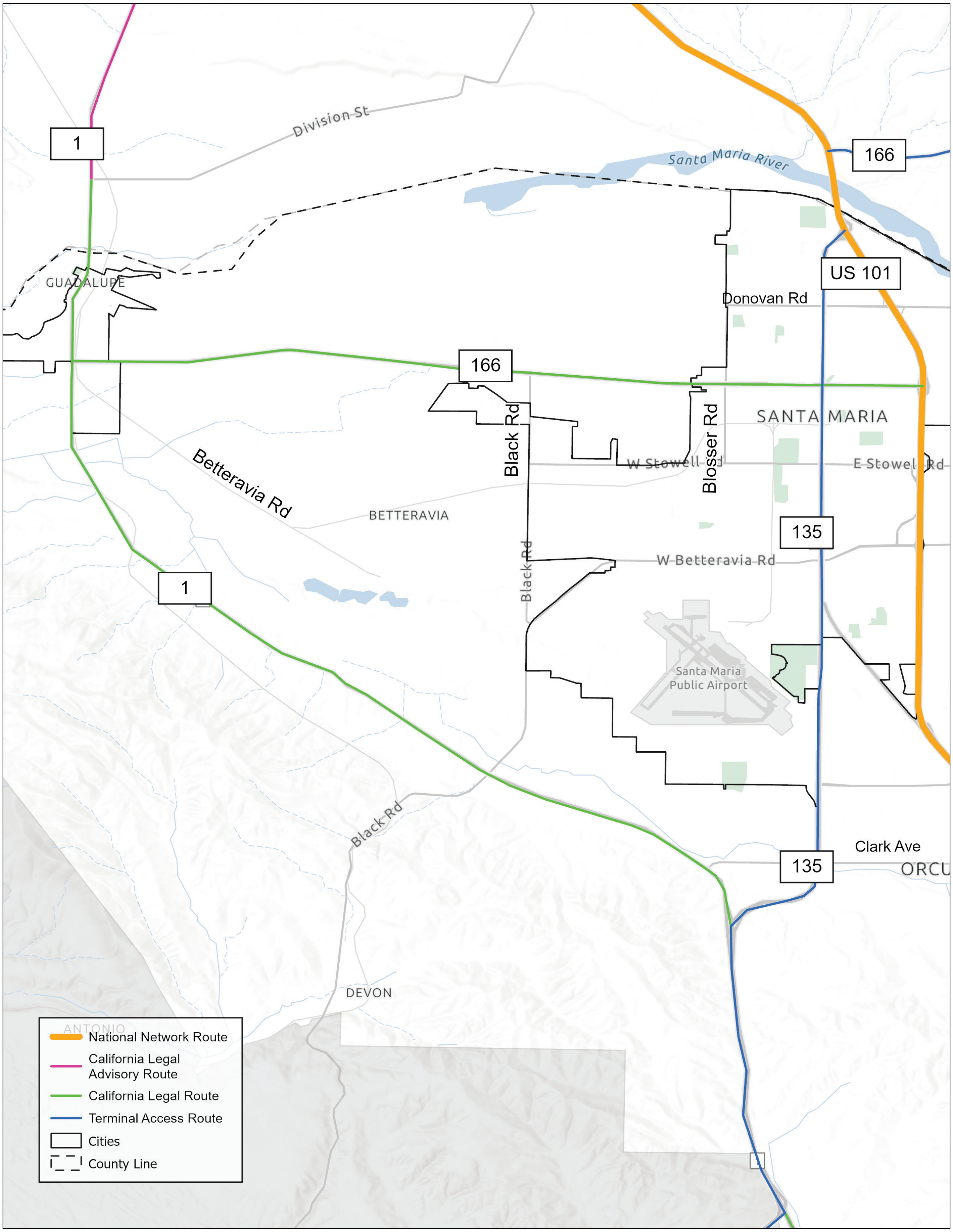
[5] U.S. Code of Federal Regulations at Part 658 "Truck Size and Weight, Route Designations—Length, Width and Weight Limitations" and in the California Vehicle Code at Section 35401.7



Information Source : https://quickmap.dot.ca.gov/#a4

FIGURE 11: CALIFORNIA TRUCK NETWORK WITHIN STUDY AREA

TABLE 1: 2000-2023 TRUCK ANNUAL AVERAGE DAILY TRAFFIC

POST MILE	LOCATION	AADT			TRUCK AADT			5+ AXLE TRUCK AADT		
		2000	2023	% GROWTH	2000	2023	% GROWTH	2000	2023	% GROWTH
0.00	Guadalupe, Jct. Rte 1	7,100	9,000	27%	510	1,115	119%	190	200	5%
6.87	Santa Maria, Blosser Rd.	10,000	14,500	45%	1,100	1,740	58%	430	610	42%
6.87	Santa Maria, Blosser Rd.	17,800	15,500	-13%	1,190	1,710	44%	400	630	58%
7.87	Santa Maria, Jct. Rte. 135	18,700	21,000	12%	1,220	2,285	87%	630	1,140	81%
8.93	Santa Maria, Jct. Rte. 101	15,600	23,400	50%	530	1,870	253%	300	1,050	250%

Source: Caltrans, 2000 Truck Traffic Count Report; Caltrans, 2023 Truck Traffic Count Report

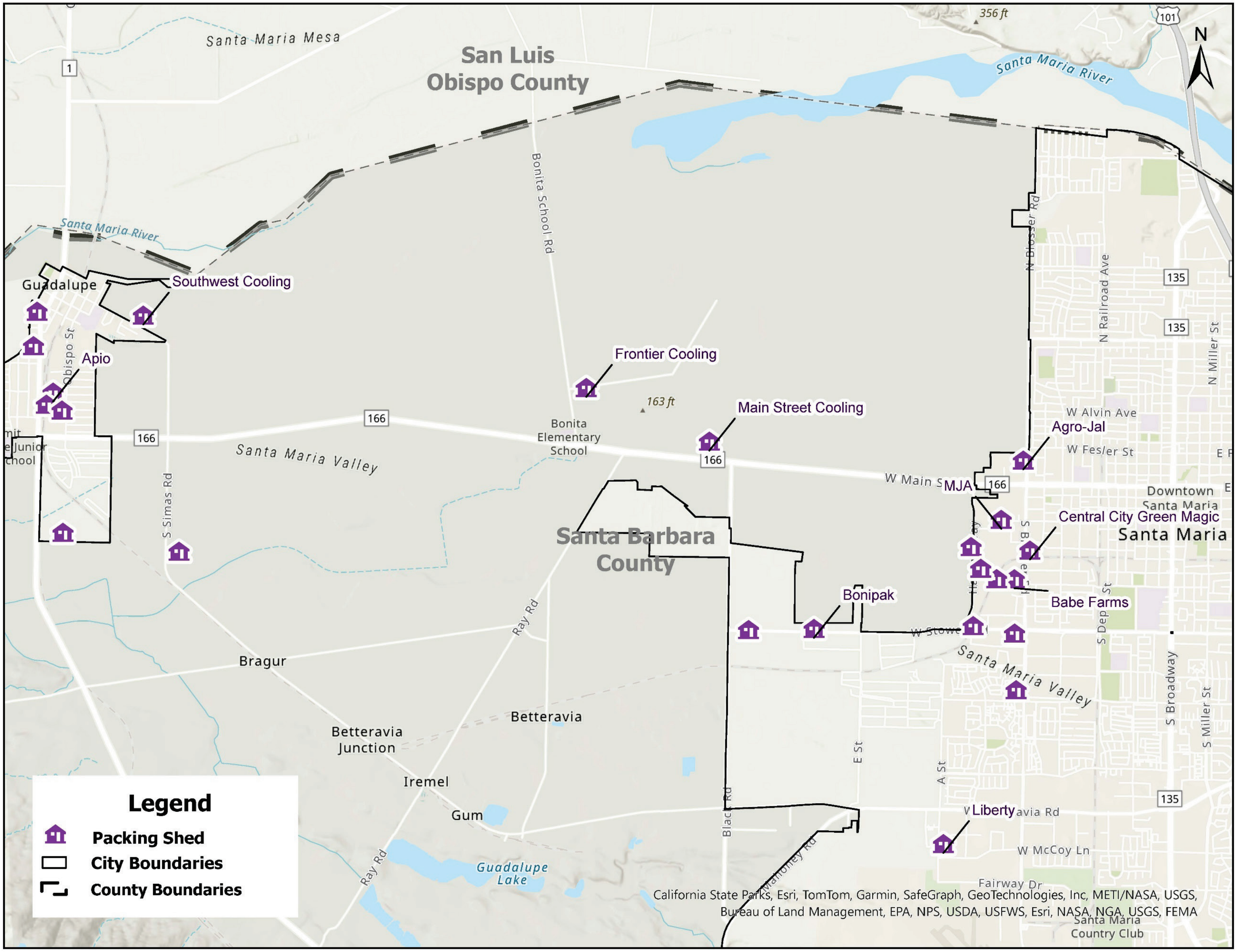


FIGURE 12: STUDY CORRIDOR AND AGRICULTURAL COOLING FACILITY LOCATIONS (FORMALLY CALLED PACKING SHEDS)

Truck Origin-Destination Analysis

2003 Truck Intercept Survey on SR 166

A previous truck study[6] conducted by SBCAG involved performing SR 166 intercept surveys with the CHP mobile enforcement unit to ascertain heavy-duty truck activity and distributions within and through the City of Santa Maria. The intercept surveys were supplemented with "processing shed" interviews conducted at major Santa Maria/Guadalupe packers. Over 450 surveys were completed. The results were used as a basis for a subsequent study by the City of Santa Maria to assess the necessity and feasibility of redirecting heavy-duty truck activity off SR 166 within the Santa Maria City Limits. Results of the 2003 truck intercept survey indicated that SR 1 and Betteravia were not being significantly used as alternate truck travel routes at that time. However, the 2003 surveys were performed on trucks using SR 166, inherently excluding data from trucks that might have chosen SR 1. Hence, the two surveys are not directly comparable because the methodologies and geographic scopes differ.

2023 Origin-Destination Truck Analysis Using Streetlight Data

To analyze heavy-duty truck movements, mobility data was purchased from *StreetLight Data* that was collected from archived and anonymized freight navigation systems along with cellular phones and other internet connected devices. Streetlight data was selected for this analysis given that its platform better captures heavy-duty truck movements than Replica data. The analysis was restricted to heavy truck traffic only (5+ axle vehicles). The origin-destination (O-D) analysis identified how heavy trucks approached and departed the SR 166 corridor between SR 1 in Guadalupe and Depot Street in Santa Maria. The O-D results from the 2023 data were tabulated for the typical weekday AM/PM peak hours as well as daily.

Results of the Streetlight analysis are summarized in **Table 2** and illustrated in **Figure 13** and **Figure 14** for the AM and PM peak hours respectively. Results indicate that SR 166 remains the primary east-west freight corridor. With between 600 and 1,200 5+ axle trucks (i.e., heavy-duty freight) using SR 166 on a daily basis, 33% of AM inbound and 45% of PM outbound. Betteravia Road handles 14% of AM inbound and 18% of PM outbound heavy-duty truck traffic. The 2003 survey did not indicate that Betteravia was used as a notable truck route at that time. The data also indicates that 27% inbound and 25% outbound heavy-duty truck traffic is travelling on SR 1. On a daily basis (**Figure 15** and **Figure 16**), a larger percentage of heavy-duty trucks (18 percent) are traveling from I-5 to access the study area from the east than either from the south or north along US 101. Conversely, outbound heavy-duty trucks are predominantly traveling south (27 percent) and north (17%) on US 101 with only 3 percent of heavy-duty trucks using SR 166 east of US 101.

It is important to note that the extension of Willow Road and the construction of a new interchange with US 101 in Nipomo, completed in October 2012, appears to have significantly influenced truck traffic patterns in the region. This infrastructure improvement provides a direct connection between Willow Road and US 101, offering an alternative route for trucks that previously used SR 166 and

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[6] Highway 166 Truck Study, Final Report, by Strategic Consulting & Research, Produced for Santa Barbara County Association of Governments, August 15, 2003

other local roads to access northbound US 101. Prior to the Willow Road extension, trucks traveling westbound on SR 166 would typically continue to US 101 via existing routes. The new interchange offers a more direct path to US 101, leading to a redistribution of truck traffic. This change is evident in recent data showing that approximately 10-11% of trucks now access US 101 via Willow Road, a shift from patterns observed in 2003. Also, between 2000 and 2023, the number of 5+ axle trucks on SR 166 at SR 1 has shown no growth trend remaining at approximately 200 daily vehicles – which also suggests a shift of truck demand off of SR 166 to SR 1 given that other portions of SR 166 east of SR 1 have seen significant growth in 5+ axle trucks during the same period.

Findings

Key findings into existing truck traffic and goods movement conditions on SR 166 and the surrounding road network are summarized as follows:

- SR 166 is a vital east-west transportation corridor connecting US 101 to I-5, facilitating the movement of agricultural goods between the Central Coast and Central Valley. It serves processing facilities, packing sheds, and logistics hubs, meeting the high-volume, seasonal demands of the agricultural industry.
- Both the California Central Coast Sustainable Freight Study (2024) and US 101 Central Coast Freight Strategy (2016) emphasize SR 166's importance as a critical freight route facing congestion and reliability challenges.
- Truck traffic on SR 166 has grown significantly since 2000, with heavy-duty 5+ axle trucks increasing by 61%. Existing daily truck traffic (all axle groups) on SR 166 ranges from 1,115 vehicles near Guadalupe to 1,870 at Depot Street in Santa Maria.
- 2023 Streetlight origin-destination data indicates that SR 166 remains a primary route for both inbound and outbound freight travel with 33% inbound and 45% outbound regional freight travel into and out of Guadalupe and the surrounding areas.
- On a daily basis, a larger percentage of heavy-duty trucks (18%) are traveling from I-5 to access the study area from the east than from either the south or north along US 101. Conversely, outbound heavy-duty trucks predominantly travel south (27%) and north (17%) on US 101 with only 3 percent of heavy-duty trucks using SR 166 east of US 101.
- The extension of Willow Road and the construction of a new interchange with US 101 in Nipomo, completed in October 2012, has influenced truck traffic patterns in the region. This improvement provides a direct connection between SR 1 and US 101 north of SR 166, offering an alternative route for trucks that previously used SR 166 and other roads to access US 101.
- Results of the Streetlight origin-destination data indicate that Betteravia Road and SR 1 are increasingly utilized as alternatives to SR 166, specifically for trucks accessing US 101. Betteravia Road has experienced an increase in daily heavy-duty truck traffic as indicated by the relatively large percentage of overall 5+ axle truck activity (15% both inbound and outbound).
- SR 1 and SR 166 are not STAA terminal access routes. Despite this, 2023 Caltrans Truck Traffic counts indicate that the proportion of 5+ axle vehicles has continued to increase relative to overall traffic growth on SR 166.

TABLE 2: FREIGHT ORIGIN-DESTINATION REGIONAL DISTRIBUTION
COMPARATIVE TRAVEL PATTERNS FOR 5+ AXLE TRUCKS DURING PEAK HOUR PERIODS (2023)

ROADWAY	2023 AM INBOUND	2023 PM OUTBOUND
SR 166 (MAIN STREET) WEST OF DEPOT STREET	33%	45%
SR 166 WEST OF US 101	25%	26%
SR 166 EAST OF US 101	3%	22%
US 101 NORTH OF WILLOW ROAD	13%	6%
US 101 NORTH OF SR 166 EAST	3%	8%
US 101 SOUTH OF CLARK AVENUE	14%	7%
US 101 SOUTH OF SR 135	19%	9%
SR 1 NORTH OF MAIN STREET	27%	24%
SR 135 NORTH OF SR 1	7%	8%
BETTERAVIA ROAD WEST OF SR 138	14%	18%
CLARK AVENUE EAST OF SR 1	9%	5%
CABRILLO HWY (SR 1) NORTH OF CLARK AVENUE	15%	8%

Source: 2023 StreetLight Data, Heavy Trucks, Origin-Destination Analysis; 2003 Highway 166 Truck Study, SBCAG.

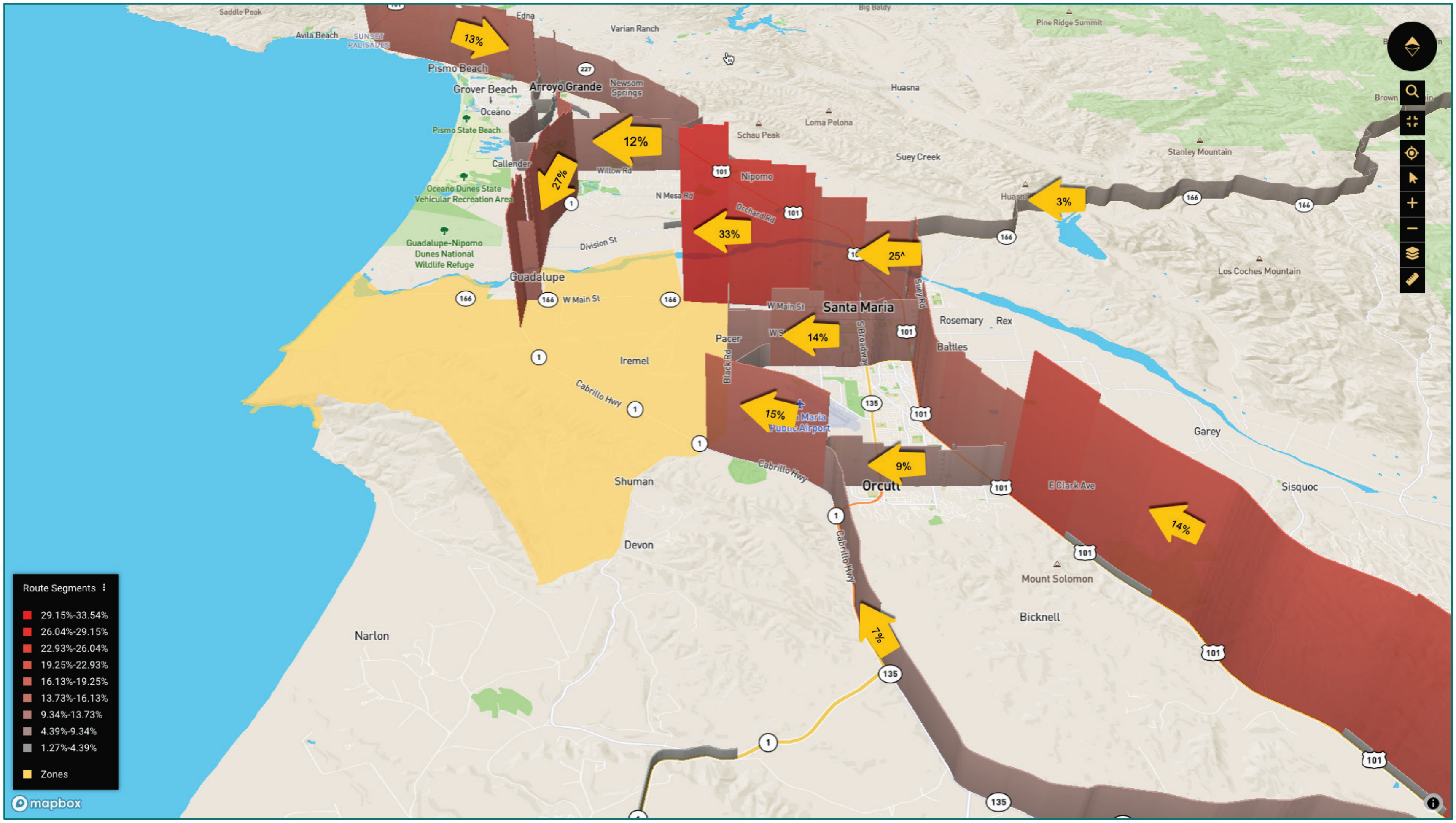


FIGURE 13: 2023 AM INBOUND TRUCK DISTRIBUTION (SOURCE: STREETLIGHT)

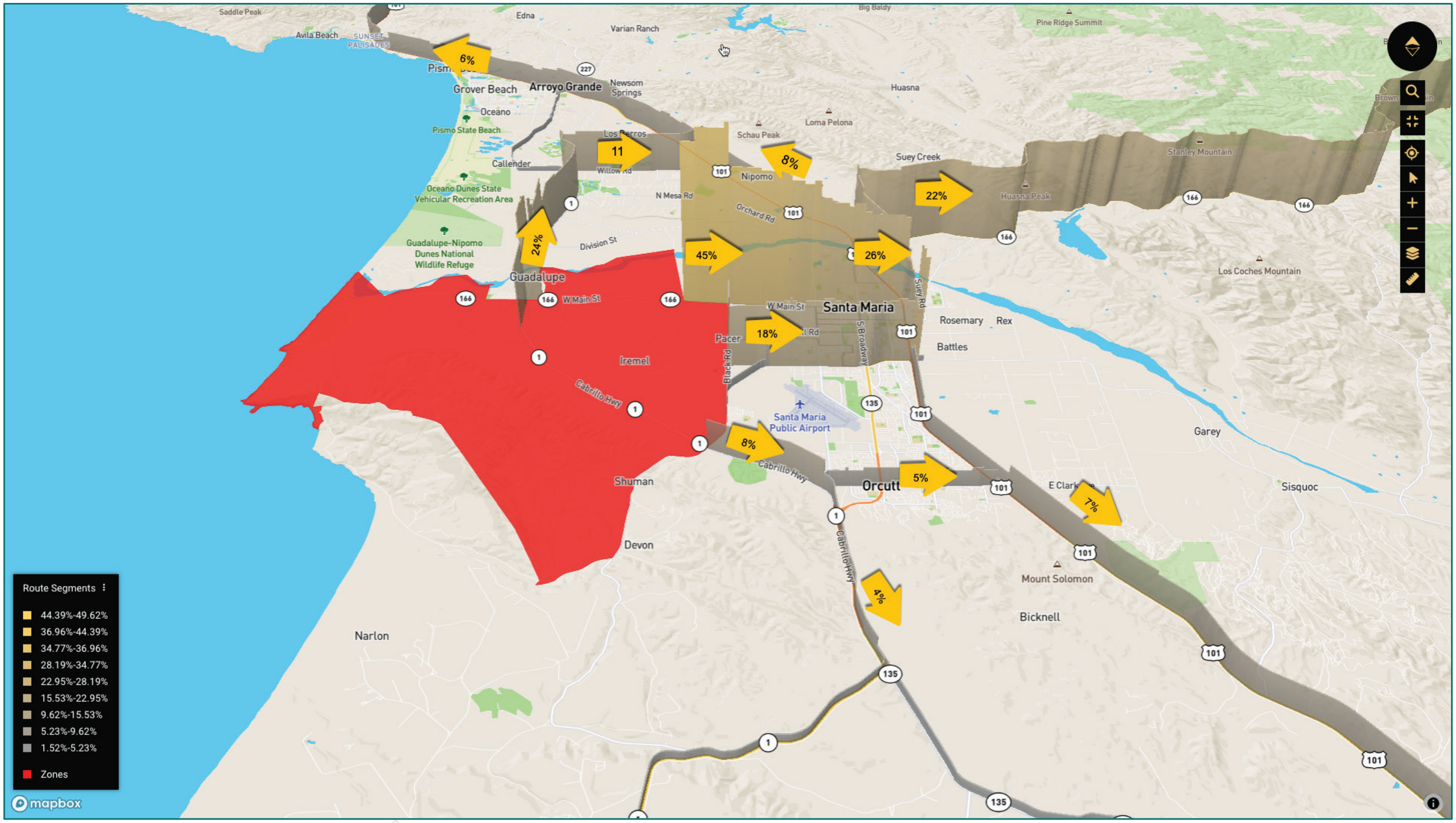


FIGURE 14: 2023 PM OUTBOUND TRUCK DISTRIBUTION (SOURCE: STREETLIGHT)

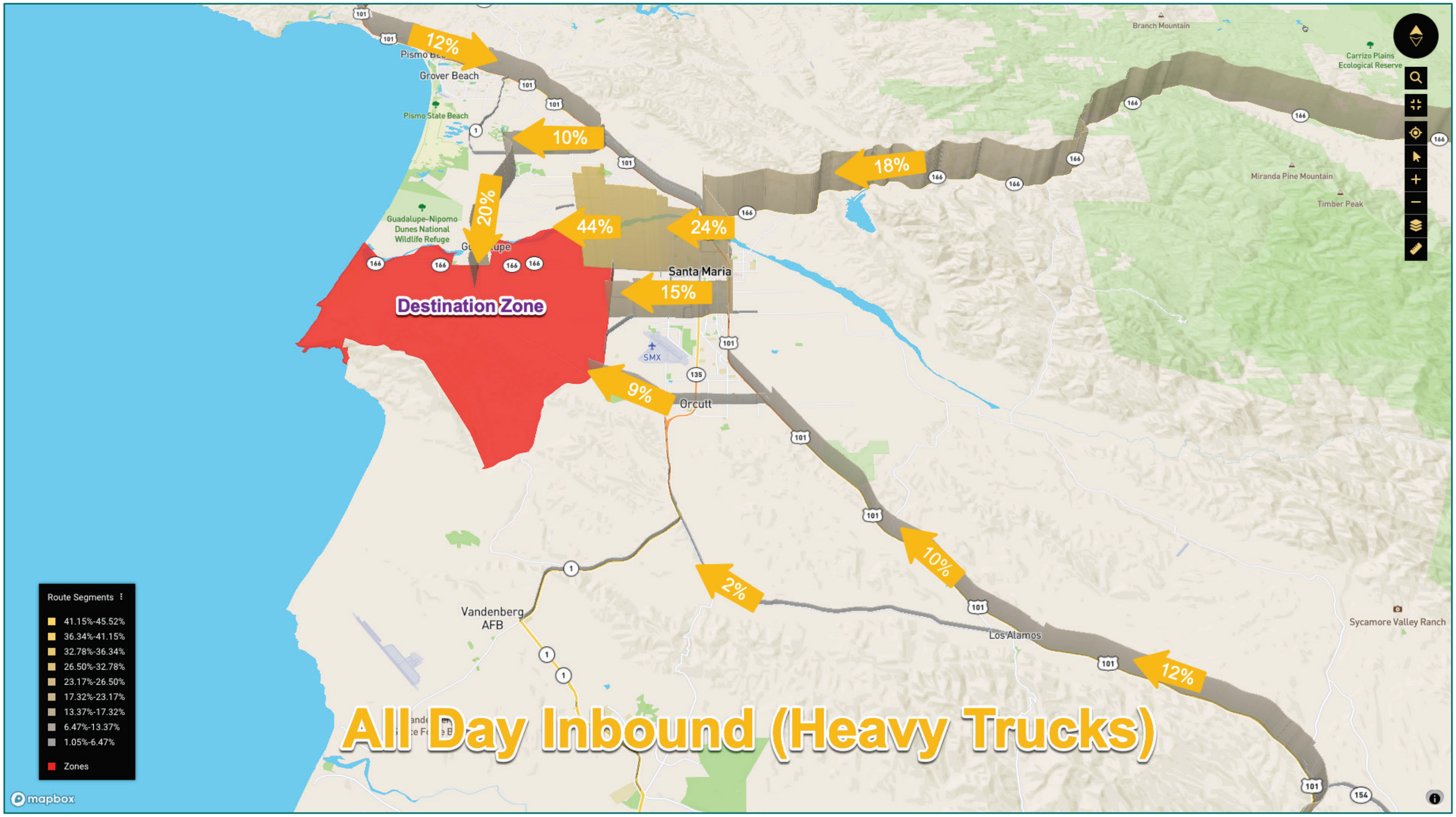


FIGURE 15: 2023 ALL DAY INBOUND HEAVY TRUCK PERCENTAGE (SOURCE: STREETLIGHT)

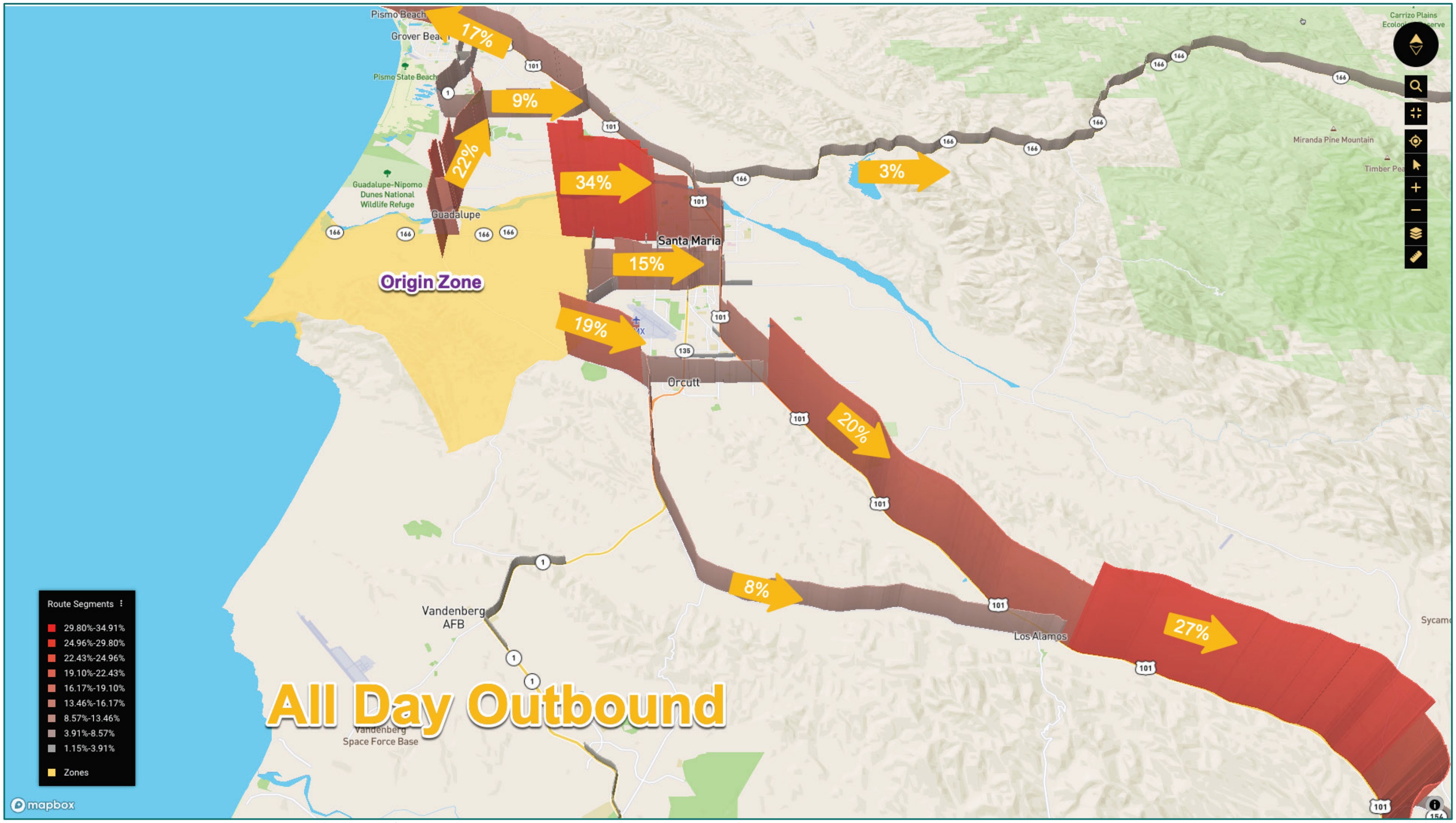


FIGURE 16: 2023 ALL DAY OUTBOUND HEAVY TRUCK PERCENTAGE (SOURCE: STREETLIGHT)

2.4 SR 166 STUDY CORRIDOR ROADWAY CHARACTERISTICS

SR 166 is a state highway in California that connects the Central Coast to the southern San Joaquin Valley, linking coastal areas such as Santa Maria and Guadalupe with inland regions of the state. Stretching from SR 1 in Guadalupe (Santa Barbara County) through Santa Maria to SR 99 in Mettler (Kern County), SR 166 is part of the California Freeway and Expressway System but is not part of the National Highway System.

This study focuses on the segment of SR 166 within Santa Barbara County, which extends eastward from the intersection with SR 1 near Guadalupe to the Depot Street intersection in Santa Maria. In this area, SR 166 is a two-lane roadway. West of South Blosser Road, a two-way left-turn lane is provided, and left-turn pockets are present at major intersections.

Within the study area, Caltrans classifies SR 166's as a Minor Arterial (**Figure 17**). FHWA has designated SR 166 within the study area as an Intermodal Connector and part of the Strategic Highway Network (STRAHNET). From just west of Blosser Road to its juncture with US 101, SR 166 is Federally recognized as a Principal Arterial and part of the National Highway System (**Figure 18**).

Parallel Facilities

Parallel facilities refer to multimodal infrastructure, including roads and trails that run east-west similar to SR 166 within the study area, providing alternative access and connectivity options. These facilities support both passenger and freight traffic, helping to alleviate congestion on SR 166 and enhance safety by offering alternative routes for local travel and goods movement. Key parallel facilities are described below.

Division Street

Division Street is a significant east-west thoroughfare that connects the cities of Guadalupe and Nipomo. In Guadalupe, Division Street begins near the city's eastern boundary and extends eastward, traversing primarily agricultural landscapes characteristic of the Santa Maria Valley.

Betteravia Road

Betteravia Road stretches from Simas Road in the west to Foxen Canyon Road and Philbric Road east of Santa Maria. Within the study corridor (Simas to Depot Street in the City of Santa Maria), Betteravia begins at the confluence of Santa Maria Valley Road and Simas Road where it parallels SR 166 from the south to Santa Maria. It is an undivided two-lane County roadway with a varying 5-7 feet of paved shoulder and a posted speed limit of 45 mph within Santa Maria City Limits and 55 mph west of city limits. It traverses agricultural fields along this stretch. At A Street in the City of Santa Maria, Betteravia widens to a divided 4-lane Minor Arterial with turn channelization at key intersections. At this juncture Betteravia Road becomes a primary arterial route running east-west through the City of Santa Maria traversing primarily non-residential land uses. East of Broadway (SR 135) Betteravia Road features six travel lanes—three in each direction—along with a center lane designated for left turns.

Santa Maria Levee Trail (Conceptual)

The Santa Maria Levee Trail runs along the Santa Maria River Levee extending approximately 6.7 miles from the City of Santa Maria to the City Guadalupe. Primarily composed of gravel, the levee has a relatively flat profile which makes it accessible to users of various fitness levels. Currently, the Santa Maria River Levee Trail Study is assessing the feasibility of formally developing this trail segment into an all-purpose trail. The trail is designated as a "Tier 1 Improvement" in the Santa Barbara County Active Transportation Plan.

North-South Access Roads with SR 166

State Route 1 (SR 1)

SR 1 is a north-south State two-lane highway classified as a Minor Arterial. Near the study corridor SR 1 has painted shoulders on either side of the roadway. Immediately north of SR 166, it has a posted speed limit of 30 mph, and south of SR 166, it has a posted speed limit of 55 mph.

Obispo Street
Obispo Street is a local two-lane, north-south roadway in the City of Guadalupe with a posted speed Limit of 35 mph north of SR 166 and 25 mph south of SR 166. There are sidewalks on both sides of the roadway near SR 166.

Flower Avenue
Flower Avenue is a local two-lane, north-south roadway in the City of Guadalupe with no currently posted speed limit. There is a sidewalk on the west side of Flower Avenue. Curb is provided on the east side with no sidewalk.

Simas Road
Simas Road is a County two-lane, north-south roadway with a posted speed limit of 55 mph. There is a painted shoulder on both sides of the roadway, varying in width from 6 to 8 feet.

Bonita School Road
Bonita School Road is a County north-south roadway with a posted school zone speed limit of 25 mph near SR 166. There is a painted shoulder on both sides of the roadway, approximately 5 to 7 feet wide.

Ray Road
Ray Road is a County two-lane, north-south roadway with no posted speed limit. There is a painted Shoulder on both sides of the roadway, varying in width from 6 to 8 feet.

Black Road
Black Road is a County two-lane, north-south roadway with a posted speed limit of 55 mph. There is No shoulder on either side of the roadway.

Blosser Road
Blosser Road is a north-south roadway within the City of Santa Maria classified as a Minor Arterial with a posted speed limit of 40 mph. North of SR 166, there are two travel lanes in each direction. South of SR 166, there is one southbound lane and two northbound lanes. There are Class II bike lanes north of SR 166.

Depot Street
Depot Street is a local north-south roadway within the City of Santa Maria with a posted speed limit of 30 mph and class II bike lanes. South of SR 166, there are two travel lanes in each direction. North of SR 166, there is one travel lane in each direction.

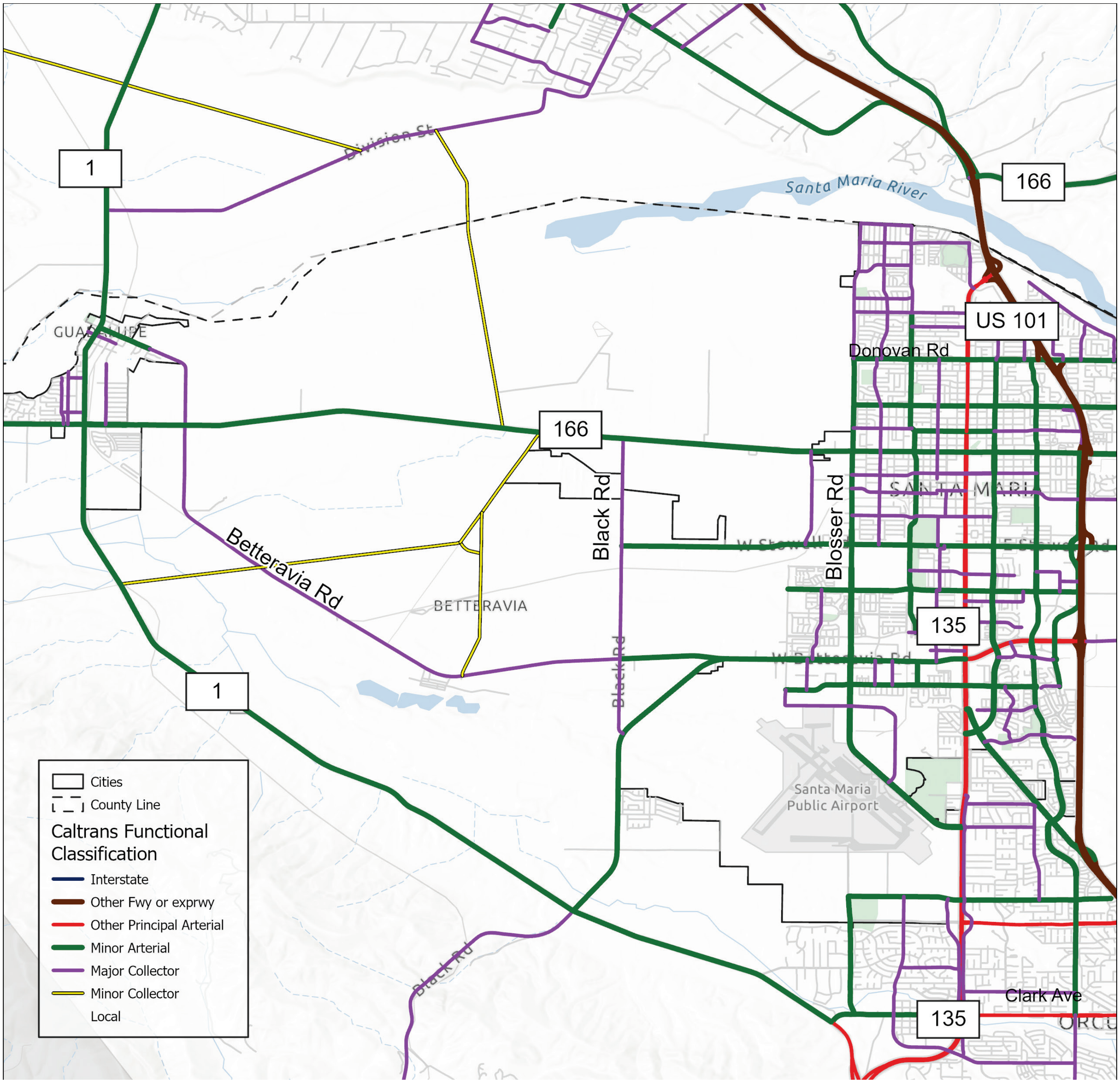


FIGURE 17: CALIFORNIA ROAD SYSTEM FUNCTIONAL CLASSIFICATION (SOURCE: CALTRANS)

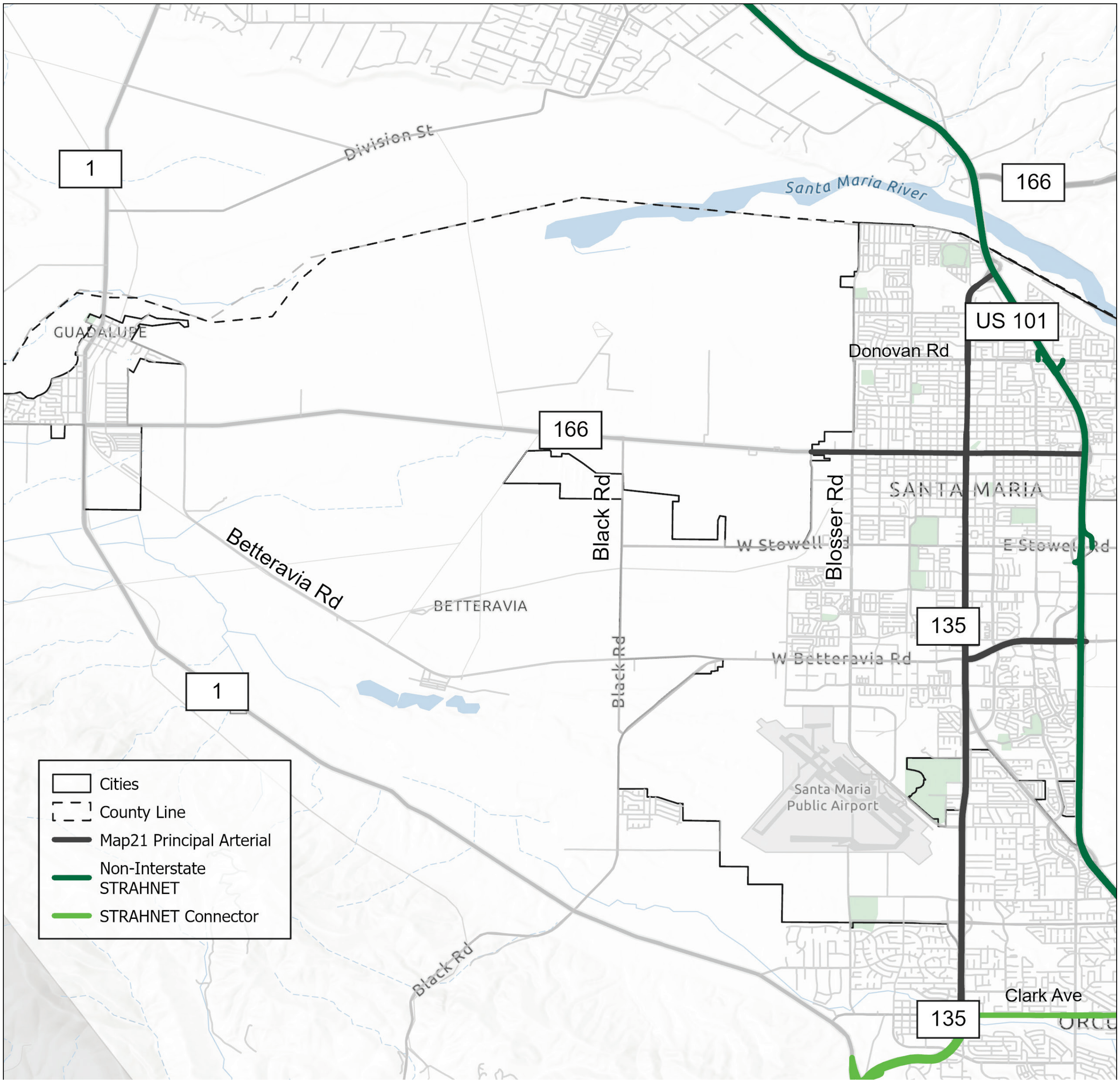


FIGURE 18: 2023 NATIONAL HIGHWAY SYSTEM CLASSIFICATIONS (FHWA)

2.5 EXISTING CONDITIONS PERFORMANCE ASSESSMENT

Performance metrics are applied to "measure" corridor performance and ultimately how improvement concepts benefit one or more of the study objectives. The selected transportation performance measures align with the Caltrans Smart Mobility Framework (Caltrans, 2010; updated in 2021) and SB-1 competitive grant program guidance documents published by the California Transportation Commission.

For analyzing existing conditions, the performance measures listed in **Table 3** were applied. The analysis matrix matches each performance measure/analysis with the key measure of effectiveness and analysis tool used for quantifying. Although quantifiable and important to document, it should be noted that not all performance metrics are amenable to monetization (i.e., cannot contribute or influence a benefit-cost assessment).

TABLE 3: BASELINE PERFORMANCE MEASURES

SR 166 Comprehensive Corrior Study		Analysis Tool														
Analysis Purpose	Measure of Effectiveness	SBCAG Travel Demand Model	Streetlight/Replica Big Data	Traffic/Ridership Counts	NPMRDS - Travel Time and Speeds	SWITRS / TIMS - Collisions	Highway Capacity Manual	Operational Software Synchro	Level of Traffic Stress	HSM Part B CMFs (Part C)	ArcGIS Network Analyzer	Online Mapping Tools: EQI Tool; CalEnviroScreen4.0; Caltrans Vulnerability Map	TCRP Report 118; Transit Capacity Quality of Service Manual	IMPLAN	Quantifiable	Monetize for Benefit/Cost
Baseline Travel Demand	Volume, Ridership, VMT, Throughput	■	■	■											Yes	Yes
Segment Operations (Baseline): Vehicles	Speed-Based LOS, Buffer Time, Buffer Time Index			■	■		■	■							Yes	Yes
Segment Operations (Baseline): Trucks	Speed-Based LOS, Buffer Time, Buffer Time Index			■	■		■	■							Yes	Yes
Intersection Operations (Baseline)	Delay, Queuing, LOS	■		■			■	■							Yes	Yes
Transit Ridership (Baseline)	Accessibility, Ridership, VMT	■		■									■		Yes	Yes
Pedestrian Connectivity	Access Indices								■		■				Yes	No
Bike Connectivity	Access Indices								■		■				Yes	No
Mode Shift (VMT Reductions)	Trips, VMT										■		■		Yes	Yes
Safety	Collision Reduction & Rates	■				■				■					Yes	Yes
EJ/Social Equity	Access, Benefit/Burden	■	■						■		■	■			Yes	No
Economic Development	GRP, Jobs, Income										■			■	Yes	No
Adaptation	Network Vulnerability	■									■	■			Yes	No

Legend ■ *Direct or Indirect Application*

2.6 DATA COLLECTION AND TRAFFIC VOLUMES

Traffic count data for roadways were collected in September 2024. Roadway segment counts were collected for a continuous 72-hour period Tuesday through Thursday. These daily counts also included classification counts for heavy-duty trucks. Intersection turn movement counts were conducted during the AM peak hour (7:00 to 9:00 AM) and PM peak hour (4:00 to 6:00 PM).

Average daily volumes within the study area are provided in **Figure 19**. Truck volumes (5+ axle trucks) are provided in **Figure 19** and include the percentage of heavy-duty trucks relative to daily volume (FHWA Vehicle Classes 8-13).

Figure 20 illustrates SR 166 traffic volumes collected just west of Bonita School Road. Data is reported by time of day, distinguishing between trucks and all vehicles in 15-minute increments. The data shows a morning peak period beginning as early as 4:30 AM, with the highest morning volume occurring at 6:30 AM. During the afternoon, traffic volumes begin to rise around 10:30 AM and gradually increase throughout the day, peaking at approximately 5:00 PM. Truck volumes remain relatively consistent throughout the day, with slight increases during mid-morning and early afternoon.

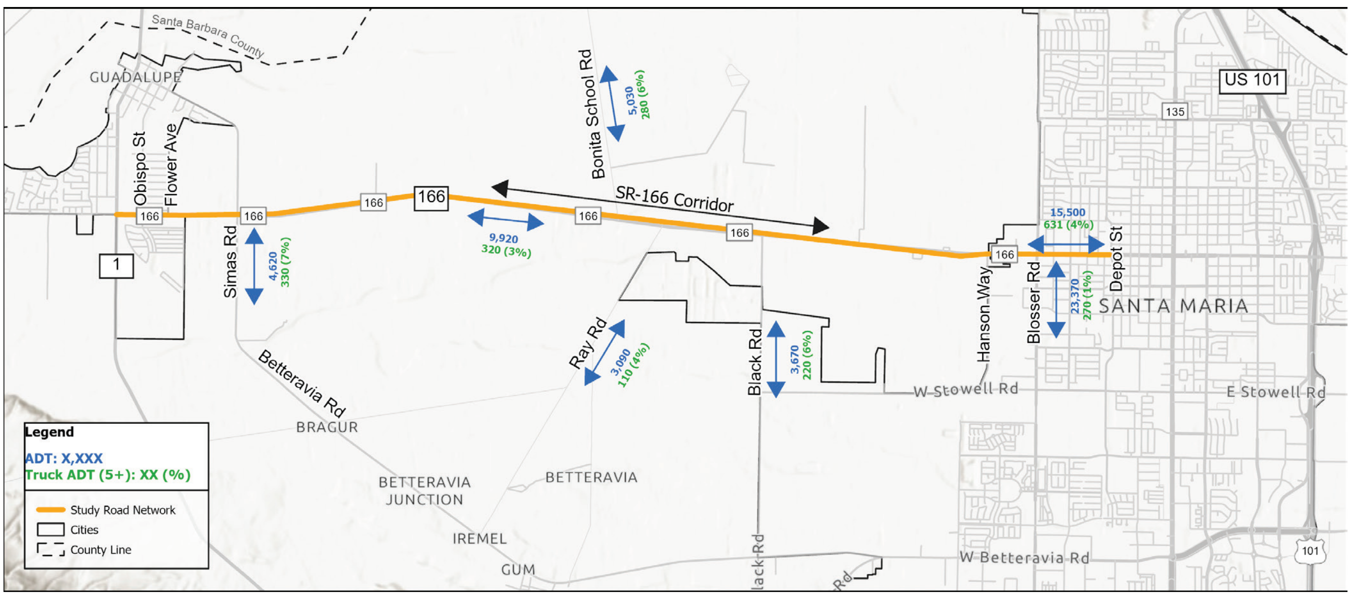
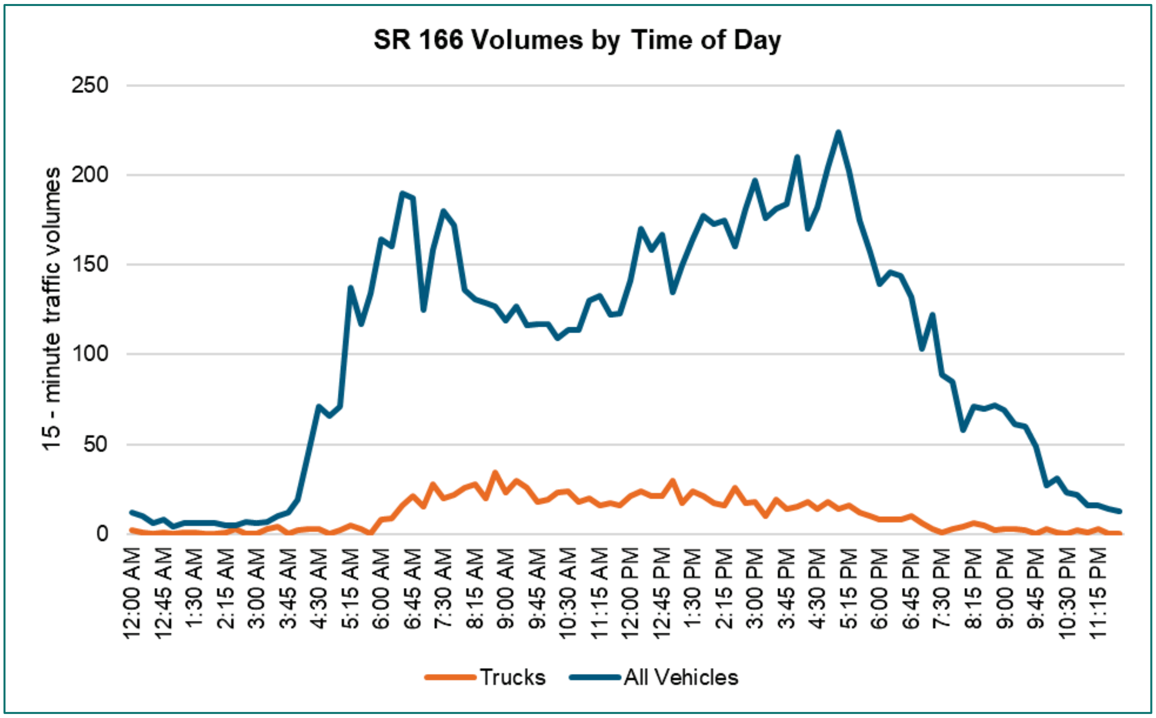


FIGURE 19: ADT AND TRUCK ADT ON STUDY ROAD NETWORK



Data collected from August 27th to August 29th, 2024. Average of the three-day data collection period provided.

FIGURE 20: 15-MINUTE TRAFFIC VOLUMES BY TIME OF DAY

Intersection turn movement counts at eight study intersections were collected in September 2024. For two intersections, (SR 166/SR 1 and SR 166/Obispo Street), turn movement counts collected by Caltrans on May 29th to 30th, 2024 were applied.

Study intersections and form of traffic control are listed in **Table 4**. Peak hour intersection turn movement volumes are provided in **Figure 21** and **Figure 22.** Detailed traffic count data sheets for roadways and intersections are provided in **Appendix A**. Signal timing information for the signalized intersections was also sourced from Caltrans and can be found in **Appendix A**.

TABLE 4: STUDY INTERSECTIONS AND FORM OF TRAFFIC CONTROL

NO.	INTERSECTION	TRAFFIC CONTROL
1	STATE ROUTE 166 & STATE ROUTE 1	ALL-WAY-STOP-CONTROL
2	STATE ROUTE 166 & OBISPO STREET	TWO-WAY-STOP-CONTROL
3	STATE ROUTE 166 & FLOWER AVENUE	TWO-WAY-STOP-CONTROL
4	STATE ROUTE 166 & SIMAS ROAD	ALL-WAY-STOP-CONTROL
5	STATE ROUTE 166 & BONITA SCHOOL ROAD	SIGNAL
6	STATE ROUTE 166 & RAY ROAD	TWO-WAY-STOP-CONTROL
7	STATE ROUTE 166 & BLACK ROAD[A]	TWSC (SIGNAL INSTALLED)[A]
8	STATE ROUTE 166 & BLOSSER ROAD	SIGNAL
9	STATE ROUTE 166 & DEPOT STREET	SIGNAL
10	BLACK ROAD & BETTERAVIA ROAD	ALL-WAY-STOP-CONTROL

[a] SR 166/Black Road was a side street stop-controlled intersection when counted and observed for the Road Safety Audit (RSA). A signal was installed at this location in October 2024.

2.7 TRAFFIC OPERATIONS

This section describes the methods and findings of the traffic operations analysis.

Methodology

Traffic operations were analyzed for the weekday AM and PM peak hours under the existing conditions. This analysis was conducted using the Synchro (v12) software. The operational analysis examines intersection delay as well as the 95th percentile queue lengths are based on Highway Capacity Manual (HCM) 7th Edition methodology.

The quality of operations of roadway facilities is described in terms of level of service (LOS). LOS is a qualitative description of traffic flow based on speed, travel time, delay, and freedom to maneuver experienced by motorists using a given roadway facility (e.g., freeway mainline, ramp or intersection). There are six levels, ranging from LOS A being the best operating conditions, to LOS F being the worst. LOS E represents "at-capacity" operation. When volumes exceed capacity a bottleneck develops, resulting in stop-and-go conditions upstream/approaching the bottleneck. These operations are designated as LOS F. **Table 5** presents the LOS criteria for intersections in accordance with the HCM 7th Edition methodology.

The methods for determining LOS vary by facility type. There can be alternative LOS methods based on different measures of effectiveness for even the same facility type. For signalized intersection analyses, LOS is based on the average control delay per vehicle for all vehicles entering an intersection. For side-street stop-controlled, the LOS is based on the worst movement's average control delay. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

The acceptable LOS threshold for this analysis is assumed to be LOS D for both signalized and unsignalized intersections, this threshold in generally consistent with local agency General Plan thresholds and historical regional thresholds applied by SBCAG and Caltrans.

TABLE 5: INTERSECTION LOS CRITERIA

LOS	TOTAL DELAY PER VEHICLE (SECONDS)	
	SIGNALIZED [A]	UNSIGNALIZED [B]
A	< 10	< 10
B	> 10 and < 20	> 10 and < 15
C	> 20 and < 35	> 15 and < 25
D	> 35 and < 55	> 25 and < 35
E	> 55 and < 80	> 35 and < 50
F	> 80	> 50

Notes:

A. HCM 7, Chapter 19 (Signalized Intersections)

B. HCM 7, Chapter 20 (Two-Way Stop-Controlled Intersections) and Chapter 21 (All-Way Stop-Controlled Intersections)

Intersection Operations Analysis

Results of the traffic operations analysis are summarized in **Table 6** with full Synchro reports provided in **Appendix A**. All signalized intersections are found to be operating acceptably during the AM and PM peak hours. The stop-controlled intersections at Obispo Street, Simas Road, Ray Road, and Black Road on SR 166 do not meet jurisdictional LOS policies during one or both peak hours. Results of the traffic operations analysis deficiencies are summarized below:

- State Route 166 & Obispo Street (TWSC): The delay exceeds the acceptable threshold for the side-street movement (Obispo Street southbound right-turn) during the PM Peak hour with 50.27 seconds of delay (LOS F).
- State Route 166 & Simas Road (AWSC): Delay exceeds acceptable operations thresholds during the AM peak hour at LOS E with 44.1 seconds of delay (SR 166 eastbound left-turn movement being the critical movement).
- State Route 166 & Ray Road (TWSC): This intersection operates acceptably during AM peak hour but exceeds operations thresholds during the PM peak hour at LOS F with 50.9 seconds of delay (Ray Road southbound left-turn being the critical movement).
- State Route 166 & Black Road (TWSC[7]): This intersection exceeds operational thresholds during both AM and PM peak hours, with the delays are 54.29 seconds (LOS F) and 66.95 seconds (LOS F), respectively.

State Route 166 & State Route 1 (AWSC), State Route 166 & Bonita School Road (Signal), State Route 166 & South Blosser Road/North Blosser Road (Signal), State Route 166 & Depot Street (Signal), and Black Road & Betteravia Road (AWSC) all meet the local policy thresholds with LOS values in the acceptable range during both peak hours.

95^{th} percentile queue lengths for existing AM and PM peak hours are summarized in **Table 7**. 95^{th} percentile queues are found to be exceeding available storage at the following intersections:

- State Route 166 & Obispo Street (TWSC)
- State Route 166 & Blosser Road (Signal)
- State Route 166 & Depot Street (Signal)

While no intersections are found to be exceeding available storage lengths during the traditional commuter AM peak hour, these queues have been observed to be longer during the "Early AM" peak period from 5:00 AM to 6:00 AM period.

[7] Signal installed 10/2024. Operational deficiencies resolved.

TABLE 6: STUDY INTERSECTION EXISTING TRAFFIC OPERATIONS

NO.	INTERSECTION	TRAFFIC CONTROL	AM PEAK HOUR		PM PEAK HOUR	
			DELAY	LOS	DELAY	LOS
1	STATE ROUTE 166 & STATE ROUTE 1[A]	AWSC	16.2	C	19	C
2	STATE ROUTE 166 & OBISPO STREET	TWSC	8.7 [35.0]	A [D]	**12.1 [50.3]**	**B [F]**
3	STATE ROUTE 166 & FLOWER AVENUE	TWSC	2.5 [19.0]	A [C]	1.1 [16.3]	A [C]
4	STATE ROUTE 166 & SIMAS ROAD	AWSC	**44.1**	**E**	35	D
5	STATE ROUTE 166 & BONITA SCHOOL ROAD	Signal	11.4	B	11.8	B
6	STATE ROUTE 166 & RAY ROAD	TWSC	2.3 [30.1]	A [D]	**2.9 [50.9]**	**A [F]**
7	STATE ROUTE 166 & BLACK ROAD[B]	TWSC[a]	**5.8 [54.3]**	**A [F]**	**6.6 [67.0]**	**A [F]**
8	STATE ROUTE 166 & SOUTH BLOSSER ROAD/NORTH BLOSSER ROAD	Signal	28.3	C	28.4	C
9	STATE ROUTE 166 & DEPOT STREET	Signal	23.2	C	26.3	C
10	BLACK ROAD & BETTERAVIA ROAD	AWSC	13.8	B	24.7	C

[a] The intersection of SR 166 and SR 1 is planned to be signalized.
[b] The intersection of SR 166 and Black Road was a side street stop-controlled intersection when it was counted and observed for the Road Safety Audit (RSA). However, a signal was installed at this location in October 2024.
Note: Key: [Worst stop-controlled delay] for TWSC intersections
Shaded cells with bolded text do not meet jurisdictional Level of Service Policy

TABLE 7: STUDY INTERSECTION EXISTING 95TH PERCENTILE QUEUES

NO.	INTERSECTION	TRAFFIC CONTROL	MOVEMENT	STORAGE (FT)	95TH PERCENTILE QUEUE (FT)	
					AM PEAK HOUR	PM PEAK HOUR
1	STATE ROUTE 166 & STATE ROUTE 1	AWSC	EBL	115	25	20
			EBT	-	120	115
			WBL/T	-	70	80
			WBR	295	20	35
			NBL/T/R	-	30	85
			SBL	275	35	55
			SBT/R	-	35	60
2	STATE ROUTE 166 & OBISPO STREET	TWSC	EBL	470	10	5
			EBT/R	-	-	-
			WBL	340	5	5
			WBT/R	-	-	-
			NBL	50	**55**	30
			NBT	-	25	10
			NBR	50	10	5
			SBL/T/R	-	35	150
3	STATE ROUTE 166 & FLOWER AVENUE	TWSC	EBL	380	0	0
			EBT	-	-	-
			WBT/R	-	-	-
			SBL/R	-	35	15
4	STATE ROUTE 166 & SIMAS ROAD	AWSC	EBL/T/R	-	430	170
			WBL/T/R	-	70	275
			NBL/T/R	-	45	120
			SBL/T/R	-	55	85
5	STATE ROUTE 166 & BONITA SCHOOL ROAD	Signal	EBL	475	30	20
			EBT	-	205	225
			WBT	-	265	370
			SBL	-	155	205
6	STATE ROUTE 166 & RAY ROAD	TWSC	EBL	490	0	0
			EBT/R	-	-	-
			WBL	500	5	5
			WBT/R	-	-	-
			NBL/T/R	-	40	55
			SBL/T/R	-	5	5
7	STATE ROUTE 166 & BLACK ROAD	TWSC[a]	EBL	350	0	0
			EBT/R	-	-	-
			WBL	490	5	5

NO.	INTERSECTION	TRAFFIC CONTROL	MOVEMENT	STORAGE (FT)	95TH PERCENTILE QUEUE (FT)	
					AM PEAK HOUR	PM PEAK HOUR
			WBT/R	-	-	-
			NBL/T/R	-	20	115
			SBL/T/R	-	10	10
8	STATE ROUTE 166 & SOUTH BLOSSER ROAD/NORTH BLOSSER ROAD	Signal	EBL	130	125	**#422**
			EBT	-	160	225
			WBL	220	185	205
			WBT	-	90	160
			NBL	150	140	115
			NBT	-	155	#336
			NBR	100	45	45
			SBL	210	80	90
			SBT	-	#523	215
			SBR	210	95	55
9	STATE ROUTE 166 & DEPOT STREET	Signal	EBL	90	50	**105**
			EBT	-	195	255
			WBL	90	55	85
			WBT	-	160	305
			NBL	60	55	**130**
			NBT	-	130	#286
			NBR	-	5	20
			SBL	190	115	105
			SBT	-	#264	#343
10	BLACK ROAD & BETTERAVIA ROAD	AWSC	EBL/T/R	-	25	30
			WBL/T/R	-	30	55
			NBL/T/R	-	45	155
			SBL/T/R	-	100	210

[b] The intersection of SR 166 and SR 1 is planned to be signalized.

[a] The intersection of SR 166 and Black Road was a side street stop-controlled intersection when it was counted and observed for the Road Safety Audit (RSA). However, a signal was installed at this location in October 2024.

Note: AWSC and TWSC Queues reported using HCM 7th Edition Methodology
Signalized Intersection Queues reported using Synchro Methodology
Shaded cells with bolded text indicate queues exceeding available storage lengths.
Queue results are anticipated to be greater during AG queue early AM and PM peak hour.

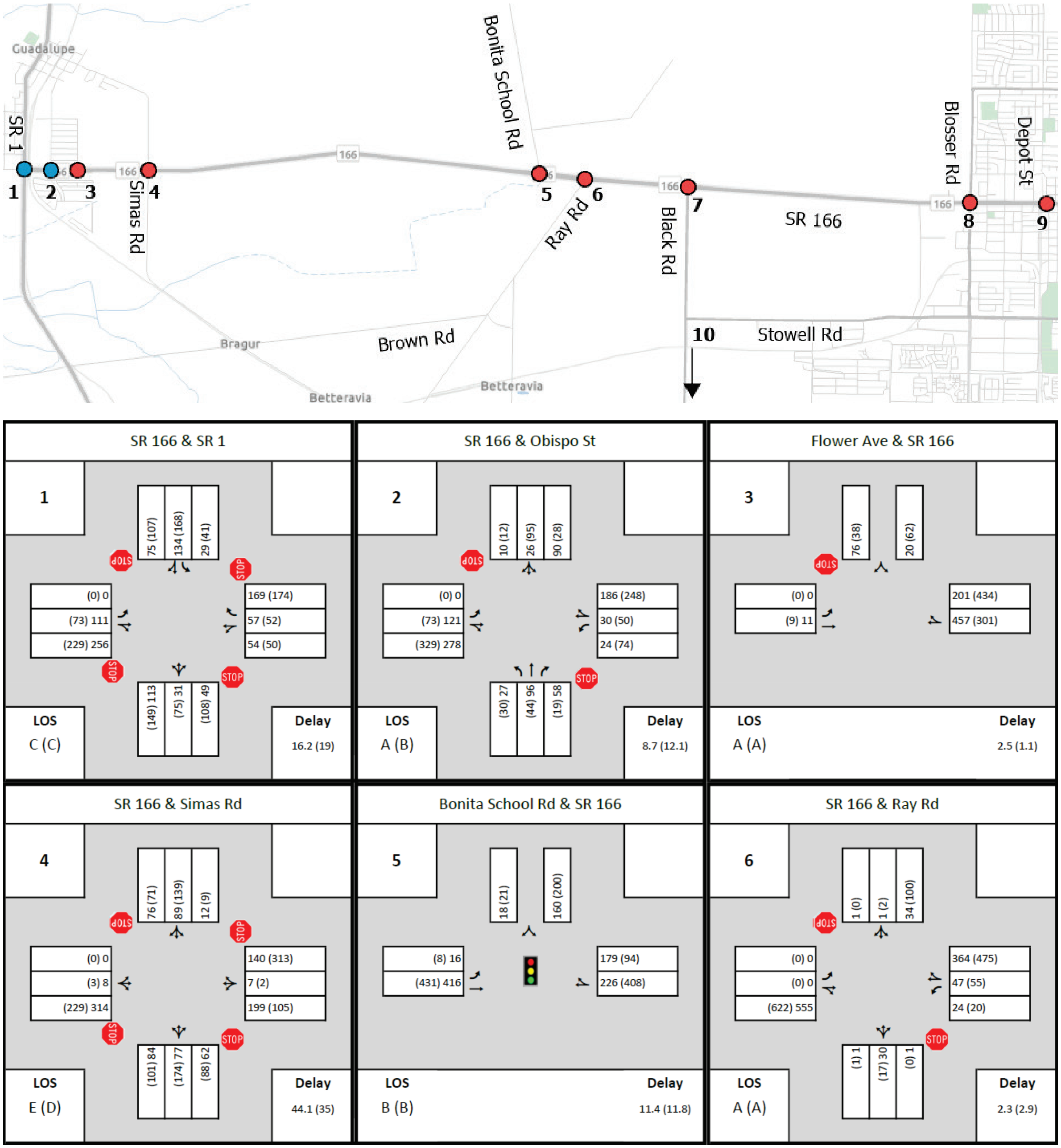
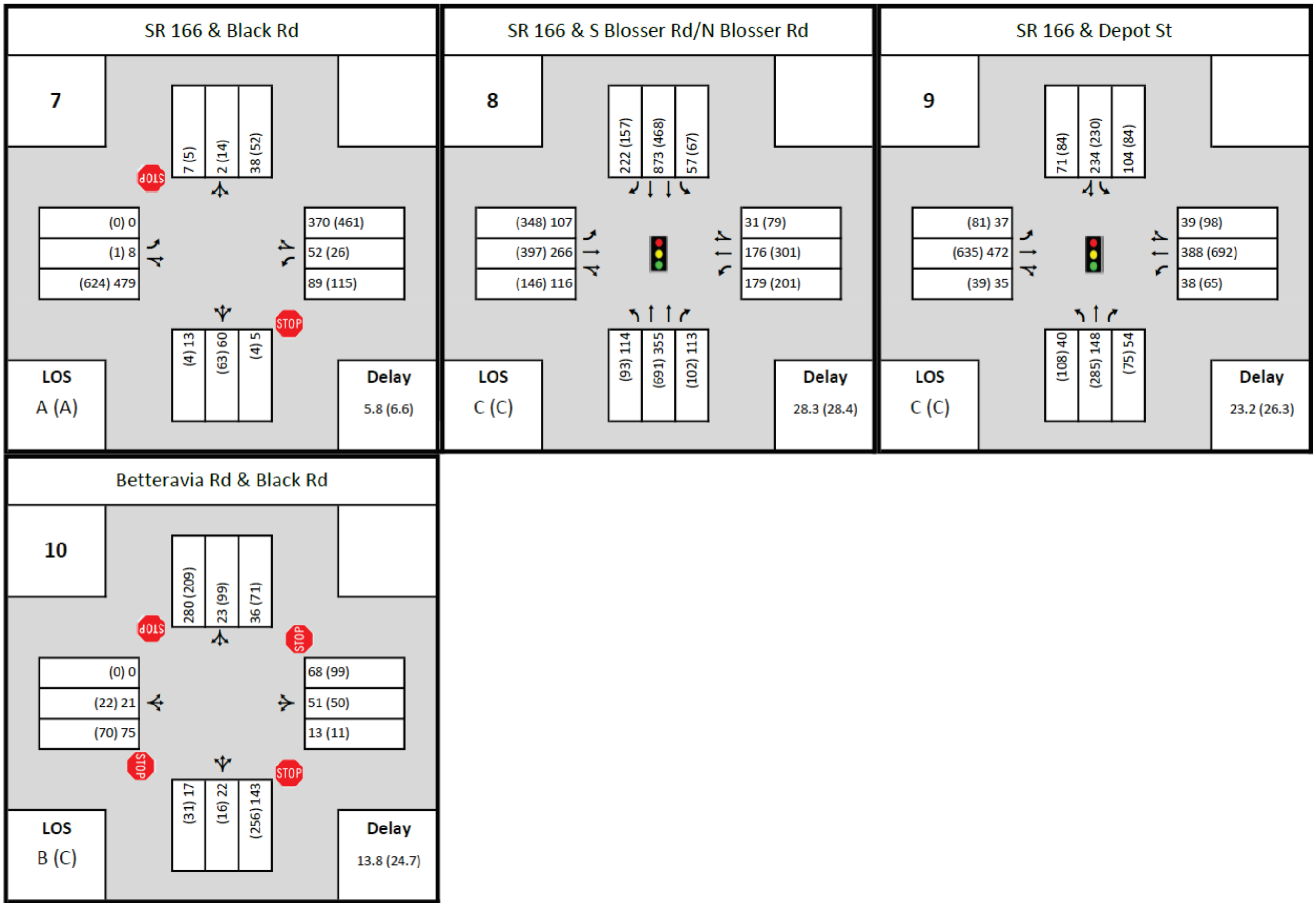


FIGURE 21: EXISTING CONDITIONS AM/PM PEAK HOUR INTERSECTION TURNING MOVEMENT COUNTS (1 OF 2)[8]

[8] Blue dot locations denote Caltrans counts performed on May 29th to 30th, 2024. Red dot locations denote counts performed in September 2024 for the SR 166 CCS.



All Numbers Shown: AM (PM)
Values shown are for Passenger Car Equivalents (PCE)

FIGURE 22: EXISTING CONDITIONS AM/PM PEAK HOUR INTERSECTION TURNING MOVEMENT COUNTS (2 OF 2)

2.8 ROADWAY TRAVEL TIME RELIABILITY AND CONGESTION ANALYSIS

Two Federal performance measures form the basis for tracking operational efficiency of all vehicles on SR 166. Both measures rely on National Performance Monitoring Research Data Set (NPMRDS) speed data from FHWA. NPMRDS data utilizes INRIX telemetry that processes records reflecting 5-minute averaging times for passenger vehicles and trucks. The two performance measures are Congestion and Travel Time Reliability are described below.

Congestion

Congestion is typically caused by an imbalance between demand and roadway capacity where excess demand causes unstable flow conditions and delay (i.e., vehicle speed reduction). The Highway Capacity Manual 7th Edition defines the vehicle speed threshold used to reflect heavy congestion when the observed average speed is less than 60 percent of the free-flow speed[9]. For purposes of this analysis, the free flow speed (FFS) of SR 166 was determined by analyzing vehicle speeds recorded between 12:00 AM and 3:00 AM.

Travel Time Reliability

Travel time reliability refers to the consistency and predictability of travel times for passenger vehicles and heavy-duty trucks used for goods movement. It measures how much travel time varies for the same trip on different days over a period of time (typically measured over 12 months). Large variability in travel time indicates unreliability, making it challenging to provide accurate and consistent departure times. Conversely, when variability is minimal, travel time is considered reliable. The main contributors affecting travel time reliability include:

- Normal travel fluctuations
- Physical bottlenecks
- Special events
- Traffic incidents
- Inclement weather
- Traffic control devices
- Work or construction zones

A commonly used measure of travel time reliability is **Buffer Time**. The Highway Capacity Manual 7th Edition defines Buffer Time as the additional time a traveler must plan for to ensure on-time arrival 95% of the time - equivalent to being late for work approximately one day per month. For example, if a commute trip usually takes 30 minutes but occasionally extends to 45 minutes due to weather or traffic incidents, the buffer time is 15 minutes. On an average day, this means arriving 15 minutes early to avoid being late.

The **Buffer Time Index (BTI)** normalizes for distance by comparing buffer time to the average travel time. It is calculated as the ratio of buffer time to average travel time, expressed as a

[9] Free flow speed is the speed motorists travel as vehicle density in the traffic stream approaches zero.

percentage. This percentage illustrates how much extra time is needed relative to the typical travel time. A BTI greater than 1.5 indicates an unreliable travel experience.

The relationship between travel time reliability indexes is shown in **Figure 23** and **Figure 24**.

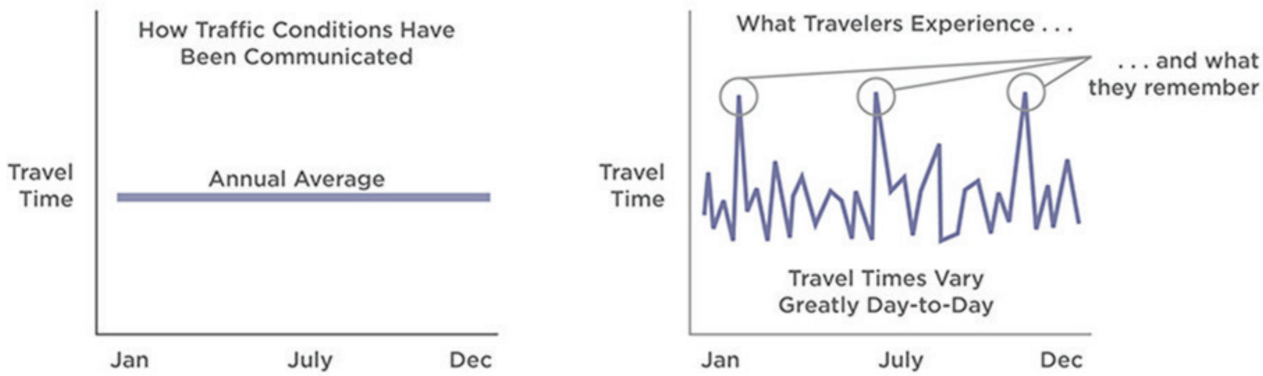


FIGURE 23: TRAVEL TIME RELIABILITY VARIABLE[10]

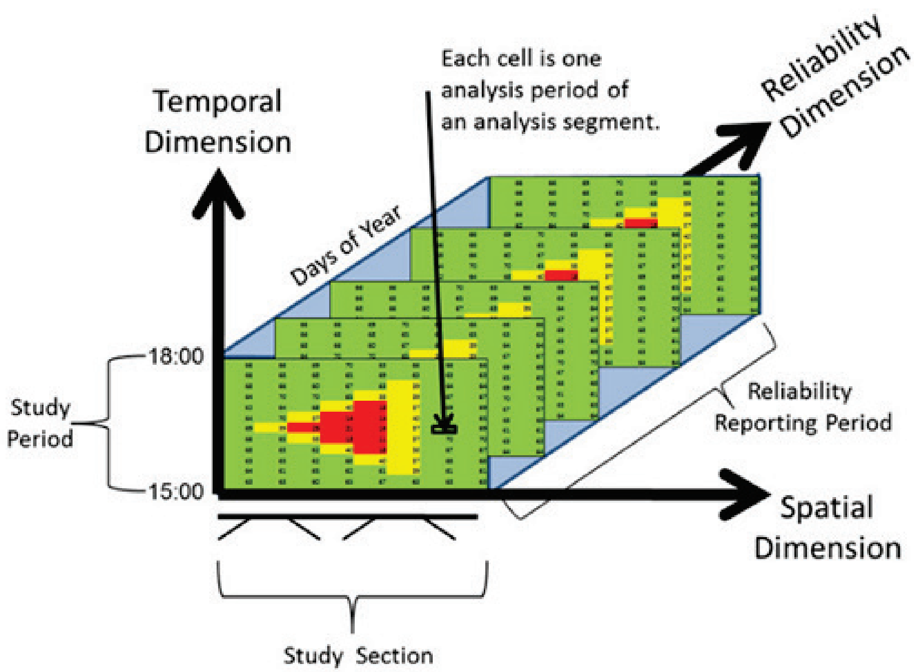


FIGURE 24: TRAVEL TIME RELIABILITY VARIABLE[11]

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[10] *Travel-Time Reliability: Making It There On-Time, All The Time*, Federal Highway Administration, FHWA-HOP-06-070, Source: Highway Capacity Manual.

[11] *Travel-Time Reliability: Making It There On-Time, All The Time*, Federal Highway Administration, FHWA-HOP-06-070, Source: Highway Capacity Manual.

Data Collection and Analysis Methodology

To calculate travel time reliability and congestion for SR 166, 12-months of speed data (5-minute averaging times) were obtained from the FHWA National Performance Program's NPMRDS. The analysis was applied to passenger vehicles, heavy-duty trucks, and combined passenger vehicle and truck traffic. The data was filtered to represent annual average weekday conditions by isolating average speeds for non-holiday Tuesday through Thursday weekdays for the following peak periods:

- Early "Agriculture-based Commute" AM Peak Hour: 5:00 AM to 6:00 AM
- AM Peak Hour: 7:00 AM to 8:00 AM
- PM Peak Hour: 5:00 PM to 6:00 PM

Separate analyses were conducted for passenger vehicles, heavy-duty trucks, and combined traffic.

Peak periods were defined as the most congested continuous 60-minute span for both passenger vehicles and trucks. Given SR 166's agricultural surroundings, the analysis focused on early AM peak hours, which reflect traffic patterns influenced by nearby land use.

For a given road segment if observed average speed is less than 60 percent of the free-flow speed, the segment is considered congested. To identify unreliable road segments, the Level of Travel Time Reliability (LOTTR) threshold was applied. A segment is classified as unreliable if its 95th percentile travel time exceeds 1.5 times the average travel time. This approach aligns with the Highway Capacity Manual (7th Edition), which defines travel time reliability and congestion using thresholds detailed in **Table 8**.

TABLE 8: CONGESTION AND RELIABILITY PERFORMANCE MEASURES

	RELIABLE	MODERATELY RELIABLE	UNRELIABLE
BUFFER TIME INDEX	BTI < 1.25	BTI 1.25 > 1.5	BTI >= 1.5
UNCONGESTED >= 60% OF FREE FLOW	Predictable and efficient	Not always predictable, usually efficient	Unpredictable, not often congested
CONGESTED <60% OF FREE FLOW	Predictable and inefficient	Not always predictable, usually inefficient	Unpredictable, not often congestion

Source: Highway Capacity Manual, 7th Edition.

Findings

The analysis indicates that westbound traffic is generally more unreliable than eastbound traffic, particularly in the early morning hours. Congestion is mainly concentrated within Santa Maria, especially during the PM peak period. The longer travel times and congestion observed from 5 to 6 AM are likely due to a combination of agricultural activities and commuting patterns. The early morning hours see increased truck traffic related to agricultural operations and a surge in commuters heading to work, especially in industries with early start-times. The travel time reliability and congestion analysis can be found in **Appendix A**.

Travel time and congestion results for passenger vehicles, trucks, and both passenger vehicles and trucks are shown in **Table 9** through **Table 11** respectively. These results are shown graphically in **Figure 23** through **Figure 33**. These travel time reliability and congestion analysis results are summarized as follows:

Autos:

- Early AM Peak: SR 166 experiences a mix of congested and uncongested conditions, with congestion concentrated in the westbound direction within Santa Maria city limits. Eastbound travel is reliable, while westbound travel is unreliable for the entire length of the corridor.
- AM Peak Hour: SR 166 is generally reliable and uncongested except for eastbound traffic within Santa Maria that exhibits moderate reliability. This suggests that the early AM peak, influenced by agricultural activity, presents greater challenges for auto travel (see Early AM Peak).
- PM Peak Hour: The corridor is primarily reliable and uncongested during this period except within Santa Maria where both eastbound and westbound traffic is moderately reliable and congested.

Trucks:

- Early AM Peak: Westbound truck traffic is moderately reliable within Santa Maria but unreliable for the remainder of the corridor. These characteristics are reversed for eastbound truck traffic.
- AM Peak Hour: Truck traffic is unreliable but uncongested in both directions of travel throughout the study corridor except within Santa Maria where conditions are reliable.
- PM Peak Hour: Truck traffic is uncongested but unreliable in both directions throughout the corridor. Within Santa Maria truck traffic is reliably congested (i.e., recurring congestion).

Combined Traffic (Autos and Trucks):

- Early AM Peak: SR 166 experiences a mix of congested and uncongested conditions, with congestion concentrated in the westbound direction within Santa Maria city limits. Eastbound travel is reliable, while westbound travel is unreliable for the entire length of the corridor.
- AM Peak Hour: SR 166 is generally reliable and uncongested except for eastbound traffic within Santa Maria that exhibits moderate reliability. This suggests that the early AM peak, influenced by agricultural activity, presents greater challenges for auto travel (see Early AM Peak).
- PM Peak Hour: SR 166 is traffic is uncongested but unreliable in the eastbound direction. Within Santa Maria traffic is reliably congested (i.e., recurring congestion).

TABLE 9: AUTOS TRAVEL TIME RELIABILITY

SEGMENT	95TH% TT (MIN)			BUFFER TIME INDEX			CONGESTED (AVG. TT<60% OF FREE FLOW)		
PEAK HOUR	Ag AM	AM	PM	Ag. AM	AM	PM	Ag. AM	AM	PM
WESTBOUND									
US 101 TO BLOSSER RD	15	5	9	2.25	1	1.43	Yes	No	No
BLOSSER RD TO SR 1	34	16	15	2.42	0.96	0.7	No	No	No
EASTBOUND									
US 101 TO BLOSSER RD	13	13	19	0.53	0.47	1.12	No	No	No
BLOSSER RD TO SR 1	8	8	9	1.49	1.38	1.29	No	No	Yes

TABLE 10: TRUCKS TRAVEL TIME RELIABILITY

SEGMENT	95TH% TT (MIN)			BUFFER TIME INDEX			CONGESTED (AVG. TT<60% OF FREE FLOW)		
PEAK HOUR	Ag AM	AM	PM	Ag. AM	AM	PM	Ag. AM	AM	PM
WESTBOUND									
US 101 TO BLOSSER RD	34	30	31	2.33	2.39	2.46	No	No	No
BLOSSER RD TO SR 1	6	7	8	1.4	1.22	1.13	No	No	No
EASTBOUND									
US 101 TO BLOSSER RD	21	7	40	1.5	3.4	1.14	No	No	No
BLOSSER RD TO SR 1	8	41	9	1.41	1.11	3.18	No	No	Yes

TABLE 11: AUTOS AND TRUCKS TRAVEL TIME RELIABILITY

SEGMENT	95TH% TT (MIN)			BUFFER TIME INDEX			CONGESTED (AVG. TT<60% OF FREE FLOW)		
PEAK HOUR	Ag AM	AM	PM	Ag. AM	AM	PM	Ag. AM	AM	PM
WESTBOUND									
US 101 TO BLOSSER RD	30	19	18	1.98	1.14	0.98	No	No	No
BLOSSER RD TO SR 1	12	5	8	3.4	0.91	1.13	No	No	Yes
EASTBOUND									
US 101 TO BLOSSER RD	18	22	24	1.09	1.37	1.59	No	No	No
BLOSSER RD TO SR 1	8	5	9	1.5	1.11	1.14	No	No	Yes

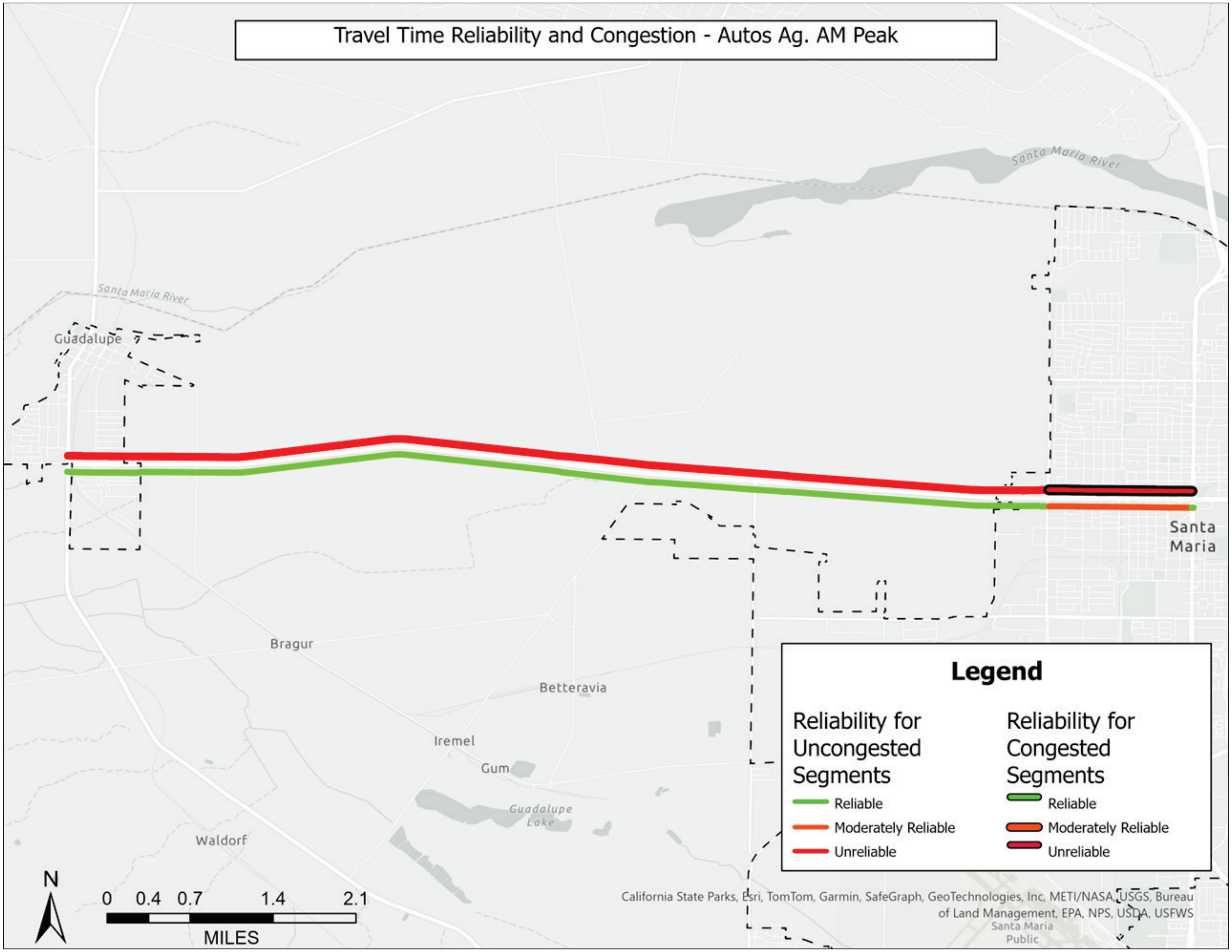

FIGURE 25: AUTOS EARLY AM PEAK HOUR PERIOD (5:00-6:00AM) RELIABILITY AND CONGESTION

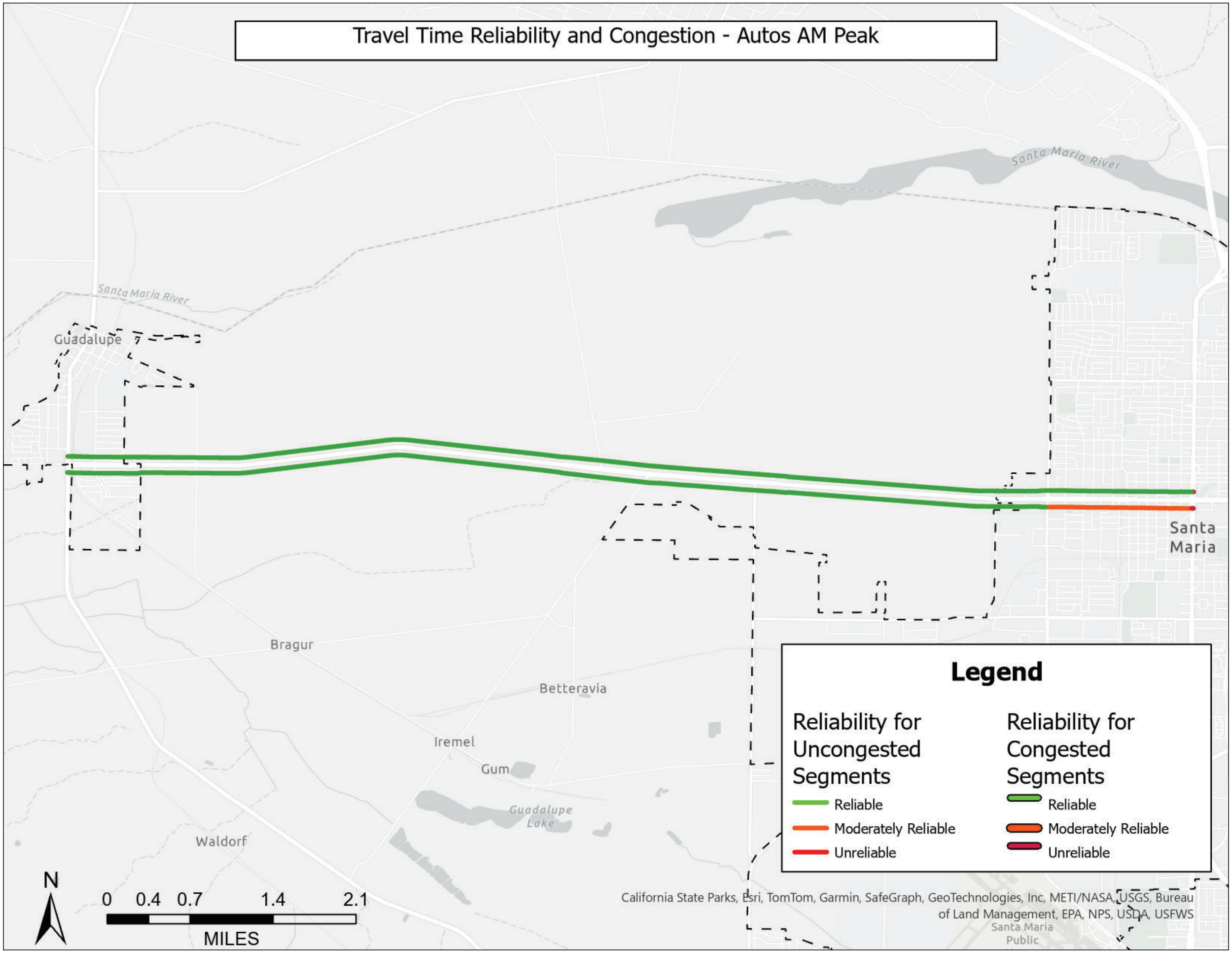

FIGURE 26: AUTOS AM PEAK HOUR PERIOD (7:00-8:00AM) RELIABILITY AND CONGESTION

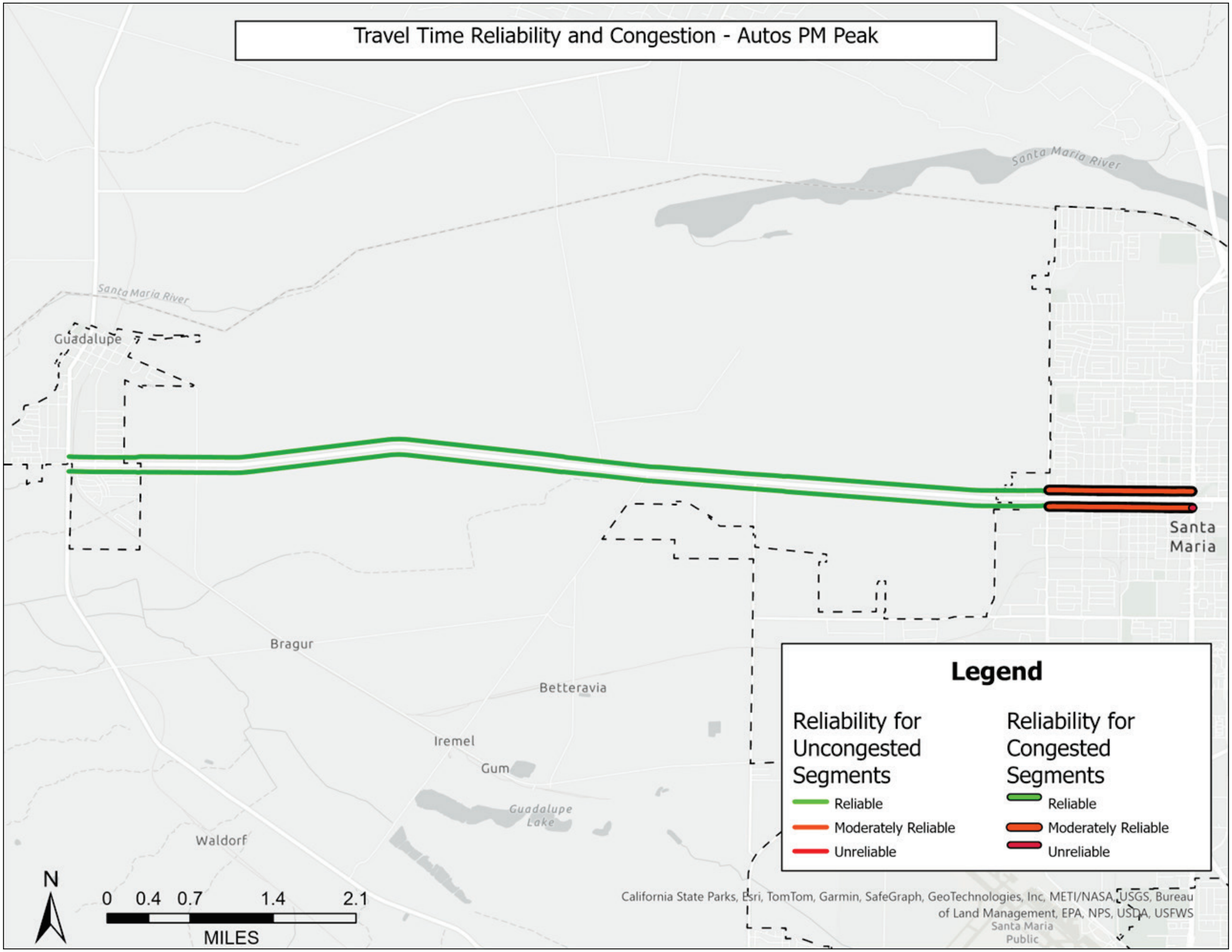

FIGURE 27: AUTOS PM PEAK HOUR PERIOD (5:00-6:00PM) RELIABILITY AND CONGESTION

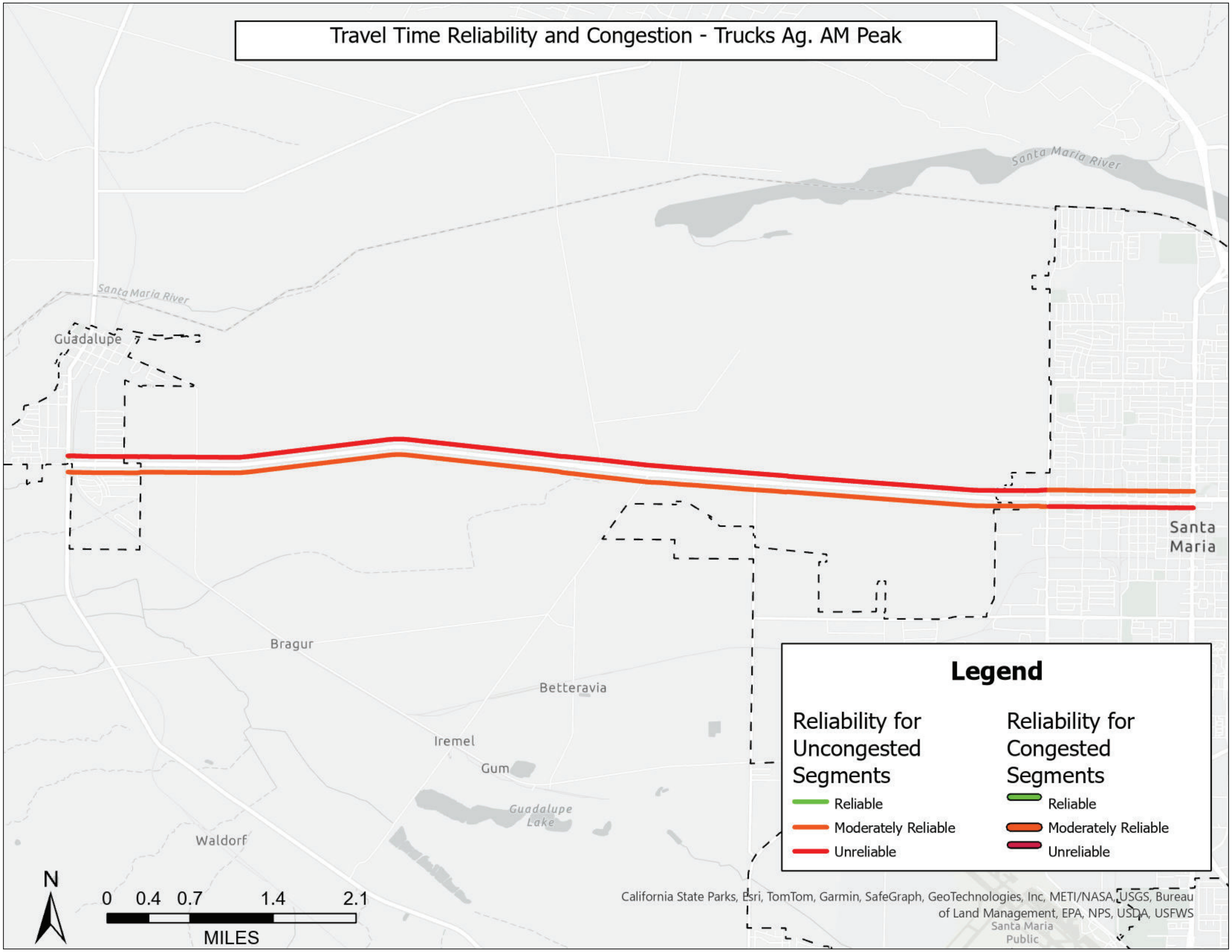

FIGURE 28: TRUCKS EARLY AM PEAK HOUR PERIOD (5:00-6:00AM) RELIABILITY AND CONGESTION

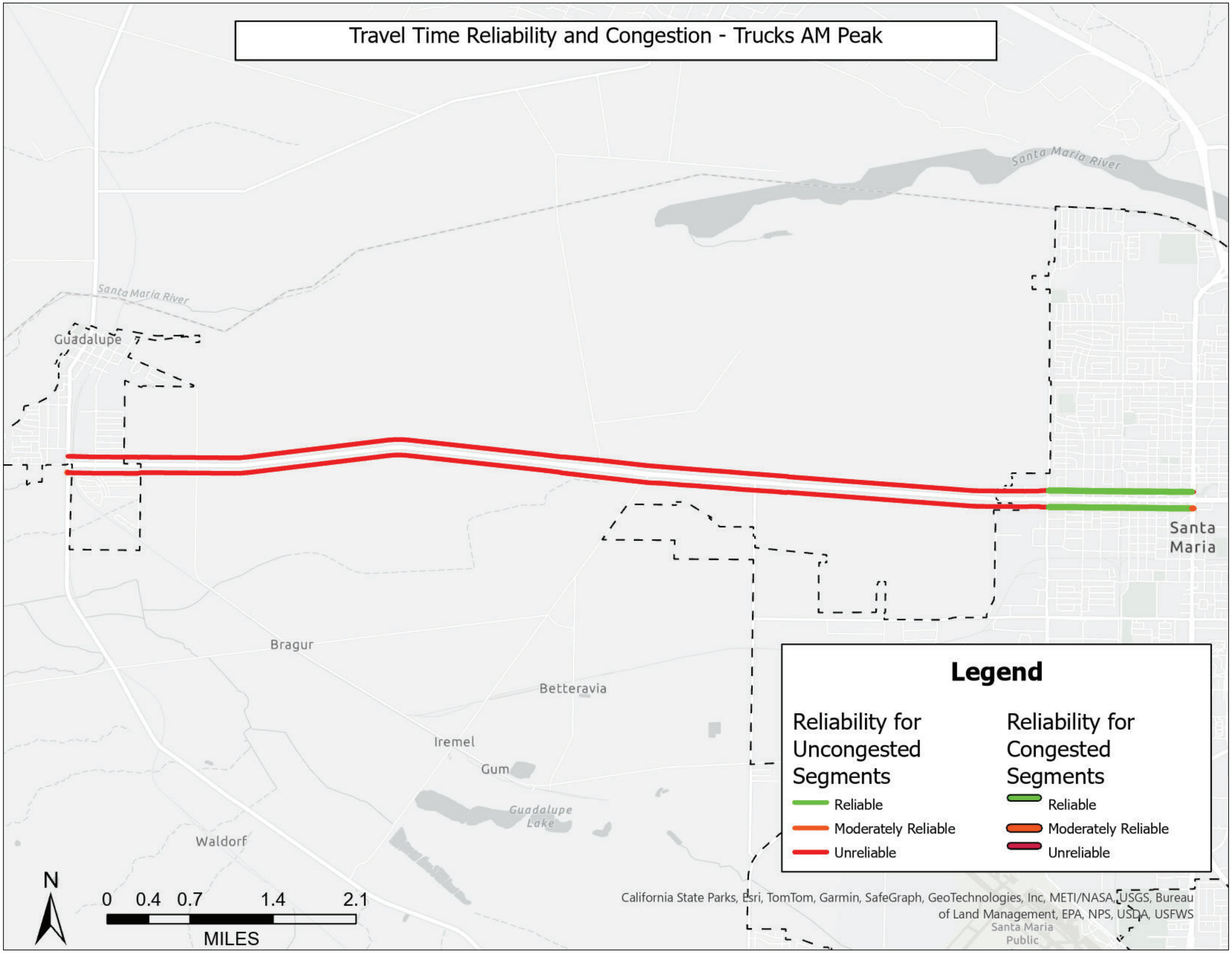

FIGURE 29: TRUCKS AM PEAK HOUR PERIOD (7:00-8:00AM) RELIABILITY AND CONGESTION

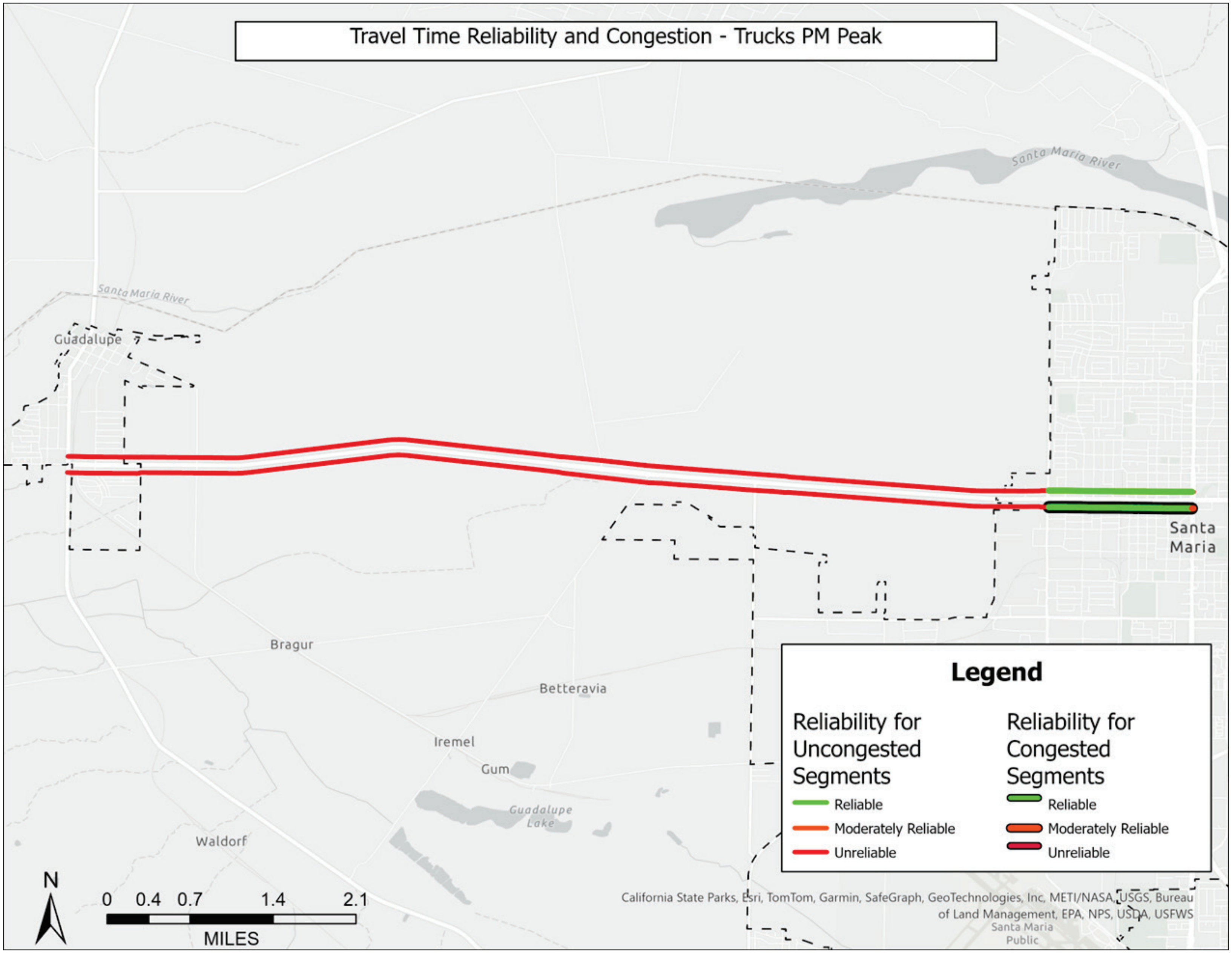

FIGURE 30: TRUCKS PM PEAK HOUR PERIOD (5:00-6:00PM) RELIABILITY AND CONGESTION

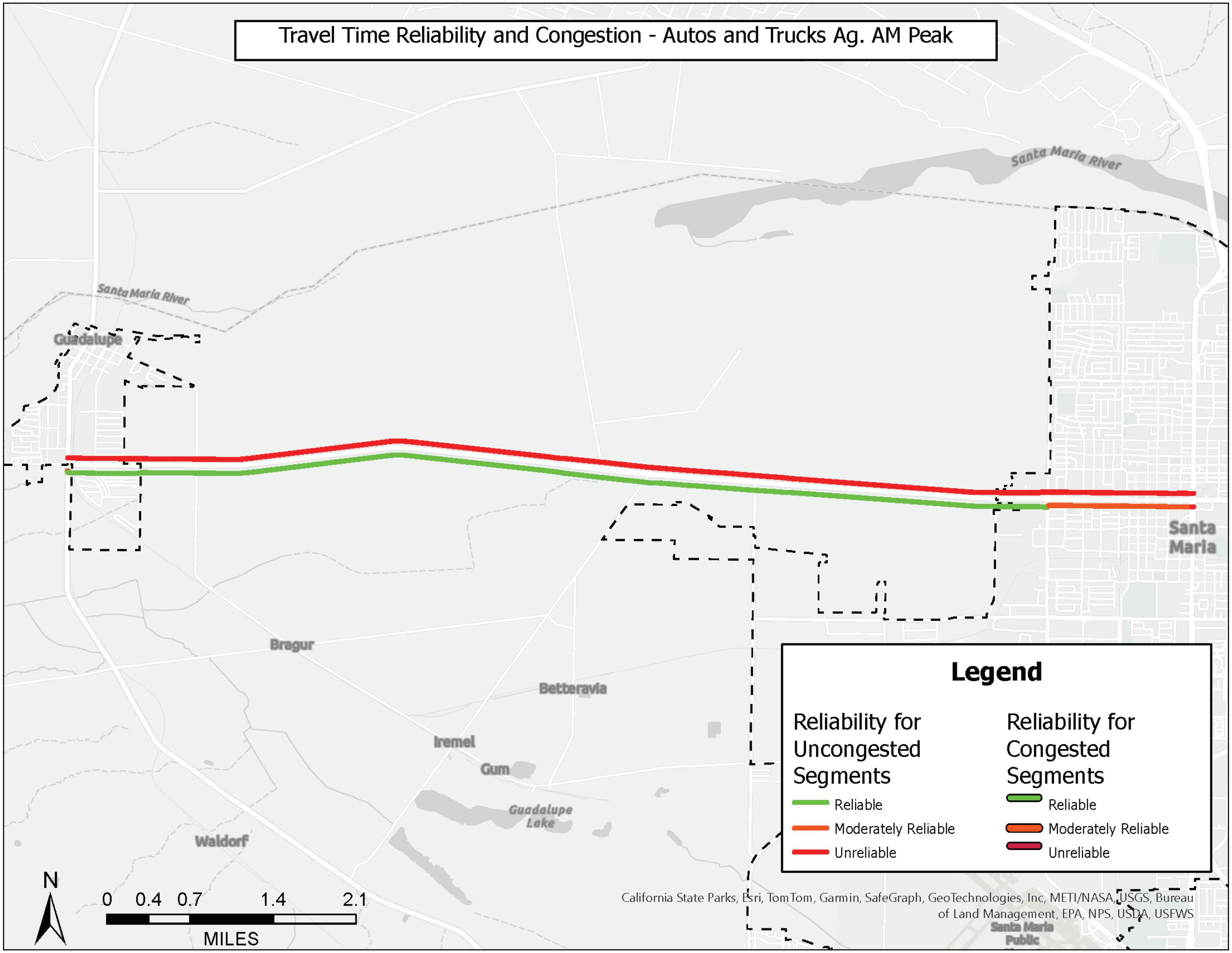

FIGURE 31: AUTOS AND TRUCKS EARLY AM PEAK HOUR PERIOD (5:00-6:00AM) RELIABILITY AND CONGESTION

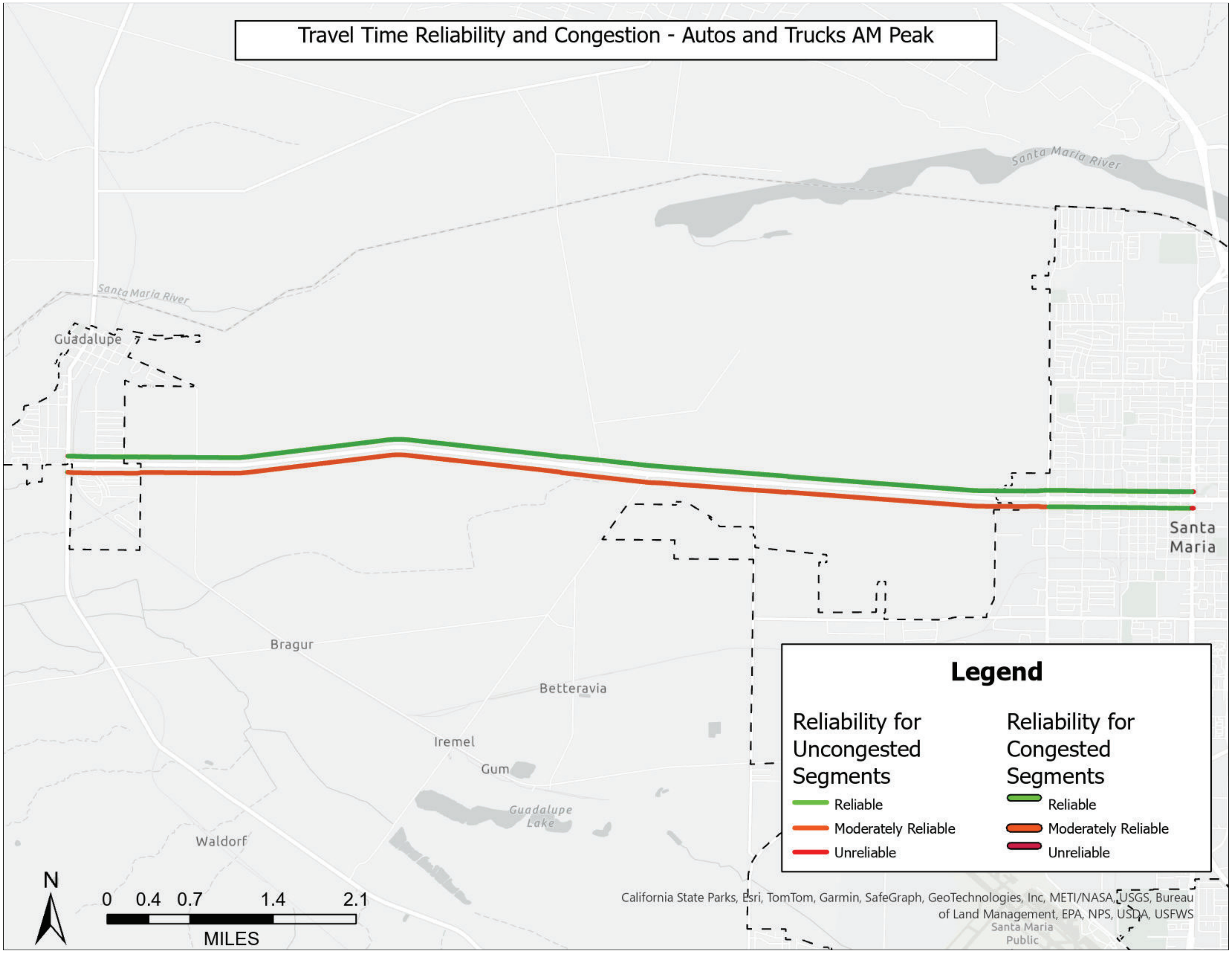

FIGURE 32: AUTOS AND TRUCKS AM PEAK HOUR PERIOD (7:00-8:00AM) RELIABILITY AND CONGESTION

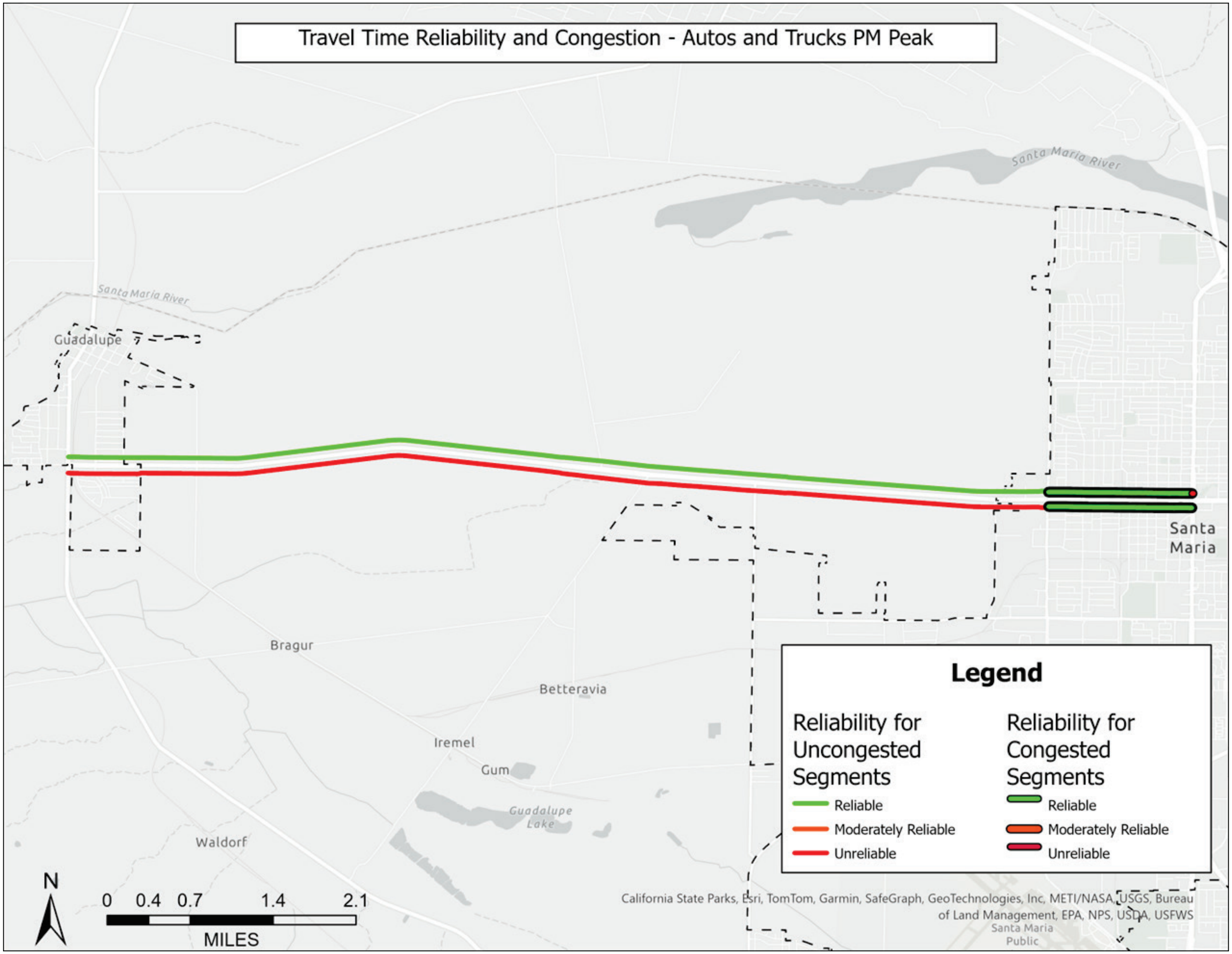

FIGURE 33: AUTOS AND TRUCKS PM PEAK HOUR PERIOD (5:00-6:00PM) RELIABILITY AND CONGESTION

2.9 Safety Assessment

This section describes existing safety conditions of the study corridor as well as the broader study area and presents collision trends and describes potential emphasis areas resulting from collision data. Safety data, analysis methodology and findings are described in the following sections, with key findings summarized as follows:

- Within the study period from 2019 to 2023, 454 collisions resulting in injury or worse occurred within the study area. Fatal and severe collisions, including seven fatalities and 30 severe injuries, are primarily concentrated at the intersections with Blosser Road, Depot Street, Bonita School Road and Black Road.
- Broadside collisions (42%) and rear-end collisions (39%) are the most common collision types at intersections on 166.
- Unsafe speed is the leading primary collision factor, contributing to 26% of all collisions.
- Improper turning was the primary collision factor in 24% of fatal and severe collisions, while driving or bicycling under the influence of alcohol or drugs contributed to 22% of fatal and severe collisions.
- There were 56 pedestrian and bicycle-related injury collisions on SR 166 during the five-year data collection period. Of these, two resulted in fatalities. Most pedestrian and bicycle-related collisions are concentrated along the eastern portion of SR 166, near Blosser Road and Depot Street in Santa Maria.
- Urbanized areas within Santa Maria exhibit higher collision densities, consistent with increased traffic and pedestrian activity, while rural segments show fewer collisions, consistent with lower traffic volumes. Rural intersections and segments, such as Bonita School Road and Black Road, report few or no pedestrian and cyclist collisions, consistent with lower pedestrian and cyclist volumes.
- All intersections and segments have crash rates below the state average. Locations such as Blosser Road and the SR 166 segment from Black Road to Blosser Road have the highest absolute number of collisions on the study corridor.

Collision Data

The following summarizes the collisions within the study area from the most recent five years (2019-2023) of SWITRS (Statewide Integrated Traffic Records System) collision data available from TIMS, which includes only injury collisions.

The TIMS is a crash mapping and analysis application[12] developed by SafeTREC to process and geocode crash data available by SWITRS. TIMS provides processed SWITRS data but only includes fatal and injury collisions, excluding all crash reports resulting in only property damage.

Crash records are categorized at three different levels: by collision, by party (vehicle), and by victim. All three levels are linked by a unique Case ID for each collision. Crash records provide all data collected by the reporting officer, including crash identification (jurisdiction, route and postmile, location, date, time), demographics (sex, age, race, sobriety, safety equipment usage), environmental (lighting, weather, road surface), and crash details (primary collision factor, type of

[12] Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2021, https://tims.berkeley.edu/

collision, vehicle/party type, severity). The codebook detailing the SWITRS crash record data and format is available on the SWITRS website or from TIMS.

Collision severity is defined in the Highway Safety Manual (HSM) as follows:

- Fatal injury: A collision that results in the death of a person within 30 days of the collision.
- Severe (incapacitating) injury: A collision that results in broken bones, dislocation, severe lacerations, or unconsciousness, but not death.
- Other Visible injury (non-incapacitating): A collision that results in other visible injuries, including minor lacerations, bruising, and rashes.
- Possible injury (complaint of pain): A collision that results in the complaint of non-visible pain/injury, such as confusion, limping, and soreness.
- Property damage only (PDO): A collision without injury or complaint of pain but resulting in property damage to a vehicle or other object, commonly referred to as a "fender bender." TIMS does not include non-injury collisions, therefore no PDOs are included in this analysis.

The most severe collisions, Fatal or Severely Injured (FSI), are the main focus of this analysis.

Study Area Collision Summary

Within the study period from 2019 to 2023, 454 collisions resulting in injury or worse occurred within the study area. **Figure 34** shows the collisions by severity. Of these, seven collisions resulted in fatal injuries, and 30 led to severe injuries.

As shown in **Figure 35**, clusters of collisions, including multiple incidents involving fatal and severe injuries, are concentrated at the intersection of SR 166 with Bonita School Road and Black Road, as well as the eastern portion of SR 166 near Depot Street and Blosser Road. Collision density tends to be higher in more developed areas, such as intersections in the eastern part of the study area within Santa Maria city limits.

The following sections provide an overview of collision patterns and trends within the study area.

Bicycle and Pedestrian Collisions

There were 56 pedestrian and bicycle-related injury collisions in the study area during the five-year data collection period. As shown in **Figure 36**, the highest concentration of these collisions, including those resulting in fatal and severe injuries, occurred along the eastern SR 166 corridor near Blosser Road and Depot Street in the City of Santa Maria. In comparison, rural and less developed areas, such as Simas Road, Brown Road, and Betteravia Road, report few or no collisions, a trend consistent with traffic counts indicating lower pedestrian and cyclist activity. Traffic counts at study intersections reveal significantly higher pedestrian and cyclist volumes within the City of Santa Maria. For instance, during the PM peak hour, counts recorded eight cyclists and 17 pedestrians at the Blosser Road intersection, while counts recorded 18 cyclists and 16 pedestrians at the Depot Street intersection. Conversely, no pedestrian or cyclist related collisions were documented at intersections along the SR 166 corridor, such as the Bonita School Road and Black Road intersections, during either the AM or PM peak hours.

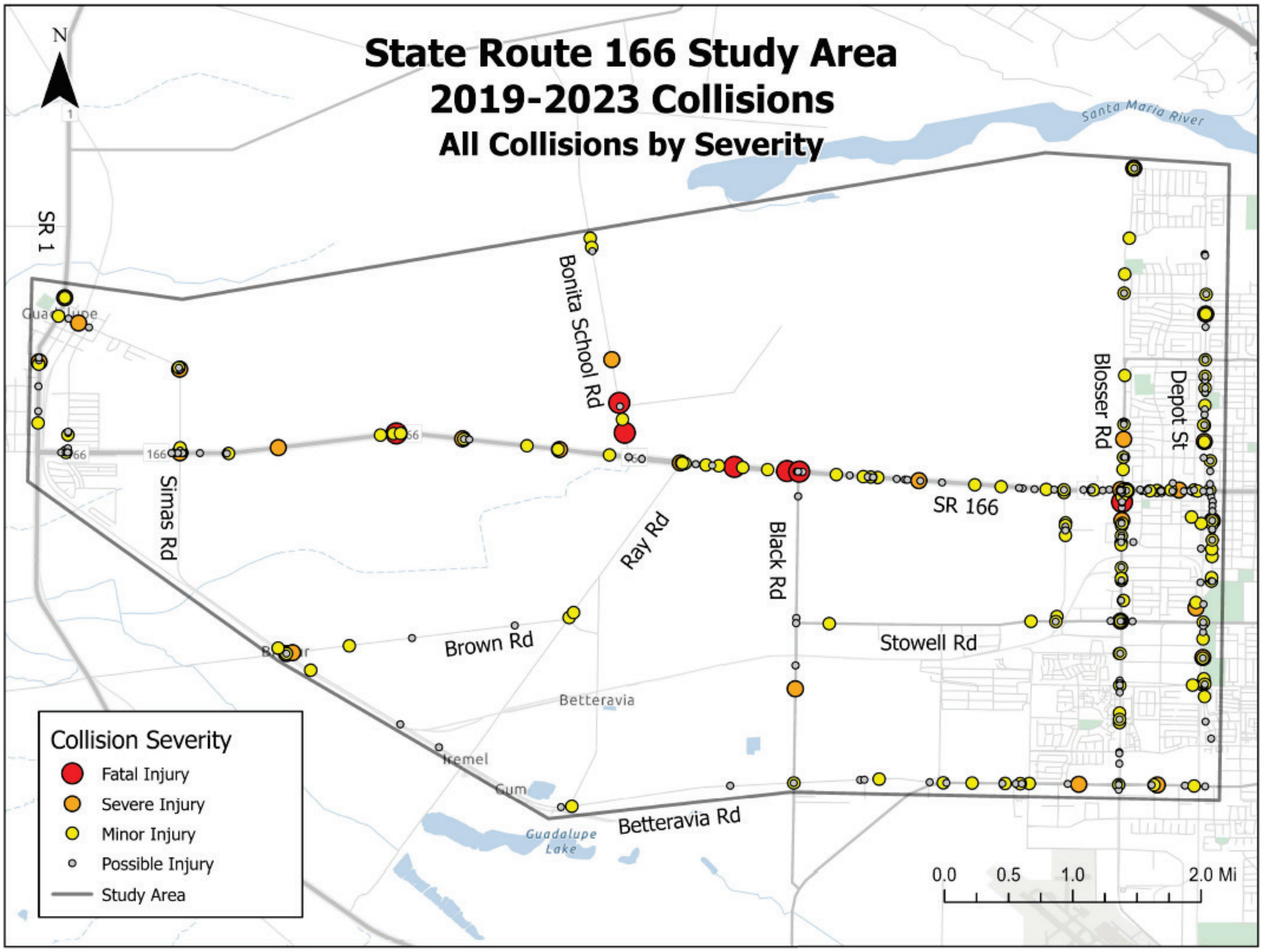

FIGURE 34: STUDY AREA COLLISIONS BY SEVERITY

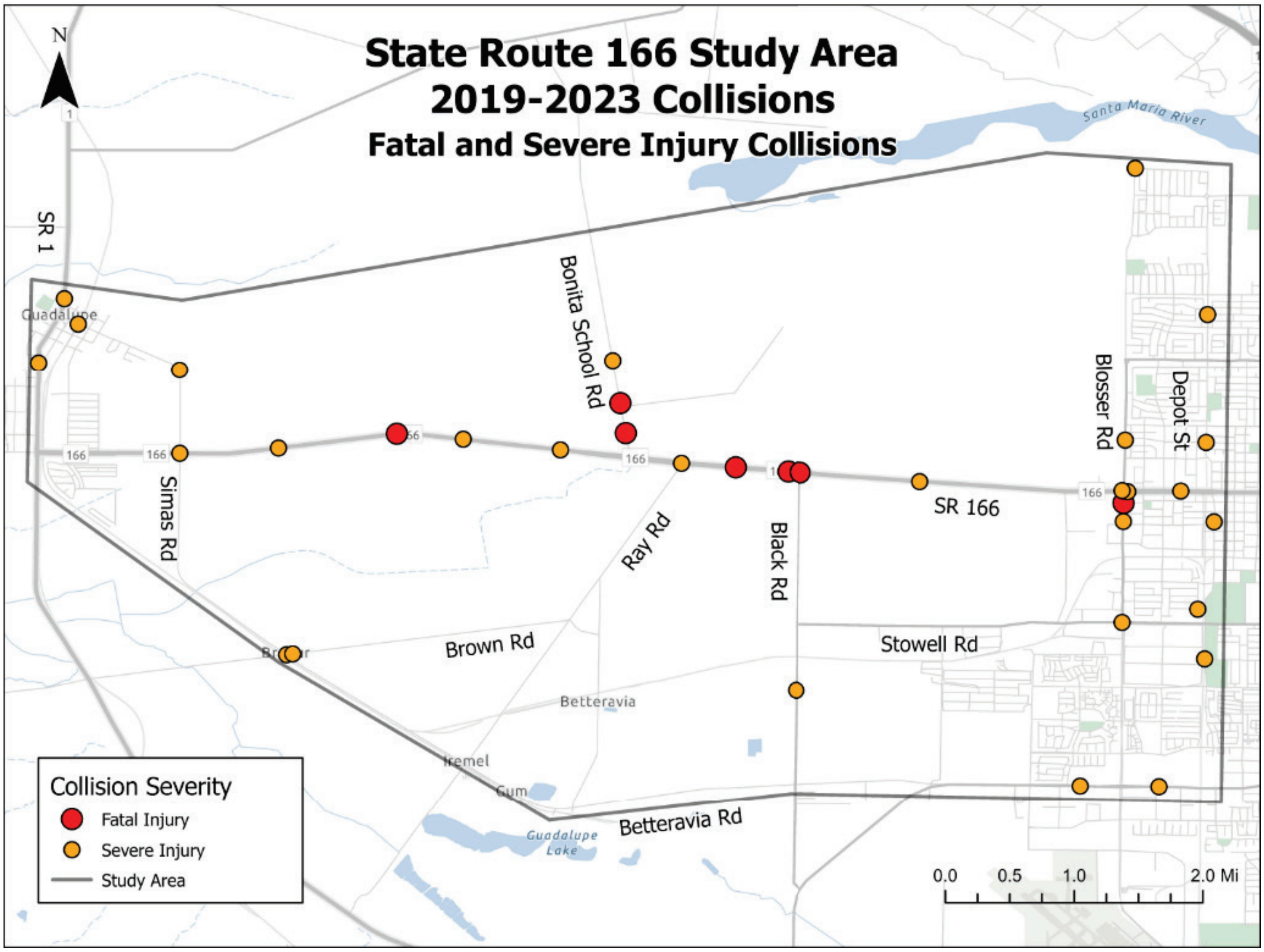

FIGURE 35: STUDY AREA FATAL AND SEVERE INJURY COLLISIONS

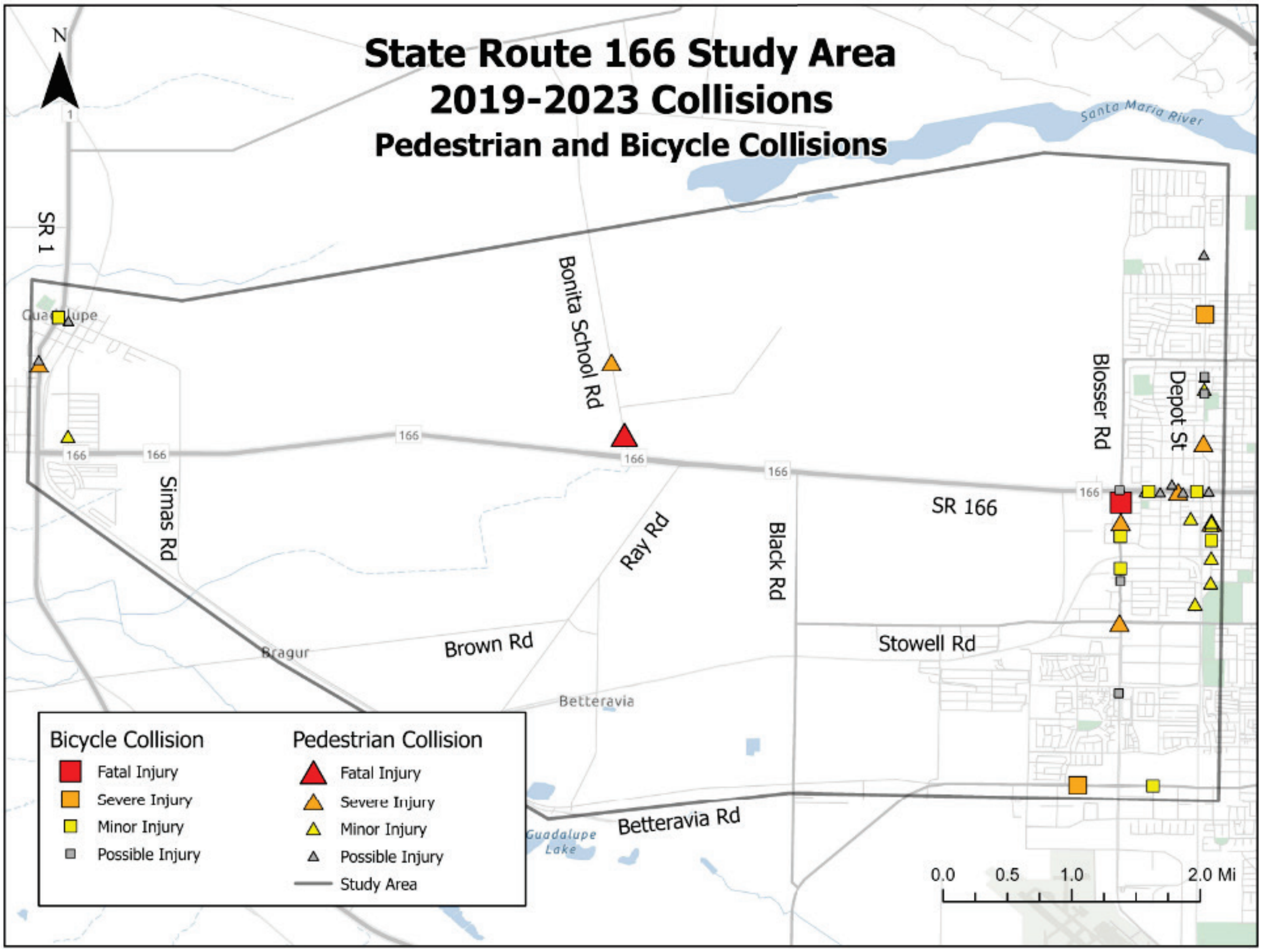

FIGURE 36: PEDESTRIAN AND BICYCLE COLLISIONS

Collision Type

The most common primary collision factors for all collisions on SR 166 from 2019 to 2023 are illustrated in **Figure 37**. For all collisions, unsafe speed is the leading factor, accounting for 26% of collisions, followed by automobile right-of-way violations (19%) and improper turning (14%). Driving or bicycling under the influence of alcohol or drugs and traffic signal/sign violations contribute 14% and 10% of collisions, respectively.

As shown in **Figure 38**, fatal and severe-injury collisions however are most frequently linked to improper turning (24%) and driving or bicycling under the influence of alcohol or drugs (22%). Automobile right-of-way violations and pedestrian violations each account for 11% of these serious collisions, while unsafe speed and failures to yield pedestrian right-of-way each contribute about 8%. This indicates that while unsafe speed is the primary cause of all collisions, serious outcomes are disproportionately associated with improper turning, impaired driving, and right-of-way conflicts involving both motorists and pedestrians. A breakdown of primary collision factors is provided in **Table 12** and

Table 13, with all collision reports provided in **Appendix A**.

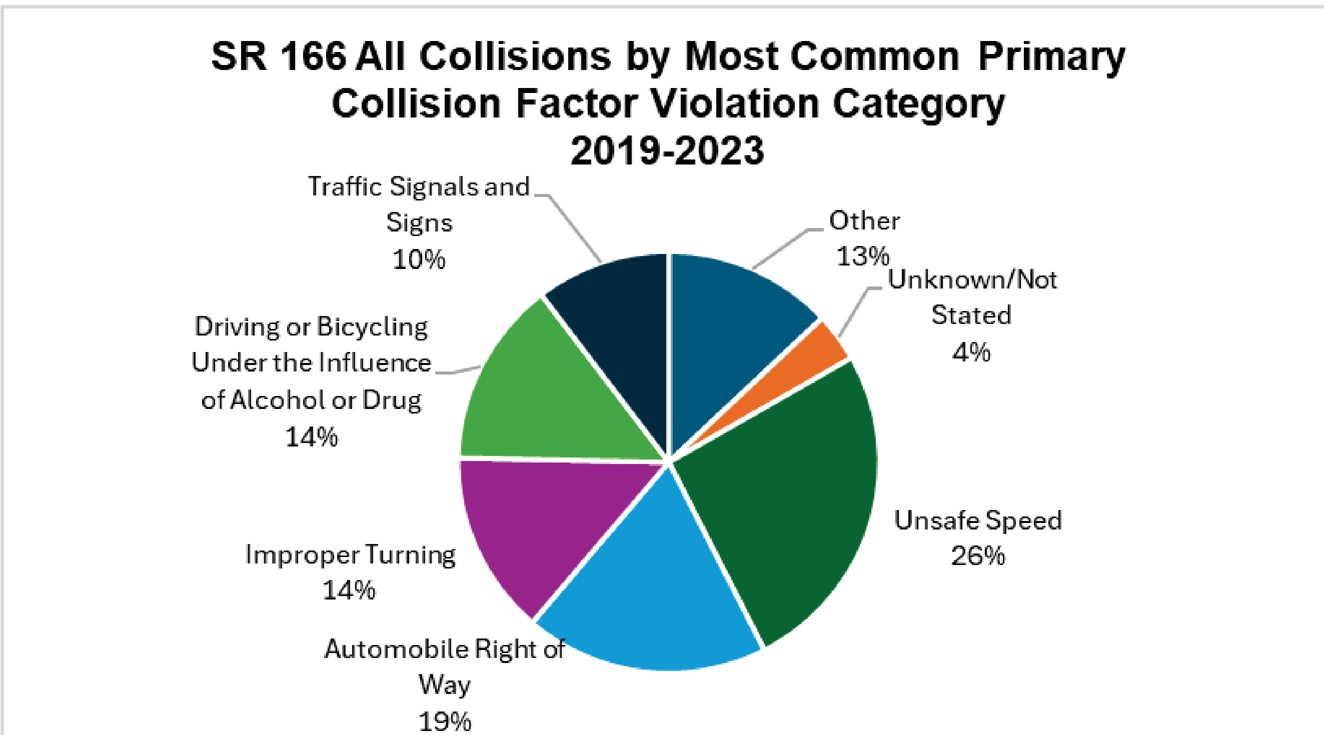

FIGURE 37: PRIMARY COLLISION FACTORS FOR ALL COLLISIONS

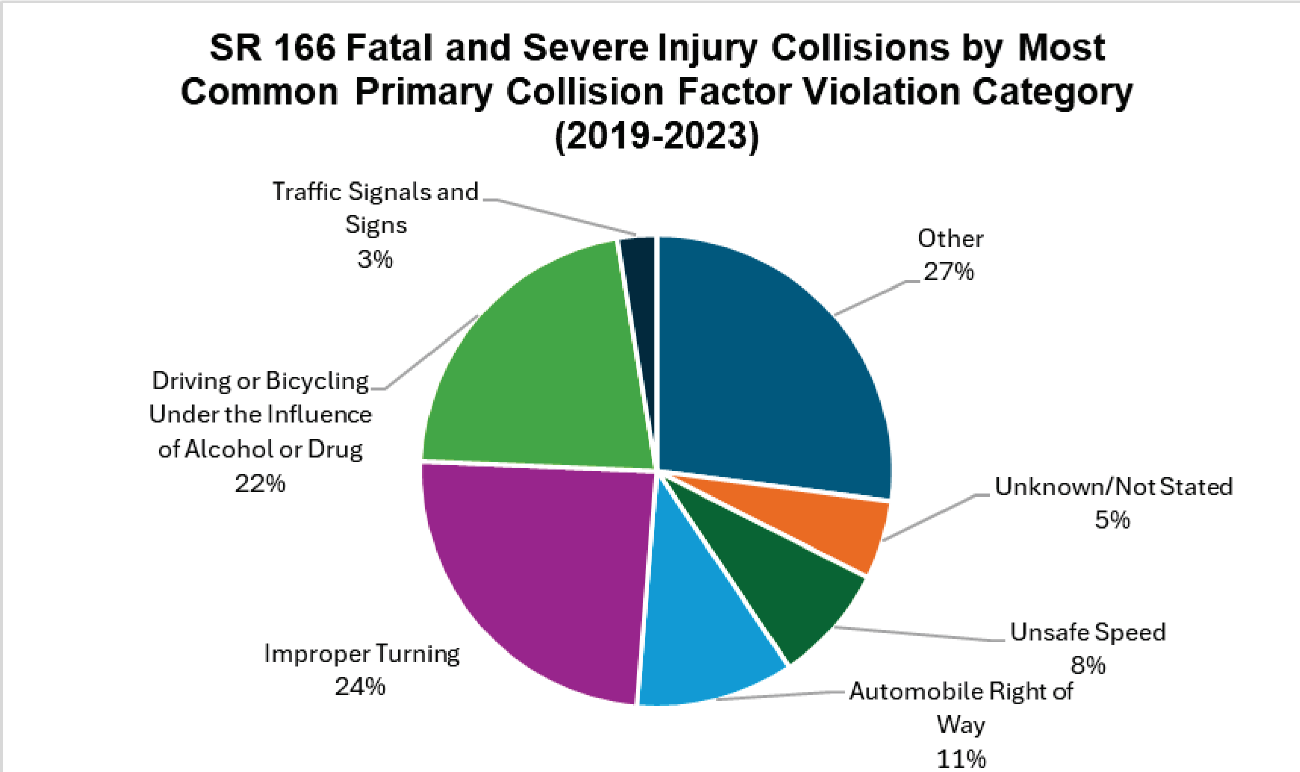

FIGURE 38: PRIMARY COLLISION FACTORS FOR FATAL/SEVERE INJURY COLLISIONS

TABLE 12: PRIMARY COLLISION FACTOR (PCF) VIOLATION CATEGORIES FOR ALL COLLISIONS

PCF VIOLATION CATEGORY	COLLISIONS	%
UNSAFE SPEED	117	25.8%
AUTOMOBILE RIGHT OF WAY	85	18.7%
IMPROPER TURNING	64	14.1%
DRIVING OR BICYCLING UNDER THE INFLUENCE OF ALCOHOL OR DRUG	65	14.3%
TRAFFIC SIGNALS AND SIGNS	47	10.4%
PEDESTRIAN RIGHT OF WAY	12	2.6%
IMPROPER PASSING	10	2.2%
UNKNOWN	12	2.6%
PEDESTRIAN VIOLATION	8	1.8%
FOLLOWING TOO CLOSELY	8	1.8%
WRONG SIDE OF ROAD	7	1.5%
UNSAFE LANE CHANGE	6	1.3%
OTHER	13	2.9%
TOTAL	**454**	

Source: Statewide Integrated Traffic Records System, January 01, 2019 to December 31, 2023.

TABLE 13: PRIMARY COLLISION FACTOR (PCF) VIOLATION CATEGORIES FOR FATAL AND SEVERE INJURY COLLISIONS

PCF VIOLATION CATEGORY	COLLISIONS	%
IMPROPER TURNING	9	24%
DRIVING OR BICYCLING UNDER THE INFLUENCE OF ALCOHOL OR DRUG	8	22%
AUTOMOBILE RIGHT OF WAY	4	11%
PEDESTRIAN VIOLATION	4	11%
UNSAFE SPEED	3	8%
PEDESTRIAN RIGHT OF WAY	3	8%
IMPROPER PASSING	2	5%
TRAFFIC SIGNALS AND SIGNS	1	3%
UNKNOWN	1	3%
NOT STATED	1	2%
UNSAFE STARTING OR BACKING	1	3%
TOTAL	**37**	**100%**

Source: Statewide Integrated Traffic Records System, January 01, 2019 to December 31, 2023.

Study Corridor Collision Summary

While the collision maps cover the broader study area including parallel routes, the following study corridor collision summary data covers only SR 166 within the study boundary.

Collisions are summarized for intersections and roadway segments. Collisions are considered intersection related if they were within 250 feet of the intersection stop bar.

Intersection Summary

From 2019 to 2023, 95 collisions were reported at study intersections along the SR 166 corridor, including four severe injury collisions and one fatality. The analysis of collision types indicate that broadside collisions (42%) and rear-end collisions (39%) were the most prevalent at intersections. Vehicle-pedestrian collisions accounted for 6% of collisions. Less common collision types, such as head-on (4%) and fixed-object collisions (4%), indicate lane departure issues and roadside hazard risks were not as prevalent.

Unsafe speed was identified as the primary collision factor, contributing to 33% of intersection collisions. This was followed by automobile right-of-way violations and traffic signal/sign violations, each representing 16% of collisions. Other factors included impaired driving (12%) and improper turning (8%).

Together, unsafe speed, right-of-way violations, and traffic signal/sign violations accounted for 65% of all collisions at intersections.

TABLE 14: INTERSECTION COLLISIONS BY SEVERITY

SEVERITY	2019	2020	2021	2022	2023	TOTAL
FATAL INJURY	0	0	0	0	1	1
SEVERE INJURY	1	2	0	0	1	4
MINOR INJURY	5	2	3	4	6	20
POSSIBLE INJURY	9	19	18	17	7	70
TOTAL	**15**	**23**	**21**	**21**	**15**	**95**

Source: Statewide Integrated Traffic Records System, January 01, 2019 to December 31, 2023.

TABLE 15: INTERSECTION COLLISIONS BY TYPE

COLLISION TYPE	COLLISIONS	%
BROADSIDE	40	42%
REAR-END	37	39%
VEHICLE/PEDESTRIAN	6	6%
HEAD-ON	4	4%
HIT OBJECT	4	4%
OTHER	4	4%
TOTAL	**95**	**100%**

Source: Statewide Integrated Traffic Records System, January 01, 2019 to December 31, 2023.

TABLE 16: INTERSECTION COLLISIONS BY PRIMARY COLLISION FACTOR

PRIMARY COLLISION FACTOR	COLLISIONS	%
UNSAFE SPEED	31	33%
AUTOMOBILE RIGHT OF WAY	15	16%
TRAFFIC SIGNALS AND SIGNS	15	16%
DRIVING OR CYCLING UNDER THE INFLUENCE	11	12%
IMPROPER TURNING	8	8%
PEDESTRIAN RIGHT OF WAY	3	3%
PEDESTRIAN VIOLATION	3	3%
OTHER	7	7%
TOTAL	**95**	**100%**

Source: Statewide Integrated Traffic Records System, January 01, 2019 to December 31, 2023.

<u>Segment Collision Summary</u>

Table 17 summarizes collision severity along the SR 166 corridor from 2019 to 2023. Over the five-year period, a total of 52 collisions were reported, with 3 classified as fatal and 4 as severe.

Fatal and severe collisions accounted for 13% of the total 52 collisions, with 3 fatal and 4 severe injury collisions reported. Rear-end collisions (44%) and broadside collisions (21%) were the most frequent types. Less frequent collision types included overturned vehicles (8%) and head-on collisions (6%). Unsafe speed is the leading primary collision factor, contributing to 22 collisions (42%), followed by improper turning at 12 collisions (25%). Impaired driving and right-of-way violations each accounted for seven collisions (13%).

TABLE 17: SEGMENT COLLISIONS BY SEVERITY

SEVERITY	2019	2020	2021	2022	2023	TOTAL
FATAL INJURY	1	1	0	0	1	3
SEVERE INJURY	1	2	0	1	0	4
MINOR INJURY	3	2	8	4	3	20
POSSIBLE INJURY	5	9	6	2	3	25
TOTAL	**10**	**14**	**14**	**7**	**7**	**52**

Source: Statewide Integrated Traffic Records System, January 01, 2019 to December 31, 2023.

TABLE 18: SEGMENT COLLISIONS BY COLLISION TYPE

COLLISION TYPE	COLLISIONS	%
REAR-END	23	44%
BROADSIDE	11	21%
HIT OBJECT	9	17%
OVERTURNED	4	8%
OTHER	5	10%
TOTAL	**52**	**100%**

Source: Statewide Integrated Traffic Records System, January 01, 2019 to December 31, 2023.

TABLE 19: SEGMENT COLLISIONS BY PRIMARY COLLISION FACTOR

PRIMARY COLLISION FACTOR	COLLISIONS	%
UNSAFE SPEED	22	42%
IMPROPER TURNING	13	25%
DRIVING OR CYCLING UNDER THE INFLUENCE	7	13%
AUTOMOBILE RIGHT OF WAY	7	13%
OTHER	3	6%
TOTAL	**52**	**100%**

Source: Statewide Integrated Traffic Records System, January 01, 2019 to December 31, 2023.

Collision Rate Analysis

The collision data for the study intersections in the corridor were compared with the statewide mean collision rate for a roadway with similar characteristics. This comparative analysis was undertaken using the Rate Quality Control Method (RQCM). Collisions that occurred within 250 feet on the approaches to an intersection were considered as part of the intersection. **Table 20** summarizes the number of collisions involving vehicles, pedestrians and bicyclists that were reported at the study intersections during the five-year analysis period.

The RQCM flags a location as susceptible to collision if the accident rate exceeds the state crash rate. State crash rates for like facilities were based on the *Caltrans 2023 Crash Data on California State Highways (road miles, travel, crashes)*. For SR 166 comparative purposes, average collision rates for "Rural-Flat-Under 55 mph conventional 2-lane highway (HO1) was applied and for intersections the statewide rates were based on "Rural" and type of intersection (legs and control type).

The analysis method assists in identifying "collision-prone" locations where collision rates are significantly higher than the average collision rate for a street with comparable traffic volume. Beta was set at the 95th percentile confidence level, meaning that the observed collision rate would only occur by chance five times out of one hundred.

All intersections and segments reported crash rates below the state average for like facilities, though the relatively high number of collisions at SR 166 and Blosser Road and the Black Road to Blosser Road segment warrant further safety review. The analysis shows that SR 166 at SR 1 and SR 166 at Flower Avenue experienced no collisions during the study period, while SR 166 at Bonita School Road had the lowest collision rate at 0.05 collisions per million vehicles entering (CMV), significantly below the state average of 0.62 CMV. Intersections at Ray Road (0.17 CMV), Black Road (0.20 CMV), and Depot Street (0.27 CMV) also reported low collision rates, while Obispo Street, Simas Road, and Blosser Road had moderate collision rates ranging from 0.30 to 0.40 CMV, with Blosser Road having the highest collision total (22 collisions). For roadway segments, all reported collision rates were below the state average of 1.09 CMV, ranging from 0.29 to 0.43 CMV. The segment between Black Road and Blosser Road recorded the highest number of collisions (23), followed by SR 166 from SR 1 to Bonita School Road (19).

While all intersections and segments reported collision rates below the state average, locations like Blosser Road (highest intersection collision total with 22 collisions) and the SR 166 segment from Black Road to Blosser Road (highest segment collision total with 23 collisions) highlight areas with higher absolute collision numbers.

TABLE 20: STUDY CORRIDOR CRASH RATES

	STUDY CORRIDOR COLLISION RATES						
	STUDY INTERSECTIONS	NUMBER OF COLLISIONS (2019-2023)	DAILY ENTERING VEHICLES	ANNUAL ENTERING VEHICLES (IN MILLIONS)	COLLISIONS PER MILLION ENTERING VEHICLES (CMV)	STATE COLLISION RATE (CMV)	ABOVE STATE RATE?
1	SR166 AND SR1	No recorded collisions during the period					
2	SR166 AND OBISPO ST	6	10,910	3.98	0.30	0.36	No
3	SR166 AND FLOWER AVE	No recorded collisions during the period					
4	SR166 AND SIMAS RD	9	12,400	4.53	0.40	0.59	No
5	SR166 AND BONITA SCHOOL RD	1	11,620	4.24	0.05	0.62	No
6	SR166 AND RAY RD	4	12,920	4.72	0.17	0.36	No
7	SR166 AND BLACK RD	5	13,760	5.02	0.20	0.36	No
8	SR166 AND BLOSSER RD	22	30,500	11.13	0.40	0.55	No
9	SR166 AND DEPOT ST	12	24,760	9.04	0.27	0.55	No
10	BETTERAVIA AND BLACK RD	Not included in corridor analysis					
	SEGMENT LOCATION	NUMBER OF COLLISIONS (2019-2023)	AVERAGE DAILY TRAFFIC	ANNUAL VEHICLE MILES TRAVELED (IN MILLIONS)	COLLISIONS PER MILLION VEHICLE MILES (CMVM)	STATE COLLISION RATE (CMVM)	ABOVE STATE RATE?
1	SR166 FROM SR1 TO BONITA SCHOOL RD	19	9,300	12.73	0.30	1.09	No
2	SR166 FROM BONITA SCHOOL RD TO BLACK RD	9	15,900	6.22	0.29	1.09	No
3	SR166 FROM BLACK RD TO BLOSSER RD	23	14,200	10.64	0.43	1.09	No

2.10 ROADWAY SAFETY AUDIT

On September 16, 2024 a road safety audit (RSA) along SR 166 study corridor was performed. An RSA is a formal safety performance examination of a roadway. An RSA is a multi-stakeholder, comprehensive effort to identify safety and mobility deficiencies and generate a list of improvements, and insights. The RSA group included representatives from Caltrans, SBCAG, the cities of Guadalupe and Santa Maria, the County of Santa Barbara and the consultant team. The RSA group brought unique backgrounds and perspectives to roadway performance, collision history, safety concerns, and potential improvements[13].

The full RSA report is provided in **Appendix A**. Key findings and challenges are provided below.

FIGURE 39: ROAD SAFETY AUDIT TEAM

Challenges

The study corridor faces persistent challenges and areas of concern that highlight potential areas for increased attention and future improvements.

- This corridor experiences high volumes of truck traffic with surrounding land uses being primarily agricultural.

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[13] FHWA has identified RSAs as a safety countermeasure.

- Lack of passing lanes, CHP has noted that vehicles pass on the narrow shoulder of the corridor, especially to avoid agricultural vehicles.
- During school release, school bus and staff queuing caused significant traffic on Bonita School Road.
- Lack of pedestrian or bicycle infrastructure creates a hostile environment for non-motorized users.
- City of Santa Maria, County, and CHP have noted that sight distance is an issue during nighttime and fog causing limited visibility.
- Overall lack of lighting along the corridor
- Primary congestion is caused by agricultural vehicles, encouraging alternative routes such as Betteravia Road could relieve congestion EB into Santa Maria
- Lack of safe turning lanes, stops, or signals create long queues
- Drainage ditch parallel to the corridor creates right-of-way (ROW) constraints

Recommended Improvements

Due to the nature of the corridor and existing and pending improvements occurring, the primary focus of the corridor among RSA participants was roadway safety and congestion relief. While multimodal improvements are feasible and would allow connection to the Santa Maria Levee Trail, the primary concerns were road conditions, lighting, and speed.

The majority of comments and opinions expressed by attendees were congestion, lack of bicycle and pedestrian infrastructure, and high vehicle speeds.

General comments and recommendations for the corridor as a whole from attendees were as follows:

- Possibility for Intelligent Transportation Systems (ITS) improvements along the corridor.
- Recommendations for public outreach and programs that would provide improved education about trip planning and coordinating with stakeholders.
- Support installation of Weigh in Motion and/or automated freight counters on SR 166.
- Bicycle infrastructure is lacking along the entire corridor, including at intersections.
- Left turn pockets and accelerations lanes for left turning vehicles along SR 166 may improve operations and safety for turning vehicles at high-volume private driveways along the eastern portion of the corridor.
- Based on crash history, the curve between Simas Road and Ray Road should be evaluated for guard rail, chevrons, and curve signs, and other improvements to assist drivers in navigating the turn during low visibility conditions.
- Intersection lighting should be evaluated for improvement.
- Stop signs at all unsignalized intersections should be oversized, include retroreflective tape on poles, and LED borders for additional visibility/awareness due to low visibility conditions (nighttime, fog, and dusk/dawn glare).
- Transverse rumble strips on approaches to intersections to alert drivers of upcoming stops should be implemented.

Recommendations were also discussed and provided for each of the key intersections visited and observed and are described below.

Intersection 1 - SR 166 and Obispo Street

- Incorporate the latest improvements proposed by Caltrans as part of GAPS-CAPM project[14] into intersection design
- Design for increased pedestrian volumes due to new schools and development.
- Slow motor vehicles in advance of the approach into Guadalupe. Consider reducing the speed limit in increments of 5 MPH the way that Hwy 126 does upon the approach to City of Fillmore (signage posted + speed feedback signs).
- Utilize existing paved cross section on Obispo Street to add a Class II or Buffered Class II bike lane.
- Improve lighting at the nearby bus stop and pedestrian approaches.
- Move the stops bars on Obispo Street closer to SR 166 to improve line of sight.
- Provide safer crossing and visibility due to long crossing distance for pedestrians.

Intersection 2 – SR 166 and Simas Road

- Install lighting and signage at the intersection for visibility.
- Reduce the radius of the turn on the northbound Simas Road approach corner to encourage slower turning movements.
- Install larger and higher visibility stops signs.
- Construct a right turn pocket for the westbound approach to discourage drivers from using the shoulder.
- Reduce the westbound speed limit towards Guadalupe in advance of this intersection.

Intersection 3 – SR 166 and Bonita School Road

- Improve school zone signage and striping to raise visibility and awareness.
- Reduce the speed limit along SR 166 within the vicinity of Bonita School Road to be consistent with a school zone.
- Consider circulation improvements and/or signal timing to better handle school bus and parent egress.
- Provide consistent overhead lighting at the signal.
- Provide pedestrian treatments on and across Bonita School Road to provide safe access to all parking and overflow parking areas.
  - Need for coordination with the school to redesign site circulation and access.
  - Better define overflow parking.
  - Provide a safe place to U-turn along Bonita School Road.
  - Perform and implement a County Safe Routes to School (SR2S) plan.
- Improve driver visibility for the southbound approach.

Intersection 4 – SR 166 and Ray Road

- Realign the intersection to remove the skew and improve sight distance.

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[14] Guadalupe Active Partnership for Signalization and CAPM to Santa Maria (GAPS-CAPM)

- Reconfigure intersection for a northbound left-turn merge lane.
- Clean and maintain drainage infrastructure to avoid flooding during rain events.
- Install intersection lighting.
- Perform signal warrant due to significant queueing during PM peak.

Intersection 5 – SR 166 and Black Road

No recommendations were discussed for the intersection at Black Road, likely due to signal construction and improvements being finalized.

Intersection 6 – SR 166 and Hanson Way

No recommendations were discussed for the intersection at Hanson Way, likely due to the difficulty in inserting slow-moving left-turning trucks into an uncontrolled vehicle stream, even with the existing center turn lane. Further, volumes are likely not high enough to meet a signal warrant.

Intersection 7 – SR 166 and Blosser Road

- Install consistent sidewalk along the southwest quadrant of the intersection and connecting to the Saint Marie Mobil Home Park to the west.
- Stripe a right-turn pocket for the eastbound approach to better define parking and shoulder areas.
- Update corner treatments to meet current ADA requirements.
- Install additional intersection lighting.
- Add green paint to bike lane on the southbound approach to define the bicycle right of way and increase visibility.
- Reduce the speed limit of SR 166 in advance of the Santa Maria city limits.

2.11 MULTIMODAL ACCESS

This section describes the methods and findings for transit, vanpool, bicycle, and pedestrian measures.

Transit Accessibility

The Guadalupe Flyer is operated by Santa Maria Regional Transit (SMRT ([15]) and provides a fixed-route connection between Guadalupe and Santa Maria. The Guadalupe Flyer operates as a fixed-route service connecting Guadalupe and Santa Maria with the routes operating from 6:30 am to 7:30 pm from Monday to Saturday, and 8:30 am to 6:30 pm on Sundays[16].

The City of Guadalupe offers both fixed-route and demand-response transit services within Guadalupe. The Guadalupe Shuttle operated by SMOOTH (Santa Maria Organization of Transportation Helpers), is a deviated fixed-route service that operates Monday through Friday from 10:00 AM to 4:00 PM using a single bus. In addition, the City owns one ADA-accessible van to enhance transit accessibility. The City manages the transit system and contracts with SMOOTH for daily operations.

In Fiscal Year 2018, Guadalupe Transit recorded 86,061 passengers' system-wide and achieved a farebox recovery ratio of 16%[17]. As with transit ridership statewide, ridership significantly dropped during the pandemic. As of Fiscal Year 2023-24, Guadalupe Transit ridership trends (includes Guadalupe Flyer, Shuttle and ADA services) has been positively trending but has yet to eclipse pre-pandemic levels with annual ridership at 77,755 and a systemwide fair box recovery ratio of 7% (un-audited figures)[18].

A map of routes serving the SR 166 Corridor and the location of bus stops is shown in **Figure 40**. Service is available along the entire length of the SR 166 corridor between the cities of Guadalupe and Santa Maria.

This analysis focuses on the accessibility of transit service in areas deemed transit-supportive. For this study, transit-supportive density was defined as a minimum of three dwelling units per acre, based on the standards cited in the *Transit Capacity and Quality of Service Manual*. Census block-level data from decennial census was used to identify areas with transit-supportive density within a half-mile of a transit stop served by the Guadalupe Flyer service provided by SMRT. Additionally, areas meeting this density criterion but located more than half a mile from a Guadalupe Flyer transit stop were also documented.

Table 21 and **Table 22** provides an inventory of transit-supportive land for each urban area along the corridor, along with the percentage of the population accessible within a quarter mile and half-mile of a transit stop served by the Guadalupe Flyer service line, respectively. This information is visualized in **Figure 40**.

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[15] Prior to SMART operating the Guadalupe Flyer service (2025), the Guadalupe Flyer was operated by SMOOTH (Santa Maria Organization of Transportation Helpers).

[16] The Santa Maria Area Regional Transit

[17] Triennial Performance Audit, City of Guadalupe Transit, Michael Baker International, October 2019.

[18] Transit Needs Assessment (2025), SBCAG, March 2025

TABLE 21: TRANSIT SUPPORTIVE AREAS NEAR SR 166 AND PARALLEL ROUTES SERVED BY TRANSIT (1/4 MILE)

COMMUNITY	TRANSIT SUPPORTIVE POPULATION	TRANSIT SUPPORTIVE POPULATION WITHIN 1/2 MILE OF GUADALUPE FLYER STOP	% OF TRANSIT SUPPORTIVE POPULATION WITHIN 1/2 MILE OF A GUADALUPE FLYER TRANSIT STOP	% OF TRANSIT SUPPORTIVE POPULATION OUTSIDE 1/2 MILE OF A GUADALUPE FLYER TRANSIT STOP
GUADALUPE	6,010	880	15%	85%
SANTA MARIA	96,870	2,970	3%	97%
UNINCORPORATED	0	0	-	-

TABLE 22: TRANSIT SUPPORTIVE AREAS NEAR SR 166 AND PARALLEL ROUTES SERVED BY TRANSIT (1/2 MILE)

COMMUNITY	TRANSIT SUPPORTIVE POPULATION	TRANSIT SUPPORTIVE POPULATION WITHIN 1/2 MILE OF GUADALUPE FLYER STOP	% OF TRANSIT SUPPORTIVE POPULATION WITHIN 1/2 MILE OF A GUADALUPE FLYER TRANSIT STOP	% OF TRANSIT SUPPORTIVE POPULATION OUTSIDE 1/2 MILE OF A GUADALUPE FLYER TRANSIT STOP
GUADALUPE	6,010	3,570	59%	41%
SANTA MARIA	96,870	16,210	17%	83%
UNINCORPORATED	0	0	-	-

CALVANS Operations

The California Vanpool Authority (CalVans) is a public agency established in 2012 that provides a unique, publicly-owned vanpool service. In contrast to private models, CalVans owns the vehicles and manages the program, supplying qualified drivers with vans for commutes[19]. The authority covers fuel, maintenance, and insurance costs, with riders paying only a fare. This model is financially self-sustaining and allows member agencies to generate federal formula funds, such as Small Transit Intensive Cities (STIC) funding, which can be used to support other local transit services[20][21].

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[19] California Vanpool Authority. (2019). *Eight Year Update and Area Maps* [PDF]. https://calvans.org/wp-content/uploads/cv_pubpdfs/5130/Attachment%20C%20-%20Eight%20Year%20Update%20and%20area%20maps.pdf

[20] CalVans. (2025). History – CalVans. Retrieved July 29, 2025, from https://calvans.gov/history

[21] U.S. Department of Transportation. (2024). *Small Transit Intensive Cities (STIC) Program* – Section 5307 Program. https://www.transit.dot.gov/funding/grants/small-transit-intensive-cities-stic-program-bil-component-section-5307-program

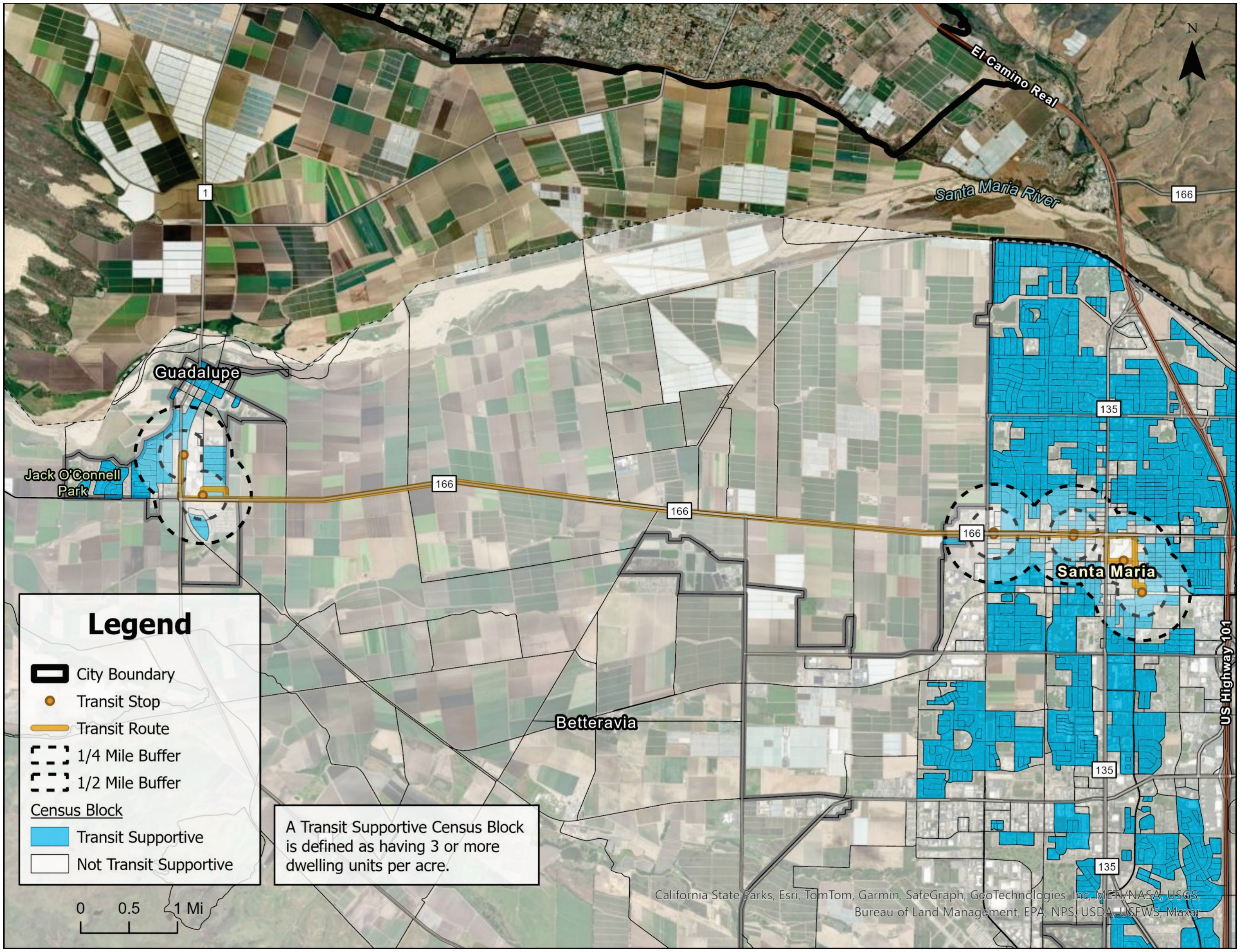

FIGURE 40: TRANSIT ACCESSIBILITY ON STUDY CORRIDOR

Within the SR-166 corridor, CalVans serves as a significant transportation provider, particularly for the agricultural community. Service in the area primarily follows two models: worker-organized vanpools and employer-sponsored vanpools. The employer-sponsored model has seen increased adoption due to H-2A visa regulations that mandate employers provide transportation for workers.

According to conversations with CalVans representatives, the authority currently operates approximately 180 14-passenger vans in northern Santa Barbara County during peak agricultural season, with an estimated 50 of those vans operating directly on the SR-166 corridor. A primary challenge currently facing the program is a critical shortage of vehicles, which limits service expansion. As of 2025, Santa Barbara County had a shortfall of an estimated 12 vans, contributing to a total regional deficit of 131 units.

Despite these constraints, CalVans is actively pursuing growth and innovation. CalVans representatives have noted that the organization is collaborating with SBCAG on grant opportunities and is working to develop an Electric Vehicle (EV) vanpool model for the region, inspired by a recently successful EV program launch in Ventura County[22].

CALVANS PASSENGER VAN (SOURCE: CALVANS.GOV)

[22] Ventura County Transportation Commission. (2021). *Rideshare – Ventura County*. https://www.goventura.org/for-commuters/

2.12 LEVEL OF TRAFFIC STRESS BICYCLE AND PEDESTRIAN ANALYSIS

Level of Traffic Stress (LTS) analyses were conducted for both bicycle and pedestrian facilities respectively. Bicycle LTS was performed based on the methodologies described in the *Mineta Transportation Institutes Report 11-19 Low Stress Bicycling and Network Connectivity*[23] (2012). Given that California does not have an adopted methodology for determining pedestrian LTS, an analysis using the *Oregon Department of Transportation (ODOT) Level of Traffic Stress Analysis Procedures Manual*[24] (2024[25]) was performed. The bicycle LTS results are a combination of new analyses performed as part of the SR 166 CCS as well as like-analyses performed for the Santa Barbara County *Active Transportation Plan* (2023) and the City of Santa *Maria Active Transportation Plan* (2020). Pedestrian LTS was not conducted for the Santa Barbara or Santa Maria ATP. Analysis approach and results are described below. Level of Traffic Stress methodology is included in **Appendix A**.

Bicycle Connectivity – LTS Analysis

Bicycle LTS scores quantify the stress level of a roadway segment through a variety of criteria such as street width (number of lanes), speed limit and/or prevailing speed, presence and width of bike lanes, signals, and presence and width of parking lanes. Bicycle LTS is given a score of 1 through 4, with 1 being the most comfortable for riders and 4 being the least comfortable for riders. Typically, a LTS score of 1 indicates that the stress level of a roadway is tolerable for most riders regardless of skill such as children, while an LTS of 4 indicates that the stress level is better suited for more skilled bicyclists, as shown in **Figure 41**.

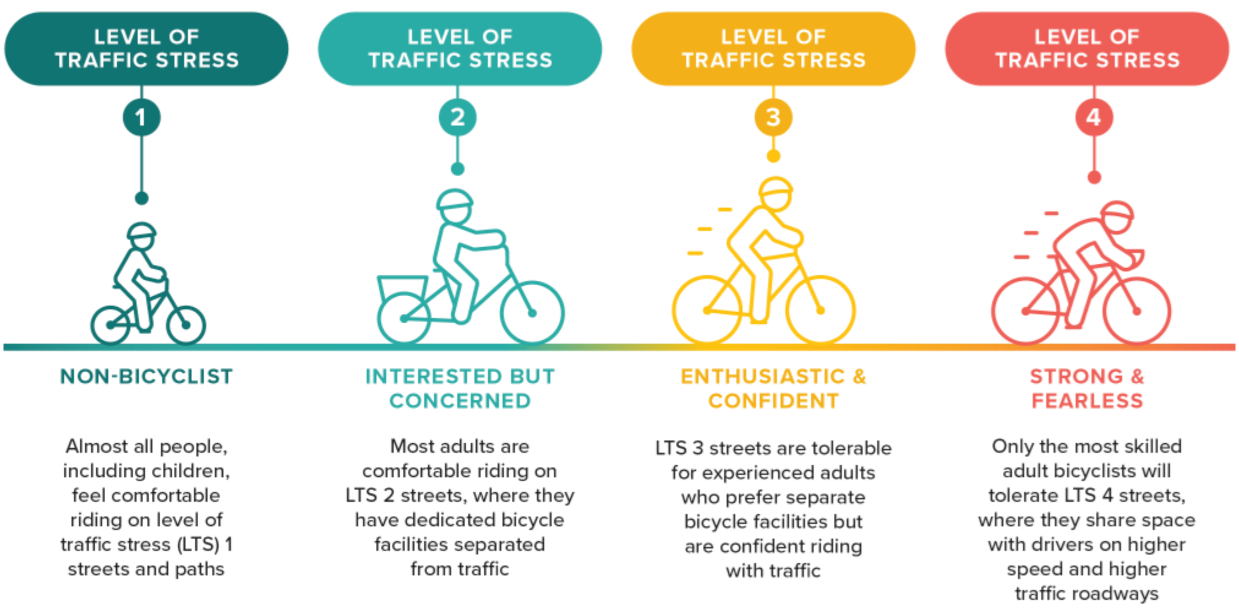

FIGURE 41: BICYCLE LEVEL OF TRAFFIC STRESS SCORES

[23] Mineta Transportation Institute Report 11-19 Low Stress Cycling and Network Connectivity, May 2012.

[24] Oregon Department of Transportation (ODOT) Level of Traffic Stress Analysis Procedures

[25] Updated regularly, recent update was September 2024.

LTS analysis was performed for Obispo Street, Flower Avenue, Ray Road, and Simas Road. LTS analysis for SR 166, Blosser Road and Bonita School Road, were reviewed and repurposed from the recently completed Santa Barbara County *Active Transportation Plan* (2023) and the City of Santa *Maria Active Transportation Plan* (2020). **Table 23** summarizes the roadway characteristics and the bicycle LTS results. Due to roadway characteristics, primarily the absence of designated bicycle infrastructure, high vehicular speeds, and roadway widths, all roadways analyzed received LTS scores of 4 (high stress) with the exception of Hanson Way which received an LTS score of 3.

The LTS results for all study roadways are shown in **Figure 42**. SR 166 received an LTS score of 4 due to its high vehicle speeds, one lane per direction, and does not host any designated or marked bicycle facilities. Level of Traffic Stress Analysis conducted and reviewed is included in **Appendix A**.

TABLE 23: ROADWAY CHARACTERISITCS AND BICYCLE LTS

STREET	LIMITS	POSTED SPEED (MPH)	BIKE LANE	PARKING LANE	# OF TRAVEL LANES	LTS SCORE
SR 166	SR 1 to Blosser Road	55	No	No	1	4
OBISPO STREET	4th Street to SR 166	35	No	Yes – NB No – SB	2	4
FLOWER AVENUE	4th Street to SR 166	35	No	Yes – NB and SB	2	4
SIMAS ROAD	Guadalupe City Limits to Betteravia Road	45	No	No	2	4
BONITA SCHOOL ROAD	Santa Barbara County Limits to SR 166	55	No	No	2	4
RAY ROAD	Betteravia to SR 166	55	No	No	2	4
BLACK ROAD	Betteravia to SR 166	55	No	No	2	4
HANSON WAY	Santa Maria City Limits to SR 166	45	No	No	2	3
BLOSSER ROAD	Donovan Road to Betteravia Road	40	Yes	No	4	4

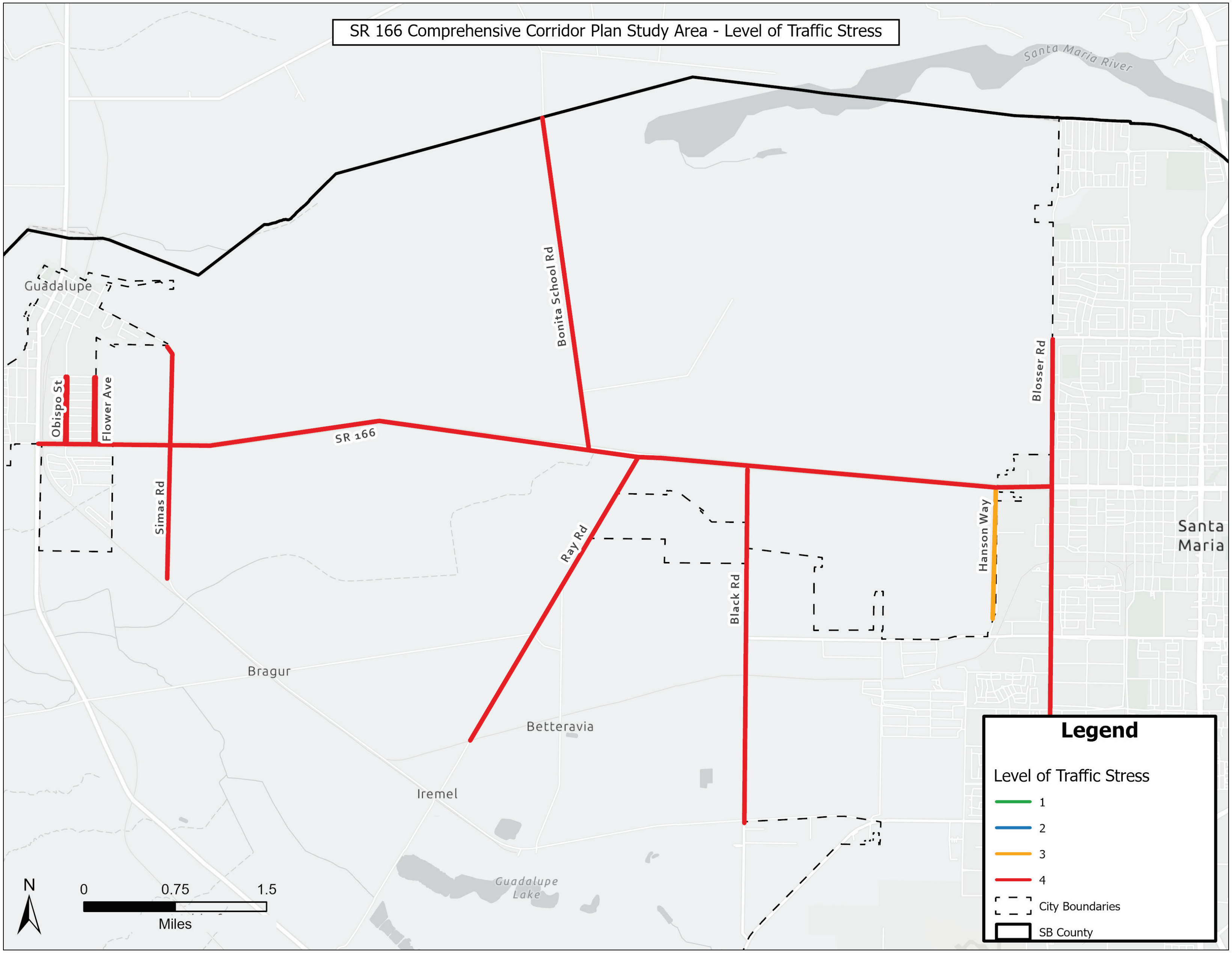

FIGURE 42: BICYCLE LEVEL OF TRAFFIC STRESS

Pedestrian Connectivity

Similar to the Bike LTS methodology, pedestrian LTS also uses several criteria to develop a LTS score of 1 through 4 including the presence of sidewalks, crosswalks, median refuges, traffic volume, and current speed limits. Pedestrian LTS was conducted for Obispo Street and Flower Avenue shown in **Figure 43**.

LTS on SR 166 was not conducted due to the absence of pedestrian facilities and several intersections prohibiting pedestrian traffic on the corridor. Pedestrian LTS was not considered in the Santa Barbara or Santa Maria ATP.

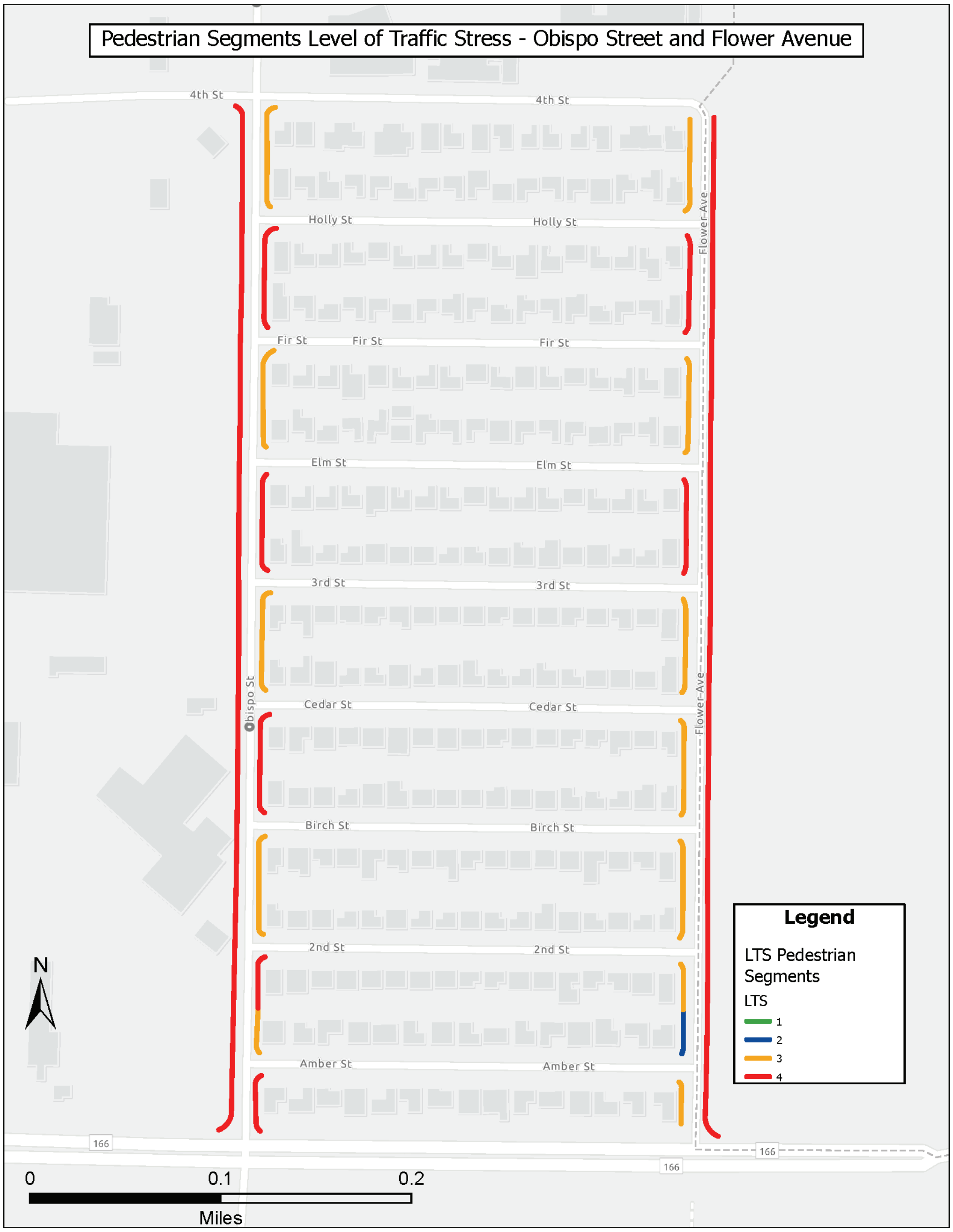

FIGURE 43: PEDESTRIAN LTS ON OBISPO STREET AND FLOWER AVENUE

Level of Traffic Stress Findings

Overall, the study area primarily consists of roadways with bike LTS scores of 4 (high stress). Hanson Way was the only roadway that scored better than LTS 4 with an LTS 3 which is still considered stressful. These scores indicate that the study area is not a welcoming or comfortable environment for bicyclists and pedestrians. High LTS scores (i.e., 3 and 4) indicate that traversing the study area is uncomfortable without a vehicle and only suitable for experienced bicycle riders. Key findings of all LTS analysis are summarized as follows:

- SR 166
  - SR 166 received an LTS 4 score indicating high-stress conditions suitable only for skilled bicyclists attributable to its high vehicle speeds, lack of marked or buffered bicycle facilities, and single travel lane per direction. Pedestrian LTS was not conducted during the Santa Barbara ATP. Pedestrian LTS can be assumed to be LTS 4 based on the corridor speed and absence of sidewalks and crossings.
- Obispo and Flower Avenue
  - Bicycle LTS scores for Obispo Street and Flower Avenue are both LTS 4, indicating high-stress conditions suitable only for skilled bicyclists. This is due to the absence of designated bicycle infrastructure, high vehicle speeds (35 mph), and roadway widths.
  - Pedestrian LTS analysis, using the Oregon Department of Transportation methodology, results in LTS scores of 3 and 4 for Obispo Street and Flower Avenue respectively indicating a high-stress pedestrian experience.
  - Pedestrian LTS analysis was not conducted for SR 166 due to the lack of pedestrian facilities and restrictions on pedestrian access at several intersections.
- Bonita School Road, Simas Road, Ray Road, and Black Road
  - Bicycle LTS for Bonita School, Simas, and Ray Roads received an LTS score of 4 (high-stress) due to high speed and absence of bicycle facilities.

2.13 EQUITY ASSESSMENT

The Caltrans Transportation Equity Index (EQI) is a spatial screening and evaluation tool designed to identify communities disproportionately burdened by California's transportation system while receiving fewer of its benefits. By integrating transportation-specific and socioeconomic indicators, the EQI pinpoints areas where past transportation decisions have created inequitable outcomes[26]. This information guides project selection, program evaluation, and policy decisions to ensure future transportation investments promote equity and address historical harms[27].

The EQI operates through three primary screens, each representing a different dimension of transportation equity:

- **Transportation-Based Priority Populations:** Communities most severely impacted by transportation systems, particularly those experiencing historical inequities
- **Traffic Exposure:** Areas facing elevated levels of traffic volume, collision risk, and related safety hazards
- **Access to Destinations:** Regions with significant gaps in multimodal access to jobs, schools, healthcare, and other essential destinations via transit, walking, and biking compared to automobile access

Additionally, the tool includes demographic overlays for low-income households and Tribal lands across all screens. The three screens provide a multi-dimensional assessment of transportation equity. The Traffic Exposure and Access to Destinations screens highlight different aspects of transportation disadvantage (either high exposure to traffic burdens or significant barriers to reaching key destinations through sustainable transportation modes), while the Transportation-Based Priority Populations screen synthesizes these findings by identifying communities that experience both high traffic burdens and inadequate multimodal access.

Transportation Based Priority Populations

The Transportation-Based Priority Populations Screen identifies areas most impacted by transportation burdens while receiving the fewest benefits from the multimodal transportation network. This screen combines two key factors: it highlights census blocks that experience both high traffic exposure (such as proximity to major roadways, traffic volume, and collision frequency) and poor access to destinations (including limited transit, bicycle, or pedestrian options for reaching jobs and other essential locations). As shown in **Figure 44**, several locations near the study corridor meet the screening criteria for transportation-based priority populations. These qualifying census blocks are primarily located adjacent to major transportation routes, Highway 1 in Guadalupe, SR 166 at Santa Maria's western city limits, and most notably along the US 101 corridor through Santa Maria.

[26] Caltrans. (2024). Caltrans Transportation Equity Index (EQI) v1.0 Documentation [PDF]. https://dot.ca.gov/-/media/dot-media/programs/esta/documents/race-equity/eqi/v1/030124eqidocumentationv10a11y.pdf

[27] California Department of Transportation. (2024). *Caltrans Transportation Equity Index (EQI) Version 1.0 [Web map]*. Esri ArcGISOnline. https://caltrans.maps.arcgis.com/apps/webappviewer/index.html?id=ab02f124b3f54007a59dadf2165d21fc

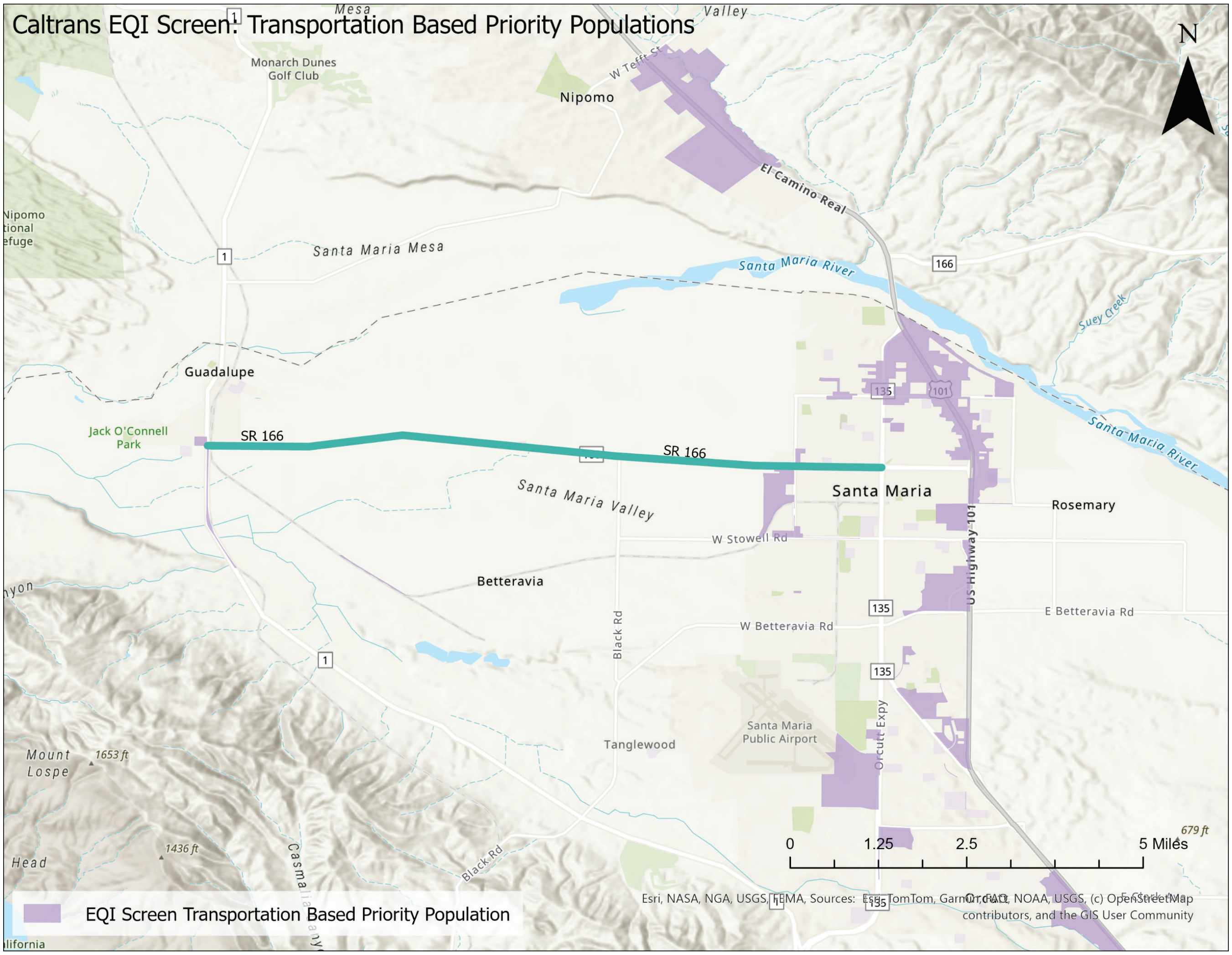

FIGURE 44: CENSUS BLOCKS MEETING THE TRANSPORTATION-BASED PRIORITY POPULATIONS SCREENING CRITERIA NEAR SR 166 (SOURCE: CALTRANS TRANSPORTATION EQI VERSION 1.0)

Traffic Exposure Screen

The Traffic Exposure Screen identifies census blocks most burdened by traffic-related impacts within the transportation system. It highlights areas that experience high traffic volumes, proximity to major roadways, and elevated collision risk. This screen specifically identifies locations where residents face disproportionate impacts from traffic-related issues such as noise, air pollution, and safety hazards.

As shown in **Figure 45**, census blocks near the study corridor meeting the exposure criteria are primarily located alongside US 101 within Santa Maria, and on SR 1 in Guadalupe reflecting concentrated traffic burdens in these corridor areas.

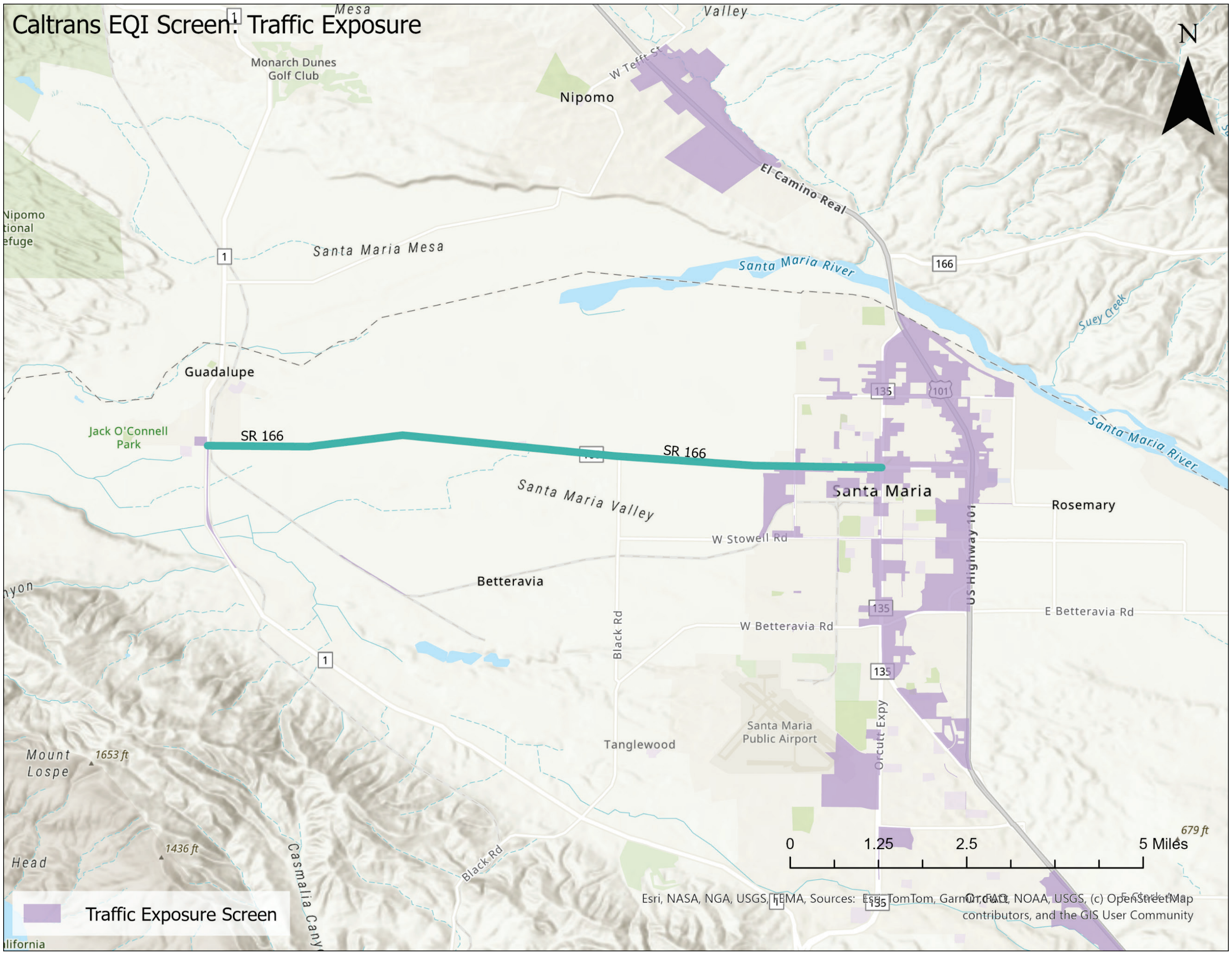

FIGURE 45: CENSUS BLOCKS MEETING THE TRAFFIC EXPOSURE SCREENING CRITERIA NEAR SR 166 (SOURCE: CALTRANS TRANSPORTATION EQI VERSION 1.0)

Access to Destinations Screen

The Access to Destinations Screen identifies areas with the greatest gaps in multimodal access to essential destinations. It highlights census blocks where residents face significant barriers to reaching employment, services, and amenities using transit, bicycle, or pedestrian modes. This screen pinpoints locations where limited transportation options reduce mobility and increase automobile dependence, creating barriers that make accessing essential services more difficult and expensive[28].

As shown in **Figure 46**, the census blocks meeting the destination access screening criteria cluster predominantly along and west of SR 166, extending through Guadalupe into both the rural valley and selected Santa Maria neighborhoods but are generally not located along SR 166 through Santa Maria.

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[28] Caltrans. (2024). *Caltrans Transportation Equity Index (EQI) v1.0 Documentation* [PDF]. https://dot.ca.gov/-/media/dot-media/programs/esta/documents/race-equity/eqi/v1/030124eqidocumentationv10a11y.pdf

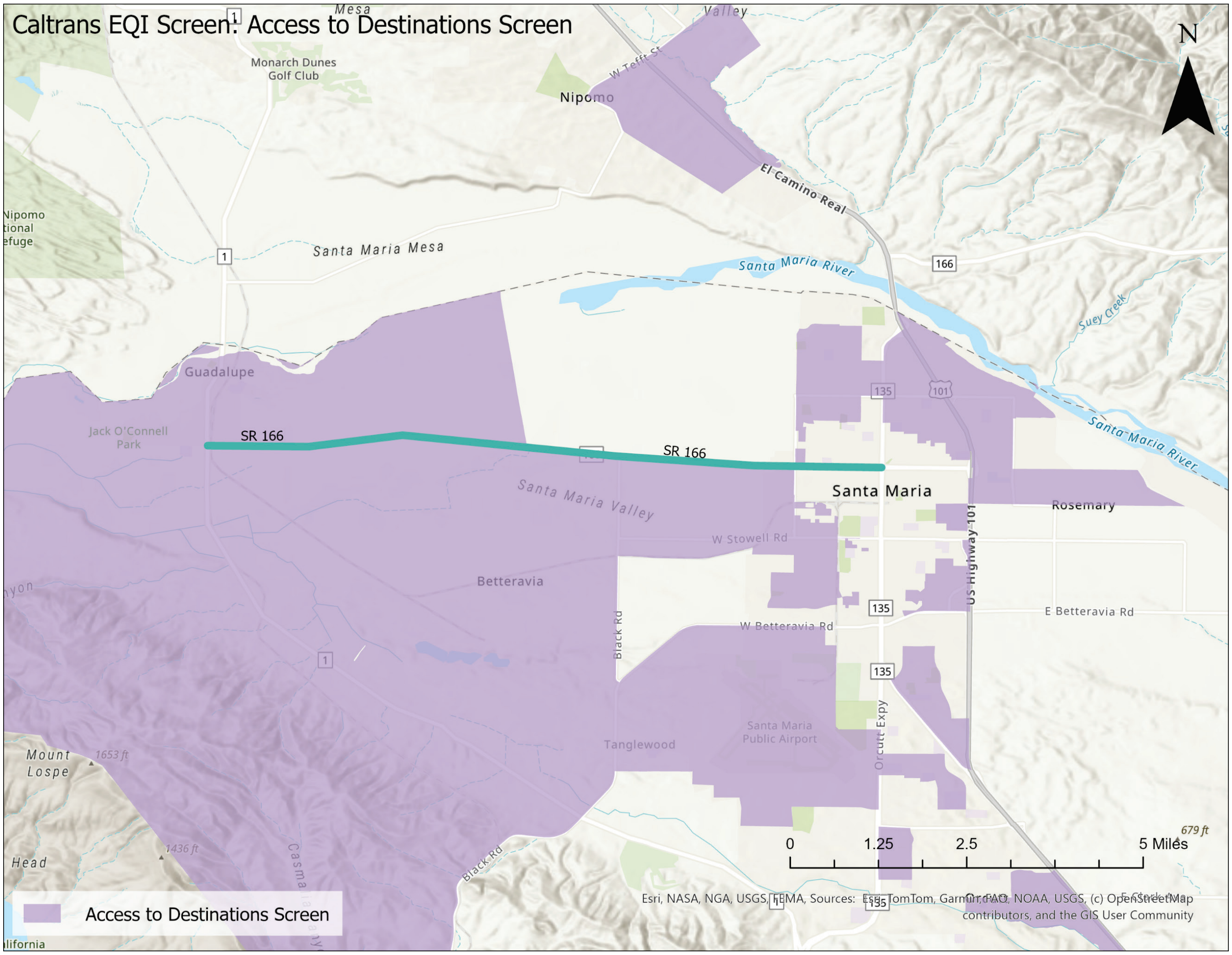

FIGURE 46: CENSUS BLOCKS MEETING THE ACCESS TO DESTINATIONS SCREENING CRITERIA NEAR SR 166 (SOURCE: CALTRANS TRANSPORTATION EQI VERSION 1.0)

Demographic Overlay Screen

The EQI Demographic Overlay Screen highlights census blocks where residents are considered low-income or are situated on Tribal lands. This screen specifically marks locations with populations that may face greater vulnerability or have historically encountered significant transportation-related barriers.

As shown in **Figure 47**, all census blocks adjacent to SR 166 meet the demographic overlay screening criteria with the exception of the block on the northern side of the study corridor between Bonita School Road and North Blossom Road. Most of Santa Maria census blocks and Guadalupe meet the screening criteria.

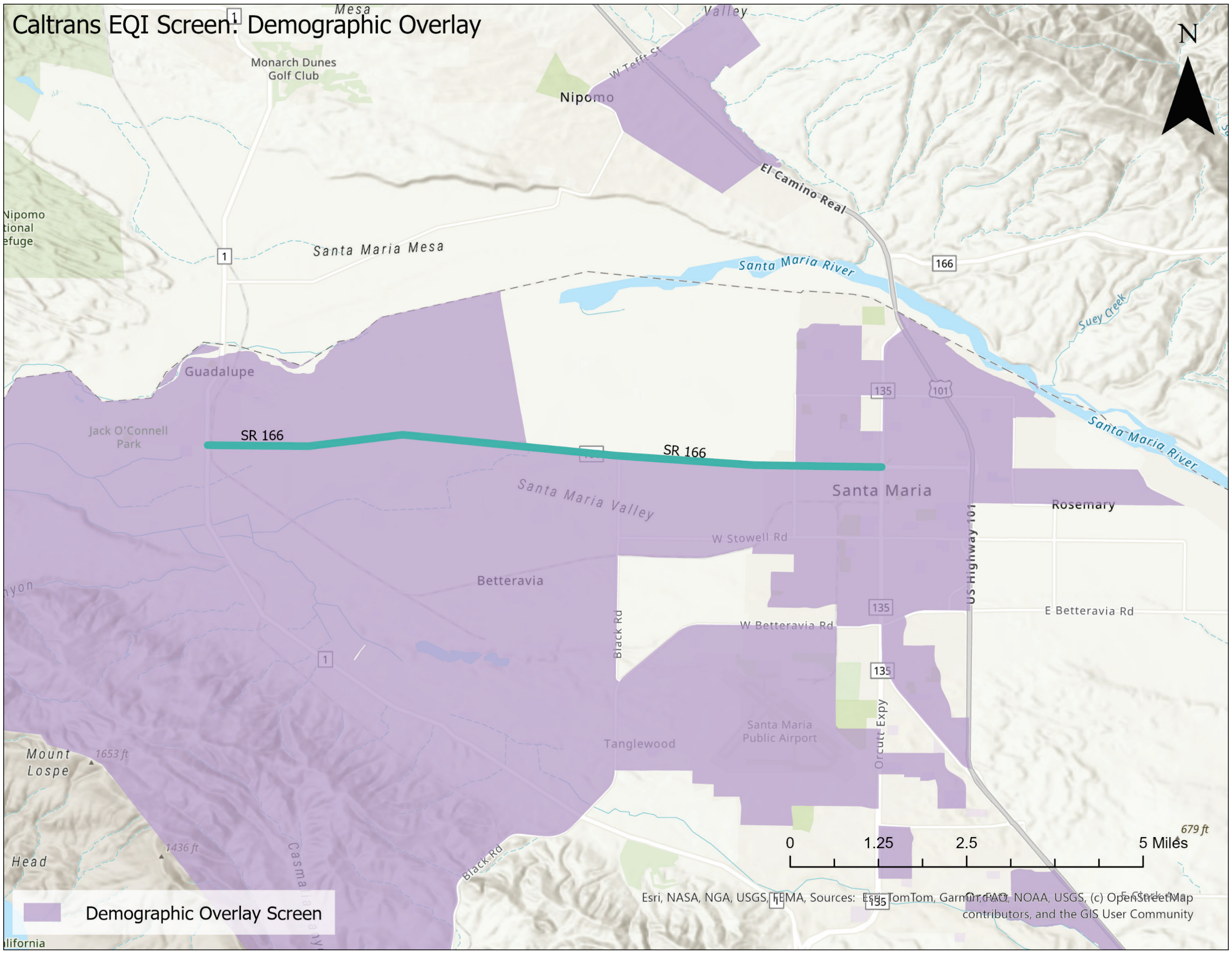

FIGURE 47: CENSUS BLOCKS MEETING THE DEMOGRAPHIC OVERLAY SCREENING CRITERIA NEAR SR 166 (SOURCE: CALTRANS TRANSPORTATION EQI VERSION 1.0)

Findings

Transportation-Based Priority Population Screen: Several locations near the SR 166 study corridor meet the screening criteria for transportation-based priority populations. The qualifying census blocks are primarily located adjacent to SR 1 in Guadalupe and SR 166 in Santa Maria.

Traffic Exposure Screen: Areas facing elevated levels of traffic volume, collision risk, and related safety hazards include census blocks near the SR 166 study corridor. Areas meeting the exposure criteria are primarily located alongside US 101 within Santa Maria, and on SR 1 in Guadalupe reflecting concentrated traffic burdens in these corridor areas.

Access to Destinations Screen: Census blocks meeting the destination access screening criteria cluster predominantly along and west of SR 166, extending through Guadalupe into both the rural valley and selected Santa Maria neighborhoods.

Demographic Overlay Screen: All census blocks adjacent to SR 166 meet the low-income demographic overlay screening criteria with the exception of the block on the northern side of the study corridor between Bonita School Road and North Blossom Road. Most of Santa Maria census blocks and Guadalupe meet the screening criteria.

2.14 NETWORK VULNERABILITY

A qualitative assessment of climate preparedness and infrastructure resilience was conducted using available online mapping tools, including the Caltrans Vulnerability Interactive Mapping Tool (District 5). The assessment focused on potential threats such as wildfire exposure, precipitation, and temperature, while excluding storm surge and sea level rise as non-applicable risks for the study area.

Climate Change Vulnerability Assessment

A climate change vulnerability analysis was performed for each primary improvement category. This assessment follows the guidance provided in the 2018 Caltrans Climate Change Vulnerability Assessment Summary Report. The report outlines three key components to determining climate change risk to the State's transportation infrastructure - both existing and anticipated[29]. These action items include:

- Exposure – Will the asset be exposed to climate change?
- Consequence – How will the asset deteriorate and how quickly will such impact occur?
- Prioritizations – Presuming the asset is impacted, how frequent, at what cost and what risk needs to be considered prior to making the investment for improving or replacing the asset?

Acknowledging the ongoing and increasing risks posed by climate change, the Caltrans report identifies four primary climate change factors to assess using these action items. These factors are:

- Wildfire Exposure
- Precipitation
- Temperature
- Storm Surge and Sea Level Rise

Storm Surge and Sea Level Rise are not identified as primary climate change risk factors in the SR 166 study corridor. For Wildfire Exposure, Precipitation, and Temperature, a screening assessment was conducted to evaluate the potential risks, benefits, and impacts to the corridor. Vulnerability maps generated using the Caltrans District 5 Climate Change Vulnerability web-based mapping tool informed these assessments.

Exposure Assessment

Climate change vulnerability exposure and the compounded effects of climate-induced hazards on wildfire evacuation planning in the study corridor was assessed based on 2055 horizon year under the high-emissions RCP 8.5 scenario. These exposures are evaluated together, as temperatures and precipitation compound wildfire evacuation by increasing both the speed and intensity of wildfires while degrading evacuation infrastructure.

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[29] This vulnerability assessment focusses on exposure to hazards. Infrastructure asset assessments, consequences and prioritization should be considered as part of holistic climate resilience decision-making.

Wildfire Exposure

Figure 48 illustrates projected wildfire exposure in 2055 based on the RCP 8.5 scenario, which models a high greenhouse gas emissions trajectory. As shown, roads are color-coded to indicate the level of wildfire exposure ranging from moderate exposure, high exposure, and very high exposure.

SR 166 is not identified as being at significant wildfire risk. SR 1 north and south of Guadalupe is identified as having "high" and "very high" wildfire exposure risk. North of Santa Maria, US 101 is identified as having "moderate" wildfire exposure risk.

Although SR 166 itself is not identified as being a significant wildfire risk, the vulnerability of alternative routes to wildfire exposure has important implications for SR 166. SR 166 could serve as a critical evacuation route for areas affected by wildfires on nearby roads. If alternative roads become impassable due to wildfire events, SR 166 may experience a surge in traffic volume as vehicles are rerouted.

Precipitation

Figure 49 overlays projected wildfire exposure with anticipated percentage changes in 100-year precipitation depth for 2055. Shaded regions indicate areas likely to experience significant increases in extreme rainfall events.

The map illustrates that the study corridor as well as the surrounding area has a relatively low (<5%) percent change in 100-Year precipitation depth by 2055. The SR 166 corridor itself is predominantly in areas with low to moderate precipitation change, suggesting limited direct flooding impact.

Temperature

Figure 50 illustrates the anticipated increase in the average 7-day maximum temperature. The background color represents the projected average maximum temperature over a 7-day period in 2055. These range from a substantial rise in maximum temperatures (10.0° - 13.9°F increase) with lighter shading indicating areas with slightly lower increases, but still significant. (6.0° - 9.9°F increase). The SR 166 corridor and surrounding areas are projected to experience a **7-day maximum temperature increase of 6.0°F to 7.9°F**, indicating significantly hotter conditions during heat waves.

The combination of **high wildfire exposure** and rising temperatures increases the likelihood and severity of wildfire events along nearby corridors. The map underscores the dual challenges of rising wildfire exposure and temperature increases.

Findings and Implications for Emergency Evacuation

Emergency evacuation is influenced by various environmental hazards, such as wildfire risk, extreme weather, and changing precipitation patterns. These challenges underscore the importance of developing alternative connections and enhancing multimodal transportation networks to facilitate safe and efficient evacuations for at-risk communities.

The impact of wildfires on transportation infrastructure is an important consideration in evacuation planning. Wildfires can block roads, making it crucial to have multiple evacuation routes and diverse transportation options available. Additionally, changing precipitation patterns complicate the situation; heavy rainfall can weaken infrastructure and does not necessarily lessen wildfire risks during dry spells, highlighting the need for resilient transportation systems.

Guadalupe has three primary evacuation routes: SR 1 north, SR 1 south, and SR 166 east. Depending on the source location and directionality of the event, one or more of these routes may not be available. Santa Maria has more options, including 101 north, 101 south, SR 135 south, SR 166 east, and SR 166 west, but the total number of evacuation routes remains limited relative to other areas. The accessibility of these routes may be compromised depending on the source and directionality of the evacuation event.

According to the Caltrans Climate Change Vulnerability Assessment Tool, much of the region is increasingly vulnerable to wildfires and extreme heat, which can speed up wildfire spread and shorten warning times. As a result, improving multimodal connectivity and ensuring redundancy in evacuation routes is essential for effective evacuations, especially given the potential for reduced response times and health risks such as heat-related illnesses during delays.

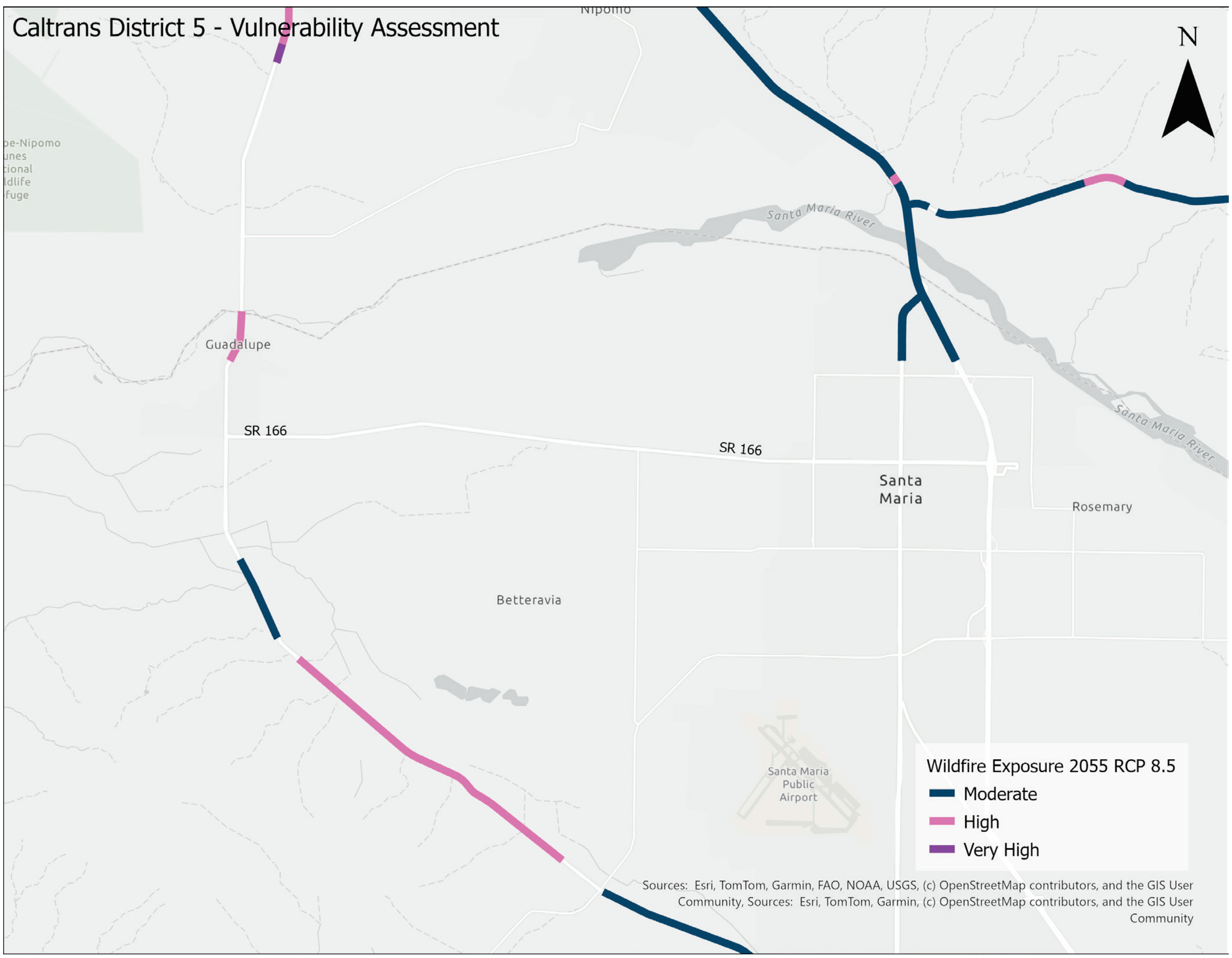

FIGURE 48: WILDFIRE EXPOSURE IN 2055 (RCP 8.5) SCENARIO

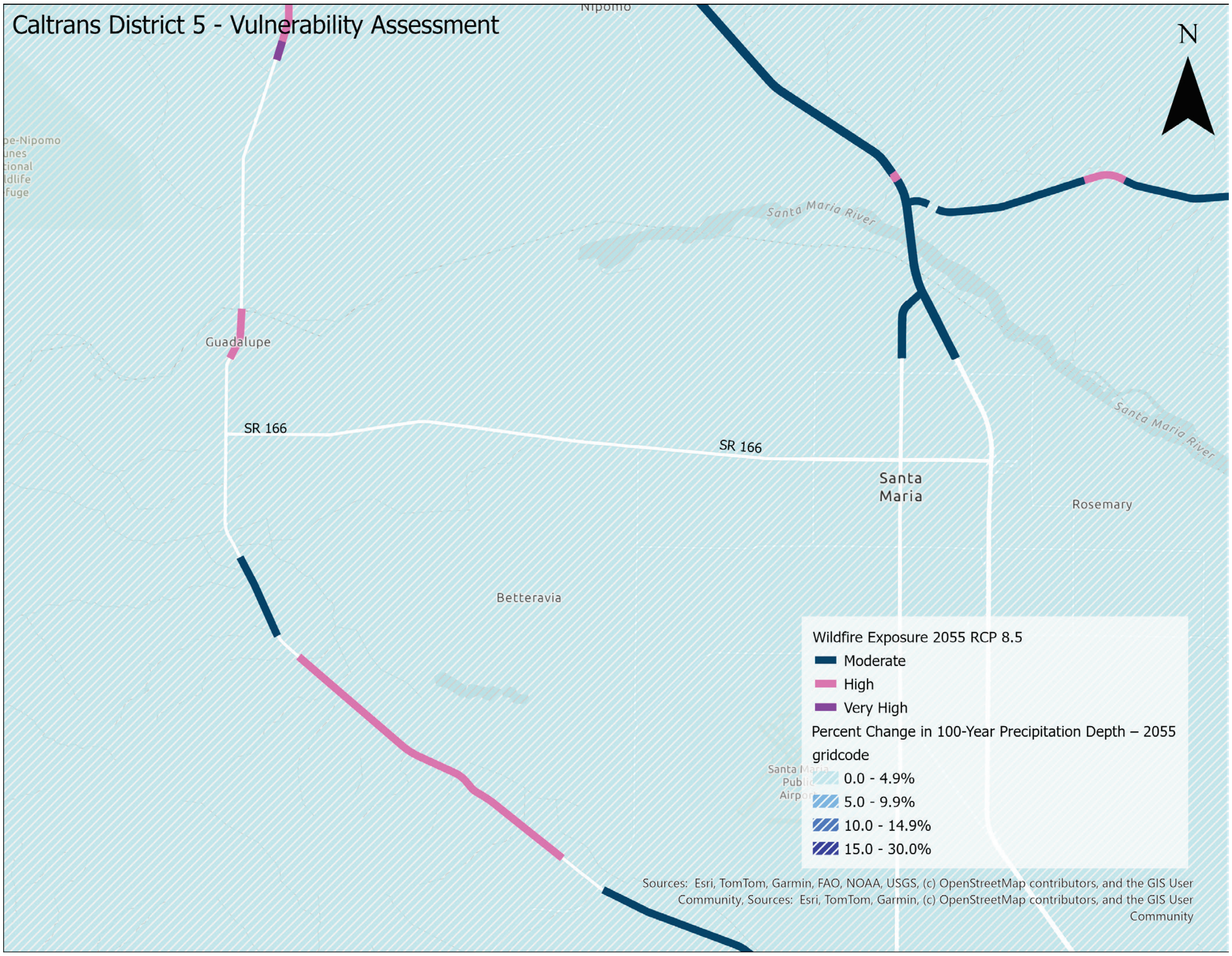

FIGURE 49: WILDFIRE EXPOSURE AND 100-YEAR PRECIPITATION DEPTH CHANGE IN 2055 (RCP 8.5) SCENARIO

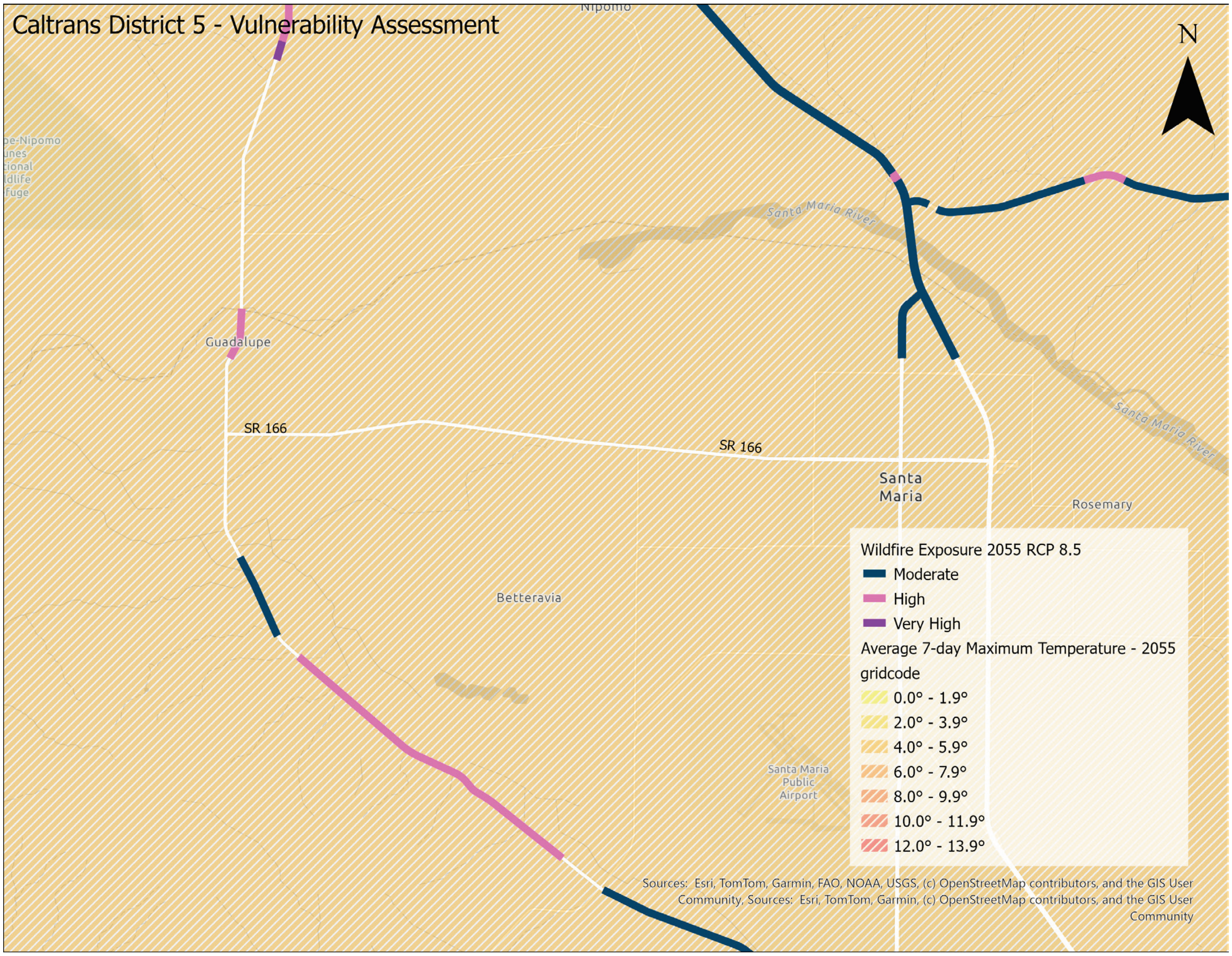

FIGURE 50: WILDFIRE EXPOSURE AND 7-DAY MAXIMUM TEMPERATURE INCREASE IN 2055 (RCP 8.5) SCENARIO

2.15 EXISTING CONDITION ANALYSIS SUMMARY AND KEY FINDINGS

The SR 166 corridor serves as a vital link for regional travel and agricultural trade, bridging rural and urban communities. Travel patterns along the corridor are largely influenced by the agricultural economy, which generates significant freight and commuter activity. This dual purpose poses unique challenges in balancing passenger and freight traffic demands. Notably, whereas daily traffic on SR 166 has increased by 20 percent since 2000 (from approximately 13,840 vehicles to 16,680 vehicles on average – varies by location), heavy-duty truck traffic (i.e., 5+ axle trucks) has increased by over 60% (from approximately 400 vehicles to 640 vehicles on average- varies by location). This larger presence of heavy-duty trucks is primarily due to agricultural operations. As confirmed by 2023 origin-destination data, SR 166 remains the primary freight route for accessing US 101 for goods movement to the north and south of Santa Barbara County.

The corridor traverses disadvantaged communities that face substantial environmental and socioeconomic challenges. Multimodal transportation options along SR 166 are limited, contributing to high-stress conditions for bicyclists and pedestrians, particularly on Obispo Street and Flower Avenue. Safety analyses reveal that, while overall collision rates on the corridor are below state averages for like facilities, certain segments experience elevated crash volumes, including the intersection at Blosser Road and the section from Black Road to Blosser Road. Key factors contributing to these collisions include unsafe speeds, automobile right-of-way violations, and driving under the influence.

A summary of the existing condition findings is provided below.

Socioeconomic and Travel Characteristics

2023 data from Replica, a big data analytics platform, was used to analyze weekday travel patterns and user demographics along SR 166 between Guadalupe and Santa Maria. The findings provide a comprehensive overview of who uses the corridor and why. Below is a summary of key insights:

- SR 166 connects communities with varying socioeconomic characteristics, primarily serving a middle-income, working age population. A significant proportion of users are Hispanic/Latino, and the age distribution skews toward 18-49. Many travelers are from low-income and minority groups.
- Private vehicles dominate travel on SR 166 (89.7%), with commercial freight making up 8.8%. The primary trip purposes include home-related activities (32.9%), work commutes (20.7%), and shopping or commercial errands.
- Most trips range from 8 to 16 miles, with an average trip distance of 11.5 miles. Trips predominantly originate from single-family homes (36.5%) and retail locations (25.8%).
- The 8.8% share of commercial vehicle trips underscores the corridor’s importance as a freight route, supporting regional agricultural and commercial operations.

Goods Movement Characteristics

SR 166 connects US 101 to I-5, enabling the movement of agricultural goods between the Central Coast and Central Valley. It supports processing facilities, packing sheds, and logistics hubs, meeting the high-volume, seasonal demands of the agricultural industry. Both the California Central Coast Sustainable Freight Study (2024) and US 101 Central Coast Freight Strategy (2016) highlight SR 166’s importance as a critical freight route, while noting challenges with congestion and reliability.

The analysis focuses on quantifying truck traffic volume and identifying origin-destination patterns to understand how freight moves within the region. Key findings into the existing conditions on truck traffic and goods movement on SR 166are as follows:

- Since 2000, overall daily traffic on SR 166 has grown by 20%, with a 60% increase in heavy-duty trucks. Truck volumes now range from approximately 1,110 vehicles near Guadalupe to 1,700 at Depot Street in Santa Maria.
- Origin-destination data (2023) using StreetLight Data confirms SR 166 as a primary freight route, accommodating 45% of daily inbound and 34% of daily outbound regional heavy-duty truck traffic in the region.
- Alternative truck routes including Betteravia Road and SR 1 have seen increased truck activity. Betteravia now carries approximately 15% of daily inbound and outbound regional heavy-duty truck traffic in the region. SR 1 now carries approximately 20% of daily inbound and outbound regional heavy-duty truck traffic in the region. The extension of Willow Road and its new interchange with US 101, completed in 2012, has significantly altered traffic patterns, providing a more direct connection for trucks via SR 1 and diverting some traffic off of SR 166. Approximately 10% of trucks now use Willow Road to access US 101.
- Despite a significant proportion of truck traffic on SR 166 being 5+ axle commercial vehicles, the corridor is not designated as a STAA (Surface Transportation Assistance Act) truck route.

Truck traffic on SR 166 has grown significantly since 2000, with 5+ axle trucks increasing by 60%. Current daily truck volumes range from 990 vehicles near Guadalupe to 1,700 at Depot Street in Santa Maria. According to 2023 Streetlight origin-destination data, SR 166 remains a major freight route, handling 33% of regional inbound and 45% outbound freight through Guadalupe and nearby areas.

Infrastructure improvements have shifted truck traffic patterns. The 2012 Willow Road extension and US 101 interchange in Nipomo created a direct link between SR 1 and US 101, reducing reliance on SR 166. Streetlight data shows growing use of Betteravia Road and SR 1 as alternative routes, particularly for trucks heading to US 101 southbound. Betteravia Road has seen truck traffic increase by 14% inbound and 18% outbound.

Although SR 1 and SR 166 are not STAA terminal access routes, they continue to carry substantial heavy-duty truck traffic. Caltrans 2023 data show 5+ axle vehicles account for a growing share of traffic on SR 166, underscoring its ongoing role in regional goods movement. Although Caltrans, the California Highway Patrol, the County, and the cities of Guadalupe and Santa Maria all support creating a more contiguous trucking network that support agricultural businesses and other industrial centers, efforts to address freight concerns have typically been isolated and not holistic across the region.

Intersection Traffic Operations Analysis

To measure "nodal" capacity constraints, Level of Service (LOS), a qualitative measure defined in the Highway Capacity Manual (HCM) 7th Edition, was applied to describe existing traffic conditions at study intersections. Intersection operating conditions worse than LOS D indicate an intersection that is operating at capacity (i.e., LOS E) or over capacity (LOS F). Congestion in the form of vehicular delay and/or vehicle queuing will typically occur in these conditions. The analysis applies an acceptable operational threshold of LOS D for both signalized and unsignalized intersections[30]. Traffic counts collected in September 2024 and signal timing information from Caltrans were key inputs to the analysis. Sim-Traffic, a traffic micro-simulation software, was applied to model intersection operations, queuing, and delay.

Key traffic operations findings are as follows:

- All three signalized intersections (Bonita School Road, Blosser Road, and Depot Street) operate acceptably during both AM and PM peak hours.
- Four out of the seven stop-controlled intersections along SR 166 exceed the operational threshold:
    - Obispo Street - delay for the side-street movement exceeds the acceptable delay threshold during the PM peak hour with LOS F.
    - Simas Road - delay for the side-street movements exceed the acceptable delay threshold during the AM peak hour (operates at LOS E (approaching capacity)).
    - Ray Road operates acceptably during the AM peak hour but delay for the side-street movement operates at LOS F conditions during the PM peak hour.
    - Black Road - delay for the side-street movement exceeds the acceptable delay threshold during both AM and PM peak hours with LOS F[31]

Roadway Travel Time Reliability and Congestion

An examination of SR 166 travel times, travel time reliability, and congestion was performed. Twelve months (2023) of NPMRDS speed data was used to evaluate traffic conditions during average weekday peak periods. Based on this data, travel time reliability and congestion are measured using the following metrics:

- **Congestion:** Occurs when the demand for road space exceeds capacity, resulting in slower speeds, increased travel times, and reduced traffic flow. This is defined when peak period travel speeds are less than 60 percent of free flow speed.
- **Travel Time Reliability:** This refers to the consistency and predictability of travel times along a corridor. Unreliable travel times mean that trips can take significantly longer than expected due to factors like traffic congestion, incidents, or weather. The key metrics that relate to travel time reliability of a given roadway are:
    - Buffer Time: A measure of reliability indicating the extra time a traveler should add to their expected travel time to ensure on-time arrival for 95% of the time.
    - Buffer Time Index (BTI): Normalizes buffer time by expressing it as a percentage of the average travel time. A higher BTI (i.e., greater than 1.5) indicates greater unreliability.

Autos:

- Early AM Peak: SR 166 experiences a mix of congested and uncongested conditions, with congestion concentrated in the westbound direction within Santa Maria city limits. Eastbound travel is reliable, while westbound travel is unreliable for the entire length of the corridor.

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[30] Source: City of Santa Maria's General Plan.

[31] This intersection is being converted to signalized intersection in late 2024.

- AM Peak Hour: SR 166 is generally reliable and uncongested except for eastbound traffic within Santa Maria that exhibits moderate reliability. This suggests that the early AM peak, influenced by agricultural activity, presents greater challenges for auto travel (see Early AM Peak).
- PM Peak Hour: The corridor is primarily reliable and uncongested during this period except within Santa Maria where both eastbound and westbound traffic is moderately reliable and congested.

Trucks:

- Early AM Peak: Westbound truck traffic is moderately reliable within Santa Maria but unreliable for the remainder of the corridor. These characteristics are reversed for eastbound truck traffic.
- AM Peak Hour: Truck traffic is unreliable but uncongested in both directions of travel throughout the study corridor except within Santa Maria where conditions are reliable.
- PM Peak Hour: Truck traffic is uncongested but unreliable in both directions throughout the corridor. Within Santa Maria truck traffic is reliably congested (i.e., recurring congestion).

Combined Traffic (Autos and Trucks):

- Early AM Peak: SR 166 experiences a mix of congested and uncongested conditions, with congestion concentrated in the westbound direction within Santa Maria city limits. Eastbound travel is reliable, while westbound travel is unreliable for the entire length of the corridor.
- AM Peak Hour: SR 166 is generally reliable and uncongested except for eastbound traffic within Santa Maria that exhibits moderate reliability. This suggests that the early AM peak, influenced by agricultural activity, presents greater challenges for auto travel (see Early AM Peak).
- PM Peak Hour: SR 166 is traffic is uncongested but unreliable in the eastbound direction. Within Santa Maria traffic is reliably congested (i.e., recurring congestion).

Findings from the travel time reliability and congestion analysis reveal varying levels of performance across different peak periods and traffic types. Eastbound traffic tends to be more reliable than westbound traffic, particularly during the early AM and AM periods. Congestion is primarily observed within Santa Maria, particularly during the PM peak hour.

Safety

The safety section of the report focuses on analyzing collision data to identify patterns and collision prone locations along SR 166. The analysis uses five years (2019-2023) of collision data from Statewide Integrated Traffic Records System (SWITRS), accessed through the Transportation Injury Mapping System (TIMS).

Key findings include:

- A total of 454 injury collisions occurred within the study area during the five-year period, with 7 fatalities and 30 severe injuries. These serious collisions are concentrated at urban intersections within Santa Maria, such as Blosser Road, Depot Street, and Black Road.
- Rear-end collisions (39%) and broadside collisions (42%) are the most common types on the SR 166 the study corridor. The collision types indicate congested conditions and unsafe driving speeds. Broadside collisions relate to right-of-way violations and/or improper turning.
- Unsafe speed is the primary contributing factor for 26% of all collisions. Other significant factors include automobile right-of-way violations (19%) and improper turning (14%)

- Collision density is higher in urbanized areas within Santa Maria, consistent with increased traffic and pedestrian activity. Rural segments of SR 166 have fewer collisions, consistent with lower traffic volumes but have a higher severity due to higher vehicular speeds.
- There were 56 pedestrian and bicycle-related injury collisions on SR 166 during the five-year data collection period. Of these, two resulted in fatalities. Most pedestrian and bicycle-related collisions are concentrated along the eastern portion of SR 166, near Blosser Road and Depot Street in Santa Maria.
- All intersections and segments along SR 166 have collision rates below the statewide average for similar facilities.
- As part of this study, a Road Safety Audit (RSA) was conducted on September 16, 2024, to identify safety deficiencies and generate recommendations for improvements. The RSA participants noted several challenges related to truck traffic, passing lanes, and lack of pedestrian and cyclist infrastructure.

Although overall collision rates along SR 166 are below statewide averages, the intersections at Blosser Road, Depot Street, and Black Road have the highest relative collision rates along the corridor. Reported crash data indicates that unsafe speed as a leading contributing factor to collisions, while impaired driving and improper turning are disproportionately linked to fatal and severe injury collisions. Pedestrian and bicycle-related collisions are concentrated in Santa Maria.

The Road Safety Audit provides valuable recommendations for mitigating these safety concerns:

- Obispo Street: Incorporate Caltrans GAPS-CAPM improvements, address increased pedestrian volumes, and slow traffic near Guadalupe with speed limit reductions and signage. Add bike lanes, improve bus stop lighting, adjust stop bar placement for better visibility, and enhance pedestrian crossings.
- Simas Road: Add lighting and signage for visibility, reduce turn radii to slow movements, install larger stop signs, and construct a westbound right-turn pocket to prevent shoulder use. Lower westbound speed limits toward Guadalupe.
- Bonita School Road: Improve school zone visibility with better signage and striping, reduce speed limits near the school, and address circulation and signal timing for buses and parents. Provide lighting, pedestrian safety measures, defined overflow parking, a safe U-turn area, and implement a Safe Routes to School plan.
- Ray Road: Realign the intersection to remove skew, improve sight distance, and add a northbound left-turn merge lane. Maintain drainage infrastructure, add lighting, and evaluate signal warrants for PM peak queuing.
- Blosser Road: Add sidewalks connecting to the Saint Marie Mobile Home Park, stripe a right-turn pocket, update ADA corner treatments, install additional lighting, and enhance bike lane visibility with green paint. Reduce speed limits approaching Santa Maria.

Study Intersection Summary

Operational and the Road Safety Audit analysis findings related to the 11 study intersections are summarized in **Table 24**. While signalized intersections generally operate acceptably, several stop-controlled intersections along SR 166 experience delays exceeding local policy thresholds, particularly during peak hours.

TABLE 24: PRIMARY COLLISION FACTOR (PCF) VIOLATION CATEGORIES FOR ALL COLLISIONS

NO.	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR OPERATIONS	COLLISION ANALYSIS	RSA FINDINGS
1	SR 166 & SR 1	AWSC	Meets standards during both AM and PM peak hours.	No recorded collisions during 2019-2023.	None noted.
2	SR 166 & OBISPO STREET	TWSC	AM: Meets standard PM: Exceeds standards (LOS F).	6 collisions (2019-2023), crash rate 0.30 CMV (below state avg 0.36 CMV).	- Incorporate Caltrans' GAPS project. - Design for increased pedestrian volumes. - Add Class II/Buffered Class II bike lane. - Improve lighting/pedestrian crossings. - Slow traffic approaching Guadalupe.
3	SR 166 & FLOWER AVENUE	TWSC	Meets standard during both AM and PM peak hours.	No recorded collisions during 2019-2023.	None noted.
4	SR 166 & SIMAS ROAD	AWSC	AM: Exceeds standards (LOS E). PM: Meets standards	9 collisions (2019-2023), crash rate 0.40 CMV (below state avg 0.59 CMV).	- Install lighting/signage. - Modify northbound Simas Road approach. - Enhance stop sign visibility. - Add westbound right-turn pocket. - Reduce westbound speed limit.
5	SR 166 & BONITA SCHOOL ROAD	Signalized	Meets standards during both AM and PM peak hours.	1 collision (2019-2023), crash rate 0.05 CMV (below state avg 0.62 CMV).	- Enhance school zone signage. - Reduce speed limit for school zone. - Improve signal timing for school traffic. - Address pedestrian safety concerns. - Improve visibility for southbound approach.
6	SR 166 & RAY ROAD	TWSC	AM: Meets standards PM: Exceeds standards (LOS F).	4 collisions (2019-2023), crash rate 0.17 CMV (below state avg 0.36 CMV).	- Realign intersection for better sight distance. - Add northbound left-turn merge lane. - Address drainage issues. - Install lighting. - Evaluate signal warrant due to PM queuing.
7	SR 166 & BLACK ROAD	TWSC (Signal installed 10/2024)	(As TWSC) AM: Exceeds standards (LOS F). PM: Exceeds standards (LOS F).	5 collisions (2019-2023), crash rate 0.20 CMV (below state avg 0.36 CMV).	No specific RSA recommendations due to ongoing signal improvements.

NO.	INTERSECTION	TRAFFIC CONTROL	PEAK HOUR OPERATIONS	COLLISION ANALYSIS	RSA FINDINGS
8	SR 166 & SOUTH/NORTH BLOSSER RD	Signalized	Meets standards during both AM and PM peak hours.	22 collisions (2019-2023), crash rate 0.40 CMV (below state avg 0.55 CMV).	- Improve pedestrian infrastructure. - Stripe eastbound right-turn pocket. - Update corner treatments for Americans with Disabilities Act (ADA). - Enhance intersection lighting. - Improve bike lane visibility. - Reduce speed limit near Santa Maria city limits.
9	SR 166 & DEPOT STREET	Signalized	Meets standards during both AM and PM peak hours.	12 collisions (2019-2023), crash rate 0.27 CMV (below state avg 0.55 CMV).	None noted.
10	BLACK ROAD & BETTERAVIA RD	AWSC	Meets standards during both AM and PM peak hours.	None specified.	None specified.

Multimodal Access

The analysis covers transit, bicycle, and pedestrian access. A summary of key findings for each mode is provided below.

Transit Access

- Guadalupe Flyer is operated by SMRT (Santa Maria Regional Transit[32]), the Guadalupe Flyer provides a vital fixed-route connection between Guadalupe and Santa Maria.
- In Fiscal Year 2019 (pre-COVID), Guadalupe Transit served over 75,000 passengers and achieved a farebox recovery ratio of 14% (i.e., proportion of operating costs paid for by transit fares).
- The study identifies areas with transit-supportive density within a half-mile and quarter-mile of a transit stop, as well as areas with this density but located more than half a mile or quarter mile from a stop. Transit-supportive density is defined as a minimum of three dwelling units per acre, per the Transit Capacity and Quality of Service Manual.
- Guadalupe has a transit-supportive population of 6,010 people. Of this population, 880 (15%) live within a quarter mile of a Guadalupe Flyer serviceable transit stop, leaving 85% outside this range. When considering a half-mile radius, 3,570 persons (59%) live within proximity to a transit stop.
- Santa Maria has a larger transit-supportive population of 96,870 people. However, only 2,970 individuals (3%) are within a quarter mile of a transit stop that serves the Guadalupe Flyer service line, with the majority (97%) residing outside this range. At a half-mile radius, 16,210 individuals (17%) are within the proximity of a Guadalupe Flyer serviceable transit stop.

California Vanpool Authority (CalVans) Service

- CalVans serves as a significant transportation provider, particularly for the agricultural community.
- CalVans currently operates approximately 180 14-passenger vans in northern Santa Barbara County during peak agricultural season, with an estimated 50 vans serving the SR-166 corridor.
- A primary program challenge is a critical shortage of vehicles, which limits service expansion.

Level of Traffic Stress (LTS) Bicycle and Pedestrian Analysis

The analysis uses the LTS framework to assess the comfort and safety of bicycle and pedestrian facilities. LTS scores range from 1 (lowest stress) to 4 (highest stress), indicating the suitability of facilities for users of varying ages and abilities. Results of the bicycle connectivity LTS analysis are summarized as follows:

- The Santa Barbara County Active Transportation Plan (2023) assigned the following scores:
  - LTS 4 scores to SR 166, Simas Road, Bonita School Road, Ray Road, and Black Road indicating a high-stress and uncomfortable environment for cyclists.
  - LTS 3 score to Hanson Way, suggesting that the roadway is medium stress and suitable for more skilled cyclists.
- The Santa Maria Active Transportation Plan (2020) assigns high-stress LTS 4 score to Blosser Road.
- The parallel corridors of Obispo Street and Flower Avenue also received high-stress LTS 4 score due to speed, roadway width, and lack of bicycle facilities.

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[32] Prior to SMART operating the Guadalupe Flyer service (2025), the Guadalupe Flyer was operated by SMOOTH (Santa Maria Organization of Transportation Helpers).

Results from analyses performed as part of the SR 166 CCS for pedestrian connectivity include:

- The pedestrian LTS analysis for Obispo Street and Flower Avenue indicates LTS 4 high-stress score for both streets.
- The pedestrian LTS analysis was not conducted for SR 166 due to the lack of pedestrian facilities and restrictions on pedestrian access at certain intersections.

The analysis indicates limited multimodal access, particularly for pedestrians and cyclists. The absence of dedicated bicycle infrastructure and the high-stress environment for both cyclists and pedestrians. Existing transit services provide essential connections between Guadalupe and Santa Maria, but further enhancements could improve accessibility and encourage mode shift.

Equity Analysis

Application of the Caltrans Transportation Equity Index Mapping Tool for the SR 166 corridor reveals the following:

- Several areas located adjacent to SR 1 in Guadalupe and SR 166 at Santa Maria's western city limits are considered under-resourced in terms of transportation infrastructure; experience elevated levels of traffic volume, collision risk, and related safety hazards; and lack access to destinations. These areas are predominately comprised of lower-income communities.

Network Vulnerability

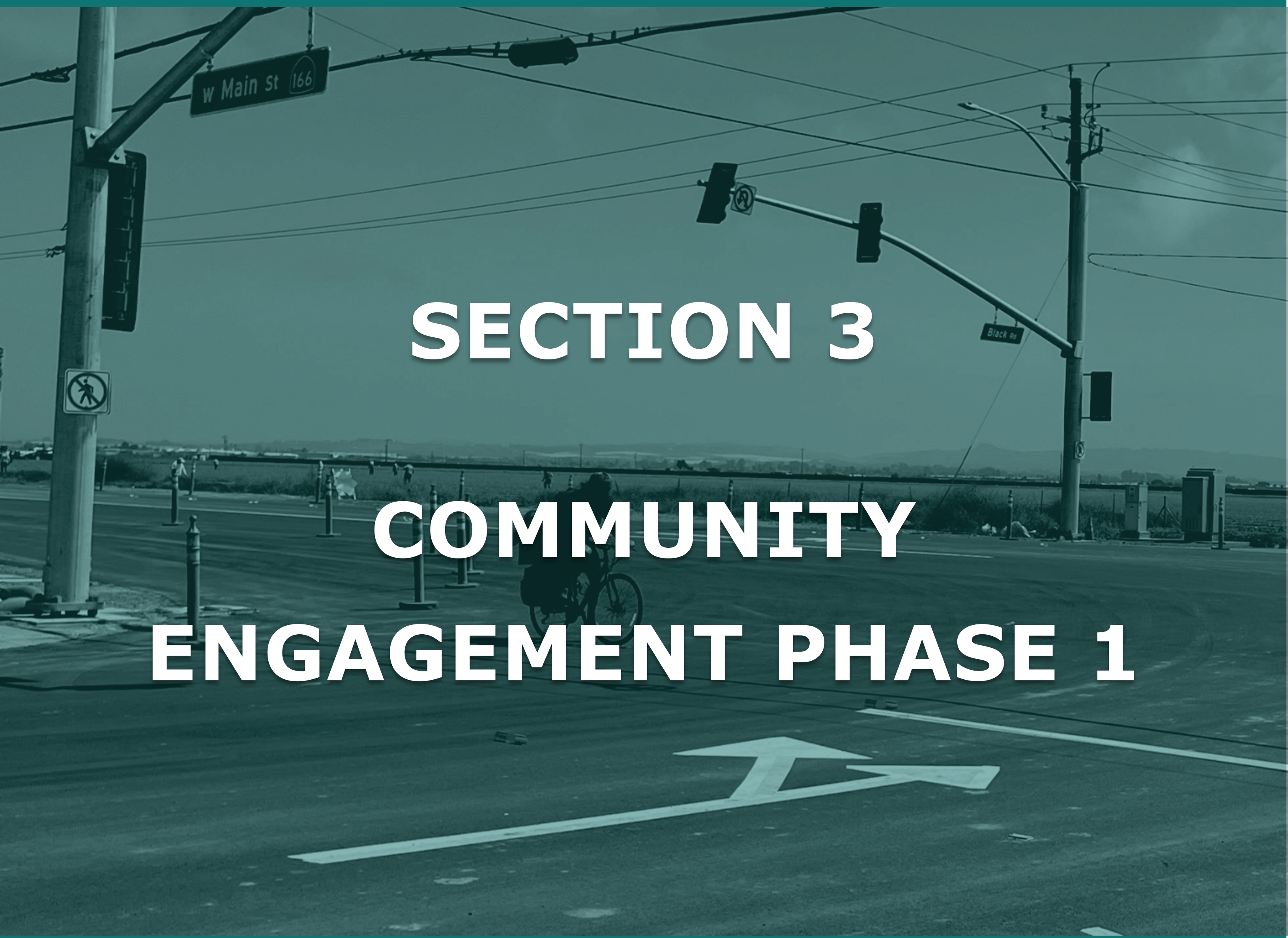
The network vulnerability section focuses specifically on the potential impacts of climate change on the SR 166 corridor. It is a qualitative assessment using the Caltrans Vulnerability Interactive Mapping Tool (District 5) to evaluate the risks posed by climate-related hazards. The assessment examines the vulnerability of SR 166 to wildfires, extreme temperatures, and changes in precipitation patterns. The analysis uses the Representative Concentration Pathway (RCP) 8.5 scenario, a high-emissions trajectory, to model future climate conditions. Key findings are summarized as follows:

- The analysis indicates that SR 166 itself is not at significant risk of direct impact from wildfires. However, nearby roadways, such as SR 1 north and south of Guadalupe, are identified as having "high" to "very high" wildfire exposure risk. Portions of US 101 north of Santa Maria also face "moderate" wildfire exposure risk.
- The projected changes in 100-year precipitation depth for the study area, including SR 166, are relatively low (less than 5% increase).
- The analysis projects a substantial increase in average 7-day maximum temperatures (6.0°F to 7.9°F) in the study area by 2055.
- While SR 166 might not be directly affected, the wildfire vulnerability of alternative routes makes it a potentially crucial evacuation corridor. If other roads become impassable due to wildfires, SR 166 could experience a surge in traffic from evacuees placing increased demands on its capacity.

The combination of increased wildfire exposure in nearby areas and rising temperatures raises concerns about the likelihood and severity of wildfire events. The climate change vulnerability assessment highlights the potential for wildfire events and extreme temperatures to impact the SR 166 corridor, even though the corridor itself may not be directly exposed.

SECTION 3

COMMUNITY ENGAGEMENT PHASE 1



3 COMMUNITY ENGAGEMENT

To help inform the development and recommendations of the SR 166 CCS a comprehensive multi-phased community engagement and stakeholder involvement effort was conducted. A variety of tools and strategies were used to gather input.

There were two project phases of community engagement. The goals of the Phase 1 engagement efforts were to gather community feedback regarding the issues and needs of the study corridor and suggest potential improvements. The second phase of community outreach focused on providing the public with a variety of improvement options that would address the needs they identified in the first phase. These recommended improvements were then refined based on comments received.

3.1 STAKEHOLDER GROUP

In coordination with SBCAG, representatives from the participating agencies formed the Project Development Team (PDT) with representatives from the following agencies:

- Caltrans
- City of Santa Maria
- City of Guadalupe
- County of Santa Barbara

The PDT met with the consultant team bi-weekly for the duration of the study. This group was tasked with providing data/information, technical oversight and direction, review of consultant deliverables and analysis, providing input on the needs and priorities of their respective jurisdictions, and ultimately participating in the consensus building process to recommend the multimodal improvement packages for consideration by the SBCAG Board.

3.2 SR 166 CCS ADVISORY COMMITTEE

The *SR 166 Comprehensive Corridor Plan Stakeholder Advisory Committee* met three times over the course of the study to provide guidance and technical review. The committee included representatives from Caltrans District 5, the Santa Barbara County Association of Governments (SBCAG), the County of Santa Barbara, the Cities of Santa Maria and Guadalupe, the California Highway Patrol, and consultant staff. Committee input helped shape the study approach, review technical analyses, and guide the development of corridor improvement concepts and recommendations. Representatives from the following stakeholders comprised the SR 166 CCS Advisory Committee:

- Grower Shipper Association
- California Highway Patrol
- Santa Maria Valley Railroad
- Guadalupe Business Association
- County Sheriff’s Department
- MOVE Santa Barbara County
- Bonipak Produce.

3.3 PHASE 1 OUTREACH

Phase 1 engagement efforts occurred from August to December 2024. The project team participated in and joined existing community events to engage with community members where they are already gathered.

Five community pop-up events were performed during the Phase 1 engagement period. Attending community events where residents, business owners, and local organizations are already gathered is an effective strategy for gathering input. The five pop-up events are listed below:

- Guadalupe Fiestas Patrias, September 15, 2024;
- Santa Maria Main Streets, October 6, 2024;
- Santa Maria Parade of Lights, December 6, 2024;
- Guadalupe Business Association's Mixer, December 6, 2024; and,
- Santa Maria Flea Market, December 7, 2024.

In addition to the pop-up events, the project team utilized various methods to engage the community. This included web-based tools and social media posts. The strategies are described below.

Project Website

A project specific website, SR 166 Study, was created and integrated into the SBCAG website in August 2024. The project website provided project information, a community survey, an interactive comment map, and frequently asked questions (**Figure 51**). As shown in **Figure 52**, the project website received 332 visits throughout Phase 1 with the largest number of visits occurring October 2024.

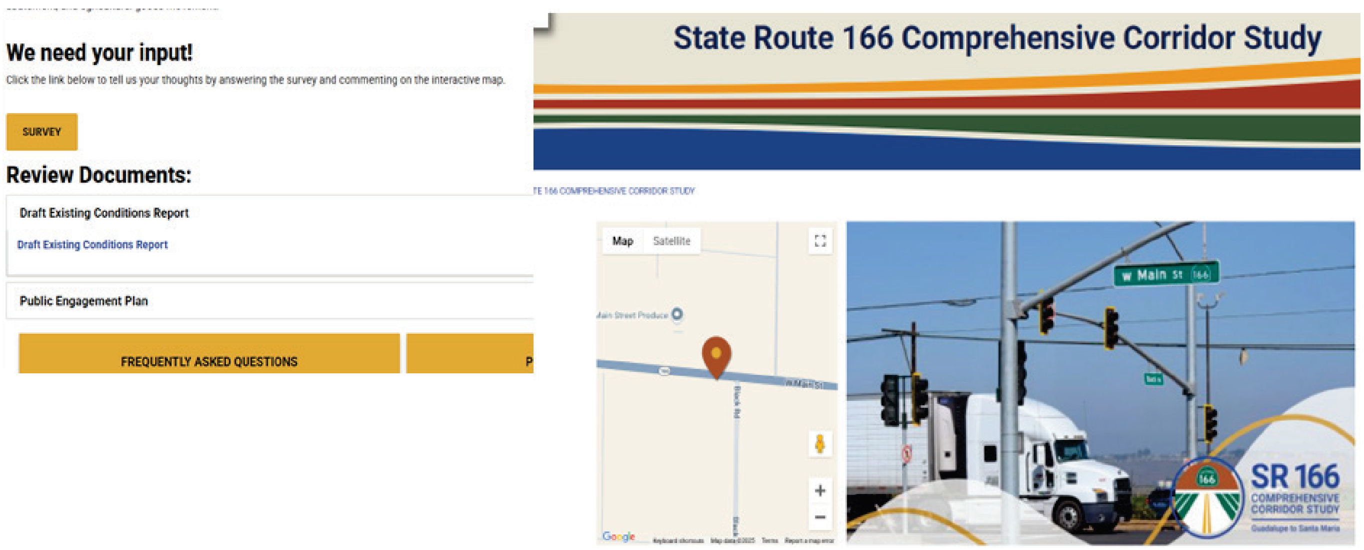


FIGURE 51: SR 166 COMPREHENSIVE CORRIDOR STUDY PROJECT WEBSITE

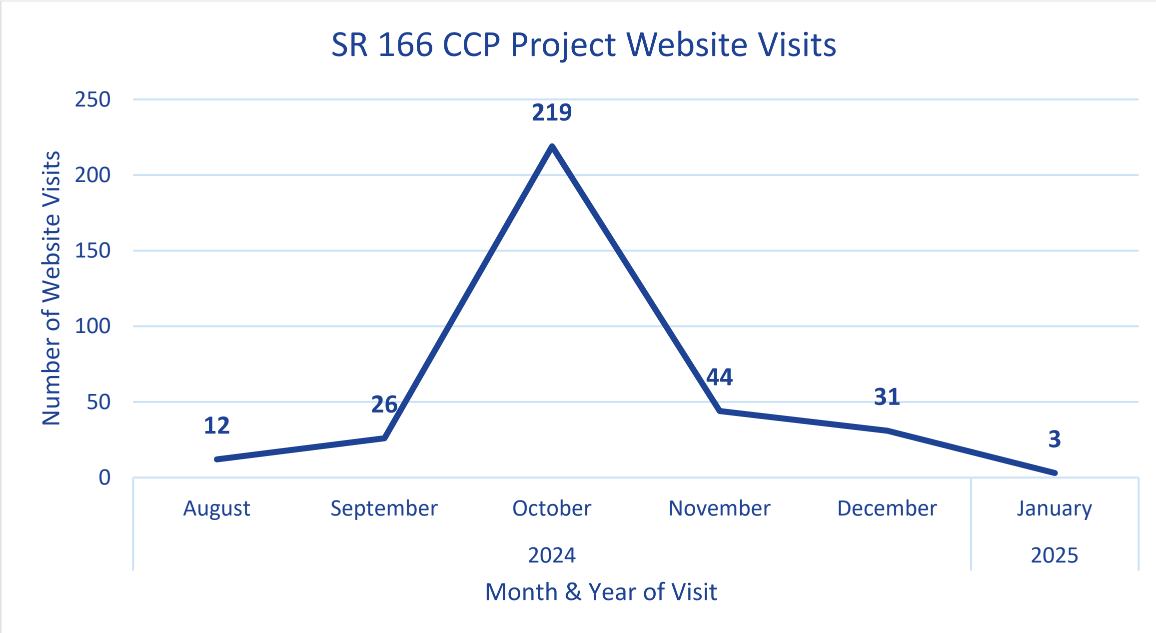


FIGURE 52: SR 166 CCP PROJECT WEBSITE VISITS BY MONTH

Interactive Comment Map

Included on the project website is an interactive comment mapping tool that allows users to place a geolocated pin on a map within the project extents and provide comments. During the Phase 1 engagement respondents were given the option to provide geolocated input regarding the following concerns:

- Bicyclists;
- Cars and Light Trucks;
- Large Trucks;
- Pedestrians;
- Safety; and,
- Transit.

The interactive comment map received 36 comments from August to December 2024. As shown in **Figure 53**, safety-related comments were 75% of all comments received and 13% of map comments were related to bicycle concerns.

Comments received through the interactive web-based mapping tool are provided in **Appendix B**.

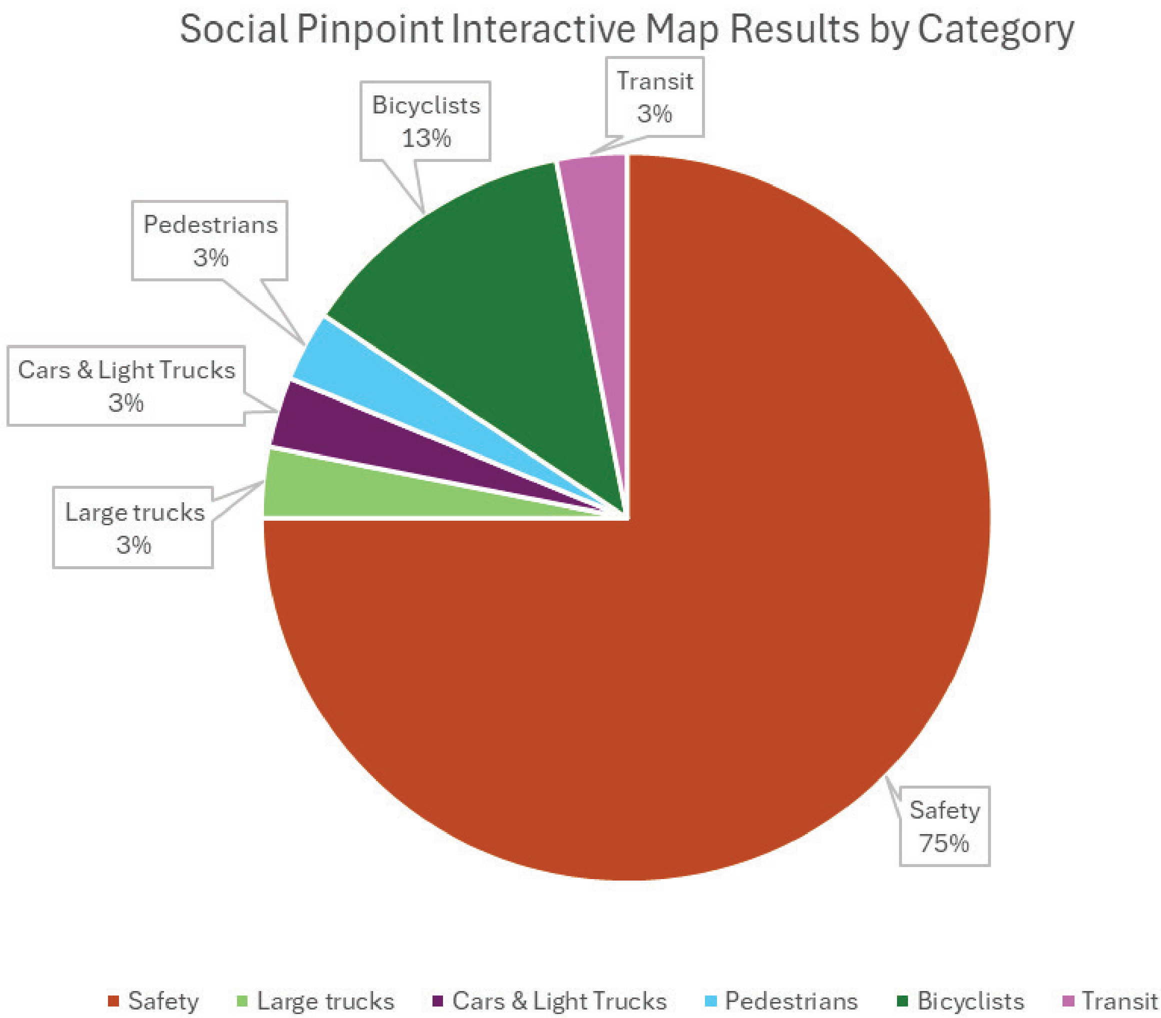


FIGURE 53: MAP COMMENT BY TYPE

Based on comments received, a SR 166 cartogram of all comment types was developed to illustrate where along SR 166 had the most public concern (**Figure 54**). The intersections of SR 1, Simas Road, Ray Road, and Black Road accounted for 39% of all safety comments. Cars and light trucks were a concern from Black Road to Depot Street. This can be attributed to peak hour congestion associated with agricultural workers, commuters, and trucks. The spike in bicycle related concerns at Hansen Way and Blosser Road is to be expected due to existing bicycle infrastructure and urban setting, however there is a desire for bike lanes to be implemented on SR 166 at SR 1 and Bonita School Road.

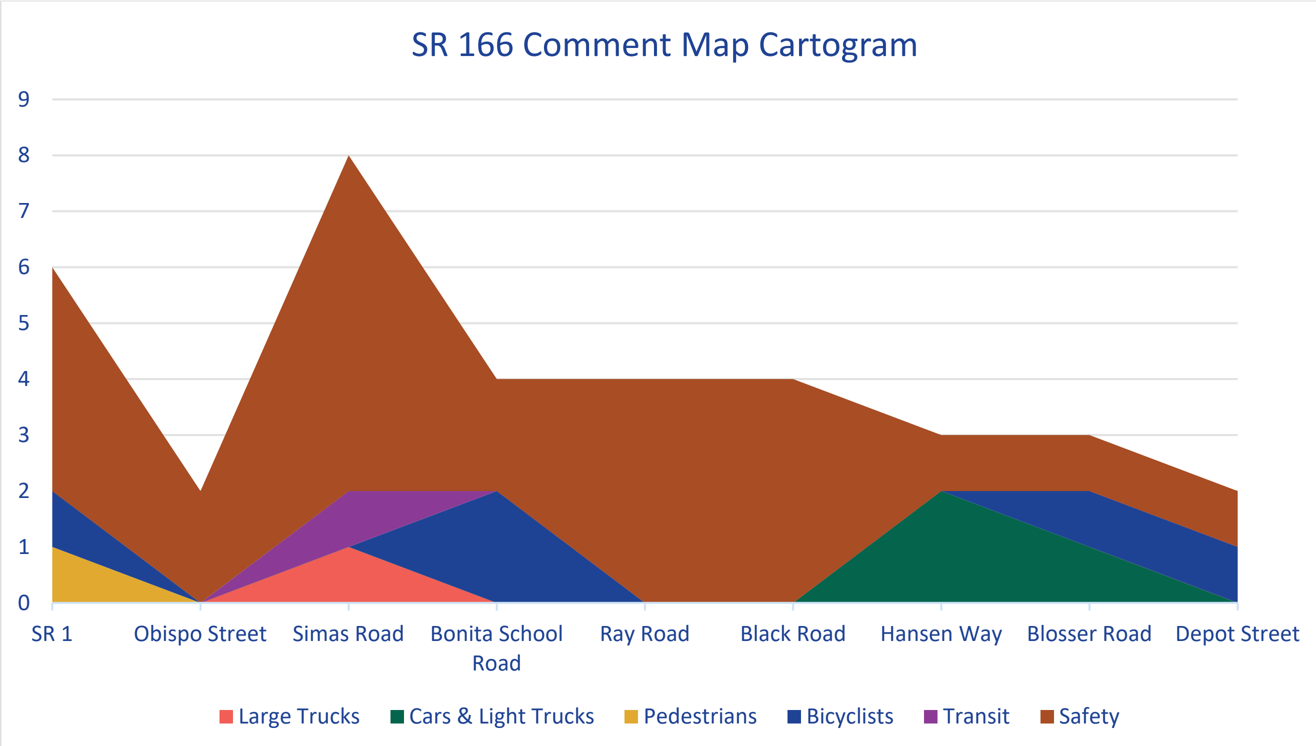


FIGURE 54: MAP COMMENT CARTOGRAM

Community Survey

In addition to the interactive comment map, a community survey was distributed on the project website and at community pop-up events. A total of 351 hard copy surveys were completed. The number of completed hardcopy surveys at each pop-up event are as follows:

- Guadalupe Fiestas Patrias: 96 surveys completed;
- Santa Maria Main Streets: 71 surveys completed;
- Santa Maria Parade of Lights: 119 surveys completed;
- Guadalupe Business Association's Mixer[33]; and,
- Santa Maria Flea Market: 65 surveys completed.

As shown in **Figure 55**, an additional 147 community surveys were completed online for a total of 498 total surveys completed. Of the in-person surveys, 87% were completed in Spanish. Of the online surveys, at least 17% were completed in Spanish based on user comments. This percentage is likely much higher as the only way to discern if an on-line survey was completed in Spanish was if comments were provided. As shown in **Figure 56**, in-person surveys were 70% of all surveys completed.

Scans of the hardcopy surveys are provided in **Appendix B**.

[33] Community Surveys were not circulated at the Guadalupe Business Association Mixer.

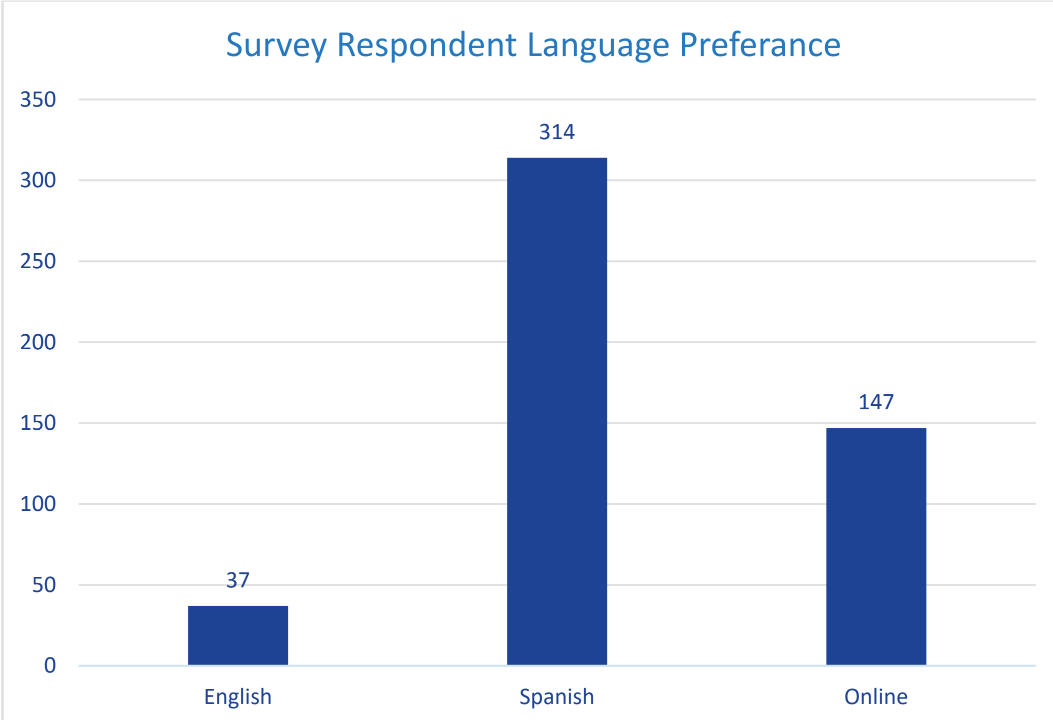


FIGURE 55: RESPONDENT LANGUAGE

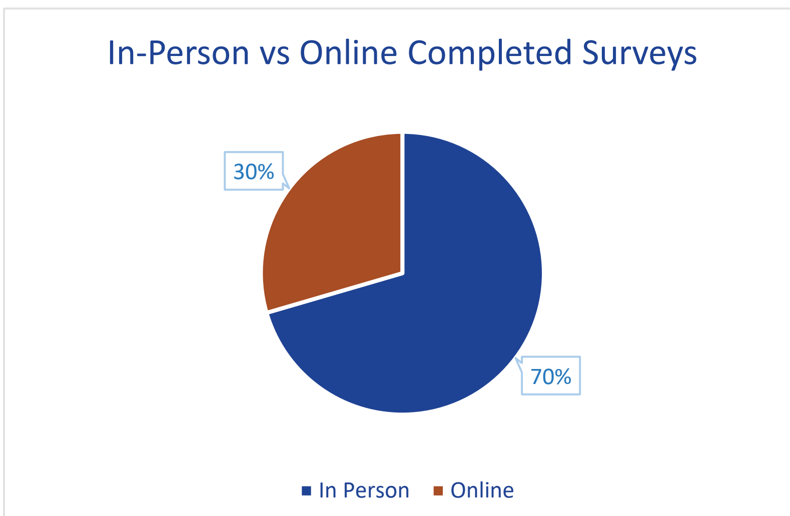
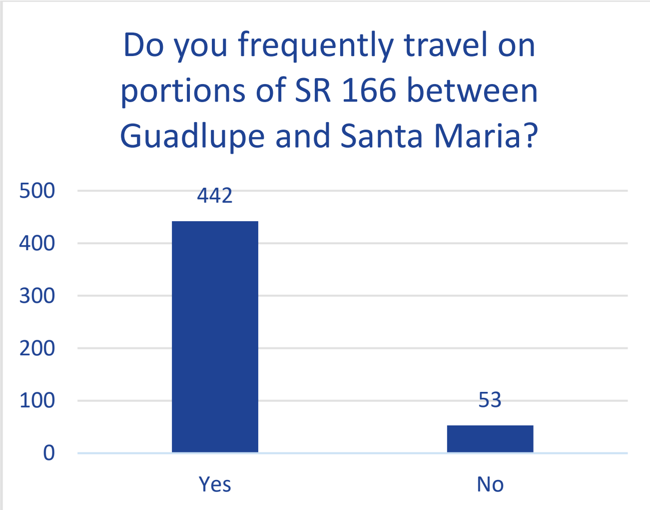


FIGURE 56: IN PERSON VS. ONLINE SURVEYS

As illustrated in **Figure 57**, 89% of respondents frequently travel on SR 166 between Guadalupe and Santa Maria. This indicates the importance of SR 166 for meeting the mobility needs of both cities. Not surprisingly, 92% of survey respondents use a passenger vehicle to travel on SR 166, 3% use transit, and the remaining 5% either bike or walk.

Figure 58 and **Figure 59**, show that 64% of respondents avoid biking or walking on SR 166 primarily due to safety concerns and the lack of pedestrian and bicycle infrastructure (i.e., sidewalks and bike lanes). High vehicle speeds and traffic including agriculture-related vehicle traffic are also deterrents to biking or walking.



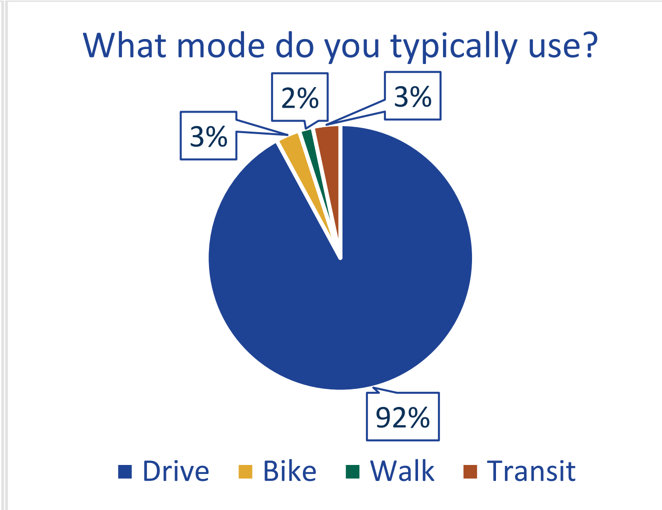


FIGURE 57: TRAVEL TREND AND PRIMARY MODE

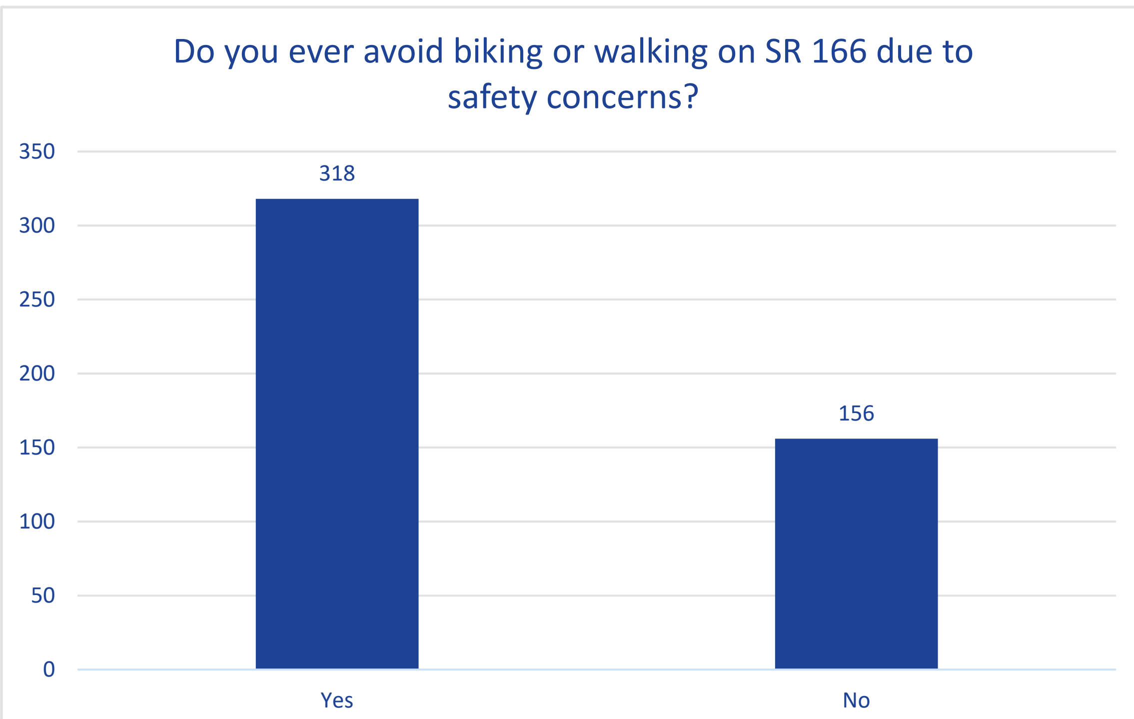


FIGURE 58: BIKING AND WALKING LIKELINESS ON SR 166

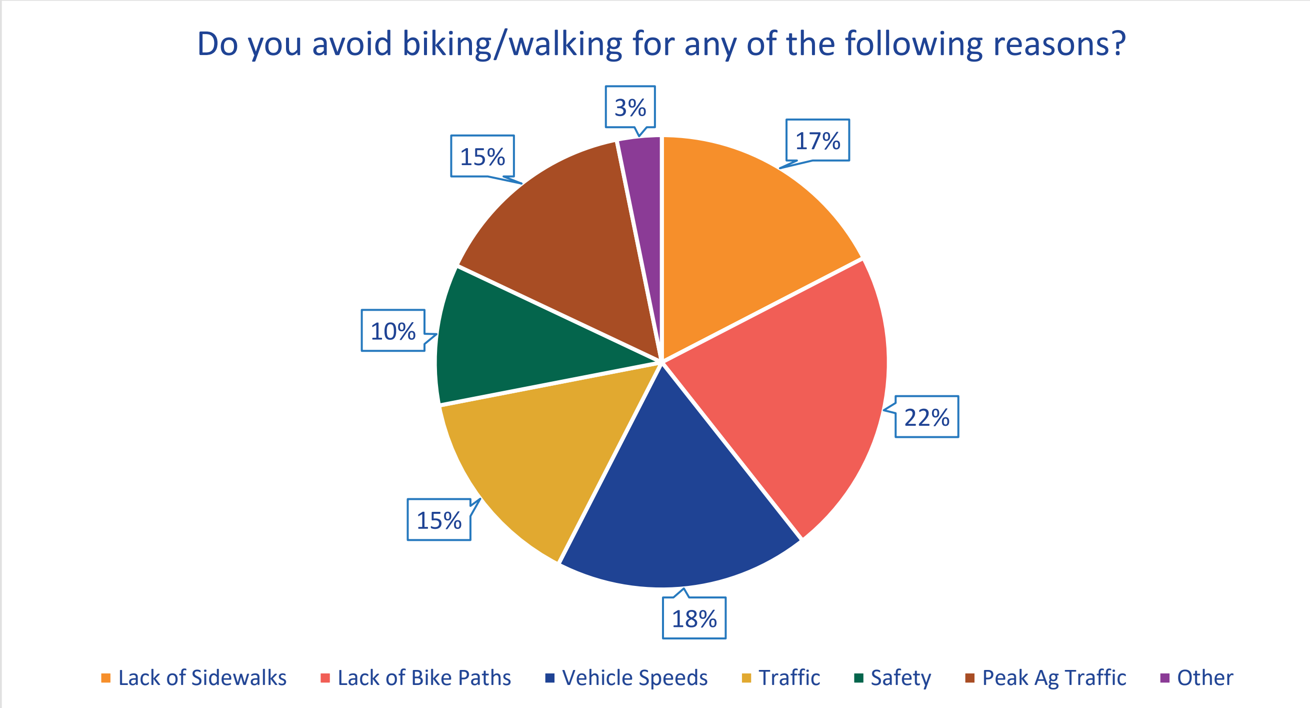


FIGURE 59: WALKING/BIKING SAFETY CONCERNS

Survey respondents were given the opportunity to rank the biggest safety concern on the SR 166 corridor from least to most important. The ranking results are derived from a weighted score. The majority of ranking results are from online respondents as in-person respondents often did not follow ranking directions.

As shown in **Figure 60**, the top five safety concerns on SR 166 are as follows:

1. Speeding motorists;
2. Lack of enforcement;
3. Presence of large trucks;
4. Poor sight distance due to fog/dust; and,
5. Lack of bike striped lanes or adequate buffer distance with traffic.

Speeding motorists was the top safety concern for survey respondents which aligns with the second highest concern, lack of enforcement, suggesting that speeding is an issue on SR 166 and is not perceived as being strictly enforced.

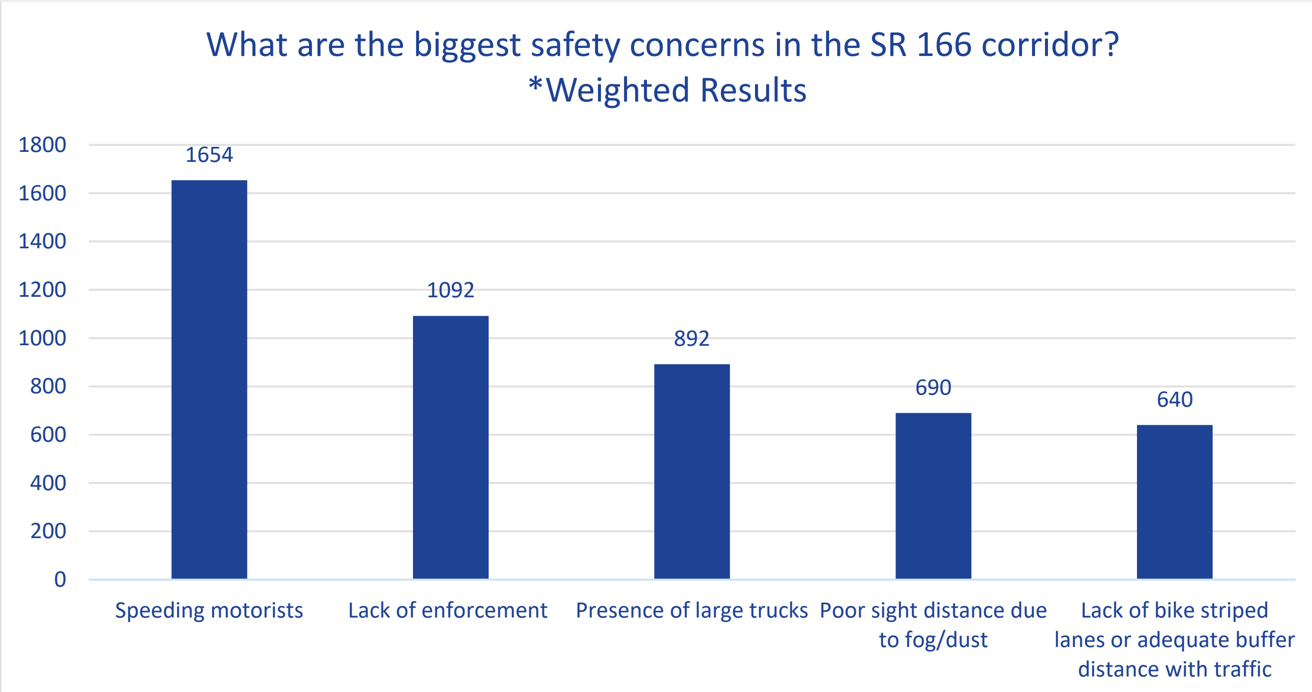


FIGURE 60: BIGGEST SAFETY CONCERN ON SR 166

Survey participants were asked to choose which roadway improvements they would or would not support on SR 166. As illustrated in **Figure 61**, bicycle and pedestrian improvements such as bike lanes and more street lighting are the most supported safety improvements. Support for installing speed bumps, camera enforcement, and sidewalks was indicated. The least amount of support was assigned to roundabout controls at intersections and reducing posted speed limits on SR 166.

FIGURE 61: SUPPORT FOR ROADWAY SAFETY IMPROVEMENTS

As illustrated in **Figure 62**, the primary safety related improvements that respondents would not support for SR 166 is the installation of roundabout controls at intersections and speed bumps. To a lesser degree, camera enforcement and reducing speed limits were also not overwhelmingly supported.

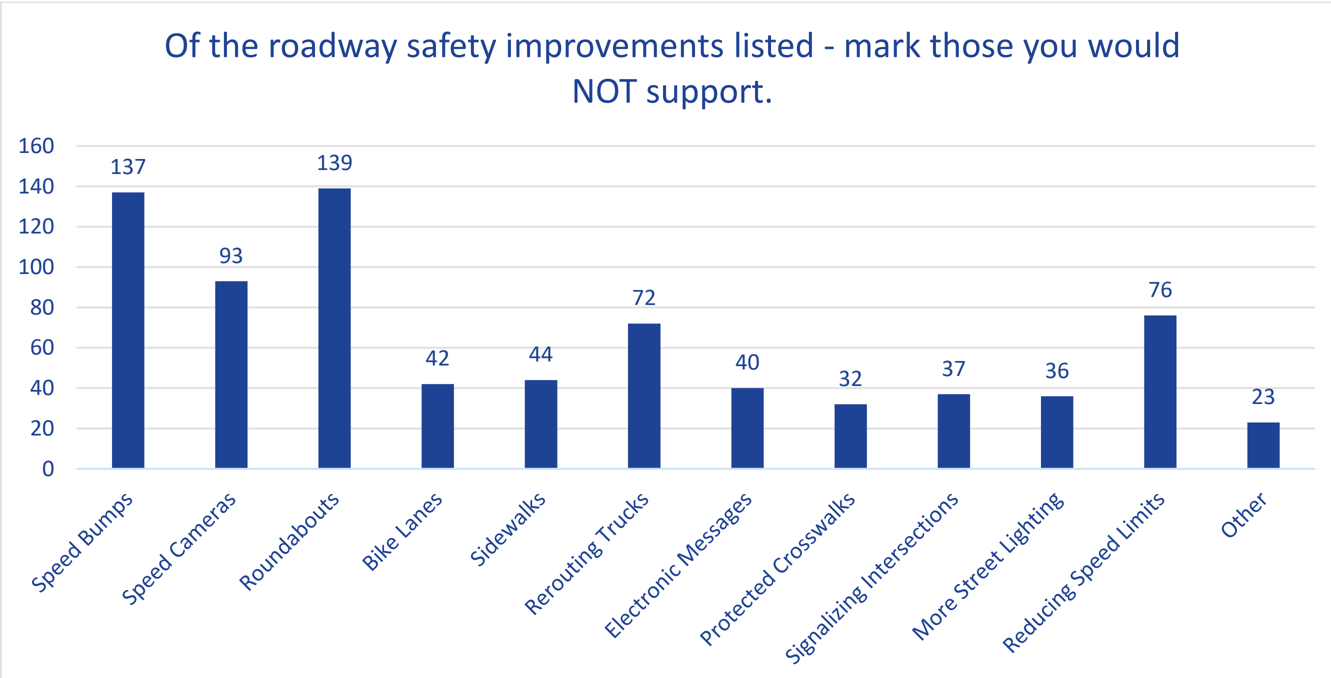


FIGURE 62: UNSUPPORTED ROADWAY SAFETY IMPROVEMENTS

In addition to roadway safety improvements, respondents were asked to choose what law enforcement (i.e., California Highway Patrol) strategies they would most support to improve safety along the study corridor. As shown in **Figure 63**, law enforcement focus on impaired/drunk driving, distracted driving, and speed limit enforcement were the most supported by respondents.

As shown in **Figure 64**, 62 percent of community survey respondents live in Santa Maria/Orcutt area versus 36% who live Guadalupe. Place of work shows less disparity with 49% of respondents working in Santa Maria and 30% in Guadalupe. Although only 2 percent of survey respondents live outside these two areas, 20% of respondents work elsewhere besides Santa Maria/Orcutt and Guadalupe. A check was made to discern if any significant sub-area differences are evident between respondents living in the Santa Maria/Orcutt area versus Guadalupe. Based on this check the following observations are noteworthy:

- Santa Maria/Orcutt respondents supported greater enforcement than Guadalupe respondents
- Santa Maria/Orcutt supported active transportation improvements more than Guadalupe respondents
- More Guadalupe respondents use SR 166 for travel than Santa Maria/Orcutt respondents
- Guadalupe respondents use transit for travel on SR 166 more than Santa Maria/Orcutt respondents
- Both subareas were generally consistent regarding improvements they would more likely support or not support.

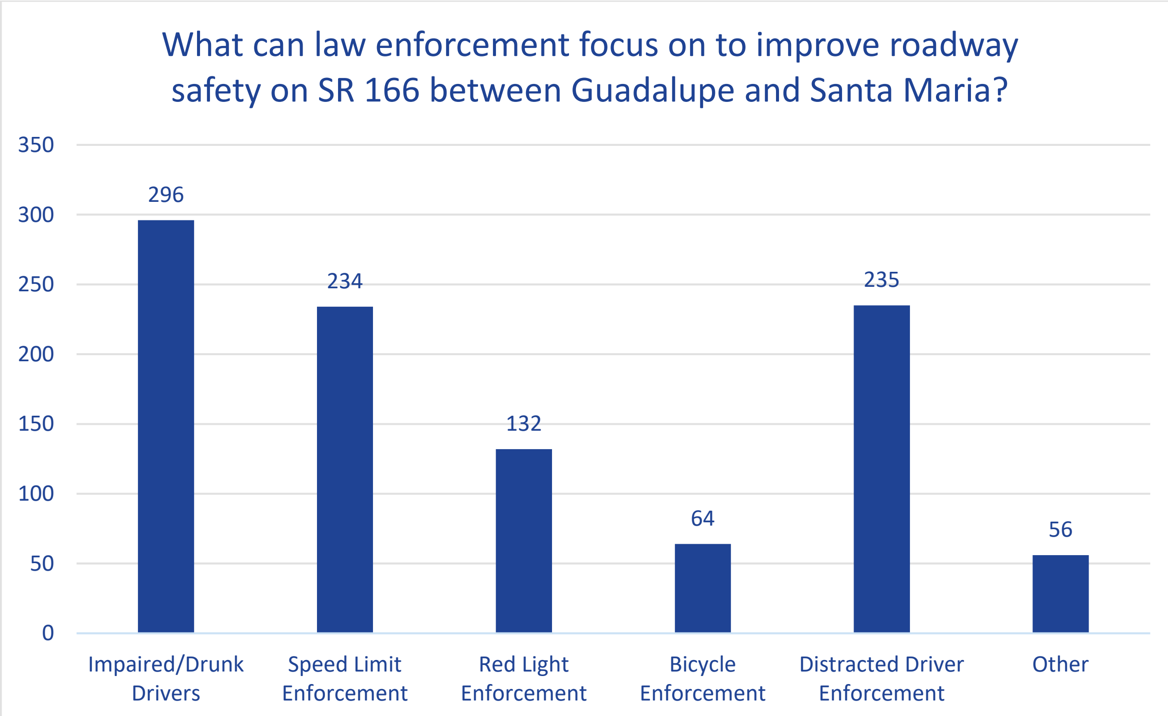
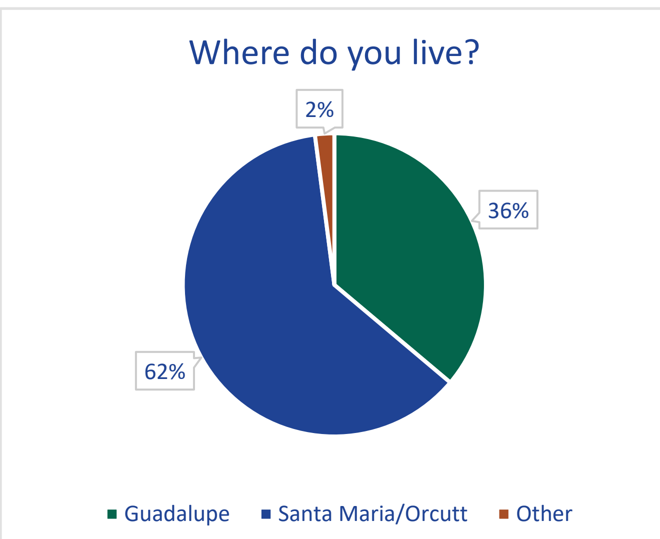


FIGURE 63: LAW ENFORCEMENT FOCUS



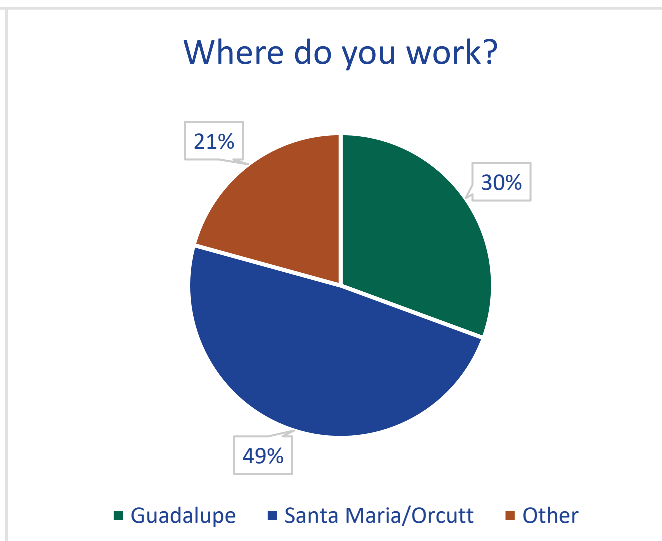


FIGURE 64: WHERE DO YOU LIVE AND WORK?

SECTION 4

IMPROVEMENT CONCEPT DEVELOPMENT

4 IMPROVEMENT CONCEPT DEVELOPMENT

The process for identifying needed multimodal and safety improvements was informed by performance-based technical analyses, a roadway safety audit, a comprehensive stakeholder involvement process and input from the public. Specifically, input provided by the partnering agencies including Guadalupe, Santa Barbara County, Santa Maria, Caltrans, and SBCAG was critical. The latter was provided through on-going bi-weekly meetings with the Project Development Team and three meetings with the SR 166 Advisory Committee.

The recommended improvements address multi-objectives such as facilitating efficient goods movement, safety and reliability, and multimodal mobility needs of the residents and intercity/regional travelers.

4.1 IMPROVEMENT CONCEPTS NOT REFLECTED IN PERFORMANCE ASSESSMENT

Several improvement concepts were considered but deemed either beyond the 25-year planning horizon of the study with respect to implementation and/or lacking support. Nonetheless, these concepts were still vetted with the partnering agencies and the SR 166 Advisory Committee and are documented herein for future consideration. These are described below.

Class II Bike Lanes on SR 166 from SR 1 to Depot Street

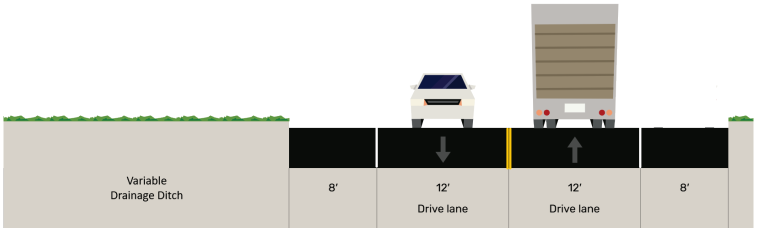
Directly linking the cities of Guadalupe and Santa Maria with a Class II bike lane on SR 166 was an obvious improvement concept for consideration. SR 166 between Guadalupe and Santa Maria has 6-8-foot paved shoulders on either side, with additional unpaved soft shoulders along on some portions. This improvement concept would entail striping a continuous 5 foot Class II bike lane with 3 feet of buffer space in each direction from SR 1 to Depot Street (or logical termini within the City). New pavement for additional shoulder width would be applied where feasible. This concept lacked support given the minimal separation provided by a striped three-foot buffer between cyclists and the outside travel lane coupled with the high vehicular speeds (45 mph or over) and the traffic mix (i.e., high number of trucks). Despite the improvement this facility would still be considered a high-stress environment for cyclists and a potential liability concern for Caltrans. Other issues include the lack of adequate lighting on the higher speed portions of SR 166 between intersections and the presence and need for rumble strips along the edge lines. As such, it was not considered a viable improvement at this time.

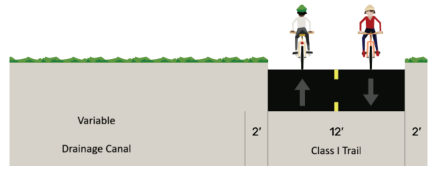
Class II Bike Lanes on Flower Street and Obispo Street

Stripping for Class II bike lanes on Flower Street and Obispo Street in Guadalupe were considered by Caltrans as part of the CAPM project. However, the City of Guadalupe opted against this improvement feature. As such, it was not considered a viable improvement at this time but can be revisited if and when more development occurs in the areas served by these roadways.

Class I Multipurpose Trail from SR 1 to Santa Maria

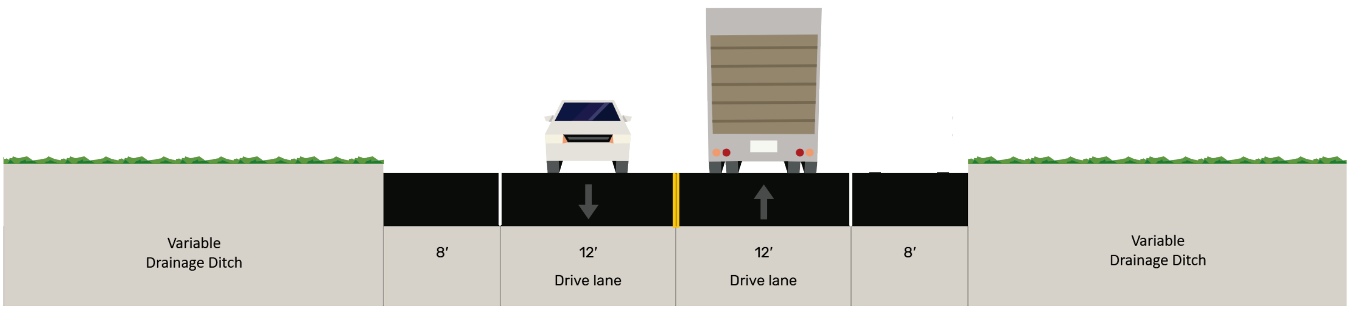
To establish a low-stress environment for bicyclists, physical separation between the bike lane and travel lane is required along SR 166. Establishing a 10 (minimum) to 14 (recommended) foot wide bi-directional Class I multipurpose trail on the south side of SR 166 was examined. Significant portions of the south side are conducive for establishing a Class I multipurpose trail and are already being used as a frontage system for farming operations and vehicles. However, the amount of right-of-way take required to maintain these operations and allow enough separation for a Class I multipurpose trail was considered significant enough for this to be considered a longer-term improvement (i.e., beyond the 25-year planning horizon of the study).

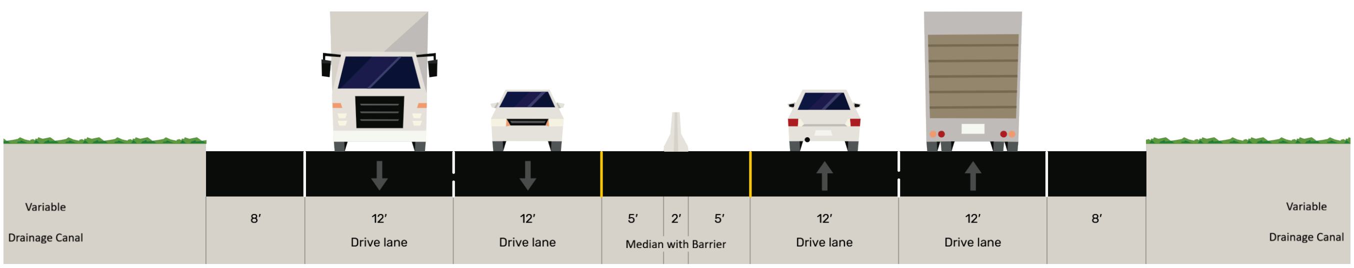




SR 166 4-Lane Widening from SR 1 to Blosser Road

This improvement would entail widening SR 166 from its existing 40-foot cross-section to a 76-foot cross-section that includes two 12-foot travel lanes in each direction, a 12-foot median that includes a raised 2-foot median barrier and 8-foot paved shoulders. The median barrier would be removed at intersection approaches to allow for the 12 feet to be used for additional turn channelization.





SR 166 4-Lane Widening with Class I Bike Trail (Santa Maria to Guadalupe)

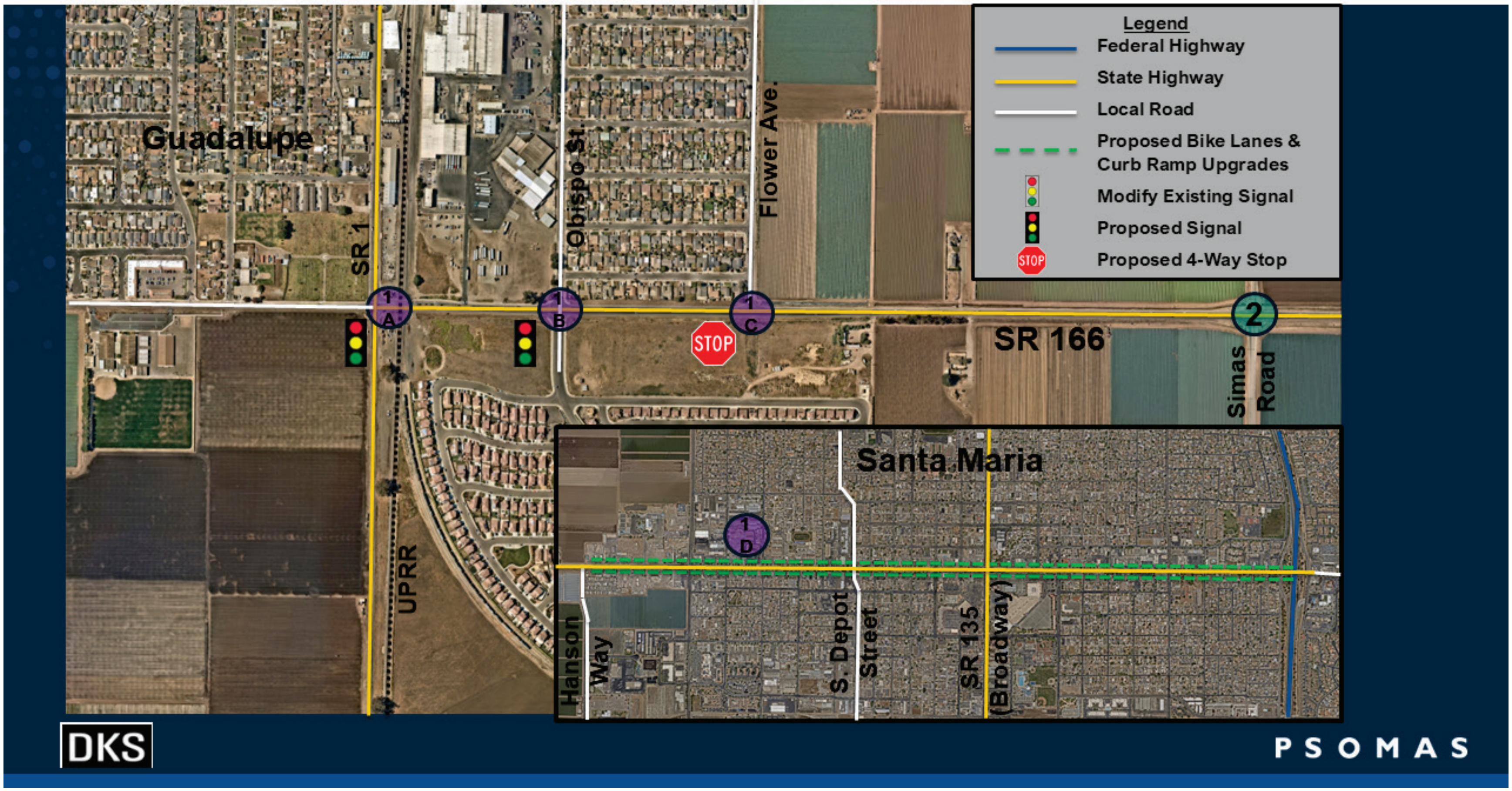
This improvement would entail combining the 4-lane widening SR 166 with the Class I Multipurpose Trail on the south side as a single project.

4.2 IMPROVEMENT CONCEPTS

The following exhibits illustrate the various improvement concepts under consideration for inclusion in the final preferred package of multimodal improvements. The GAPS/CAPM improvements are shown for informational purposes only. These improvements will be implemented/constructed independent of the SR 166 CCS and therefore are not analyzed/included in this benefit-cost analysis.

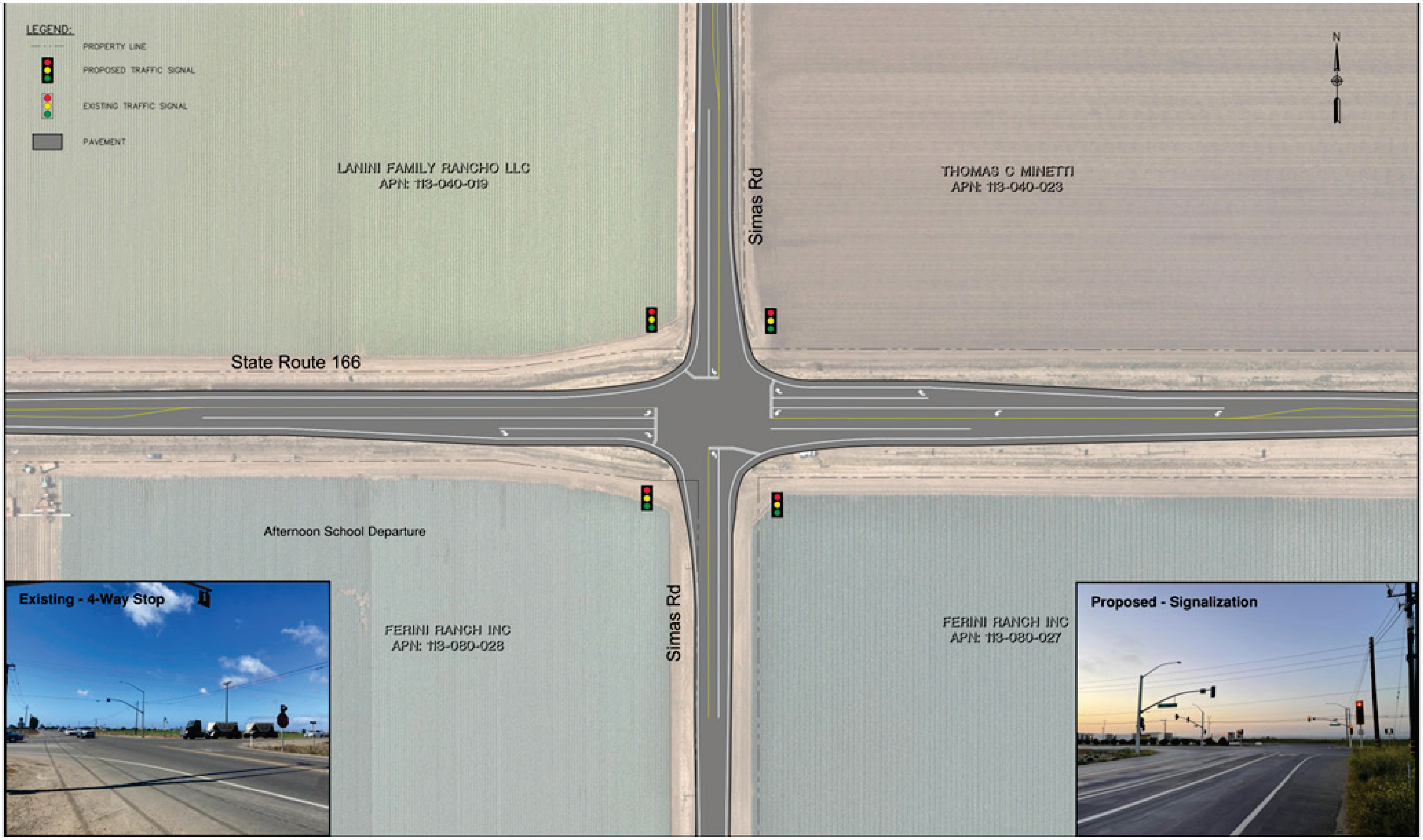
SR 166 Comprehensive Corridor Plan **Improvements Overview**

#1) Mainline Improvements – Caltrans GAPS/CAPM Project



Caltrans GAPS/CAPM project addresses operational and safety issues on the west (City of Guadalupe) and east (City of Santa Maria) ends of SR 166 CCS study corridor. This includes installing new signals at the intersections of SR 166/SR 1 and SR 166/Obispo Street, four-way stop control at SR 166/Fowler Avenue and Class II Bike lanes and curb ramp upgrades on SR 166 (Main Street) between Hanson Way and US 101 ramps in the City of Santa Maria. Given that these improvements are already fully funded through construction, the GAPS/CAPM project is not included in the performance assessment.

#2) SR 166 Mainline Improvements – Simas Road

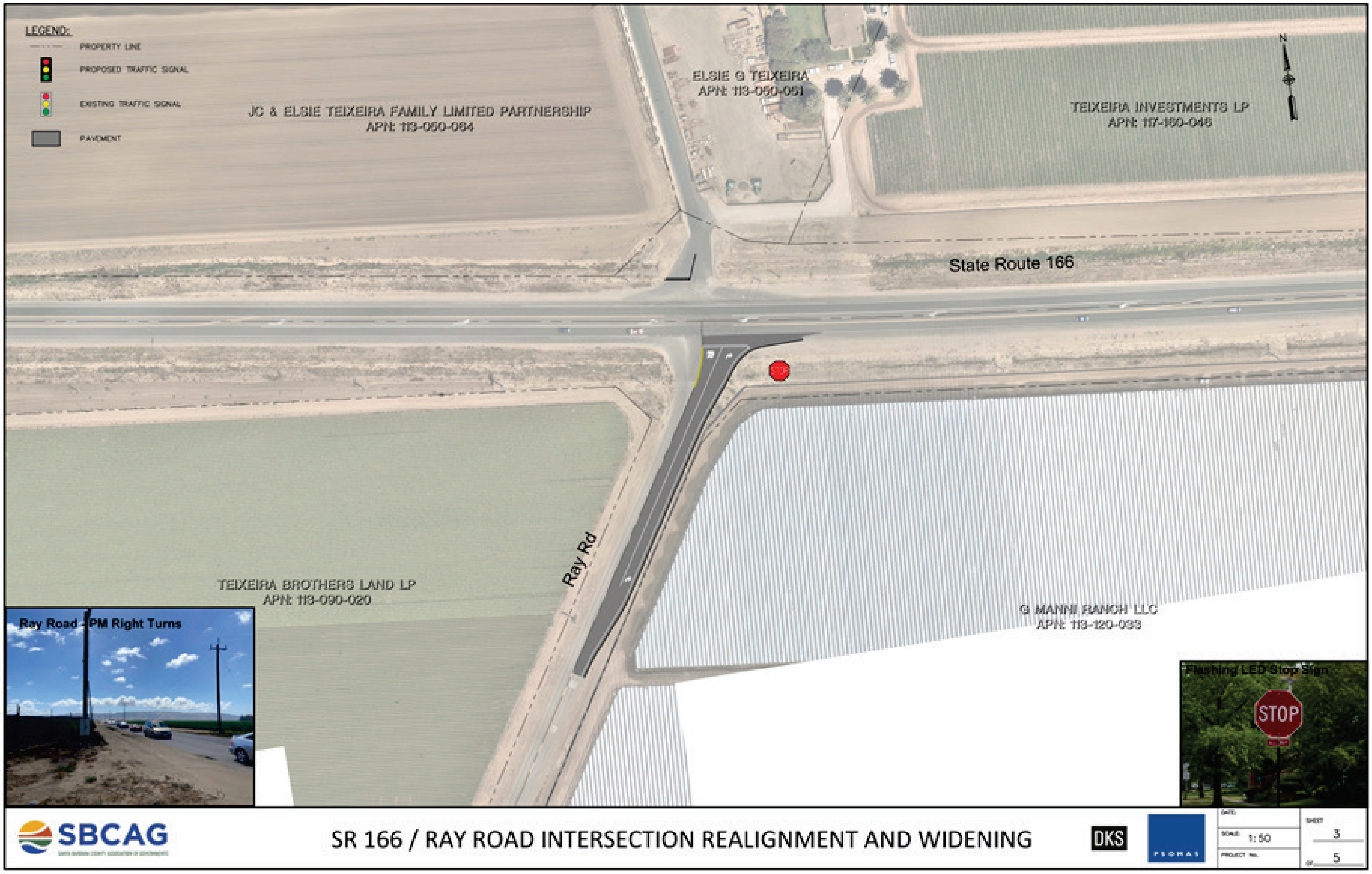


This improvement entails replacing the existing all-way-stop-controlled intersection with a traffic signal. Left turn lane channelization will be added on all approaches and right turn lanes on the SR 166 approaches. Improvement will provide operational and safety benefits. See also Improvement #7 Enhanced Lighting and Visibility.

#3) SR 166 Mainline Improvements – Bonita School Rd

This improvement entails widening Bonita School Road to include a two-way-left-turn lane and add a left turn lane at the existing traffic signal. Install speed feedback signs on both SR 166 approaches to the intersection. The project also formalizes channelization and parking on Bonita School Road. Improvement will provide operational and safety benefits. The ultimate fix would be to relocate the school entirely – preferably within the City of Santa Maria. Both the SBCAG North County Subregional Planning Committee and the SR 166 Advisory Committee voiced concerns regarding the current location of the school and expressed a strong desire to examine relocation. Safety and children's exposure to fine particulates being key concerns.

#4) SR 166 Mainline Improvements – Ray Road



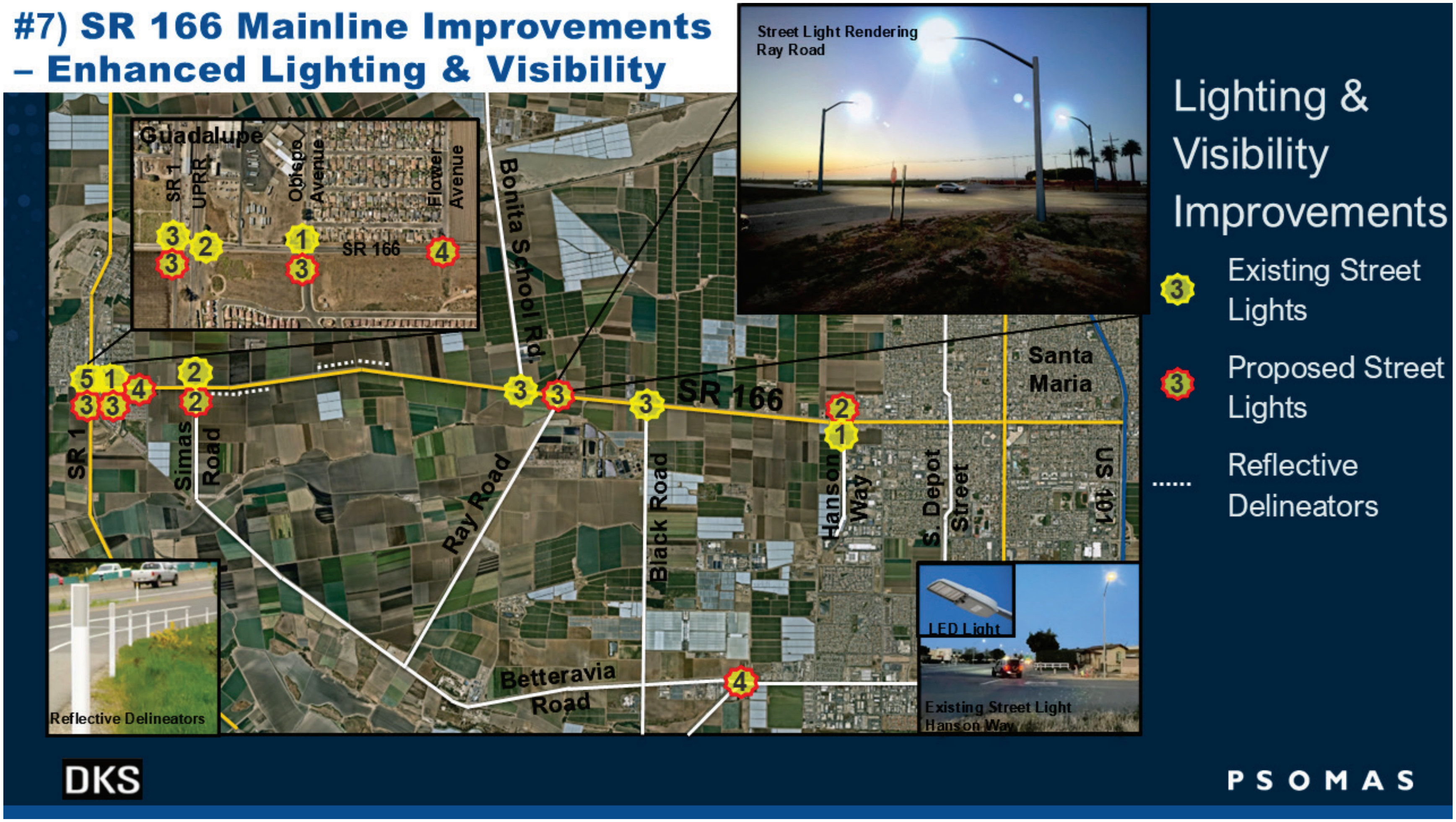
This improvement entails widening Ray Road to add a right turn lane and replace existing stop sign with a flashing LED stop sign. Improvement will provide operational and safety benefits. See also Improvement #7 Enhanced Lighting and Visibility.

#5) SR 166 Mainline Improvements – Hanson Way

This improvement entails extending the existing westbound merge lane on SR 166 by approximately 1,100’. Improvement will provide operational and safety benefits. See also Improvement #7 Enhanced Lighting and Visibility.

#6) SR 166 Mainline Improvements – Paved Driveway Aprons

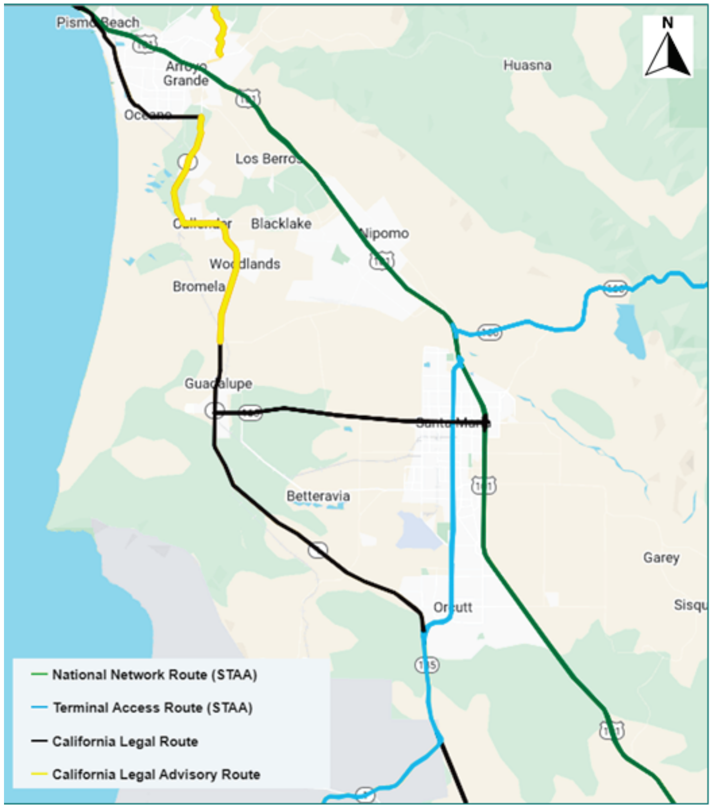
This improvement entails paving permitted driveways entrances along SR 166 that are currently unpaved with asphalt or concrete aprons. Improvement provides safety benefits by 1) enhancing traction, (reduces the chance of wheel spin and loss of control); 2) improving visibility (dust abatement and provides clearer sightlines for all road users); and, 3) facilitating smoother transitions (i.e., consistent surface allows for safer and more predictable vehicle movements when entering or exiting the roadway).



This improvement provides or upgrades intersection lighting at several intersections within the study area, including: SR 166/SR 1, SR166/Obispo Avenue, SR 166/Flower Avenue, SR 166/Simas Road, SR 166/Bonita School Road, SR 166/Ray Road, SR 166/Black Road, SR 166/Hanson Way, and Betteravia Road/Mahoney Road. Installation of reflective delineators along two horizontal curves on SR 166 between Simas Road and Bonita School Road is also proposed Improvement provides a safety benefit by enhancing visibility for all users of the roadway.

This improvement entails increasing CalVans service for agricultural field workers by leasing 15 additional CalVan vehicles. It also includes purchasing an additional 35-foot Santa Maria Regional Transit (SMRT) bus to increase the service frequency of bus service between the cities of Guadalupe and Santa Maria (formally the Guadalupe Flyer service line) from 1-hour headways to 30-minute headways. Improvement provides greater multimodal options to reduce VMT and improve air quality and dust abatement goals.

SR 166 STAA Network



<- Existing Truck Network

SR 166 ~9,000 daily vehicles near Guadalupe to nearly 23,400 vehicles at Depot Street in Santa Maria
SR 166 Daily Traffic Growth 2000 – 2023: **20%**

SR 166 ~1,115 daily trucks near Guadalupe to just under 1,870 at Depot Street in Santa Maria.

5+ Axel Truck Traffic Growth 2000 – 2023**: 61%**

Issues with Current Network

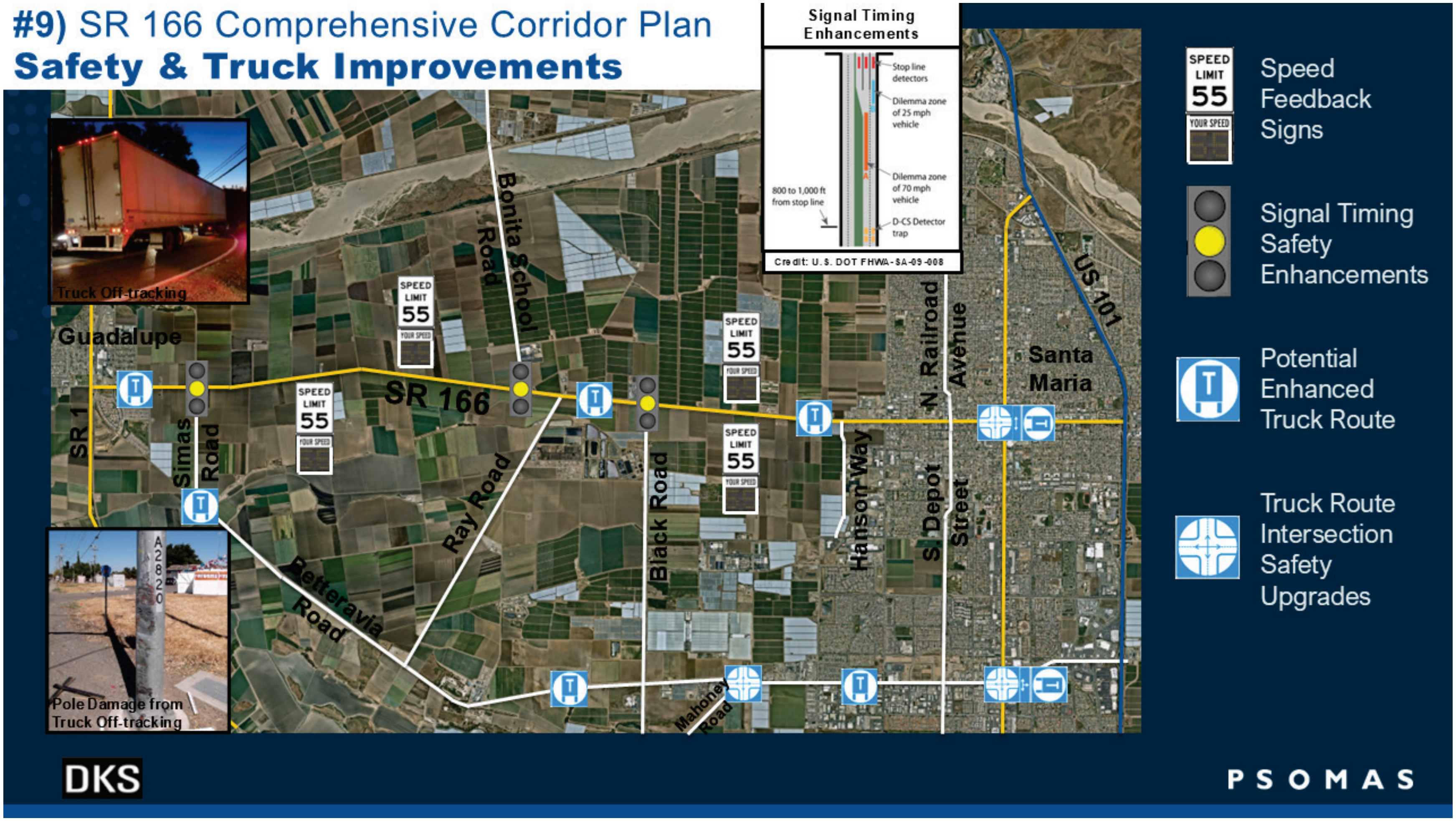
Lack of Terminal Access Route East-West Connectivity to National Network (i.e., US 101);

Strong presence of STAA-size vehicles (see truck growth trends above);

City of Santa Maria would like to limit truck usage on SR 166/Main Street through City limits;

CHP chooses not to enforce STAA laws on SR 166 as there are no formalized alternatives for truckers;

Currently, there is a lack of Surface Transportation Assistance Act (STAA) Terminal Access Route (T-Route) connectivity between the agricultural areas between Guadalupe and Santa Maria to US 101 (National Network STAA Route). The CHP and Caltrans both recognize that an effort is needed to create a contiguous network that supports agricultural business and other industrial centers and current. This lack of STAA network connectivity promotes use of non-STAA roadways that are not designed to accommodate the turn-radii requirements of STAA-sized trucks. This results in trucks off-tracking (i.e., lane and curb overrides) which can create safety issues with motorists and/or cause property damage (curbside light poles, signage, utility boxes, etc.). Historically, efforts to address freight concerns in the SR 166 corridor have been isolated and not holistic across the region.


#9) SR 166 Comprehensive Corridor Plan
Safety & Truck Improvements
Signal Timing Enhancements
Stop line detectors
Dilemma zone of 25 mph vehicle
Dilemma zone of 70 mph vehicle
800 to 1,000 ft from stop line
D-CS Detector trap
Credit: U.S. DOT FHWA-SA-09-008
Truck Off-tracking
Guadalupe
SR 1
Simas Road
SR 166
Bonita School Road
Ray Road
Betteravia Road
Black Road
Mahoney Road
Hanson Way
N. Railroad Avenue
S. Depot Street
US 101
Santa Maria
Pole Damage from Truck Off-tracking
SPEED LIMIT 55 YOUR SPEED
Speed Feedback Signs
Signal Timing Safety Enhancements
Potential Enhanced Truck Route
Truck Route Intersection Safety Upgrades
DKS
PSOMAS

Truck route discontinuities have multiple adverse impacts:

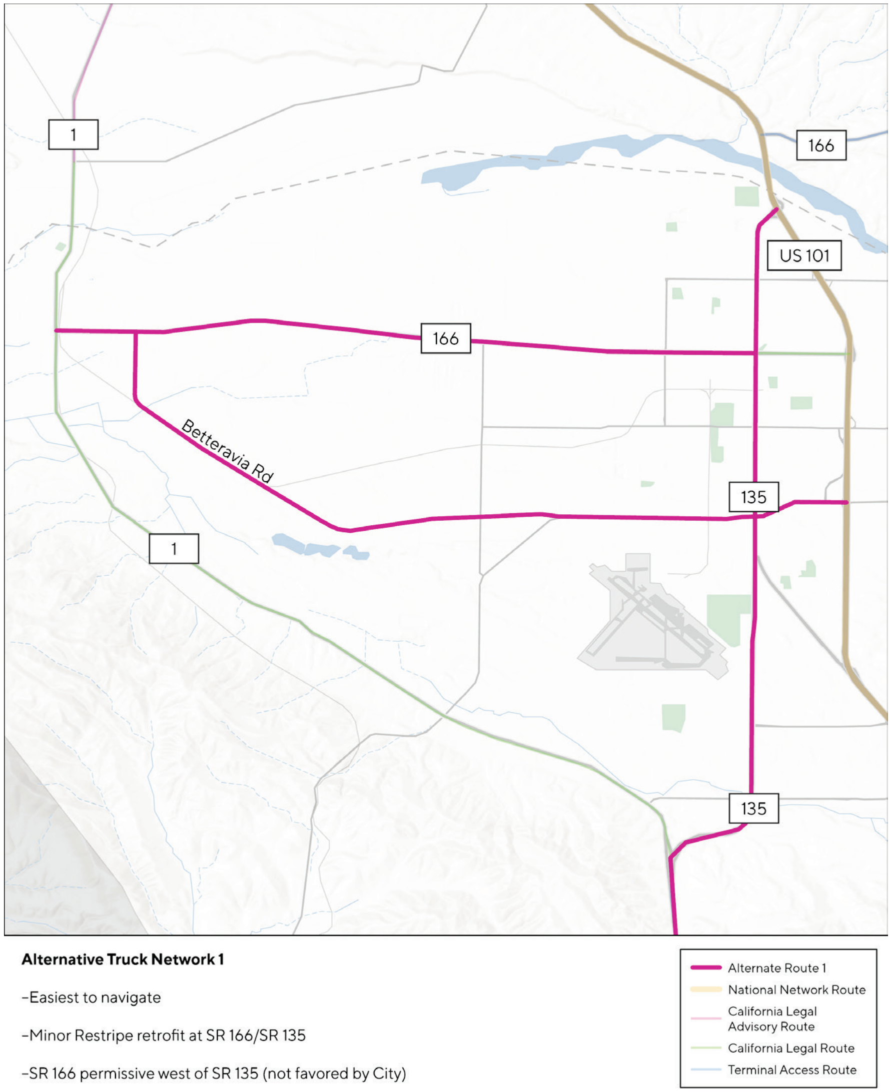
- STAA truck drivers must knowingly or unknowingly violate the law to transport goods.
- STAA trucks operate on roads that are not safe or durable enough for large trucks.
- Trucks that attempt to follow circuitous STAA T-Routes incur excess mileage and cost and create excess on-road mobile source emissions.
- Shippers and receivers of goods may have difficulty siting new facilities or incur higher costs and inferior service.
- Non-STAA roads experience excess pavement wear, curb overrides, damaged poles/signs, and other expenses.
- Communities experience unwanted incursions and/or parking of large trucks.

This improvement entails establishing STAA designated truck routes along SR 166 (SR 1 to SR 135) and Betteravia Road (Simas Road to US 101). This includes STAA signage signal timing modifications (two locations), intersection upgrades (three locations), and installing speed feedback signs on four locations along SR 166. A pavement TI analysis for Betteravia Road is recommended.

The overriding principle guiding the network assessment was to improve the local Terminal Access Route network to improve connectivity to the National Network (i.e., access to US 101). However, a key policy objective for the City of Santa Maria is to reduce truck traffic on SR 166 (Main Street) through the City of Santa Maria. Historically, this has been problematic given that SR 166 provides direct access to US 101 with no east-west T-Route designations to navigate STAA-size vehicles to alternative routes. Since 2000, growth in 5+ axle trucks, the majority of which are STAA-sized vehicles (48 to 53 feet from kingpin to rear axle), has increased on SR 166 (Main Street) by over 60 percent outpacing the 20 percent growth in overall daily traffic over the same period. Based on coordination with the City of Santa Maria and the SR 166 Advisory Committee, a number of alternative STAA T-Route networks were developed (see Alternative Truck Networks 2-6). The principles that provide a framework for justifying the STAA T-Route networks include: 1) eliminate T-Route connectivity gaps; 2) avoid non-intuitive circuity; and, 3) properly place STAA signage for way-finding and ease of navigation.

Alternative STAA T-Access Networks

Network Alternative 1 provides the most direct routing by designating SR 166 as a T-Route from SR 1 connecting to the existing north-south T-Route at SR 135 (both state owned facilities). It would also designate Bettteravia Road (and a portion of Simas Road) from SR 166 to US 101. STAA vehicles would use SR 135 to access US 101 northbound or southbound while Betteravia Road provides a second alternative to access US 101 for southbound trucks. Network 2 is identical to Network 1 with the addition of designating Black Road as a T-Route as an additional option to SR 135. Both Alternative 1 and 2 permit STAA-sized vehicles from the western Santa Maria city limit to SR 135 (Broadway). Alternatives 3-6 permit STAA-sized vehicles from western Santa Maria city limit to Blosser Road which is more favorable to the City of Santa Maria. However, this creates more circuity which can make them more difficult to navigate. It also requires more city owned roadways to be designated T-Routes. This in turn requires more STAA signage and may require additional intersection retrofits to accommodate STAA-size vehicle turn radiuses. Likely additional retrofit locations are Betteravia Road/Black Road and Stowell Road/Black Road intersections.

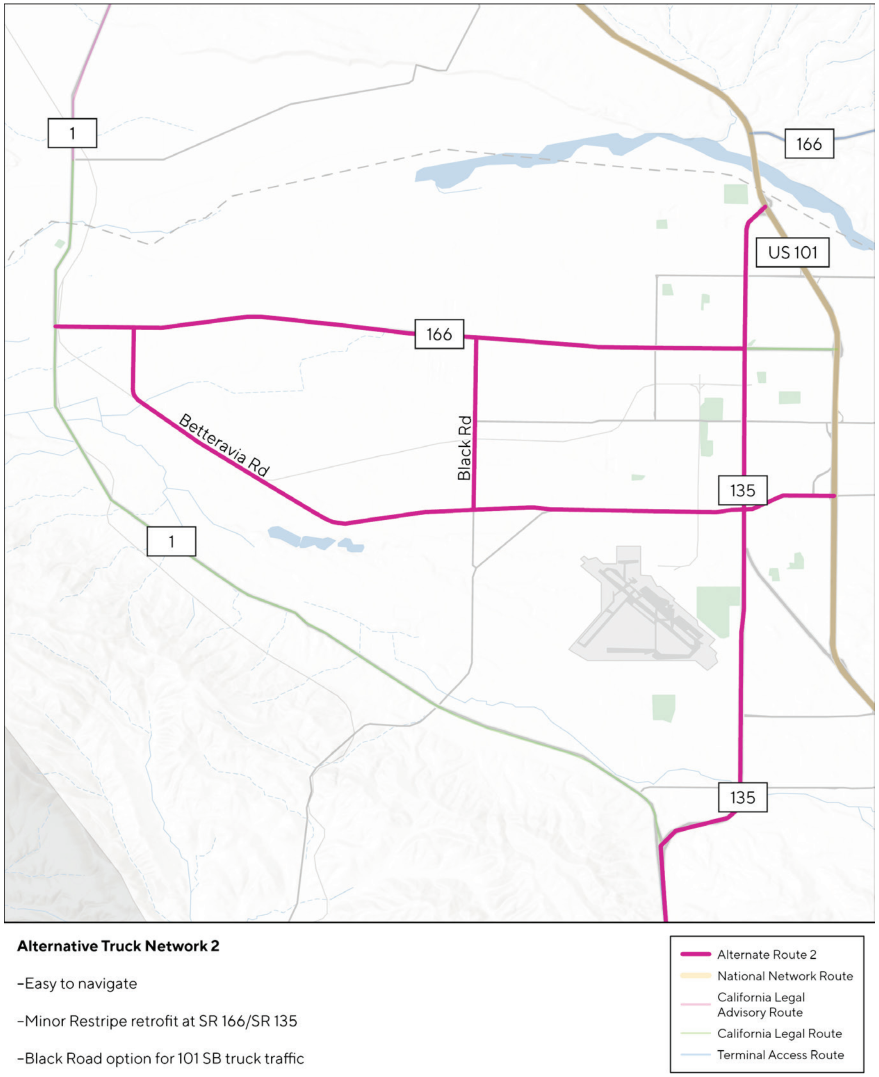


Alternative Truck Network 1

-Easiest to navigate

-Minor Restripe retrofit at SR 166/SR 135

-SR 166 permissive west of SR 135 (not favored by City)



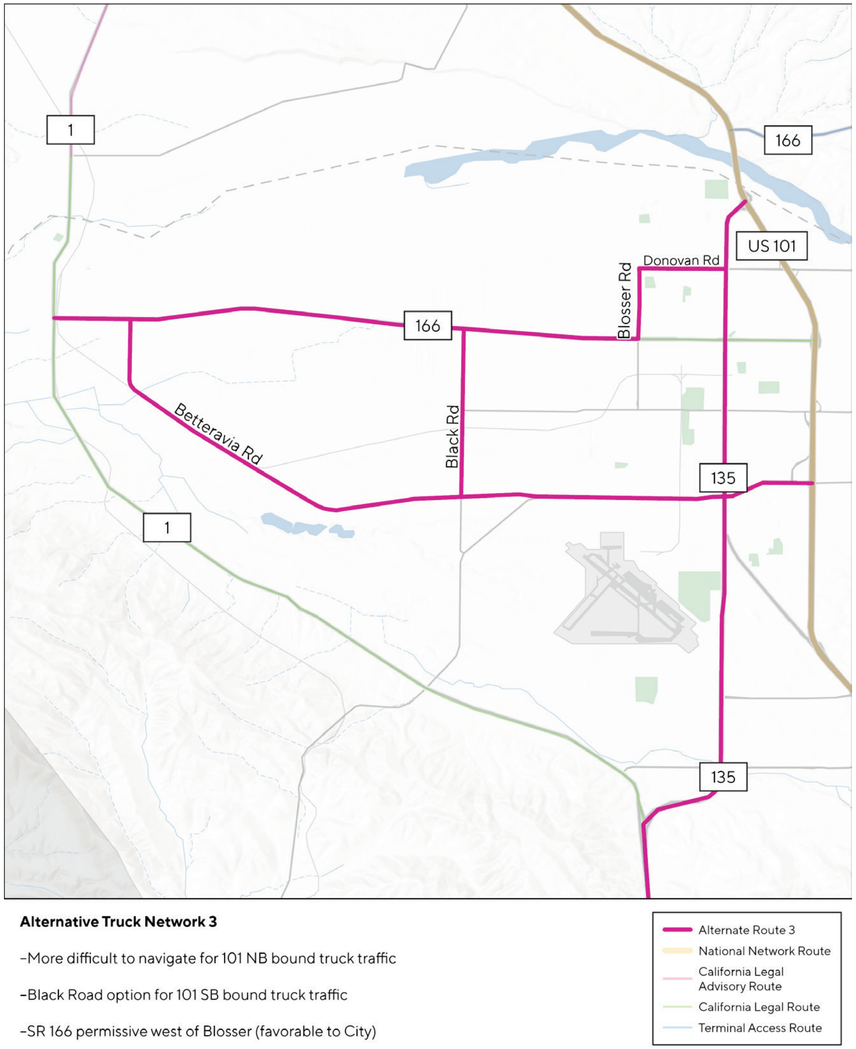
Alternative Truck Network 2

-Easy to navigate

-Minor Restripe retrofit at SR 166/SR 135

-Black Road option for 101 SB truck traffic

-SR 166 permissive west of SR 135 (not favored by City)



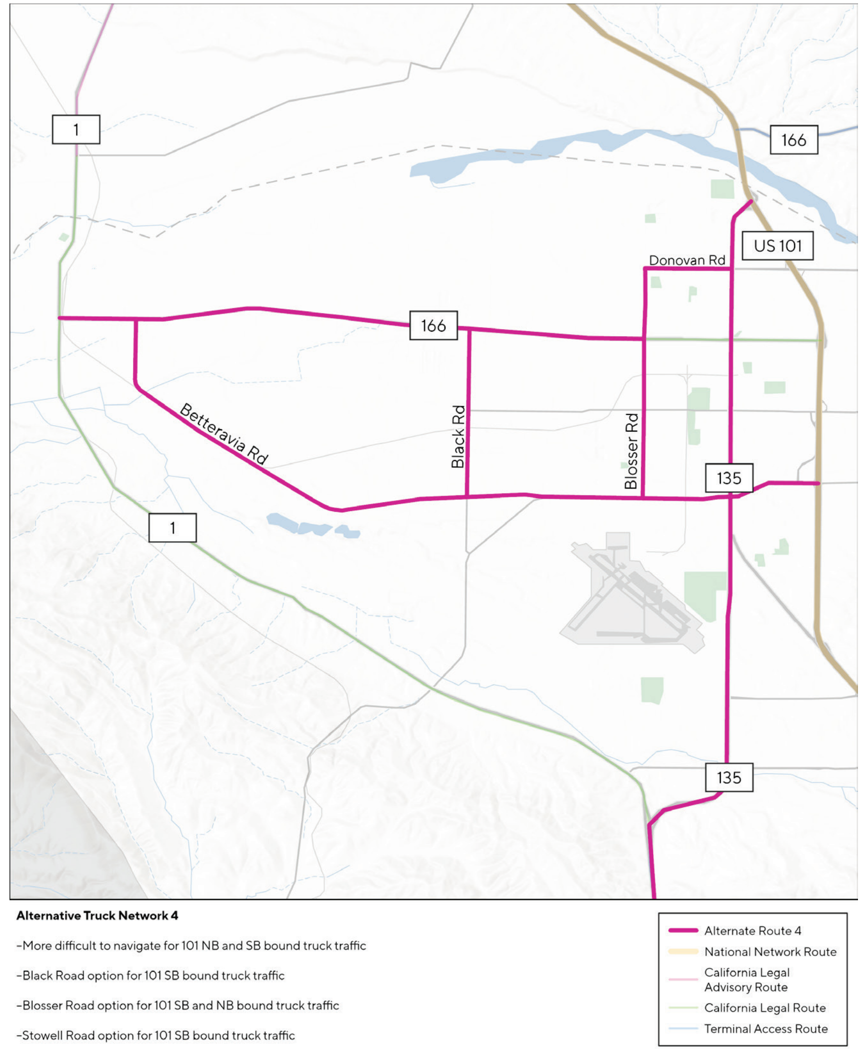
Alternative Truck Network 3

-More difficult to navigate for 101 NB bound truck traffic

-Black Road option for 101 SB bound truck traffic

-SR 166 permissive west of Blosser (favorable to City)

-Potentially expensive retrofits at 166/Blosser, Blosser/Donovan, Donovan/US 101 NB Ramp



Alternative Truck Network 4

-More difficult to navigate for 101 NB and SB bound truck traffic

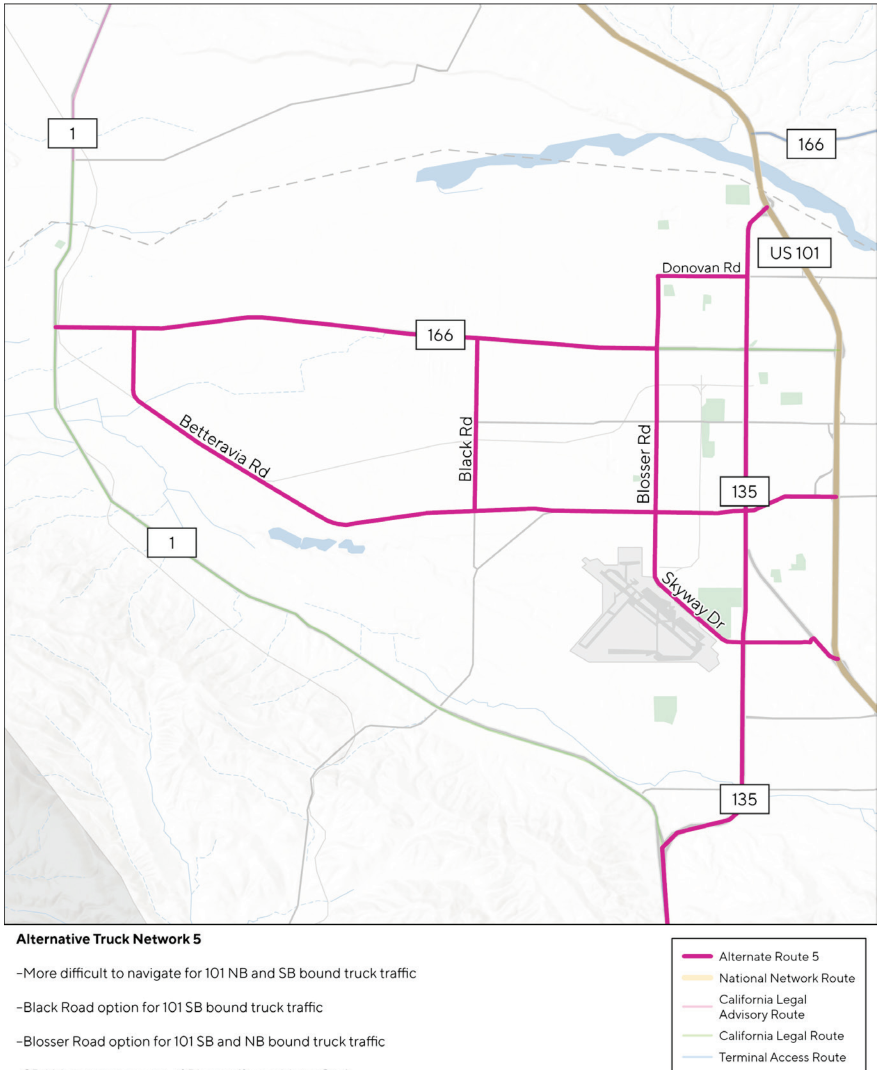
-Black Road option for 101 SB bound truck traffic

-Blosser Road option for 101 SB and NB bound truck traffic

-Stowell Road option for 101 SB bound truck traffic

-SR 166 permissive west of Blosser (favorable to City)

-Potentially expensive retrofits at 166/Blosser, Blosser/Donovan, Blosser/Stowell, Stowell/US101 SB Ramp



Alternative Truck Network 5

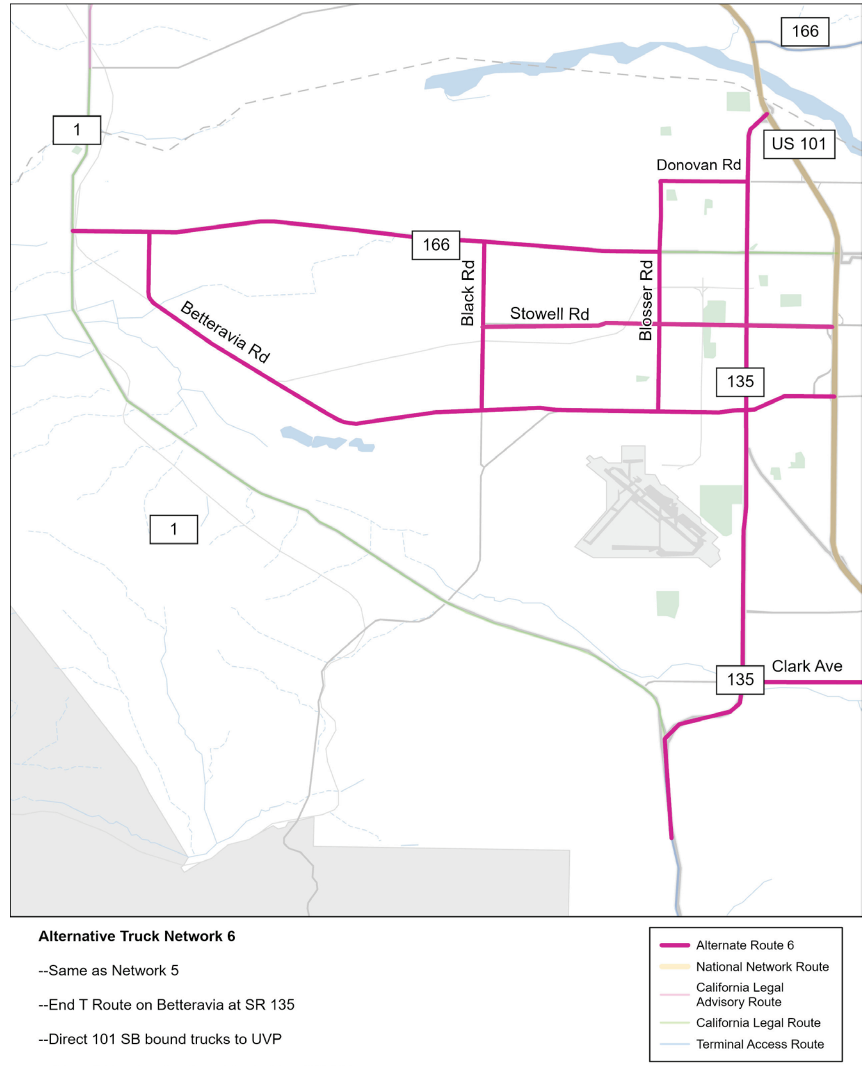
–More difficult to navigate for 101 NB and SB bound truck traffic

–Black Road option for 101 SB bound truck traffic

–Blosser Road option for 101 SB and NB bound truck traffic

–SR 166 permissive west of Blosser (favorable to City)

–Potentially expensive retrofits at 166/Blosser, Blosser/Donovan, Skyway/SR 135, Skyway/S.Bradley



Alternative Truck Network 6

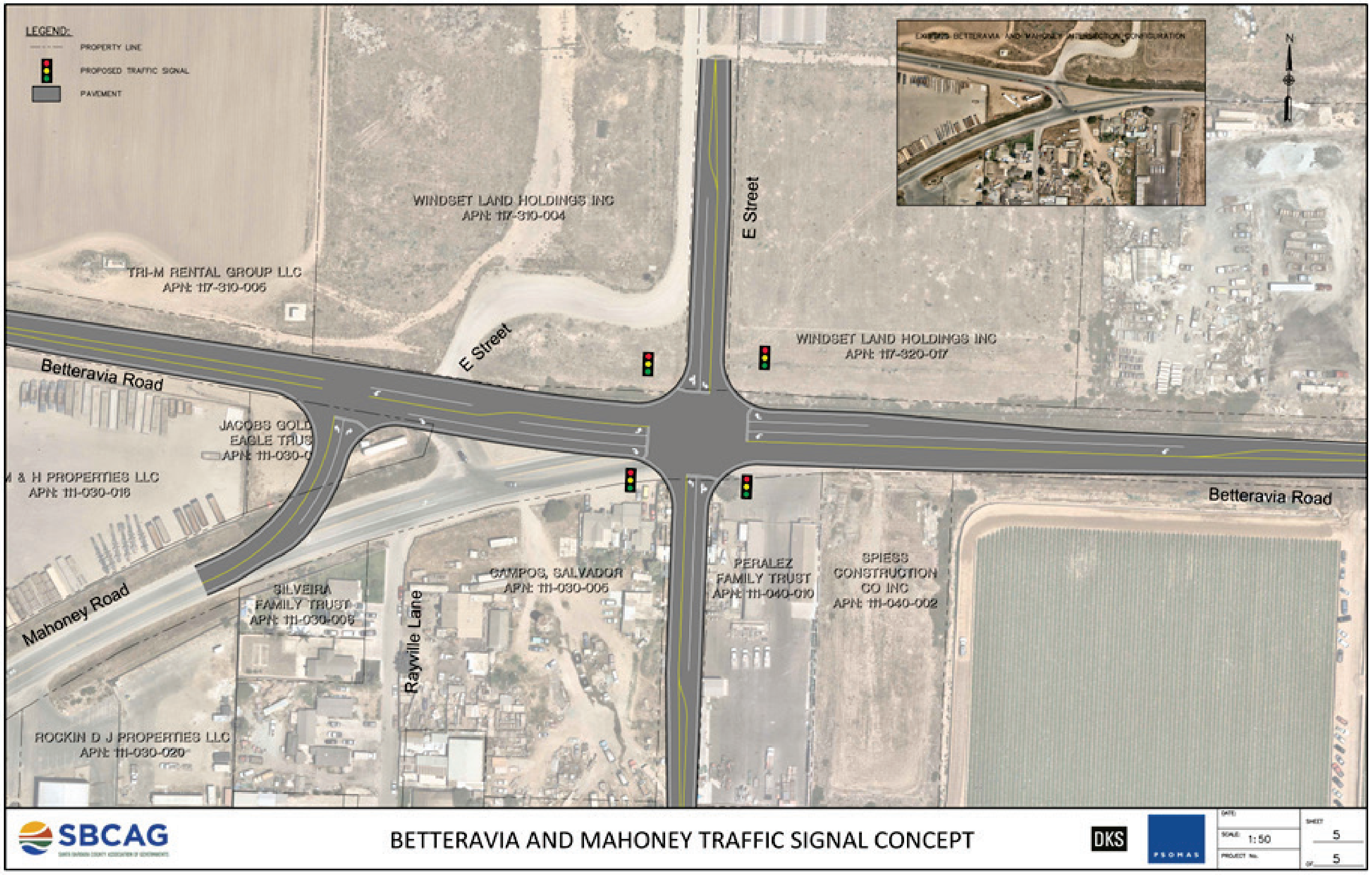
--Same as Network 5

--End T Route on Betteravia at SR 135

--Direct 101 SB bound trucks to UVP

-- Stowell Road option from Black Rd to US 101

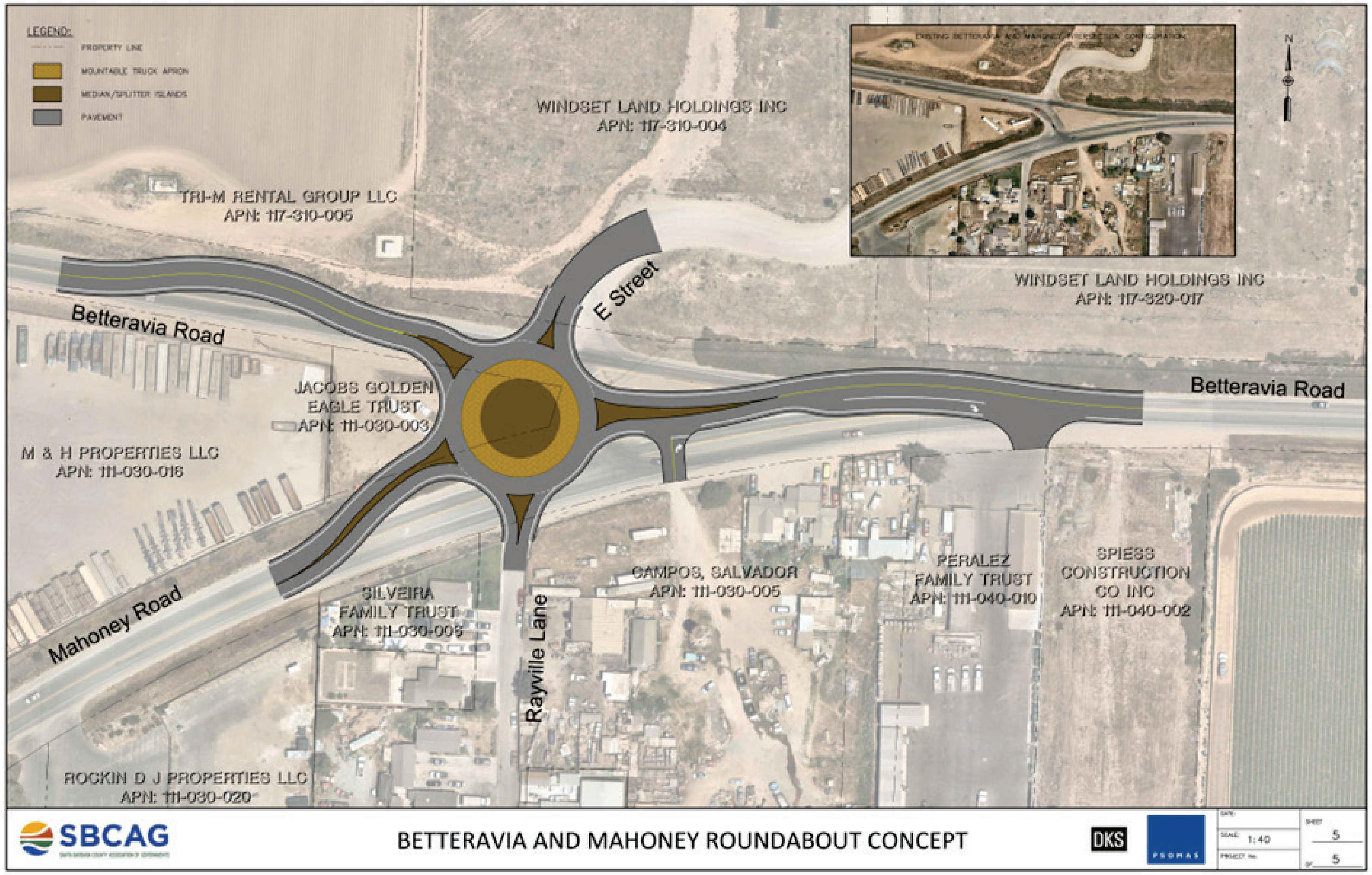
#10) SR 166 Parallel Improvements
Betteravia/Mahoney Intersection



This improvement entails modifying the intersection geometrics and replacing the existing intersection one-way-stop-control with either a signal or a roundabout. Improvement will provide operational and safety benefits. See also Improvement #9.

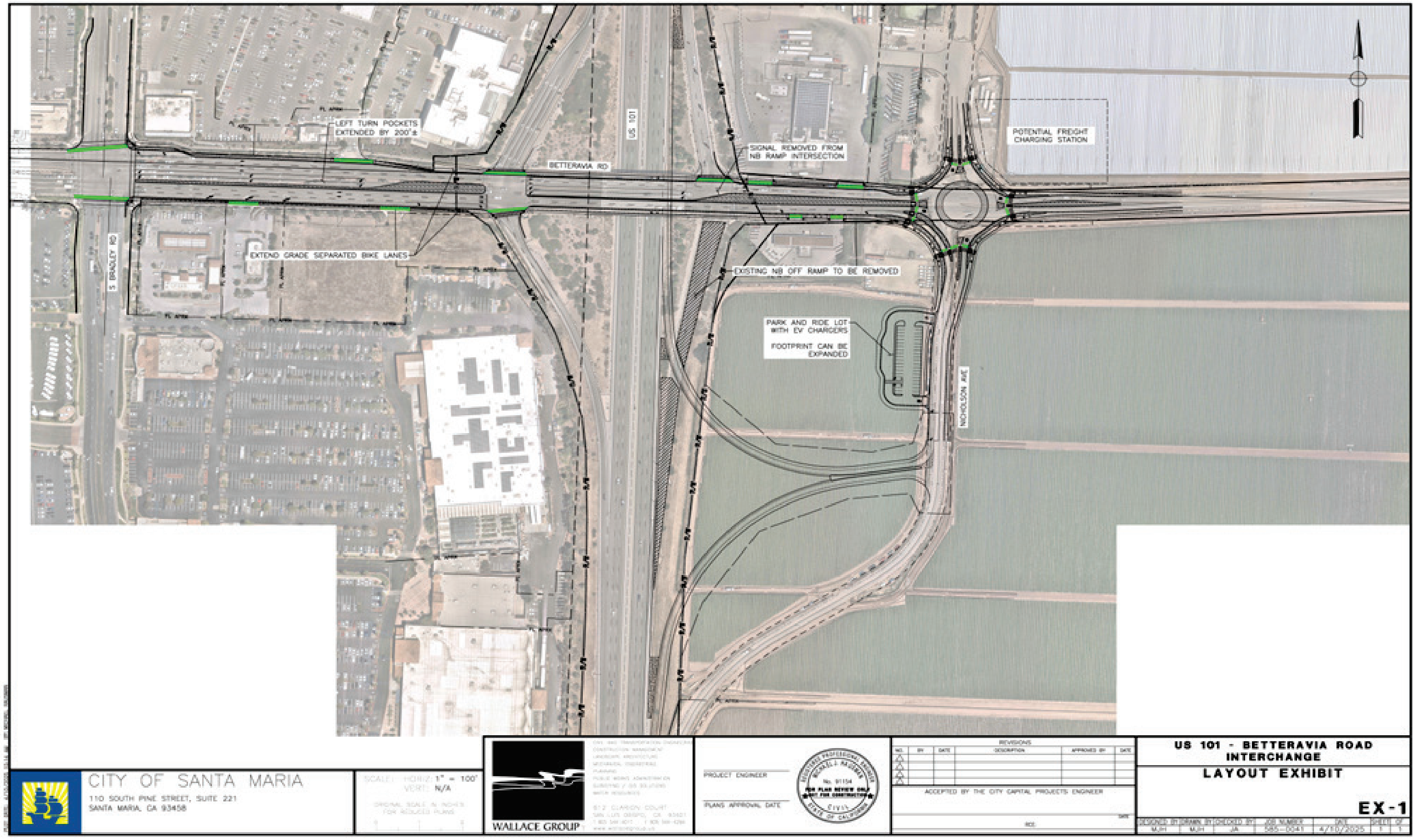
#10) SR 166 Parallel Improvements

Betteravia/Mahoney Intersection



This improvement entails modifying the intersection geometrics and replacing the existing intersection one-way-stop-control with either a signal or a roundabout. Improvement will provide operational and safety benefits. See also Improvement #9.

#11) SR 166 Parallel Improvements
Betteravia/US101 Interchange



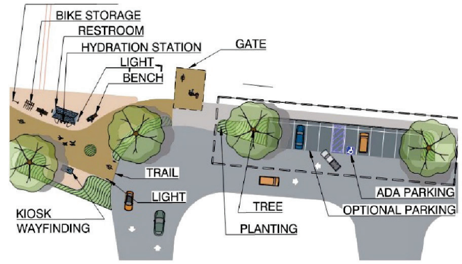
This improvement entails extending grade separated bike lanes on Betteravia Road through the US 101 interchange area. Removing the existing northbound off-ramp and associated signalized intersection. Installing a roundabout at the intersection of Betteravia Road/Nicholson Avenue to facilitate northbound highway movements. Adding a new mobility hub/park-and-ride lot along Nicholson Avenue in the interchange area and a new freight electric charging station along Betteravia Road in the interchange area. This improvement will provide operational and safety benefits and greater multimodal options to reduce VMT and improve air quality. See also Improvement #9.

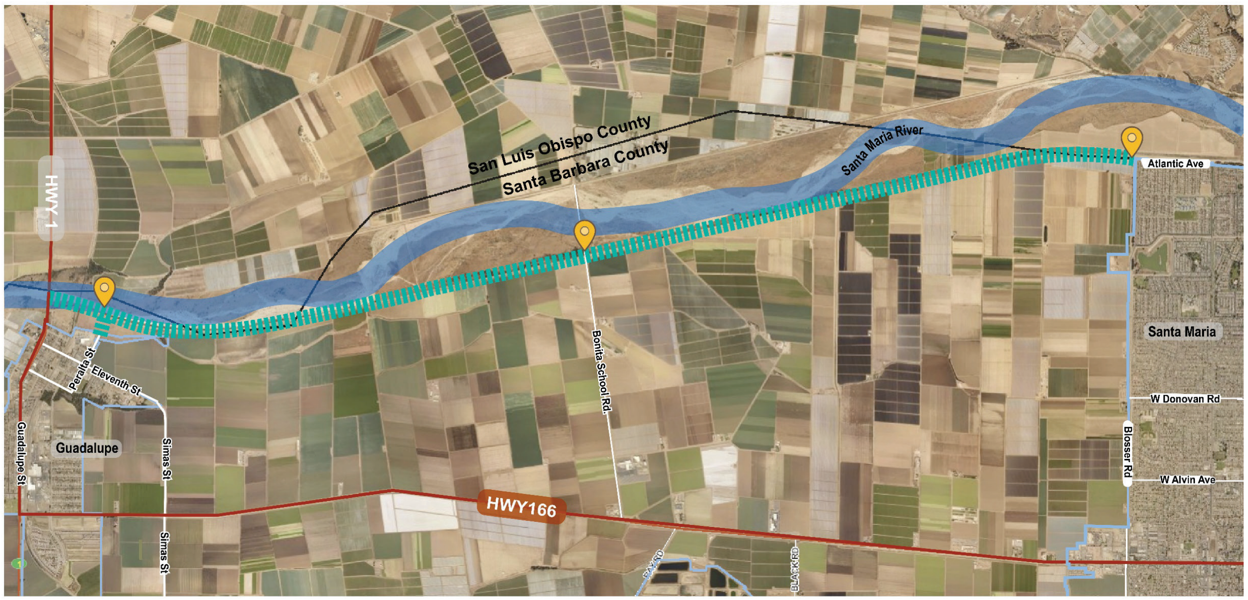
#12) Parallel Improvements Santa Maria River Levee Trail

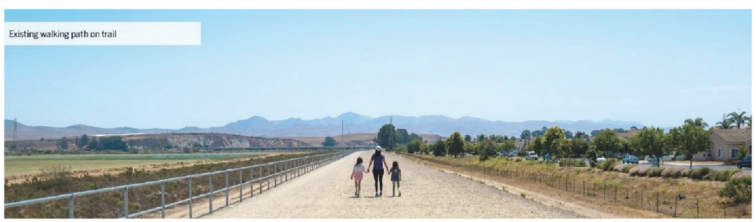
Santa Maria River Levee Trail

Benefits:

- Establishes a 6.7 mile multi-use trail along the Santa Maria River
- Connects to the existing 2.7-mile Tom Urbanske Trail
- Provides access to the outdoors and natural spaces for community members
- Creates a safe bicycling and walking connection between Santa Maria and Guadalupe.
- Provides a safe alternative to biking and walking along Highway 166







This improvement entails installing a 6.7-mile multi-use path along the Santa Maria River between Blosser Road in Santa Maria and Guadalupe Street in Guadalupe. Improvement provides greater multimodal options to reduce VMT and improve air quality.

SECTION 5

COMMUNITY ENGAGEMENT PHASE 2

5 COMMUNITY ENGAGEMENT PHASE 2

As a second phase of community engagement, two in-person public workshops were held, one in the City of Santa Maria and another in the City of Guadalupe. This second phase of community engagement focused specifically on receiving input on the improvement concepts described previously. Public input on the longer-term improvements was not sought during this phase.



Community members provided written comments during the engagement event and provided feedback on specific exhibits and the overall project.

Table 25 summarizes key themes and includes representative quotes that reflect commonly expressed perspectives. Comments have been grouped by exhibit number based on the project numbering below and highlight both areas of support and topics of concern identified by participants. Full comments are provided in **Appendix B**.

1. **Caltrans GAPS/CAPM Project**
2. **SR 166/Simas Road**
3. **SR 166/Bonita School Road**
4. **SR 166/Ray Road**
5. **SR 166/Hanson Way**
6. **SR 166 Driveway Pavement**
7. **SR 166 Intersection Lighting**
8. **SR 166 Vanpool/Transit Improvements**
9. **SR 166 Safety/Truck Improvements**
10. **Betteravia Road/Mahoney Road**
11. **Betteravia Road/US 101 Interchange Improvements**
12. **Santa Maria River Trail**

For reference, **Figure 65** and **Figure 66** revisit input gathered from the Phase 1 community surveys. These graphs indicate which general project types the public supports and which types that lack support. Generally, the workshop participant input aligned with the survey findings. Participants most frequently supported bike lanes, lower speed limits, and additional street lighting. These preferences were also reflected in written feedback, which emphasized safer travel for people walking and biking, slower vehicle speeds, and improved nighttime visibility. Opinions on roundabouts, however, were mixed. Some respondents supported roundabout control as safety enhancements while others expressed opposition, mirroring their lower overall support in the survey. Overall, both the survey results and written comments highlight a preference for safety and multimodal accessibility over roadway expansion.

TABLE 25: PHASE II COMMUNITY ENGAGEMENT COMMENT SUMMARY, BY EXHIBIT

EXHIBIT	THEME	REPRESENTATIVE QUOTES
1	Support for more lighting	*"The lights need to happen NOW! Not 2 years. We have a school opening and traffic will get so much worse"*
	Support for roundabouts	*"Please do roundabouts at SR 1, Obispo and Simas. We need to plan for less SOV traffic and more safety and climate"* *"make the intersections roundabouts"*
	Desire to slow traffic / improve safety	*"Mainline Improvements: Speed limit signs."*
2	Support for roundabout control over signalization	*"Vehicles slow for roundabouts Vehicles speed up for signals especially if the light is yellow. The new light at Black Road has already had accidents. Mayor Patino noticed red light runner too."* *"Change to roundabouts to slow cars down"*
	General comments	*"Add roundabout [SIC]"*
3	General comments	*"Great idea. Schools need safety rails. Worried about kids"* *"Bonita school tiene un gran problema de estacionamiento, ni los mismos maestros y staff tienen el suficiente espacio, cuando un visitante o padre de familia acude tiene que estacionarse en un campo agricola del lado."*
	Support for more formalized parking Support for roundabout control over signalize	*"Please replace the signal with a roundabout. It will slow traffic. Physical traffic calming is superior to feedback signs."*
	Desire for better transit service	*"I really like the idea for buses to have more time to turn."*
4	Support for bike and pedestrian improvements	*"Please add a bike lane to every street Make them complete streets"*
	Desire for better transit service	*"Let's not make things more convenient for cars- it will induce demand. Let's put the funds to more frequent buses and bicycle infrastructure."*
	Desire to slow traffic / improve safety	*"Turning symbols. Bumpers. Speed limits."*
	General comments	*"Good, so there is less traffic"*
5	Support for bike and pedestrian improvements	*"more lanes will induce demand make nicer for pedestrians and cyclist"*
	Desire for better transit service	*"Please consider 'no right on red' at Blosser Rd at 166 with the westbound 166 # 2 lane becoming 'right turn only.' Let's not put money into making car travel more convenient. Let's put into more frequent bus service, longer hours, more convenient bus rides."*

6	Supports driveway aprons	*"Great idea. Cuts down on mud in rainy season"*
	Reduce SR 166 speed limit Install dirt traps (see Suey Road between Jones St and E Main St.	*"Require farms to regularly sweep now. They water the dirt."*
7	Supports lighting and reflective paint	*"Security lighting at all major intersections."* *"More the better including reflectors."*
8	Supportive of CalVan expansion and more frequent Guadalupe Flyer transit service	*"Starting with more transportation is a big step for agricultural workers and the community in general. 'More vans is great.'".* *"Please plan for 15 minute bus frequency (4 per hour) and longer hours."* *"I know lots of people who don't have cars and work in fields, this will help."*
9	Supportive of formalizing truck routes	*Reroute trucks and tractors down Simas Rd to avoid through town truck and tractor congestion.*
	Not supportive of Speed Feedback Signs	*"Feedback signs are pretty useless"*
	Support for Roundabouts	*"People speed on the road because it is designed for 70mph."* *"Roundabouts reduce deaths and serious injuries by 70%"*
10	Supportive of Roundabout at this location	*"As residents of Santa Maria traveling to Tanglewood, we are witnesses to the danger of the Betteravia and Mahoney Rd. intersection. A roundabout plan is urgent. Many fatal accidents have occurred there."* *"While I am not normally a fan of roundabouts, this one looks like it will significantly help with safety and flow."*
11	Supportive of interchange improvement	*"more lanes will induce demand make nicer for pedestrians and cyclist"*
12	Supportive of Santa Maria Levee Multipurpose Trail	*"Yes! 10' wide paved bike path please. Will there be underpasses at Bonita School Rd, Rail Road and SR1?."*

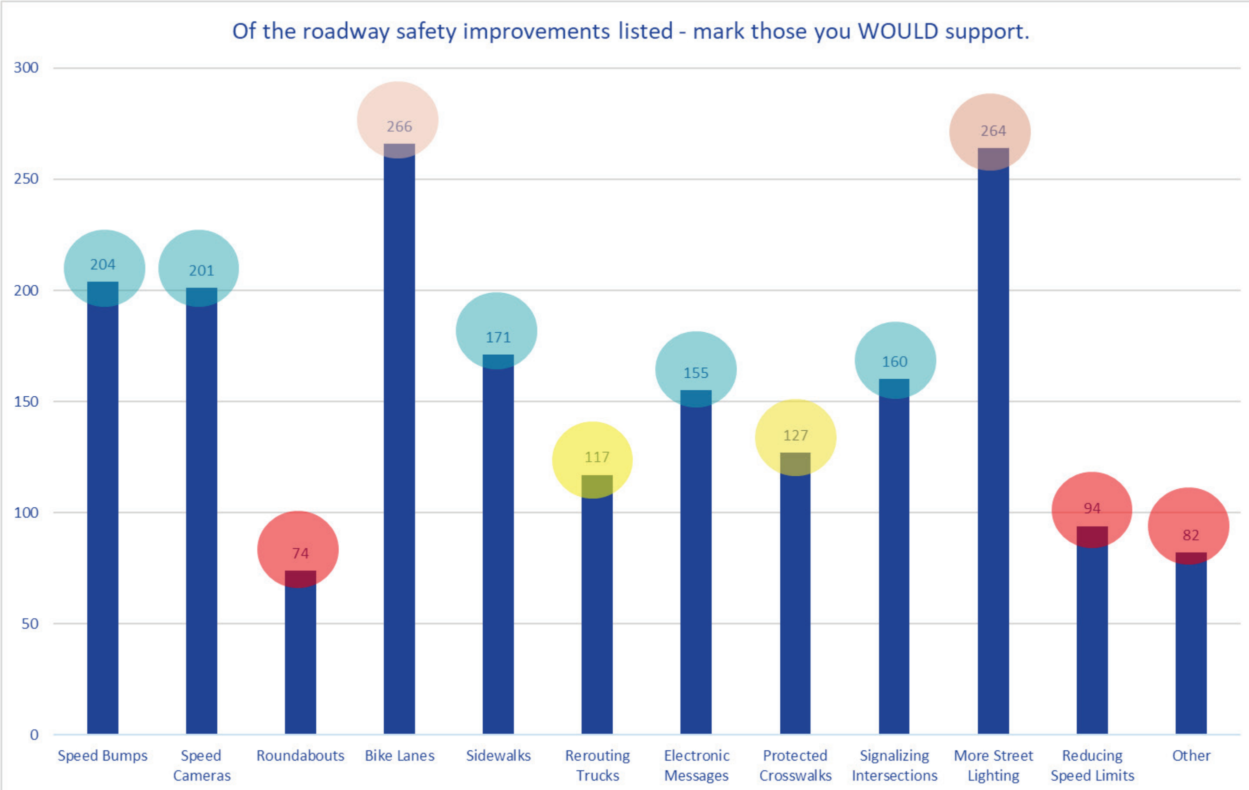


FIGURE 65: SUPPORTIVE OF IMPROVEMENTS (PHASE 1 COMMUNITY SURVEY)

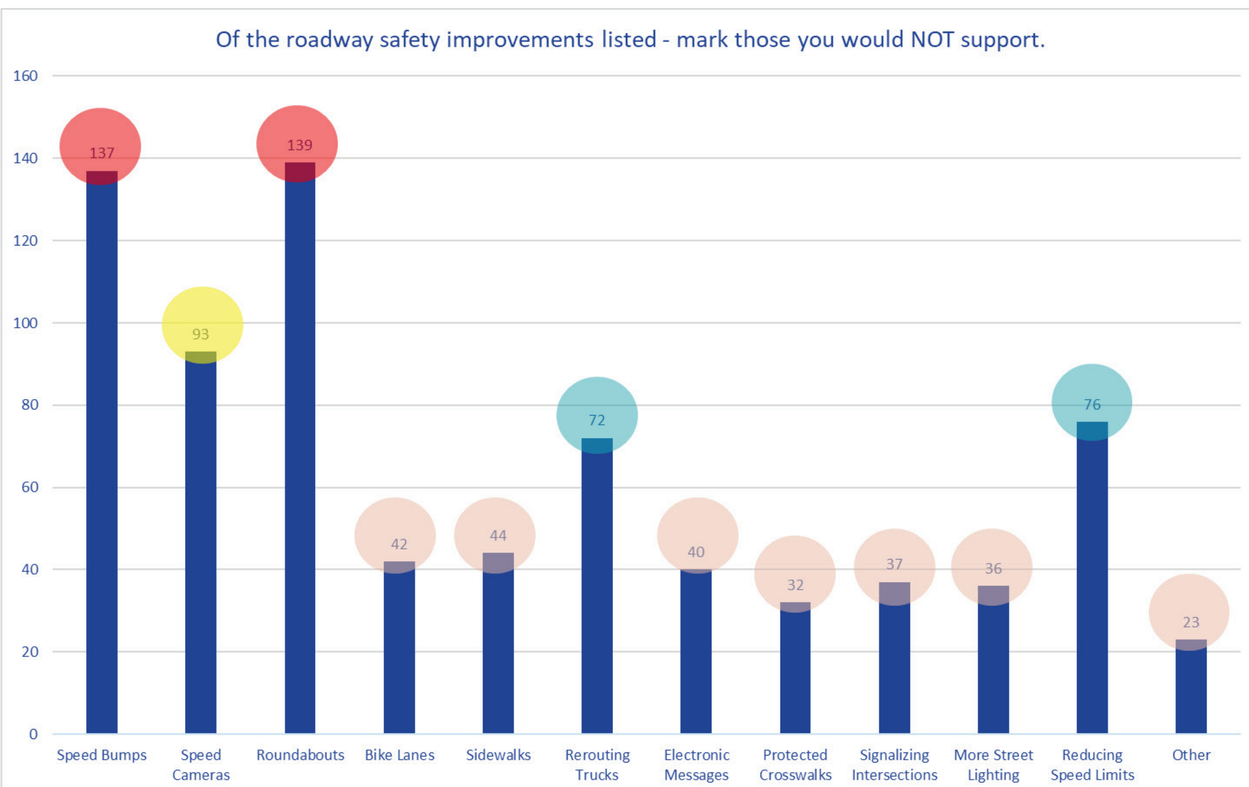
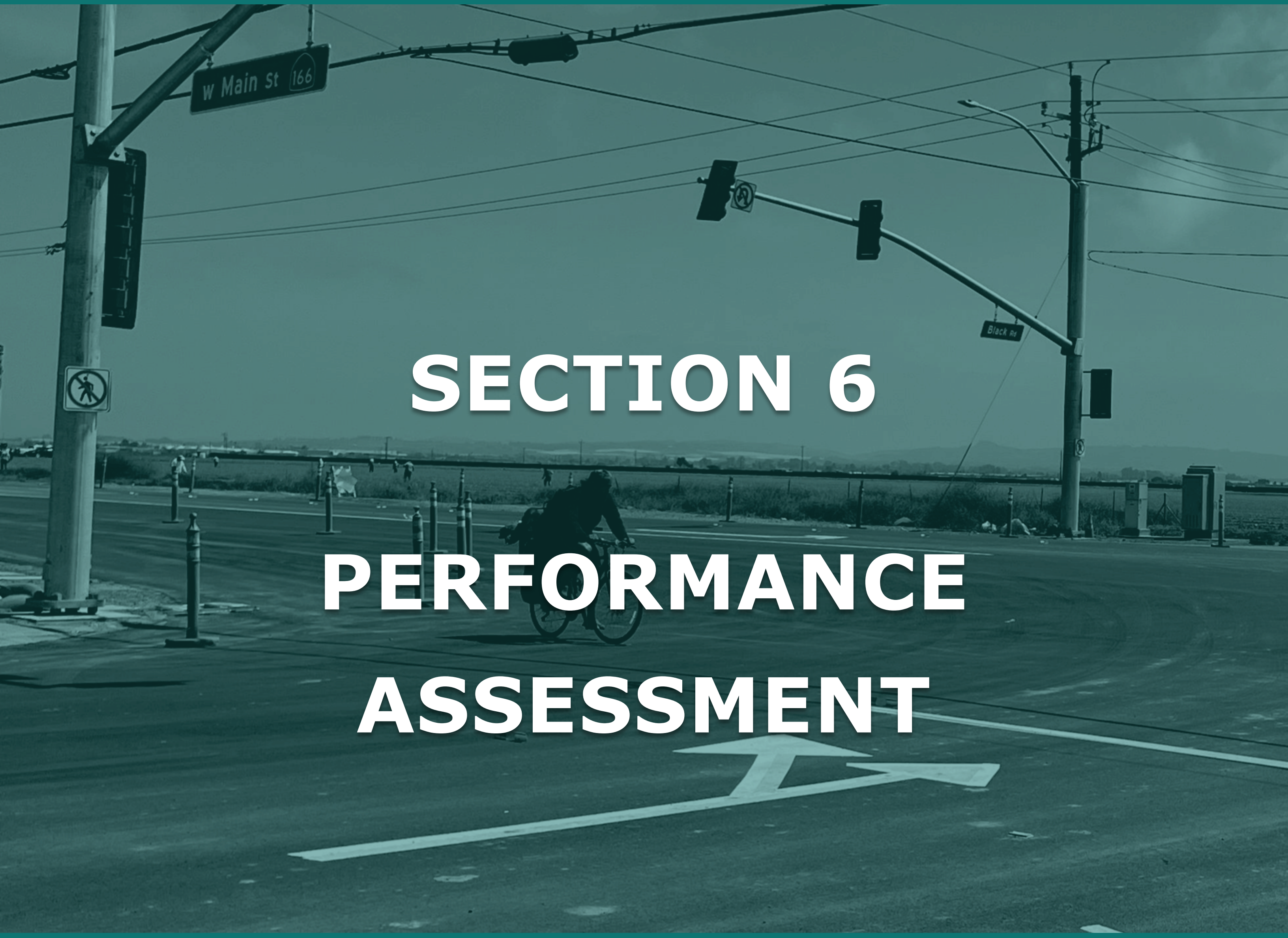


FIGURE 66: UNSUPPORTIVE OF IMPROVEMENTS (PHASE 1 COMMUNITY SURVEY)



SECTION 6

PERFORMANCE ASSESSMENT

6 PERFORMANCE-BASED ANALYSIS

Funding for multimodal transportation improvements is heavily influenced by State and Federal objectives related to air quality and adaptation, environmental justice, and social equity. To be competitive for procuring competitive transportation grant funding, the SR 166 Comprehensive Corridor Study (CCS) must document how the recommended multimodal improvements address these State and Federal objectives and initiatives. The SR 166 CCS was developed consistent with the following corridor planning guidance published by the State:

- Corridor Planning Process Guide (Caltrans, 2022)
- Comprehensive Multimodal Corridor Plan Guidelines (California Transportation Commission; 2025); and,
- SB-1 Accountability and Transparency Guidelines (California Transportation Commission, 2023)

These guidelines were all developed based on the Caltrans Smart Mobility Framework: *A Call to Action for the New Decade* (Caltrans, 2010; updated in 2021). The Smart Mobility Framework (SMF) provides a broad planning framework to help guide multimodal and sustainable transportation planning and development along with providing tools and techniques to assess how well plans, programs, and projects meet 'smart mobility' goals.

The fundamental premise of the SMF is to ensure that planning or programming decisions for transportation are performance based (i.e., quantitative), transparent, and address sustainable outcomes and objectives. Performance metrics were selected to match each of the six SMF principles to ensure that the resulting measurement package would provide a balanced, sustainable, and multimodal assessment of current and forecast corridor conditions. Choice of performance metrics to apply for the SR 166 CCS were tailored to match the scale of analysis and to inform the six SMF objectives shown in **Figure 67**.

FIGURE 67: SMART MOBILITY FRAMEWORK, CALTRANS

6.1 BENEFIT COST ANALYSIS OVERVIEW

Both federal and state transportation funding are currently driven by performance-based return-on-investment criteria. Equal attention will be given to documenting the beneficial outcomes of measures not directly reflected in the Benefit-Cost assessment.

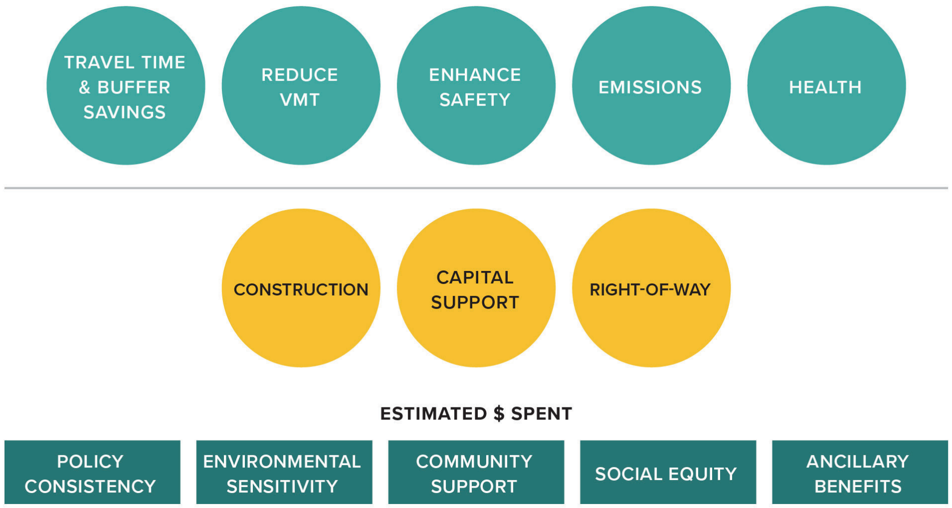


FIGURE 68: BENEFIT-COST ANALYSIS

Figure 69 provides the proposed analysis framework for the SR 166 CCS. Analysis tools, models, and methodologies applied to quantify the performance of SR 166 are presented. The purpose for the application, output or Measure of Effectiveness (MOE), and whether the MOE is amenable for monetization as a societal cost (i.e., benefit) is provided. All monetized benefits are annualized and projected to reflect a 20-year design year condition. Though some metrics cannot be monetized (last column denoted by "No"), they can be quantified. These non-monetizable metrics should still be documented and described to complete a given grant's criteria narrative and analysis.

The SR 166 CCS recommended package of multimodal capital improvements will include requisite rubrics and criteria information including planning level cost opinions; delay reduction, buffer time reduction, safe route to school applicability; Level of Traffic Stress scores; mode shift; VMT reduction (per NCHRP 552 Method); collision reduction benefit (per HSM and HSIP Analyzer), health benefit, air quality benefit (per CTC's SB-1 Air Quality Calculator or Cal-B/C); societal cost and benefit monetization factors (per Caltrans Economic Parameters); and a benefit-cost ratio for each improvement.

Monetized benefits to the private sector are not considered in this performance assessment - namely the monetary benefit of transporting perishable agricultural goods more efficiently and reliably. The agricultural cost implications can be significant given that one hour from cut/pick to cooler equates to one day loss of shelf life (Grower Shippers Association). Given that this ancillary benefit is not reflected herein, the SR 166 improvement benefit-cost results should be considered underestimated.

As stated previously, implementation of the following two improvement concepts is considered beyond the 25-year planning horizon of the study: 1) Class I Multipurpose Trail from SR 1 to Santa Maria; and, 2) SR 166 4-Lane Widening from SR 1 to Blosser Road. As such, these two longer-term improvements are not reflected in the performance assessment.

SR 166 Comprehensive Corrior Study		Analysis Tool														
Analysis Purpose	Measure of Effectiveness	SBCAG Travel Demand Model	Streetlight/Replica Big Data	Traffic/Ridership Counts	NPMRDS - Travel Time and Speeds	SWITRS / TIMS - Collisions	Highway Capacity Manual	Operational Software Synchro	Level of Traffic Stress	HSM Part B CMFs (Part C)	ArcGIS Network Analyzer	Online Mapping Tools: EQI Tool; CalEnvironScreen4.0; Caltrans Vulnerability Map	TCRP Report 118; Transit Capacity Quality of Service Manual	IMPLAN	Quantifiable	Monetize for Benefit/Cost
Baseline Travel Demand	Volume, Ridership, VMT, Throughput	■	■	■											Yes	Yes
Future Travel Demand	Volume, Ridership, VMT, Throughput	■													Yes	Yes
Segment Operations (Baseline): Vehicles	Speed-Based LOS, Buffer Time, Buffer Time Index			■	■		■	■							Yes	Yes
Segment Operations (Baseline): Trucks	Speed-Based LOS, Buffer Time, Buffer Time Index			■	■		■	■							Yes	Yes
Segment Operations (Future): Vehicles	Delay, Density, TTI, Buffer Time, BTI	■		■	■		■	■							Yes	Yes
Segment Operations (Future): Trucks	Delay, Density, TTI, Buffer Time, BTI	■		■	■		■	■							Yes	Yes
Intersection Operations (Baseline)	Delay, Queuing, LOS	■		■			■	■							Yes	Yes
Intersection Operations (Future)	Delay, Queuing, LOS	■		■			■	■							Yes	Yes
Transit Ridership (Baseline & Future)	Accessibility, Ridership, VMT	■		■									■		Yes	Yes
Pedestrian Connectivity	Access Indices								■		■				Yes	No
Bike Connectivity	Access Indices								■		■				Yes	No
Mode Shift (VMT Reductions)	Trips, VMT										■		■		Yes	Yes
Safety	Collision Reduction & Rates	■				■				■					Yes	Yes
Air Quality	Emissions (Criteria & GHG)	■													Yes	Yes
EJ/Social Equity	Access, Benefit/Burden	■	■						■		■	■			Yes	No
Economic Development	GRP, Jobs, Income										■			■	Yes	No
Health	Vehicle Miles Traveled	■										■			Yes	Yes
Adaptation	Network Vulnerability	■									■	■			Yes	No

Legend ■ *Direct or Indirect Application*

FIGURE 69: SR 166 COMPREHENSIVE CORRIDOR STUDY ANALYSIS MATRIX

Given that not all relevant factors can be quantified, the DKS team coordinated with SBCAG, Caltrans District 5, the local agencies, and key stakeholders to qualitatively address the following considerations:

- Consistency with established goals and objectives of the study
- Plan Consistency (with other existing plans and policies)
- Policy Consistency (SBCAG, Caltrans, City of Santa Maria, City of Guadalupe, County of Santa Barbara)
- Environmental/Institutional Sensitivity
- Community Acceptance (based on the community engagement process)
- Social Equity (per the environmental justice and social equity assessment)

DKS reviewed existing statewide policies, Regional Transportation Plan (RTP) policies, and local agency General Plan policies to sync those with the purpose and need for the various multimodal and safety improvements.

Given that SR 166 is a State owned and maintained roadway, Caltrans support and endorsement of any recommended improvements will be critical. This is particularly the case if SB-1 competitive grant funding programs are sought as a potential funding source. SB-1 competitive grant programs are the most likely funding source to implement one or more of the SR 166 CCS recommended improvements in the near term.

Under the auspices of "Policy Consistency", "Environmental Sensitivity" and "Social Equity", it is important to consider Caltrans Climate Action Plan for Transportation Infrastructure (CAPTI). CAPTI ensures that the States's climate, health, and social equity goals are explicitly considered when discretionary transportation funds, such as SB-1 competitive grant program funding, are sought for implementing state highway infrastructure projects. To operationalize CAPTI, Caltrans developed the Caltrans System Investment Strategy (CSIS) that establishes methodologies and processes for Caltrans to evaluate and prioritize proposed infrastructure projects. Proposed improvements (or packages of improvements) must not only address transportation deficiencies but also align with CAPTI to receive Caltrans endorsement. Without Caltrans endorsement the likelihood of the Caltrans Transportation Commission awarding grant funding greatly diminishes. The CAPTI Alignment Metrics are listed in **Figure 70**. As shown, the performance metrics applied in the SR 166 CCS align with the CAPTI metrics.

In addition to ensuring eligibility and consistency with SB-1 competitive grant programs including Solutions for Congested Corridors Program and Trade Corridor Enhancement Program, the SR 166 CCS screened the multimodal improvement package relative to CAPTI. It also qualitatively addresses how the SR 166 CCS improvement recommendations perform relative to climate change vulnerability, environmental sensitivity, and social equity. Although Caltrans is solely responsible for performing CAPTI assessments, these quantitative and qualitative assessments presented herein are meant to facilitate project evaluations through a CAPTI lens and to provide supporting information for future grant applications.

The multimodal technical analyses performed as part of the SR 166 CCS provide key information to guide near-term and future programming decisions and/or validate how SBCAG and its member agencies are currently investing resources – particularly as part of pre-construction phases of project development.

QUANTITATIVE METRICS

- SAFETY
- VEHICLE MILES TRAVELED (VMT)
- ACCESSIBILITY
- DISADVANTAGED COMMUNITY (DAC) ACCESS TO JOBS/DESTINATIONS
- DISADVANTAGED COMMUNITY (DAC) TRAFFIC IMPACTS
- MULTIMODAL AND CLEAN FREIGHT
- LAND USE AND NATURAL RESOURCES
- PASSENGER MODE SHIFT

QUALITATIVE METRICS

- PUBLIC ENGAGEMENT
- CLIMATE ADAPTATION/RESILIENCE
- ZERO EMISSION VEHICLE INFRASTRUCTURE

FIGURE 70: CAPTI PERFORMANCE METRICS

6.2 IMPROVEMENT SUMMARY

This section summarizes the benefit-cost analysis (BCA) of the preferred multimodal improvement package for the SR 166 CCS. There is a total of 12 distinct improvements that make up the overall package (includes Caltrans GAPS/CAPM Project), each of which may be designed and constructed in alternative combinations or individually on separate timelines. Hence, the BCA was prepared such that each improvement is evaluated distinctly and comes with its own unique benefit-cost ratio.

1. **Caltrans GAPS/CAPM Project**[34]
2. **SR 166/Simas Road**
3. **SR 166/Bonita School Road**[35]
4. **SR 166/Ray Road**
5. **SR 166/Hanson Way**
6. **SR 166 Driveway Pavement**
7. **SR 166 Intersection Lighting**
8. **SR 166 Vanpool/Transit Improvements**
9. **SR 166 Safety/Truck Improvements**
10. **Betteravia Road/Mahoney Road**
11. **Betteravia Road/US 101 Interchange Improvements**
12. **Santa Maria River Trail**

As stated previously, funding for these improvements will likely be contingent upon State/Federal competitive grant programs. Typically, competitive grant programs have explicit requirements for BCAs to be included in their applications. Some examples of programs that may be pursued that require a BCA are:

- Trade Corridor Enhancement Program (TCEP) – SB-1 California
- Solutions for Congested Corridors Program (SCCP) – SB-1 California
- California Highway Safety Improvement Program (HSIP) – California
- Better Utilizing Investments to Leverage Development (BUILD) Grant Program (formerly RAISE Grants) – Federal
- Nationally Significant Multimodal Freight & Highway Projects program (INFRA) – Federal

As described previously, several improvement concepts are considered beyond the 25-year planning horizon of the study. Although not included in this performance assessment, these longer-term projects (listed below) should be considered for inclusion in the Tier II Uncontrained list of projects during future updates of SBCAG's Regional Transportation Plan. Should funding become available (i.e., future renewal of Measure A) these projects may be considered for the Tier I financially constrained list and become eligible for other State/Federal funding.

13. **Class I Multipurpose Trail from SR 1 to Santa Maria**
14. **SR 166 4-Lane Widening from SR 1 to Blosser Road**

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[34] This improvement is not included in this BCA given that it is fully funded and will be delivered by Caltrans.

[35] The possibility of moving the school to are more urban location in or nearer to the City of Santa Maria has been considered. All the students who currently attend the Bonita Elementary School live in Santa Maria.

6.3 METHODOLOGY AND ASSUMPTIONS

This section details the methodology and assumptions that are used for this BCA, including the general framework utilized to calculate benefits and costs and the methodology used to determine site conditions in the future with elements of the SR 166 project implemented.

Benefit-Cost Analysis Framework

Conducting a BCA requires establishing the baseline and the build scenario that will have its benefits and costs analyzed. For the case of the SR 166 project, existing conditions as of the writing of the Existing Conditions Report are considered the baseline scenario, while the "build" scenario is one the improvements described in the previous section are implemented. In general, improvements for this project are assumed to be constructed by 2030 and have a 20-year design life, culminating in a design year of 2050.

This BCA follows the United States Department of Transportation (USDOT) Benefit Cost Analysis Guidance[36] as a basis for some key assumptions in calculations and presentation of BCA data. Following the guidance outlined in that document, this BCA presents all monetized benefits and costs in terms of 2023 dollars, and all benefits or costs that are incurred over future years or several years are discounted back to 2023 dollars using a 7 percent discount rate. a 2.9 percent inflation rate is utilized[37] when projecting monetized benefits or costs forward in time (such as calculating the worth of a 2025 cost estimate to 2030 dollars for a year of opening cost). The discount rate and inflation rate are important parameters that allow costs and monetized benefits to be adjusted to meet at a common analysis year (2023) so that the time value of money and inflation are not factors in the final benefit-cost ratio. **Table 26** and **Table** 27 below provides a sample calculation of a simple representative improvement's monetized benefits and costs.

TABLE 26: REPRESENTATIVE BENEFIT CALCULATION

YEAR OF BENEFIT[A]	MONETIZED BENEFIT ($ MATCHES YEAR OF BENEFIT)	MONETIZED BENEFIT (DISCOUNTED TO 2023$)
2030	$10,000	$6,228
2031	$10,000	$5,820
2032	$10,000	$5,439
	TOTAL DISCOUNTED BENEFIT (2023$)	**$17,487**

[A] Only 3 years are shown for simplicity. This BCA includes 20 years of analysis (2030-2050).

TABLE 27: REPRESENTATIVE COST CALCULATION

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[36] https://www.transportation.gov/sites/dot.gov/files/2025-05/Benefit%20Cost%20Analysis%20Guidance%202025%20Update%20II%20%28Final%29.pdf

[37] Avg of Q1 2025 and Q2 2025 https://apps.bea.gov/iTable/?reqid=19&step=3&isuri=1&1921=survey&1903=11#eyJhcHBpZCI6MTksInN0ZXBzIjpbMSwyLDMsM10sImRhdGEiOltbIk5JUEFfVGFibGVfTGlzdCIsIjExIl0sWyJDYXRlZ29yaWVzIiwiU3VydmV5Il0sWyJGaXJzdF9ZZWFyIiwiMjAyMCJdLFsiTGFzdF9ZZWFyIiwiMjAyNSJdLFsiU2NhbGUiLCIwIl0sWyJTZXJpZXMiLCJRIl1dfQ==

YEAR OF COST[A]	NOMINAL CAPITAL COST ($ MATCHES THE YEAR OF COST)	REAL CAPITAL COST (DISCOUNTED TO 2023$)[C]
2030	$28,841[B]	$14,704
2031	$0	$0
2032	$0	$0
	TOTAL DISCOUNTED BENEFIT (2023$)	**$14,704**

[A] Only 3 years are shown for simplicity. This BCA includes 20 years of analysis (2030-2050).

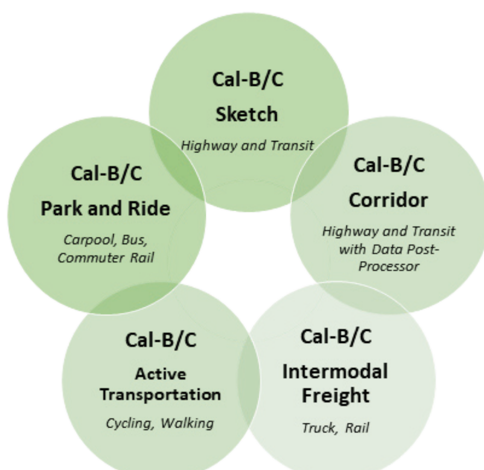
[B] Costs are most likely presented to the analyst where the worth of a dollar matches the year that the estimate took place. This year of opening cost assumes 2.9% inflation to an estimate that was prepared in 2025 dollars and was $25,000.

[C] Real costs remove the effects of inflation between the analysis year (2023) and the year that the cost is incurred (2030).

Combined, this example benefit and cost results in a benefit-cost ratio of approximately 1.20 (indicating a higher societal benefit compared to the capital cost).

CAL-BC

The Cal-BC tool provides calibrated benefit calculations for several performance measures based on project inputs. Cal-B/C consists of five modules: 1) Cal-B/C Sketch, 2) Cal-B/C Active Transportation (AT), 3) Cal-B/C Park and Ride (PnR), 4) Cal-B/C Corridor, and 5) Cal-B/C Intermodal Freight (IF). This tool is commonly used for grant applications for both state and federal funding opportunities. Where possible, the Tier A projects were entered into the Cal-BC tool to estimate the included benefits, while others were calculated separately to create a more complete benefit package.



Caltrans: https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/state-planning/transportation-economics

Volume Development

The BCA relies on a forecast of future transportation conditions in the study area. The latest SBCAG Travel Demand Model was used to forecast future traffic volumes. A forecast of future motor vehicle volumes is imperative to understanding changes associated with future conditions.

Motor Vehicle Delay Calculations

Traffic operations were analyzed for the weekday AM and PM peak hours under the existing, future No-Build, and future Build conditions. This analysis was conducted using Synchro (v12) software. The operational analysis examines intersection delay and level of service as well as the 95th percentile queue lengths. Synchro employs the methodology from the Highway Capacity Manual (HCM) 7th Edition. For evaluating roundabout intersection control, Sidra software was used, which also employs HCM 7th Edition. Operational determinations were performed before and after the improvement. Results focused on estimating vehicle delay. For signals and all-way stop-controlled intersections, intersection average delay and LOS are based on the average for all vehicles, while at two-way stop-controlled and roundabout intersections, it's based on the movement or approach with the highest delay. For the SR 166 westbound merge analysis west of Blosser Road, SimTraffic was used to capture the change in travel speed on SR 166. SimTraffic is a microsimulation tool that simulates individual vehicles and their interaction with each other. The existing model was validated to existing travel speed and then compared to the travel speed with the merge extension.

Vehicle-Miles Traveled Estimates

Vehicle-miles traveled (VMT) reduction leads to societal benefits that can be monetized for a BCA, including emission reductions, lower vehicle operating costs, increased roadway safety, less noise, less congestion, and less pavement wear-and-tear. Some of the improvements that are proposed in this project are expected to lead to lower VMT by passenger vehicles or trucks. This section details the methods and assumptions used to determine the VMT reduction.

<u>Vanpool/Transit Service Expansion</u>

Improvement 8 includes the expansion of vanpool and transit services.

The agricultural workers that are the primary beneficiaries to this expanded vanpool opportunities. The resultant reduction in automobile VMT is calculated assuming that 80% of new ridership on CalVans were previously making trips in an automobile. The remaining 20% are assumed to be existing carpoolers. The agricultural workers that are the primary beneficiaries to this expanded transit service are known to carpool to their respective worksites at high rate, and therefore the assumed occupancy rate of vehicles on SR 166 is assumed to be high at 2.2 occupants[38] per vehicle. The average transit trip on SR 166 is approximately 8 miles. This culminates in a VMT calculation fitting the following calculation: *(Added Vanpool Ridership)*(0.8)*(2.2)*(8).*

To assess the benefits associated with the transit improvements proposed in the SR 166 CCS, the methodologies presented in Transit Cooperative Research Program (TCRP) Report 118: *Bus Rapid Transit Practitioner's Guide* was employed to project transit ridership. The methodologies documented in TCRP 118 are all aggregate elasticity-based methods derived from national data. Transit improvements include a 30-minute increase in service frequency for the Guadalupe Flyer service (operated by SMRT). The proposed transition from 60-minute to 30-minute headways and add one 30' electric bus to SMRT's fleet. Although a dedicated BRT line is not proposed (i.e., dedicated travel lane and 15-minute headways), the frequency improvement combined with the other proposed

[38] Assumed agriculture field worker average vehicle occupancy based on national grant guideline default of 1.5 adjusted to 2.2 by DKS.

infrastructure improvements will serve to prioritize transit vehicle operations and travel times to improve on-time performance and reliability in ways that emulate BRT operations. These improvements justify the conservative application of the BRT Practitioners Guide Elasticity Methodology for estimating the mode shift analysis for improving the service frequency of the SMRT transit service between Guadalupe and Santa Maria (formally the Guadalupe Flyer).

Freight Corridor Route

Improvement 9 proposes/recommends establishing additional east-west STAA Terminal-Access routes in the study area. These additional routes will create a shorter access route to US 101 than the existing route used[39]. The proposed STAA routes to US 101 northbound is 1.17 miles shorter than if trucks remained on SR 166 to access US 101, and the new STAA route to US 101 southbound is 0.48 miles shorter. The annual number of northbound and southbound trucks is multiplied by the reduction in miles traveled to determine the VMT reduction.

Active Transportation Facilities

The National Cooperative Highway Research Program (NCHRP) developed the "*Guidelines for Analysis of Investments in Bicycle Facilities*" in Report 552 to better understand the benefits, mode shift, and induced demand from creating new bicycle facilities. These guidelines were utilized to analyze the Improvement 11 and 12 (Santa Maria Levee Trail and the US 101/Betteravia interchange improvement) to determine the VMT reduction from the construction of new bicycle facilities. The reduction in VMT was then analyzed to determine societal benefits in monetary terms related to mobility, health, recreation, and decreased auto-use.

The NCHRP 552 analysis guidelines were applied in GIS using ArcGIS Pro 3.3.1 and Microsoft Excel. A multi-step process in ArcGIS Pro 3.3.1 was used to determine the local population within three distance ranges to each project: ¼ mile, ½ mile, and 1 mile. The Service Area Analysis tool within the Network Analyst toolbox was used to create network buffers to determine the future population within the distance ranges of each project as shown in **Figure 71**. Dasymetric estimation was used to create a representative point layer containing future populations based on land use and future population which was then summarized by each network buffer. The resulting populations within each project distance buffer were entered into Excel to calculate project benefits for mobility, health, recreation, and VMT reduction. Detailed methodology and assumptions for the calculation of benefits can be found in NCHRP Report 552[40].

Mode shift describes the replacement of a trip using one mode with another. The NCHRP 552 analysis assumes that the construction of new bicycle infrastructure will induce new bicycle trips due to mode shift or new trip taking. NCHRP 552 determines this using the following distance dependent formulae:

[39] Measured (distance from A to B which is from the SR 166/SR 1 intersection to US 101 at either US 101/SR 135 interchange (for northbound truck traffic) and US 101/Betteravia interchange (for southbound truck traffic). Note – results reflect Alternative 1 T-Access network, distances of alternative networks may vary.

[40] Transportation Research Board. (2006). *Guidelines for analysis of investments in bicycle facilities* (NCHRP Report 552). Transportation Research Board. https://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_552.pdf

$$\textbf{New commuters} = \sum_{d = 400,\, 800,\, 1{,}600} (\text{Existing commuters} \times (L_d - 1))$$

$$\textbf{New adult cyclists} = \sum_{d = 400,\, 800,\, 1{,}600} (\text{Existing adult cyclists} \times (L_d - 1))$$

Where:

$L_{400m} = 2.93$

$L_{800m} = 2.11$

$L_{1600m} = 1.39$

The methods above assume that the closer a person is to a facility the more likely they are to begin using it. The resulting trip behavior results in the monetized health, mobility, recreation, and VMT reduction benefits described in the Monetized Benefits section.

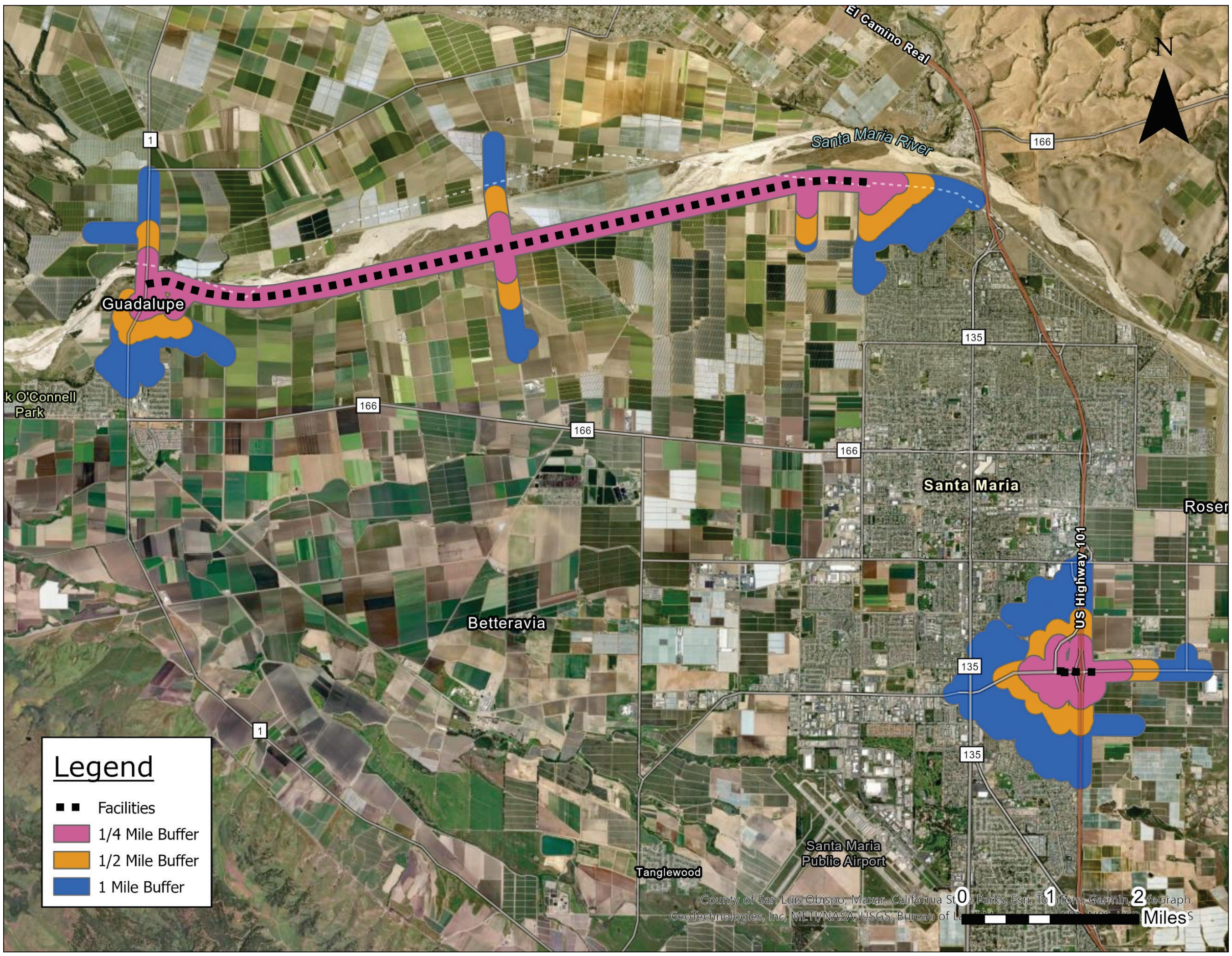


FIGURE 71: PROJECT POPULATION BUFFERS FOR NCHRP 552 ANALYSIS

Travel Time Reliability

Holistically, all of the SR 166 infrastructure improvements are expected to collectively improve travel time reliability for motorists traveling between Guadalupe and Santa Maria. As documented in the SR 166 Existing Conditions Report (November 2024 – updated August 2025), baseline buffer time was derived from 12 months of NPMRDS speed data for SR 166 study corridor, broken down into three segments/time periods: agricultural AM peak hour, commuter travel in the AM peak hour and commuter travel in the PM peak hour.

Changes in buffer time (i.e., travel time reliability) on SR 166 were based on the percentage change in the Travel Time Index[41] between the existing condition, the 2050 future baseline condition and the future 2050 build condition as generated by the SBCAG travel demand model. These percent changes were then applied to "grow" the empirically based NPMRDS buffer time existing condition results. The delta between these adjusted NPMRDS buffer time estimates yield the future year buffer time reduction. This approach assumes that all non-traffic congestion related influences such as inclement weather, construction activity, incidents etc., experienced along SR 166 during the 12-month period of 2023 data retrieval will also hold under future-year conditions (i.e., only changes in traffic and traffic operations will influence changes to existing travel time reliability). The delta between these adjusted NPMRDS buffer time estimates yielded the future year buffer time reduction. Buffer time in seconds for the three peak hours was expanded to reflect five hours (assuming that after ten years the reliability characteristics will expand into the shoulder hours of the three peak hours analyzed). Buffer time was expanded to reflect 20 years of benefit and multiplied by value of time (Cal-B/C composite societal cost for autos and trucks was applied to monetize delay) to generate the total buffer time savings.

Collision Reduction (Safety)

Five years of collision data (See Existing Conditions) were reviewed to identify any collision trends which could be correctable by various design elements in the preferred package of improvements.

State and Federal research has evaluated the impact of roadway modifications on traffic safety. Caltrans has published its findings regarding how many collisions are prevented by a series of roadway improvements in the Local Road Safety Manual which is updated every two years. The Federal Highway Administration maintains a database of similar research at the federal level called the CMF Clearinghouse, where research on Collision Modification Factors is stored. For example, installing bicycle lanes has a collision modification factor of 0.65. This means that after installation, collisions are expected to occur 65% as often as they did before installation, or in other words, 35% of collisions would be prevented by the installation.

The Crash Modification Factor (CMF) Clearinghouse served as a resource for identifying and applying empirically derived crash modification factors to evaluate the effectiveness of roadway safety improvements and countermeasures.

[41] Travel Time Index (TTI): Peak Travel Time / Free-Flow Travel Time

Table 28 lists the CMFs used for this analysis. Note, all collisions are filtered prior to application of CMFs to include only relevant collisions as applicable to a given CMF.

TABLE 28: SUMMARY OF APPLICABLE CRASH MODIFICATION FACTORS (CMFS)

PROJECT	CMF ID	CMF DESCRIPTION	CMF VALUE
2. SR 166/SIMAS ROAD	323 4648	Install a traffic signal (major road speed limit at least 40 mph) Installation of left-turn lanes on both major road approaches	0.33 (angle crashes only) 0.67 (all crashes)
3. SR 166/BONITA SCHOOL ROAD	6885	Install dynamic speed feedback sign	0.95 (all crashes)
4. SR 166/RAY ROAD	6602 3010	Replace standard stop sign with flashing LED stop sign Install one left-turn lane on the minor approach of an unsignalized 3-leg intersection	0.59 (angle crashes only) 0.75 (all crashes)
5. SR 166/HANSON WAY	R11[A]	Install acceleration and deceleration lane	0.75 (all crashes)
6. SR 166 DRIVEWAY APRONS	N/A[B]	High Friction Pavement Treatment	0.80 (See Note B)
7. SR 166 INTERSECTION LIGHTING	4462	Install intersection lighting	0.88 (nighttime crashes)
8. SR 166 VANPOOL/TRANSIT IMPROVEMENTS	N/A	N/A	
9. SR 166 SAFETY/TRUCK IMPROVEMENTS	4855	Installation of an actuated advance warning dilemma zone protection system at high-speed signalized intersections	0.89 (fatal and injury crashes)
10. BETTERAVIA ROAD/MAHONEY ROAD	211	Conversion of stop-controlled intersection into single-lane roundabout	0.18 (injury crashes only)

PROJECT	CMF ID	CMF DESCRIPTION	CMF VALUE
11. BETTERAVIA ROAD/US 101 INTERCHANGE IMPROVEMENTS	4880	Conversion of signal-controlled intersection to roundabout	0.30 (injury crashes only)
12. SANTA MARIA RIVER TRAIL	N/A	N/A	N/A

[A] CMF sourced from Caltrans *Local Roadway Safety Manual: A Manual for California's Local Road Owners*, April 2024
[B] Closest analogs for Driveway aprons are CMFs for paving currently unpaved shoulders (traction control - CMF 0.7-0.9 for run-off road crashes and 0.4-0.7 for rural crashes) and dust suppression/paving unpaved roads (visibility improvement - no available CMF). HFST can claim a 20% Crash Reduction Factor (0.80 CMF) of relevant crash types (e.g., involving a driveway, angle, avoiding someone turning in or out, etc.) along this corridor.

6.4 PLANNING LEVEL COST ESTIMATES

Cost estimates were prepared based on the preliminary understanding of the scope of improvements required for this project. These costs may change as design is progressed, and scope is finalized. Costing methodologies and (O&M) costing respectively is provided below.

Capital Costing

The capital costing methodology and key planning level capital cost assumptions are listed below.

- Quantities for all projects except the Santa Maria River Levee Trail (SMRLT) are based on the conceptual plans prepared by Psomas.
- Unit Prices for all projects except the SMRLT are based upon the Caltrans Cost Database and recent bid summaries
- Quantities for the SMRLT are taken from the cost estimates included in the SMRLT Study 2022
- Unit Prices for the SMRLT are taken from the cost estimates included in the SMRLT Study 2022 with a 22.3% escalator based upon the California Construction Cost Index for 2022-2024, except some Unit Prices have been updated where noted based upon Caltrans Cost Database, recently-bid projects, and engineering judgement.
- Striping for southbound right-turn STAA channelization at SR 166/SR 135 is $20,000
- Cabinet/sign/pole relocation for southbound right-turn STAA channelization SR 135/Betteravia is $250,000.
- Signal detection upgrades for better dilemma zone detection are $200,000 per signal impacted.
- A contingency of 25% has been applied to all projects.
- Project Development Support Costs (PA&ED, PS&E, Right-of-way Engineering, Construction Management) are identified at 35% for all projects.
- Five years of cost escalations are identified based upon an annual rate of 5.42% (the average increase for the DGS San Francisco + Los Angeles CCI; August 2015-August 2025).

Per unit cost assumptions are provided below.

- Signage $500/unit (includes panel and installation)

- Lighting $14,400/unit (includes cobra head pole, power hookup, utility coordination and installation)
- 35’ Bus $/unit (SMRT)
    - CNG Buses: $886,800 - $987,000 for 35-foot CNG buses
    - Electric Buses: $1,179,600 - $1,313,000 for 35-foot battery electric buses
    - MTC bus pricing estimated costs for FY24-25 through FY28-29.
- Van $/unit (14-person van used by CalVan)
    - Ranges from $56,400 to $60,000 (2025 Ford Transit Passenger Van)
- Electronic Speed Feedback Sign $10,000 (recommended by NHTSA)
- Driveway apron $170,000/unit.

Table 29 below summarizes the capital costs assumed for each project. Detailed project cost estimates are provided in **Appendix C**.

TABLE 29: CAPITAL COST SUMMARY

IMPROVEMENT	RAW COST ESTIMATE (2025$)[A]	COST ESTIMATE IN YEAR OF OPEN (2030$)[B]	REAL COST W/ DISCOUNTING (2023$)[C]
2. SR 166/SIMAS ROAD	$6,895,248	$7,954,754	$4,055,391
3. SR 166/BONITA SCHOOL ROAD	$1,724,178	$1,989,111	$1,014,063
4. SR 166/RAY ROAD	$725,342	$836,796	$426,605
5. SR 166/HANSON WAY	$868,852	$1,002,358	$511,009
6. SR 166 DRIVEWAY PAVEMENT	$1,517,063	$1,750,171	$892,250
7. SR 166 INTERSECTION LIGHTING	$378,000	$436,083	$222,318
8. SR 166 RIDESHARE/TRANSIT IMPROVEMENTS	$2,079,600	$2,399,146	$1,223,102
9. SR 166 SAFETY/TRUCK IMPROVEMENTS	$1,565,438	$1,805,979	$920,701
10. BETTERAVIA ROAD/MAHONEY ROAD	$8,834,923	$10,192,475	$5,196,197
11. BETTERAVIA ROAD/US 101 INTERCHANGE IMPROVEMENTS	$30,000,000	$34,607,723	$17,644,284
12. SANTA MARIA RIVER TRAIL	$17,120,093	$19,750,723	$10,069,060
1. TOTAL	**$72,443,355**	**$82,725,319**	**$42,174,980**

[A] Engineer’s cost estimate developed based on concept level design.

[B] Year of opening cost to be used for budgeting/programming.

[C] Discounted real cost to be used for BCA analyses.

Operations and Maintenance Costing

The O&M costs incurred over the analysis period for each improvement must also be considered when calculating the benefit-cost ratio. Contingent with USDOT BCA guidance, O&M costs are tabulated as "disbenefits" (i.e. negative worth benefits) in the benefit-cost ratio rather than being tabulated as a cost. O&M costs are generally not well established at this point in project, and therefore high-level assumptions are made for the annual O&M costs.

Table 30 below shows the annualized O&M costs assumed for each project. Detailed project cost estimates are provided in **Appendix C**.

TABLE 30: OPERATIONS AND MAINTENANCE (O&M) COST SUMMARY

IMPROVEMENT	ANNUAL O&M COST (2030$)	DISCOUNTED TOTAL O&M COSTS (2023$)
2. SR 166/SIMAS ROAD	$10,000	$146,091
3. SR 166/BONITA SCHOOL ROAD	$1,000	$14,609
4. SR 166/RAY ROAD	$1,000	$14,609
5. SR 166/HANSON WAY	$1,000	$14,609
6. SR 166 DRIVEWAY PAVEMENT	$1,000	$14,609
7. SR 166 INTERSECTION LIGHTING	$10,000	$146,091
8. SR 166 RIDESHARE/TRANSIT IMPROVEMENTS	$84,600[A]	$1,235,926
9. SR 166 SAFETY/TRUCK IMPROVEMENTS	$5,000	$73,045
10. BETTERAVIA ROAD/MAHONEY ROAD	$5,000	$73,045
11. BETTERAVIA ROAD/US 101 INTERCHANGE IMPROVEMENTS	$50,000	$730,459
12. SANTA MARIA RIVER TRAIL	$25,000	$365,226
2. TOTAL	**$193,600**	**$2,828,319**

[A] Calculated as $21,000 per year salary for 1 additional part time operator w/ 15% farebox recovery, $6,000 per year for annual CalVans (15 new vans) maintenance w/ 60% farebox recovery, and $15,000 per year for Guadalupe Flyer maintenance w/ 15% farebox recovery.

6.5 MONETIZED BENEFITS

A variety of benefits are claimed to monetize the benefits of the proposed improvements. The following benefits are claimed for one or more improvements for this project:

- Safety (Collision Reduction): This is the benefit associated with reducing the number or severity of crashes within the study area as a result of a particular improvement. This benefit relies on either a reduction to VMT or a safety improvement that has a crash modification factor associated with it. Collisions are filtered prior to entering into the HSIP worksheets to only be the relevant crashes using a pivot table of all the crash data. The monetization of this benefit stems from avoiding the cost of a car crash (fatal, serious injury, etc.).
- Delay Reduction: This is the benefit associated with reducing the travel time for users of the transportation system in the study area. This reduction in travel time can come from multiple sources, such as reduced incidence of vehicles encountering traffic due to a collision, intersection improvements that reduce delay at the intersection, etc. The monetization of this benefit stems from the value of person-hours.
- Buffer Time Reduction: This is the benefit associated with reducing the variability in travel times for users of the transportation system in the study area. This reduction in buffer time can come from multiple sources, such as reduced incidence of vehicles encountering traffic due to a collision, intersection improvements that reduce delay at the intersection, etc. The monetization of this benefit stems from the value of person-hours.
- Vehicle Operating Costs (VOC): VOC savings can commonly result from improvements in transportation infrastructure, such as reduced fuel consumption or maintenance frequency. For this project, VOC is captured by removing the miles that vehicles must travel (i.e. is a function of VMT reduction). The monetization of this benefit stems from vehicle operating costs per mile traveled.
- Emissions Reduction: Emissions Reduction, like VOC, is a function of VMT. As vehicles travel less, the emissions they produce are eliminated. Each pollutant has a different monetary cost associated with it, and the monetization of the benefits are a result of eliminating the cost of those pollutants. Criteria pollutants analyzed are: NOx, PM2.5, CO_2, SOx.
- Health Benefits: Health benefits are the result of mode shift to an active transportation mode. For example, if a dedicated motorist switches to biking to work each day, that person will incur health benefits due to added regular exercise.
- Mobility Benefits: Mobility benefits are based on perceived comfort and value of time (VOT) when riding a bike. NCHRP 552 found that bicycle riders are willing to ride longer distances on higher quality facilities. The time an individual is willing to spend riding a bike is converted to monetary terms using an hourly VOT that can be applied to each project.
- Recreation Benefits: NCHRP 552 values a daily round trip bicycle ride at $10. This value is then applied to the number of new cyclists induced by each facility to determine a recreation benefit. It captures value related to increased well-being realized through new cyclists taking a bicycle trip. The monetary benefits are not related to medical costs considered in health benefits and relate to overall increased positive mood and mental well-being.
- Societal Cost Reduction (Pavement Wear, Congestion, or Noise): Societal Cost Reduction refers to removing costs that are caused by the user of the transportation system that only effect other users of the transportation system or those surrounding it. Like Emissions and VOC, this benefit is a function of reduction in VMT. The monetization of this benefit stems from the cost of pavement maintenance, the cost of noise on the transportation system, and the cost of congestion per mile.

- Residual Value: This benefit refers to the value that the asset (i.e. transportation improvement) has at the end of the analysis period, which is 20 years for this BCA. Often times, the useful life of an improvement can extend past the analysis period, and this benefit captures the years of worth that the improvement will have left after the analysis period ends. The monetization of this benefit stems from the percent of life left in the improvement multiplied by the original real capital cost of that asset. Improvements 2-10 are assumed to have a useful life of 20 years, while improvement 11 is assumed to have a useful life of 30 years and improvement 12 a useful life of 40 years.

Table 31 below lists which benefits are attributed to each of the 12 improvements that are a part of the SR 166 project.

TABLE 31: SUMMARY OF BENEFITS CLAIMED BY IMPROVEMENT

IMPROVEMENT	BENEFITS CLAIMED[A]
2. SR 166/SIMAS ROAD	Safety, Travel Time, VOC, Emissions, Residual Value
3. SR 166/BONITA SCHOOL ROAD	Safety, Travel Time, VOC, Emissions, Residual Value
4. SR 166/RAY ROAD	Safety, Travel Time, VOC, Emissions, Residual Value
5. SR 166/HANSON WAY	Safety, Travel Time, VOC, Emissions, Residual Value
6. SR 166 DRIVEWAY PAVEMENT	Safety, Travel Time, VOC, Emissions, Residual Value
7. SR 166 INTERSECTION LIGHTING	Safety, Travel Time, VOC, Emissions, Residual Value
8. SR 166 RIDESHARE/TRANSIT IMPROVEMENTS	Safety, VOC, Emissions, Societal Costs, Residual Value
9. SR 166 SAFETY/TRUCK IMPROVEMENTS	Safety, Travel Time, VOC, Emissions, Societal Costs, Residual Value
10. BETTERAVIA ROAD/MAHONEY ROAD	Safety, VOC, Emissions, Societal Costs, Residual Value
11. BETTERAVIA ROAD/US 101 INTERCHANGE IMPROVEMENTS	Safety, Travel Time, VOC, Emissions, Societal Costs, Mobility, Recreation, Health, Residual Value
12. SANTA MARIA RIVER TRAIL	Safety, VOC, Emissions, Societal Costs, Mobility, Recreation, Health, Residual Value

[A] O&M costs are claimed as a "disbenefit" for all improvements. See the Operations and Maintenance section for details.

Analysis Tools

Various analysis tools exist from different agencies that help users estimate the monetized benefits of a project. This BCA leans on existing tools published by trusted agencies where possible to calculate the benefits of the proposed improvements. Some tools are developed to estimate multiple benefits related to a certain type of improvement (i.e. all the benefits related to the reduction of VMT) and others are developed only to monetize a single benefit based on input parameters (i.e.

transferring delay savings at an intersection to a monetized travel time benefit). The following analysis tools are utilized to estimate the monetary value of benefits.

- California Benefit/Cost Models (Cal-B/C): The California Department of Transportation (Caltrans) has developed a set of modules that estimate the benefits for different types of projects, called Cal-B/C. The Cal-B/C Park and Ride module is used to estimate the benefits related to the added park and ride for Improvement 11. The Cal-B/C park and ride module monetizes a travel time benefit, VOC benefit, safety benefit, and emissions benefit. The benefits monetized with this tool are all realized because of the new or existing transit users utilizing the new park and ride facility being proposed.

  Other Cal-B/C modules exist that are not used for this BCA. Where applicable, parameters from these Cal-B/C modules used to override parameters in other analysis tools, because the Cal-B/C modules have recent data that is localized for the state of California.
- Highway Safety Improvement Program (HSIP) Benefit-Cost Analysis Tool: The HSIP tool was developed by the Federal Highway Administration (FHWA) as a tool to estimate the safety benefits of engineering projects and other associated benefits that come along with those safety benefits. The HSIP tool monetizes a safety benefit, a travel time benefit, a VOC benefit, and an emissions benefit. The benefits monetized with this tool are all realized because of reducing the number of crashes in the study area. Benefits like travel time or emissions are incorporated into this tool because of reduced congestion related to accidents on the road that would impact the other drivers who are passing by.
- National Cooperative Highway Research Program 552 Tool: The National Cooperative Highway Research Program (NCHRP) developed the "*Guidelines for Analysis of Investments in Bicycle Facilities*" in Report 552 to better understand the benefits, mode shift, and induced demand from creating new bicycle facilities. These guidelines were utilized by DKS to develop a spreadsheet-based tool to quantify health, recreation, mobility, and VMT reduction benefits in monetary terms.
- Delay Calculator: This tool was developed by the project team to serve as a calculator that can quantify the monetary benefits of reduced travel time related to an intersection improvement. The reduction in delay is calculated using Synchro and/or SimTraffic models developed for this BCA. Delay reduction is converted to an annual reduction in travel time through the intersection and then quantified using the time value of auto trips and freight trips. This tool only monetizes a travel time benefit. The benefits monetized with this tool only include those that results from reducing delay at an intersection or along a segment from geometric changes to the roadway or changes in traffic control.
- VMT Calculator: This tool was developed by the project team to serve as a calculator that can quantify the monetary benefits related to reducing VMT for vehicles and/or freight on the corridor. VMT reduction is estimated using assumptions specific to each improvement. This tool monetizes a societal cost benefit, a safety benefit, an emissions benefit, and a VOC benefit. The benefits monetized by this tool are specific to those that can be attributed to reducing the miles traveled the public through the study area.

The analysis tools that are used for this BCA can address different aspects of a single improvement. For example, a multifaceted improvement like the Betteravia Road/US 101 interchange (Improvement 11) uses all five tools to quantify benefits from different aspects of the improvement. The analysis tools are applied to improvements to reflect every facet that is addressed by that improvement.

While multiple tools can be used to calculate the benefits of one improvement, multiple tools may provide a monetized benefit to the same benefit category. For example, the Simas Road improvement (Improvement 2) has a travel time benefit related to a change in the traffic control from an all way stop to a signal (calculated using the Delay Calculator) but also has a travel time benefit related to the safety benefit of this traffic control change (calculated using the HSIP tool). These are separate facets to the same improvement (one being related to the average vehicle delay traversing the system, the latter related to the reduction in accident-related travel time delays) that feed into the same travel time benefit. In these cases, the monetized benefits from the different tools are added to obtain the final benefit for that improvement. Outputs from the analysis tools are provided in **Appendix C**.

6.6 SUMMARY OF RESULTS

Table 32 through **table 43** summarize the monetized benefits and their associated costs. Each table represents an improvement and displays the improvement level benefit-cost ratio. The overall benefit-cost ratio for all improvements listed in the tables below is **2.54**. Collectively these improvements are expected to improve travel time reliability (monetized benefit of $15.8 million in buffer time reduction). Accounting for the reliability benefits of the system improvements the overall benefit-cost ratio increases to **2.66**.

TABLE 32: IMPROVEMENT 2 - SIMAS ROAD B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$26,819,486	CAPITAL COST	$4,055,391
TRAVEL TIME	$318,346		
VEHICLE OPERATING COSTS	$1,506		
EMISSIONS	$242		
OPERATIONS AND MAINTENANCE	$(146,090)		
RESIDUAL VALUE	$229,758		
TOTAL BENEFITS	**$27,223,248**	**TOTAL COSTS**	**$4,055,391**
IMPROVEMENT 2 BENEFIT-COST RATIO: 6.71			

TABLE 33: IMPROVEMENT 3 – BONITA SCHOOL ROAD B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$365,056	CAPITAL COST	$1,014,063
TRAVEL TIME	$7,357		
VEHICLE OPERATING COSTS	$52		
EMISSIONS	$6		
OPERATIONS AND MAINTENANCE	$(14,609)		
RESIDUAL VALUE	$54,580		
TOTAL BENEFITS	**$412,442**	**TOTAL COSTS**	**$1,014,063**
IMPROVEMENT 3 BENEFIT-COST RATIO: 0.40			

TABLE 34: IMPROVEMENT 4 – RAY ROAD B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$1,442,633	CAPITAL COST	$426,604
TRAVEL TIME	$1,851		
VEHICLE OPERATING COSTS	$238		
EMISSIONS	$11		
OPERATIONS AND MAINTENANCE	$(14,609)		
RESIDUAL VALUE	$22,048		
TOTAL BENEFITS	**$1,452,172**	**TOTAL COSTS**	**$426,605**
IMPROVEMENT 4 BENEFIT-COST RATIO: 3.40			

TABLE 35: IMPROVEMENT 5 – HANSON WAY B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$71,404	CAPITAL COST	$511,009
TRAVEL TIME	$217,016		
VEHICLE OPERATING COSTS	$21		
EMISSIONS	$6		
OPERATIONS AND MAINTENANCE	$(14,609)		
RESIDUAL VALUE	$26,410		
TOTAL BENEFITS	**$300,249**	**TOTAL COSTS**	**$511,009**
IMPROVEMENT 5 BENEFIT-COST RATIO: 0.59			

TABLE 36: IMPROVEMENT 6 – PAVED DRIVEWAY APRONS B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$7,360,744	CAPITAL COST	$892,249
TRAVEL TIME	$2,667		
VEHICLE OPERATING COSTS	$251		
EMISSIONS	$17		
OPERATIONS AND MAINTENANCE	$(14,609)		
RESIDUAL VALUE	$46,114		
TOTAL BENEFITS	**$7,395,185**	**TOTAL COSTS**	**$892,250**
IMPROVEMENT 6 BENEFIT-COST RATIO: 8.29			

TABLE 37: IMPROVEMENT 7 – ENHANCED LIGHTING AND VISIBILITY B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$1,072,937	CAPITAL COST	$222,318
TRAVEL TIME	$1,824		
VEHICLE OPERATING COSTS	$235		
EMISSIONS	$41		
OPERATIONS AND MAINTENANCE	$(146,090)		
RESIDUAL VALUE	$9,192		
TOTAL BENEFITS	**$938,139**	**TOTAL COSTS**	**$222,318**
IMPROVEMENT 7 BENEFIT-COST RATIO: 4.23			

TABLE 38: IMPROVEMENT 8A – RIDESHARE TRANSIT OPTIONS - CALVANS B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$809,667	CAPITAL COST	$529,329
VEHICLE OPERATING COSTS	$564,259		
EMISSIONS	$48,066		
SOCIETAL COSTS	$33,302		
OPERATIONS AND MAINTENANCE	$(788,889)		
TOTAL BENEFITS	**$666,405**	**TOTAL COSTS**	**$529,329**
IMPROVEMENT 8 CALVANS BENEFIT-COST RATIO: 1.26			

TABLE 39: IMPROVEMENT 8B – RIDESHARE TRANSIT OPTIONS - SMRT B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$169,944	CAPITAL COST	$693,773
VEHICLE OPERATING COSTS	$118,085		
EMISSIONS	$10,273		
SOCIETAL COSTS	$6,990		
OPERATIONS AND MAINTENANCE [A]	$(447,037) [A]		
TOTAL BENEFITS	**$(141,746)**	**TOTAL COSTS**	**$693,773**
IMPROVEMENT 8 SMRT BENEFIT-COST RATIO: -0.20			

[A] High operations and maintenance costs are primarily driven by an added salary of $21,000/year for a new SMRT Guadalupe Flyer bus operator (1/2 FTE new operator assumed). The operations and maintenance cost may be lower if the cost is incurred by other parties or if new operators do not need to be hired.

TABLE 40: IMPROVEMENT 9 – SAFETY AND TRUCK IMPROVEMENTS B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$10,071,534	CAPITAL COST	$920,701
TRAVEL TIME	$19,426		
VEHICLE OPERATING COSTS	$4,061,787		
EMISSIONS	$114,674		
SOCIETAL COSTS[A]	$371,574		
OPERATIONS AND MAINTENANCE	$(73,045)		
RESIDUAL VALUE	$47,585		
TOTAL BENEFITS	**$14,613,535**	**TOTAL COSTS**	**$920,701**
IMPROVEMENT 9 BENEFIT-COST RATIO: 15.87			

[A] Pavement wear only. Benefits of reduced congestion and reduced noise are not claimed for this improvement. Capital costs reflect restriping at SR 166/SR 135 ($20K) and the relocation of utility box, pole, and signage at SR 135/Betteravia Road ($250K). Capital costs do not reflect the potential need for pavement upgrades.

TABLE 41: IMPROVEMENT 10 – BETTERAVIA AT MAHONEY B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$3,507,196	CAPITAL COST	$5,196,196
TRAVEL TIME	$2,133,092		
VEHICLE OPERATING COSTS	$628		
EMISSIONS	$93		
OPERATIONS AND MAINTENANCE	$(73,045)		
RESIDUAL VALUE	$268,559		
TOTAL BENEFITS	**$5,836,523**	**TOTAL COSTS**	**$5,196,197**
IMPROVEMENT 10 BENEFIT-COST RATIO: 1.12			

TABLE 42: IMPROVEMENT 11 – BETTERAVIA AT US 101 INTERCHANGE B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$5,081,414	CAPITAL COST	$17,644,284
TRAVEL TIME	$5,663,057		
VEHICLE OPERATING COSTS	$5,233,642		
EMISSIONS	$250,983		
SOCIETAL COSTS	$132,278		
MOBILITY BENEFIT	$1,659,894		
RECREATION BENEFIT	$16,260,182		
HEALTH BENEFIT	$603,490		
OPERATIONS AND MAINTENANCE	$(730,452)		
RESIDUAL VALUE	$1,519,872		
TOTAL BENEFITS	**$35,674,360**	**TOTAL COSTS**	**$17,644,285**
IMPROVEMENT 11 BENEFIT-COST RATIO: 2.02			

TABLE 43: IMPROVEMENT 12 – SANTA MARIA LEVEE TRAIL INTERCHANGE B/C SUMMARY

DISCOUNTED BENEFITS (2023$)		DISCOUNTED COSTS (2023$)	
SAFETY	$1,255,793	CAPITAL COST	$10,069,059
VEHICLE OPERATING COSTS	$957,775		
EMISSIONS	$74,550		
SOCIETAL COSTS	$51,651		
MOBILITY BENEFIT	$855,471		
RECREATION BENEFIT	$8,406,804		
HEALTH BENEFIT	$328,085		
OPERATIONS AND MAINTENANCE	$(365,226)		
RESIDUAL VALUE	$1,301,018		
TOTAL BENEFITS	**$12,865,921**	**TOTAL COSTS**	**$10,069,060**
IMPROVEMENT 12 BENEFIT-COST RATIO: 1.28			

6.7 ECONOMIC DEVELOPMENT ASSESSMENT

The SR 166 CCS provides a clear economic development benefit by enhancing access and connectivity to agricultural distribution facilities, job centers, and educational facilities for approximately 7 miles from SR 1 to Depot Street in the City of Santa Maria. A more quantitative assessment of the economic benefits of the mobility improvements along the study corridor consists of the following assessments:

- Benefit-cost analysis comparing the user benefits of the improvements relative to the cost of implementation;
- Freight Movement; and,
- Economic analysis regional benefits of the SR 166 CCS to help achieve the economic forecasts of increased jobs, housing and people.

<u>Benefit-Cost Analysis:</u> The SR 166 CCS quantifies the return-on-investment (i.e., benefit-cost) of improvements selected for prioritization. Although B/C varies from project to project, collectively the SR 166 CCS results in a positive return on investment (B/C > 2.66).

<u>Freight Movement:</u> **Figure 28-Figure** 30 show the truck congestion and buffer time index (reliability) characteristics of SR 166. The SR 166 CCS improvements will improve system reliability for the efficient movement of freight on SR 166. This will serve to facilitate goods movement within the study corridor and in the region.

<u>Economic Development:</u> Based on a literature search of published Gross Regional Product (GRP) and Job Creation multipliers for NICS Code 54 (Highway Construction Streets and Roads), IMPLAN multipliers for Napa County were considered the most analogous surrogate/proxy parameters for northern Santa Barbara County. The IMPLAN Multiplier for Napa County is 1.29. This indicates that every dollar expended in that county it will generate a total (direct, indirect and induced) return of an additional 29 cents in GRP countywide. Assuming similar economic portfolios of the two counties, applying the $42.2 million investment in construction related activity to implement the SR 166 preferred package of multimodal improvements will equate to $12.2 million of additional GRP in Santa Barbara County through 2050.

The IMPLAN Multiplier for Job Creation for Napa County is 1.407. This indicates that for every job added to NICS Code 54 (construction), a total (direct, indirect and induced) of .407 full-time equivalent jobs would be generated. The direct job creation of the SR 166 CCS project investment is projected to be 131 added Full Time Equivalent (FTE) jobs. The indirect employment benefit generated by business-to-business transactions plus the induced employment that reflects the number of job years that could potentially be supported by household spending resulting from the economic activity generated by the construction activity is estimated to create an additional 53 indirect/induced FTE jobs over the same time frame. This equates to approximately 184 new jobs in Santa Barbara County resulting from the investment in the SR 166 CCS improvements.

Given that construction jobs are typically site-to-site and job sites are constantly changing, construction related employment is typically considered supported instead of created. It is also appropriate to average the number of newly created FTEs over the number of construction phase years. Assuming a 6-year construction phase, this equates to an annual average job increase of 22 direct FTEs and 31 total (direct/indirect/induced) FTEs during construction of the SR 166 CCS improvements.

6.8 QUALITATIVE ASSESSMENTS

Each improvement in the preferred package of multimodal improvements was qualitatively scored based on the following criteria:

- Policy Consistency: Santa Maria
- Policy Consistency: Guadalupe
- Policy Consistency: County
- Policy Consistency: SBCAG
- Consistency with the California State Transportation Agency's Climate Action Plan for Transportation Infrastructure (CAPTI) and Caltrans System Investment Strategy (CSIS)[42]
- Addresses needs identified in SR 166 CCS Existing Conditions Report (November 2024, updated August 2025)
- Community Support (input received during Phase 1 Outreach)
- Potential for positive return on investment (i.e., competitiveness for SB-1 competitive grant programs. BC > 1.0 Positive Effect; BC < 1.0 Negative Effect

figure 72 shows how each project matches up to project selection criteria. The colored dots in the table represent the following:

Green Dot - Project is considered to be consistent with criteria or has positive effect;

Orange Dot – Project moderately addresses criteria or is not in direct conflict with;

Red Dot - Project is generally inconsistent with criteria or has negative effect.

#	Project	Policy Consistency Santa Maria	Policy Consistency Guadalupe	Policy Consistency County	Policy Consistency SBCAG	Caltrans CAPTI/CSIS	Existing Conditions	Community Support	Return on Investment
1	CAPM								
2	SR 166/SIMAS ROAD	Green	Green	Green	Green	Orange	Green	Orange	Green
3	SR 166/Bonita School Road	Green	Green	Green	Green	Orange	Green	Green	Red
4	SR 166/Ray Road	Green	Green	Green	Green	Orange	Green	Green	Green
5	SR 166/Hanson Way	Green	Green	Green	Green	Orange	Green	Orange	Red
6	SR 166 Driveway Aprons	Green	Green	Green	Green	Green	Green	Green	Green
7	SR 166 Intersection Lighting	Green	Green	Green	Green	Green	Green	Green	Green
8	SR 166 Vanpool/Transit Improvements	Green	Green	Green	Green	Green	Green	Green	Orange
9	SR 166 Safety/Truck Improvements	Orange [1]	Green	Orange	Green	Green	Green	Orange	Green
10	Betteravia Road/Mahoney Road	Green	Green	Orange	Green	Green	Green	Orange	Green
11	Betteravia Road/US 101 Interchange Improvements	Green	Green	Green	Green	Green	Green	Green	Green
12	Santa Maria River Trail	Green	Green	Green	Green	Green	Green	Green	Green

[1] City of Santa Maria does not support T-Access designation between Blosser and SR 135 - supports alternative T-Route network configurations

FIGURE 72: PROJECT QUALITATIVE CRITERIA EVALUATION

[42] SR 166 CCS CAPTI assessments are for informational purposes only. They do not reflect actual or perceived CAPTI performance determinations by Caltrans.

SR 166 CCS Stakeholder Advisory Committee

A similar screening exercise was performed by the SR 166 CCS Stakeholder Advisory Committee. This committee includes an expanded list of public and private stakeholder representatives beyond those from the participating agencies. **FIGURE 73** shows the degree of support for each SR 166 CCS proposed improvement concepts by each stakeholder of the SR 166 CCS Advisory Committee member using the following voting convention:

Support: Fully supports improvement concept;
Neutral: Indifferent about improvement concept;
Do Not Support: Does not support improvement concept;
Conditional Support: Supports improvement concept contingent upon stated conditions.

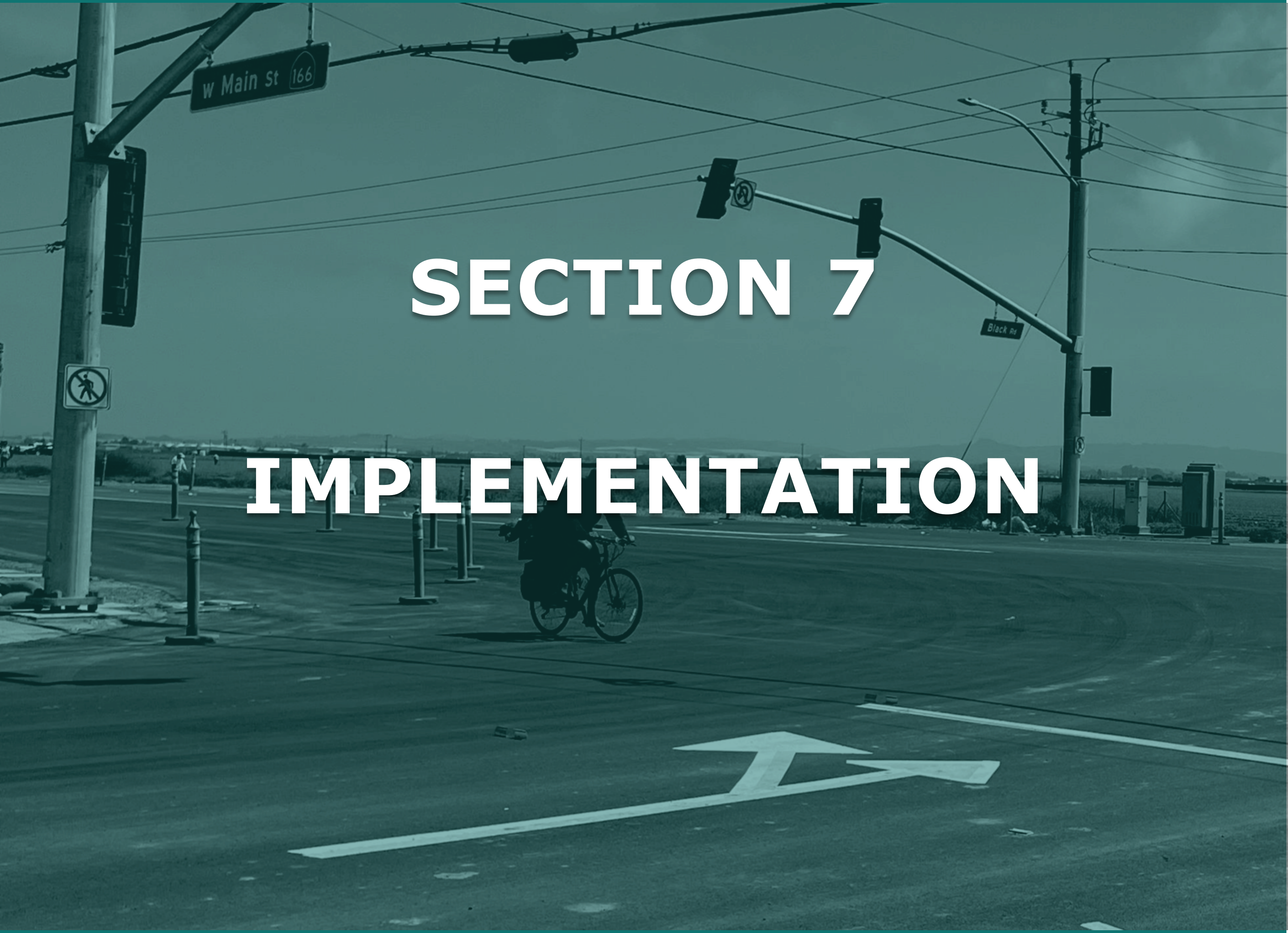
All or a majority of committee members supported the identified improvements with the exception of the roundabout control option at Betteravia/Mahoney (Improvement #10.B) and the Santa Maria Levee Class I Multipurpose Trail (Improvement#12). For this improvement, several committee members raised concerns regarding the need to protect the agricultural fields with adequate fencing and the undue detour effect which limits the project's ability to serve as a true alternative for cycling between the cities of Guadalupe and Santa Maria. Some committee members also questioned the level of public support for the project. Noteworthy conditional support was provided for the SR 166/Bonita School Road (Improvement #3) which several committee members strongly advocated relocating the school to the City of Santa Maria. Others indicated that if the school remains at its current location additional improvements are likely needed beyond those identified in this study (e.g., formalizing the SR 166 westbound right-turn lane). Other conditions included adding additional intersection locations for enhanced lighting improvements (Improvement #7), STAA Terminal Access route designations (Improvement #9), and extending the project limits of the SR 166/Hanson Way improvement (Improvement #5). Several committee members also conditioned their support for the long-term SR 166 4-lane widening to remove the raised center median and decoupling the Class I Multipurpose Trail project from the widening.

#	Project	Support	Nuetral	Do Not Support	Conditional Support	Conditions
1	CAPM					
2	SR 166/Simas Road	6	0	0	0	N/A
3	SR 166/Bonita School Road	3	0	0	3	Relocate School
4	SR 166/Ray Road	6	0	0	0	N/A
5	SR 166/Hanson Way	4	1	0	1	Improvement should be extended further west
6	SR 166 Driveway Aprons	4	2	0	0	N/A
7	SR 166 Intersection Lighting	4	0	0	2	Include lighting at Black/Stowell
8	SR 166 Vanpool/Transit Improvements	6	0	0	0	N/A
9	SR 166 Safety/Truck Improvements	3	0	0	3	Include Stowell (Black to 101) and Simas to SR 1|No SMRR conflicts
10	Betteravia Road/Mahoney Road					
	A: Signal Control Alternative	6	0	0	0	N/A
	B: Roundabout Control Alternative	2	1	3	0	N/A
11	Betteravia Road/US 101 Interchange Improvements	4	1	0	1	No roundabout at Betteravia/Nicholson
12	Santa Maria River Trail	1	1	3	1	Protect agriculture fields - provide adequate fencing
13	Class I Multipurpose Trail (Santa Maria to Guadalupe) SR 166 4 Lane Widening (Santa Maria to Guadalupe)	3	0	0	3	No raised center median; Do not include Class I trail

FIGURE 73: SR 166 CCS STAKEHOLDER ADVISORY COMMITTEE EVALUATION

SECTION 7

IMPLEMENTATION



6.9 NEXT STEPS FOR IMPLEMENTATION

Jointly funded by a Caltrans Sustainable Transportation Planning grant with a match from the Santa Barbara County Association of Governments (SBCAG), the SR 166 Comprehensive Corridor Study is intended to assist the participating agencies including the County of Santa Barbara, the City of Guadalupe and the City of Santa Maria in the pursuit of Federal and State grant funding opportunities to implement one or more of the identified improvements. Funding for the identified improvements will likely draw from various sources including but not limited to: Measure A funding, conditions of development, State competitive grant funding sources, and/or programming State/Federal discretionary funding through SBCAG's regional transportation planning process. Applicable funding sources are described below.

There are multiple local, State, and Federal programs which can be used to partially or fully fund multimodal improvement projects. The following list is not comprehensive and programs that apply today may be subject to change.

Local Funding Sources

Measure A Funding

Santa Barbara County Association of Governments (SBCAG) Measure A is a 30-year half-cent sales tax measure approved by voters in 2008 to fund transportation projects in the county. The measure is projected to provide over $1 billion in revenue to fund improvements such as roadway maintenance, public transit, active transportation, and safety improvements. SBCAG administers the funds, allocating them to specific projects outlined in a five-year program of projects, which can be updated over time.

Measure A will sunset in 2040. At this time, SBCAG and its member agencies anticipate a Measure A renewal bid. As part of a new voter referendum, a new expenditure plan will be developed by SBCAG in coordination with its member agencies that will include a list of regional improvements. Although considered beyond the planning horizon of this study, the longer-term improvements identified in the SR 166 CCS are potential candidates for inclusion in such a program.

Road Improvement Fees

The Cities of Guadalupe and Santa Mara and the County of Santa Barbara each collect fees for public road facilities and improvements meant to accommodate traffic generated by new developments (pursuant to AB 1600). These agencies could explore the option to develop nexus studies that support/justify the use of developer fees to fund one or more of the projects identified in the SR 166 CCS. These local funds can be used to leverage other funds to implement future improvements.

State Funding Sources

Senate Bill 1 (SB 1)

SB 1 (the Road Repair and Accountability Act of 2017) was signed into law in 2017 and serves to reinvest state funds into repair and construction projects on roadways across the state. Over $5 billion is invested annually into roadway projects, including $100 million for bike and pedestrian projects, $25 million in local planning grants, and $1.5 billion in repairs to local streets. Programs funded under the bill relevant for SR 166 include the Active Transportation Program (ATP), Local

Streets and Roads Program (LSRP), Solutions for Congested Corridors Program and in particular, the Trade Corridor Enhancement Program. The project may also be eligible for Local Partnership Program (LPP) funds given the County's Measure A local transportation sales tax measure.

- Transportation Corridor Enhancement Program (TCEP)
  A statewide competitive grant program leveraging federal funds of $515 million in National Highway Freight Program (NHFP) funds, matched with approximately $300 million in state funding disbursed annually to improve the safety, efficiency, and capacity of freight.

- Solutions for Congested Corridors (SCCP)
  Statewide $250 million competitive grant program submitted annually for projects that implement transportation performance improvements that preserve the character of local communities for neighborhood enhancement.

- Active Transportation Program (ATP)
  California's Active Transportation Program (ATP) funds projects that encourage the increased use of active transportation modes and further ATP goals. These goals include increasing active transportation mode share and safety and enhancing public health. The ATP allows for the funding of infrastructure projects as well as plans and non-infrastructure projects. Eligible projects include capital improvements, education, enforcement, and plans (including active transportation plans, safe routes to school, etc.). Applications are scored on several criteria, including an emphasis on safety. 10% of funding is marked specifically for projects in rural areas. Funding cycles occur approximately every two years.[43]

- SB 1 Local Streets and Roads Program (LSRP)
  The Local Streets and Roads Program (LSRP) is a California-run program that provides funding to cities and counties for maintenance, rehabilitation, and safety projects on local roads. The program receives $1.5 billion in formula funding from SB 1. Projects that have been proposed and awarded funding include lane restriping, crosswalk and/or sidewalk installation and repair, and bicycle lane installation and repair. The funding cycle occurs annually in May.

- SB 1 Local Partnership Program
  The Local Partnership Program was established by SB 1 and provides $200 million annually to local and regional transportation agencies who have passed tax measures or other fees specifically for transportation improvements. Funds from the program can be used for projects such as infrastructure improvements, active transportation improvements, and projects which show health and safety benefits. The program distributes funds with 40% going to formulaic programs and 60% going to competitive programs.[44]

Office of Traffic Safety Grants

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[43] *Active Transportation Program (ATP)*, webpage, Caltrans Accessed 8/5/2025 https://dot.ca.gov/programs/local-assistance/fed-and-state-programs/active-transportation-program

[44] *Local Partnership Program*, webpage, Caltrans Accessed 8/5/2025 https://catc.ca.gov/programs/sb1/local-partnership-program

The California Office of Traffic Safety offers grants to public entities seeking to establish safety programs in a variety of areas. These include pedestrian and bicycle safety programs that seek to reduce the number of fatalities and injuries caused by traffic crashes. The funding cycle begins each year in December, with grant applications generally due by January 31.[45]

Sustainable Transportation Planning Grants

The California Department of Transportation (Caltrans) provides funding to eligible applicants that pursue projects that further the goals of the State. The program provides funding annually to transportation planning projects around the state. The program consists of three types of grants: (1) Sustainable Communities Grants, for projects supporting state goals and contributing to greenhouse gas reduction goals; (2) Climate Adaptation Planning Grants, which funds transportation projects seeking to address sustainability and adaptation; and (3) Strategic Partnerships Grants, which seeks projects that identify and address deficiencies on the State Highway System, with a portion of funds going to projects that address multimodal transportation deficiencies.[46]

Federal Programs

Safe Streets and Roads for All (SS4A)

The Safe Streets and Roads for All (SS4A) program was established under the IIJA. It allocated $1 billion annually through 2026 for local cities, counties, and other roadway owners. Projects it funds include safety and roadway improvements. This program is not benefit/cost based. The program has two types of grants: (1) Planning and Demonstration Grants, which range from $100,000 to $1 million and are available for any eligible agency who wishes to complete a qualifying safety plan such as a Local Road Safety Plan; and (2) Implementation Grants, which range from $1 million to $20 million and are available to agencies who have completed an eligible safety plan. Should the County wish to complete a Safe Streets and Roads for All Action Plan, they would be eligible for a Planning grant. Doing so would then qualify them for an Implementation grant. For expanded potential funding opportunities, the SS4A Action Plan can be combined with a Local Road Safety Plan, LRSP) and Vision Zero Plan. The currently planned final cycle for this program is anticipated in early 2026.[47]

Better Utilizing Investments to Leverage Development (BUILD)

The Better Utilizing Investments to Leverage Development (BUILD) program (formerly RAISE/TIGER) was originally established under the American Recovery and Reinvestment Act in 2009 and the authorized under the IIJA. It provides funding for roadway or multimodal transportation projects that have a significant local or regional impact. The eligibility requirements of BUILD allow project

[45] *Grants*, webpage, California Office of Traffic Safety Accessed 8/5/2025 https://www.ots.ca.gov/grants/

[46] *Grant management Branch: Sustainable Transportation Planning Grants*, webpage, Caltrans Accessed 8/5/2025 https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/regional-and-community-planning/sustainable-transportation-planning-grants

[47] Safe Streets and Roads for All (SS4A) Grant Program, USDOT Accessed 8/5/2025 https://www.transportation.gov/grants/SS4A

sponsors to pursue multimodal or multijurisdictional projects that are more difficult to fund through other grant programs.[48]

Nationally Significant Multimodal Freight and Highway Projects Program (INFRA Program)

The INFRA Program, now formally retitled the Nationally Significant Multimodal Freight and Highway Projects Program, awards competitive grants for multimodal freight and highway projects of national or regional significance to improve the safety, efficiency, and reliability of the movement of freight and people in and across rural and urban areas. Authorized under the IIJA, INFRA grants are awarded to nationally and regionally significant freight and highway projects that align with the program goals.

Surface Transportation Block Grant (STBG)

The Surface Transportation Block Grant (STBG) promotes flexibility in State and local transportation decisions and provides flexible funding to best address State and local transportation needs.[49]

State Highway Account (SHA)

The State Highway Account (SHA) is used for the deposit of all money from any source for expenditure for highway purposes including major and minor construction, maintenance, right-of-way acquisition, improvements and equipment, services, investigations, surveys, experiments and reports. Funds from the SHA support several of the other grant programs listed in this section.[50]

6.10 PHASED IMPLEMENTATION

The following phasing recommendations are proposed for future consideration by SBCAG and its member agencies during future planning and programming cycles. The following timelines for the SR 166 recommended improvements provide an indication of priority based on available funding and lead times required for project implementation.

Short-Term (Within 7 Years)

The following four corridor enhancements are recommended for immediate implementation. These improvements will provide safety and multimodal corridor wide in the short-term.

- Caltrans GAPS/CAPM Project (currently being implemented by Caltrans)
- SR 166 Vanpool/Transit Improvements
- SR 166 Driveway Pavement
- SR 166 Intersection Lighting

For future consideration, it is recommended that additional locations be evaluated for future intersection lighting enhancements including Betteravia Road/Brown Road, Betteravia Road/Ray Road, and Betteravia Road/Black Road, Black Road/Stowell Road.

48 *Better Utilizing Investments to Leverage Development (BUILD) Grant Program*, webpage, USDOT Accessed 8/5/2025 https://www.transportation.gov/BUILDgrants

49 *Infrastructure Investment and Jobs Act Fact Sheets: Surface Transportation Block Grant (STBG)*, webpage, USDOT FHWA Accessed 8/5/2025 https://www.fhwa.dot.gov/infrastructure-investment-and-jobs-act/stbg.cfm

50 *State of California Manual of State Funds*, webpage, California Department of Finance, Accessed 8/5/2025 https://funds.dof.ca.gov/app/download/0042

During the short term, agencies can expedite project initiation documents to develop the next phase of "shelf ready" priority projects.

Medium Term (Within 8 – 20 Years)

The following infrastructure-related improvements aim to improve safety and operations on SR 166 and parallel facilities at key SR 166 intersections and along parallel facilities within the corridor.

- SR 166/Simas Road
- SR 166/Bonita School Road
- SR 166/Ray Road
- SR 166/Hanson Way
- Betteravia Road/Mahoney Road
- SR 166 Safety/Truck Improvements
- Santa Maria River Trail
- Betteravia Road/US 101 Interchange Improvements

Depending on the future STAA Terminal Access network alternative selected for implementation, further evaluations of turn radius geometrics at Betteravia Road/Black Road and possibly other intersections along Betteravia Road and Stowell Road is recommended. Pavement conditions would also need to be evaluated and possibly upgraded to accommodate heavier vehicles.

In lieu of relocating the Santa Maria-Bonita School to within Santa Maria city limits, future consideration to extend/improve the SR 166 westbound right-turn lane at SR 166/Bonita School Road intersection is recommended.

Long Term (Beyond 20 Years)

Several improvement concepts are considered beyond the 25-year planning horizon of the study. These longer-term projects (described below) should be considered for inclusion in the Tier II Uncontrained list of projects during future updates of SBCAG's Regional Transportation Plan. Should funding become available (i.e., future renewal of Measure A) these projects may be considered for the Tier I financially constrained list and become eligible for other State/Federal funding.

Class I Multipurpose Trail from SR 1 to Santa Maria

A Class I multipurpose trail connection between Guadalupe and Santa Maria is recognized as a multi-modal need. Given that a direct alignment along SR 166 was not deemed feasible in the short-term, the Santa Maria Levee Trail is considered the best option for a low-stress active transportation option. However, it is recognized that given the levee trail's northern alignment, it may be perceived as an undue detour for many who might consider biking if a more direct route was available. Establishing a 10 to 14 feet wide bi-directional Class I multipurpose trail on the south side of SR 166 between Guadalupe and Santa Maria would provide the needed low-stress connection. However, significant right-of-way costs would be incurred.

SR 166 4-Lane Widening of SR 166 from SR 1 to Blosser Road

This improvement would entail widening SR 166 from its existing 40-foot cross-section to a 76-foot cross-section that includes two 12-foot travel lanes in each direction, a 12-foot median that includes a raised 2-foot median barrier and 8-foot paved shoulders. The median barrier would be removed at intersection approaches to allow for the 12 feet to be used for additional turn channelization. This was a recommended improvement in the *US 101 Central Coast California Freight Strategy.* In addition, the *California Central Coast Sustainable Freight Study* recommended operational enhancements such as adding passing lanes on SR 166 to reduce congestion and improve safety.

Combined Project

Given the significance of these longer-term improvements and the construction phasing required, combining the two projects could offer cost savings and minimize the duration of construction and disruption to the traveling public. Additionally, coupling the Class I Multipurpose Trail with the SR 166 4-lane widening would be more palatable from a State policy perspective.

Caltrans previously prepared a cost estimate for the SR 166 widening Project Study Report (Caltrans, 2001). The 2001 PSR cost estimate was used as the basis for an escalated cost estimate using annual percent increases as identified in the California Construction Cost Index. Quantities or unit costs from the PSR were not modified. Without more detailed concept plans it is challenging to determine if the added width of the Class I Multipurpose Trail would require right-of-way acquisition beyond that anticipated by the PSR. For that reason, costs were for additional right-of-way, but that cost is not based upon an actual land calculation and is instead considered a placeholder for future analysis. New or modified traffic signals currently not reflected in the SR 166 CCS were also included. The estimated cost of the combined project is approximately $146.5 million. Escalating out to 2040 (likely timeframe of construction), this cost increases to approximately **$323 million**.

Whether combined or kept as separate projects, these improvements could be considered as part of a Measure A renewal expenditure plan.

2001 Construction Cost Estimate[1]	$35,028,000
Updtated Construction Cost Estimate[2]	$92,146,545
Addition of Context Senstivity Bikeway[3]	$7,300,000
Signal Modifications[4]	$2,000,000
New Traffic Signals (3)[5]	$3,000,000
Additional Right of Way Acquisition	$4,000,000
Total Updated Construction Costs	**$108,446,545**
Project Development Support Costs (35%)	$37,956,291
TOTAL COST ESTIMATE	**$146,402,836**

Future Year Cost Escalation 5.42% Annual Rate[6]	2026	2027	2028	2029	2030
	$154,337,869	$162,702,982	$171,521,484	$180,817,948	$190,618,281
	2031	2032	2033	2034	2035
	$200,949,792	$211,841,270	$223,323,067	$235,427,177	$248,187,330
	2036	2037	2038	2039	2040
	$261,639,084	$275,819,922	$290,769,362	$306,529,061	**$323,142,936**

1. Construction cost with 10% contingency for widening to 4 lanes plus cednter left turn lane from Caltrans PSR, June 2021
2. Escalated construction cost based upon the California Construction Cost Index (2002-2025, average annual increase of 4.16%)
3. Class I Multipurpose Trail Construction Assumed
4. Assume $500,000 per signal for modifications at SR 166 intersections at Obispo Street, Simas Drive, Bonita School Road, Black Road
5. Assumes $1,000,000 per signal for new signals at SR 166 intersections at Ray Road, Hansen Way, and Kathleen Court
6. Cost Escalation based upon an annual rate of 5.42% (Contruction Cost Index for San Francisco + Los Angeles, August 2015 - August 2025)

6.11 TCEP PERFORMANCE METRICS

The Trade Corridor Enhancement Program (TCEP) is an SB-1 competitive grant program that is most applicable to the SR 166 corridor. Although more than one grant funding program is applicable to the SR 166 Comprehensive Corridor Study, the most relevant is the State SB-1 Trade Corridor Enhancement Program (TCEP). Typical SB-1 rubrics include:

- Planning level cost opinions;
- Vehicle miles traveled;
- Vehicular delay reduction benefit
- Travel time reliability benefit for passenger cars/trucks (buffer time reductions);
- Collision reduction benefit;
- Air quality benefit;
- Societal cost and benefit monetization factors (per Caltrans Economic Parameters);
- Environmental justice and equity; and,
- Return on investment (i.e., benefit-cost).

The performance metrics selected for the SR 166 Comprehensive Corridor Study were based on the SB-1 TCEP guidelines. The TCEP guidelines identify the following key factors:

- **Freight System Factors**
  - Throughput
  - Velocity
  - Reliability
- **Transportation System Factors**
  - Safety
  - Congestion Reduction/Mitigation
  - Key Transportation Bottleneck Relief
  - Multi-Modal Strategy
  - Interregional Benefits
  - Advanced Technology
  - Zero-Emission Infrastructure
- **Community Impact Factors**
  - Air Quality Impact
  - Community Engagement
  - Economic Impact
- **Other factors, including:**
  - How well the project addresses the state's most urgent freight needs.

- Project readiness and reasonableness of the schedule for project implementation, including the following:
  - Progress towards achieving environmental protection requirements.
  - The comprehensiveness and sufficiency of agreements with key partners (particularly infrastructure owning railroads) that will be involved in implementing the project.

Table 44 below describes the performance measures of the TCEP program that apply to the SR 166 project and addresses which are being satisfied by the SR 166 project.

TABLE 44: TCEP PERFORMANCE METRICS

PERFORMANCE MEASURE	METRIC	SATISFIED BY SR 166 SCS? (Y/N)
CONGESTION REDUCTION	Change in vehicle hours of delay	Y
	Change in truck hour of delay	Y
	Person-hours of travel time saved	Y
THROUGHPUT	Change in truck volume	Y
SYSTEM	Truck travel time reliability	Y
VELOCITY	Travel time or total cargo transport time	Y
AIR QUALITY	Particulate matter (PM2.5)	Y
	Carbon Dioxide (CO2)	Y
	Sulfur Dioxides (SOx)	Y
	Nitrogen Oxides (NOx)	Y
	Carbon monoxide (CO)	Y
	Volatile Organic Compounds (VOC)	Y
SAFETY	Number of fatalities	Y
	Rate of fatalities per 100 million VMT	Y
	Number of serious injuries	Y
	Number of serious injuries per 100 million VMT	Y
	Number of non-motorized fatalities and non-motorized serious	Y
COST	Cost-benefit ratio	Y
ECONOMIC	Jobs created	Y

APPENDIX A EXISTING CONDITIONS

APPENDIX B COMMUNITY ENGAGEMENT

APPENDIX C PERFORMANCE ASSESSMENT

APPENDIX A CONTENTS

.APPENDIX B CONTENTS

APPENDIX C CONTENTS

All appendices are provided under separate cover.