
APPENDIX O

Final

CEQA Transportation Impact Analysis Report
For Pacific Gateway

Prepared for:
Pacific Gateway CA, LLC

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RS21-4076

FEHR  PEERS



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EXECUTIVE SUMMARY

STUDY PURPOSE

This CEQA Transportation Impact Analysis Report will serve as an appendix to the Pacific Gateway Draft EIR. It focuses on the project's impacts to the transportation system based on its vehicle miles traveled (VMT). It also evaluates impacts to bicycle/pedestrian facilities, transit facilities and services, and roadway safety-related impacts including queuing and nonstandard design features.

A separate report, entitled "*Local Transportation Analysis (LTA) for Pacific Gateway*" analyzes the effects of the proposed project on traffic operations at potentially affected roadways and intersections. That report also evaluates the efficacy of potential operational improvements to address deficient operations. When Senate Bill (SB) 743 became effective statewide in 2020, it prohibited the use of automobile delay and level of service (LOS) from being used under CEQA as a performance measure to determine the transportation impacts of land development and transportation projects. The LTA focuses primarily on traffic operations and LOS and is therefore not used to identify significant impacts under CEQA.

PROJECT DESCRIPTION AND PHASING

The Pacific Gateway project ("proposed project") would be situated on 1,577 (gross) acres north of Interstate 580 (I-580) and State Route (SR) 132 in unincorporated San Joaquin County. It would be bounded by Tracy Boulevard on the west and Bird Road on the east. Chrisman Road and its interchange with SR 132 would be the primary vehicular access serving the project. Proposed land uses would include:

- Gateway West, Central and East would consist of general industrial (warehouse/logistics buildings) totaling 24,149,000 million square feet;
- The University Center would consist of a university with capacity for 5,000 students along with supporting ancillary uses and a Veterans of Foreign Wars (VFW) Post; and
- The Gateway Center, which would be situated along Chrisman Road north of SR 132, would feature a variety of highway commercial uses as well as 525,000 square feet of general industrial.

The "Initial Phase" of the project would consist of the development of 3,962,000 square feet of general industrial in Gateway East, several university buildings allowing for enrollment of 400 students, and the VFW building.

The project would widen Chrisman Road from two to four lanes along the project frontage. It would also widen parts of MacArthur Drive within the plan area to four lanes. Several new four-lane arterial and two-lane local industrial streets would be constructed within the project (see Figure 8). Five signalized intersections would be constructed along the project's frontage on Chrisman Road (see Figure 9). The traffic



operations analysis found that widening of Chrisman Road to six lanes would be necessary from SR 132 to B Street. In addition, the project would include a new street connection to Bird Road enabling project access via the SR 132/Bird Road interchange.

ENVIRONMENTAL (EXISTING) SETTING

Chrisman Road between SR 132 and Eleventh Street, and Eleventh Street are each Surface Transportation Assistance Act (STAA) routes, which allow large trucks (i.e., allows truck larger than California legal trucks) to operate on the interstate freeway system and certain primary routes. As shown in Figure 6, there are also several local or through truck routes in the study area. Between 1,000 and 1,100 trucks per day travel along portions of Chrisman Road between SR 132 and Eleventh Street. Just north of SR 132, trucks comprise 27% of the 3,900 ADT on Chrisman Road. The proportion of traffic consisting of trucks steadily decreases to the north along Chrisman Road as more auto traffic is present.

Several county roadways within the study area have signs posted to prohibit all truck travel or to prohibit trucks that exceed 7 tons (see Figure 6). There are currently no truck travel restrictions on Durham Ferry Road east of Chrisman Road. Of the 1,500 ADT measured on this segment, trucks represented 6% of the total, or about 85 trucks per day.

As the project site is rural and mostly undeveloped, there are no bicycle or pedestrian facilities in its immediate vicinity. Transit service is not provided to the area, although an Altamont Commuter Express (ACE) train station is situated on Tracy Boulevard at Linne Road (two miles north of the project).

PROJECT TRAVEL CHARACTERISTICS

It was necessary to determine the total number of expected trips generated (separately for passenger vehicles and trucks) as well as the distribution/assignment of those trips for all land uses. The trip generation of the industrial component of the project was estimated based on a large database of traffic counts collected by Fehr & Peers in 2021 at warehouse buildings across San Joaquin County for the *San Joaquin Countywide Warehousing Travel Behavior Study*. The trip generation of the other project components was estimated using trip rates from the *Trip Generation Manual, 11th Edition* (Institute of Transportation Engineers, 2021). **Table ES-1** displays the trip generation of the Initial Phase and Project Buildout.

One particularly important input to the analysis is the expected residence locations of the project's warehouse workers. This was determined based on the use of "Big Data" (i.e., cell phone, etc.) to review employee residence locations at other warehouses in the area. That same big data source was also used to determine the expected distribution of heavy duty trucks.

Table ES-1: Proposed Project Trip Generation

Phase	New Daily Trips			New AM Peak Hour Trips			New PM Peak Hour Trips		
	Autos	Heavy Duty Trucks	Total	Autos	Heavy Duty Trucks	Total	Autos	Heavy Duty Trucks	Total
Initial Phase	5,192	1,784	6,976	675	120	795	840	80	920
Project Buildout	41,736	11,171	52,907	5,154	745	5,899	6,120	496	6,616

Source: Fehr & Peers, 2024.

PROJECT-SPECIFIC IMPACTS AND RECOMMENDED MITIGATION MEASURES

Significance thresholds were developed based on Appendix G of the CEQA Guidelines, and policies of San Joaquin County and other responsible agencies. For VMT analysis, guidance from the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR, 2018) and *San Joaquin County VMT Thresholds Study* (GHD, 2020) were used. The project's potential adverse effects were analyzed based on thresholds developed from these documents. Separate impact statements and conclusions were reached for the Initial Phase and Project Buildout.

Table ES-2 summarizes the 12 project-specific impact statements, indicates whether the impact is significant under the Initial Phase or Project Buildout, and recommends mitigation measure(s) for significant impacts. As shown, the Initial Phase would cause five significant impacts, while Project Buildout would cause nine significant impacts.

Figure ES-1 illustrates the various recommended, project-specific, physical off-site mitigation measures identified for significant impacts.

Table ES-2: Project-Specific Impacts and Mitigation Measures

#	Topic	Impact Significant?		Recommended Mitigation Measure
		Initial Phase	Project Buildout	
TR-1	VMT Impacts Caused by Warehouse and Office Land Use	Yes	Yes	1a. Comply with SJVAPCD Rule 9410 (Employer Based Trip Reduction Program) 1b. Implement Transportation Demand Management (TDM) strategies consisting of: 1. Voluntary Commute Trip Reduction (CTR) program 2. Employee Parking Cash-Out program 3. Expand Bikeway Network ¹ 4. Extend Public Transit Service to Project Site 5. Operate a private employee shuttle system
TR-2	VMT Impacts Caused by University Project Land Use	Yes	Yes	Comply with SJVAPCD Rule 9410 (Employer Based Trip Reduction Program) Implement TDM Strategies 1, 4, and 5 above. Implement TDM Strategy 2 or charge staff & students to park.
TR-3	VMT Impacts Caused by Retail, Restaurant, Gas Station, Hotel, VFW Tracy Post Project, and Electrified Truck and Auto Charging Lots Land Use	No	No	None
TR-4	VMT Impacts Associated with Widening Chrisman Road along project frontage and MacArthur Drive within the project site	No	No	None
TR-5	Inadequate Bicycle/Pedestrian Connectivity to Adjacent Land Uses to the North	No	Yes	Implement TDM Strategy 3 above.
TR-6	Inadequate Transit Service to Meet Demand	Yes	Yes	Implement TDM Strategies 4 and 5 above.
TR-7	Freeway Off-Ramp and State Highway Intersection Queues Exceed Available Storage	No	Yes	Construct the geometric improvements described in Table 26 and shown on Figure 21.
TR-8	Increased Hazards due to Geometric Design Features (Large Trucks)	Yes	Yes	Construct physical improvements on Chrisman Road project frontage to San Joaquin County design standards.
TR-9	Increased Hazards due to Incompatible Land Uses (along Durham Ferry Road)	Yes	Yes	Post a combination of either "No Trucks Allowed" or "Local Trucks only" signs on Durham Ferry Road between Chrisman Road and SR 33.
TR-10	Increased Hazards due to Incompatible Land Uses (near Chrisman Road/Linne Road Intersection)	No	Yes	Construct physical improvements along the Chrisman Road and Linne Road frontages of Jefferson School.

Table ES-2: Project-Specific Impacts and Mitigation Measures

#	Topic	Impact Significant?		Recommended Mitigation Measure
		Initial Phase	Project Buildout	
TR-11	Increased Hazards due to Additional Vehicle/Train Conflicts	No	Yes	Contribute fair share funding to the City of Tracy to cover proportionate cost to upgrade road/rail crossings on Chrisman Road at Schulte Road. Work with UPRR and CPUC to determine the need for improvements at the Chrisman Road at-grade crossing north of Linne Road.
TR-12	Increased Hazards Associated with Emergency Vehicle Response Times	No	No	None

Notes: See Chapter 8 for details on Impacts and Mitigation Measures.

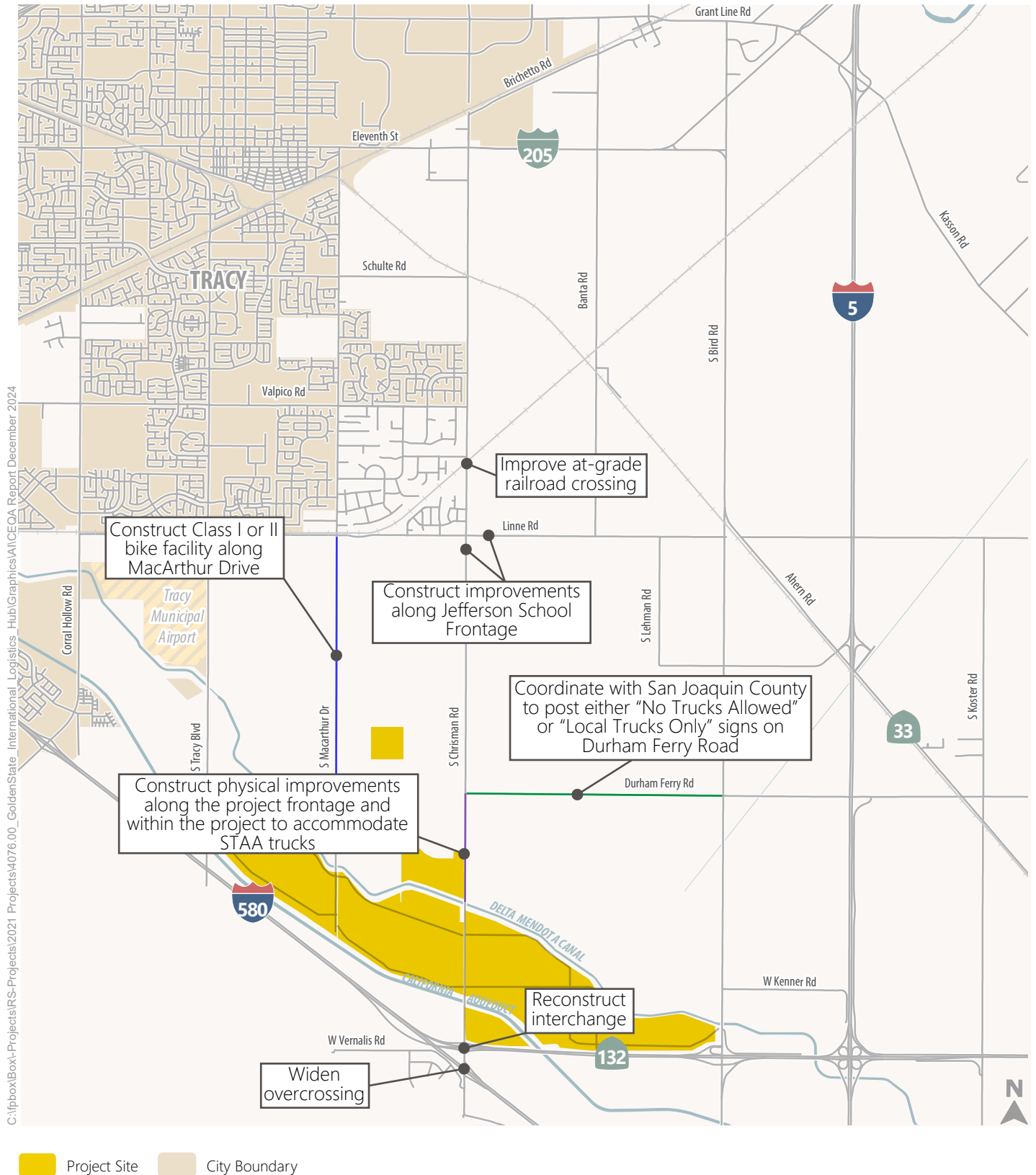
Unless otherwise noted, mitigation measure is to be implemented during Initial Phase if Initial Phase impact is significant.

¹ This specific mitigation measure is not required with Initial Phase, but necessary for subsequent phases beyond Initial Phase.

Source: Fehr & Peers, 2023.

CUMULATIVELY CONSIDERABLE IMPACTS AND RECOMMENDED MITIGATION MEASURES

The cumulative setting considers significant increases in planned land development within the City of Tracy and its Sphere of Influence as well as various roadway improvements. The project's impacts were analyzed under cumulative conditions using the same significance thresholds identified above. A set of 12 cumulative impact statements were developed. The impact conclusions and recommended mitigation measures are similar to those listed in Table ES-2.



Note:
Further discussions with various agencies are required to determine the precise type of improvements, timing, and financial responsibility.

The Pacific Gateway Local Transportation Analysis identifies various other intersection and roadway improvements that are required to maintain the County's General Plan LOS policy. Those will be project responsibilities, but are not considered mitigations for significant impacts under CEQA.

Figure ES-1

Recommended Physical Mitigation Measures for Significant Impacts under Existing Plus Project Buildout Conditions

1. INTRODUCTION

This chapter describes this report's purpose, provides an overview of the proposed project, lists applicable transportation-related policies that pertain to the proposed project under the California Environmental Quality Act (CEQA), and summarizes the transportation-related comments made by organizations and agencies on the Notice of Preparation (NOP) for this Environmental Impact Report (EIR).

Report Purpose

This CEQA Transportation Impact Analysis Report will serve as an appendix to the Pacific Gateway Draft EIR. It focuses on the project's impacts to the transportation system based on its vehicle miles traveled (VMT). It also evaluates impacts to bicycle/pedestrian facilities, transit facilities and services, and roadway safety-related impacts including queuing and nonstandard design features.

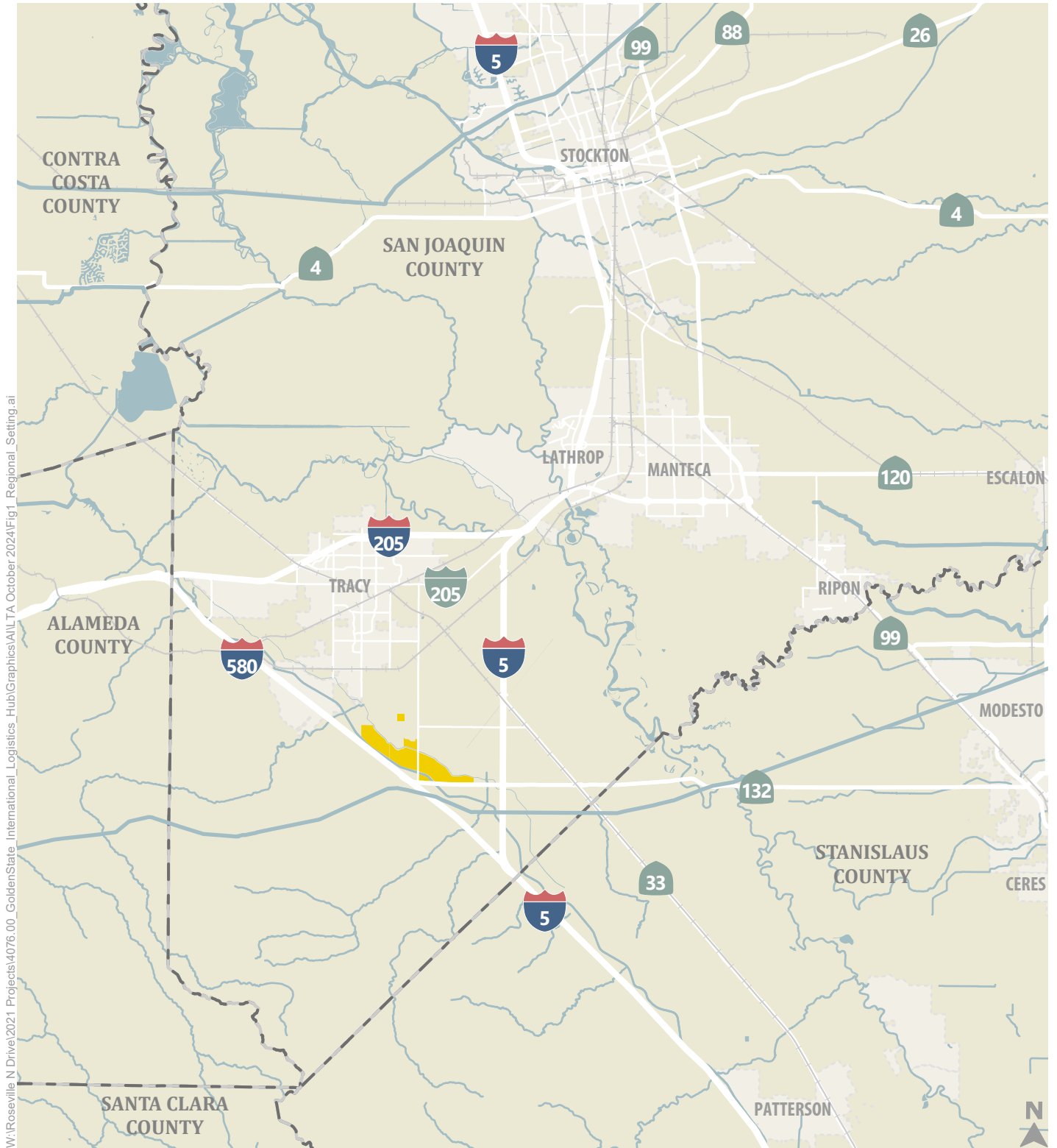
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Project Overview

The Pacific Gateway project ("proposed project") would be situated on 1,577 (gross) acres located north of Interstate 580 (I-580) and State Route (SR) 132 in unincorporated San Joaquin County. It would be bounded by Tracy Boulevard on the west and Bird Road on the east. Chrisman Road and its interchange with SR 132 would be the primary vehicular access serving the project. In addition, the project would include a new street connection to Bird Road enabling project access via the SR 132/Bird Road interchange.

Figure 1 shows the regional setting and the location of the project. **Figure 2** shows the project land use map. Proposed land uses include:

- Gateway West, Central and East would consist of general industrial (warehouse/logistics buildings) totaling 24,149,000 million square feet;
- The University Center would consist of a university with capacity for 5,000 students along with supporting ancillary uses including a Veterans of Foreign Wars (VFW) Post; and

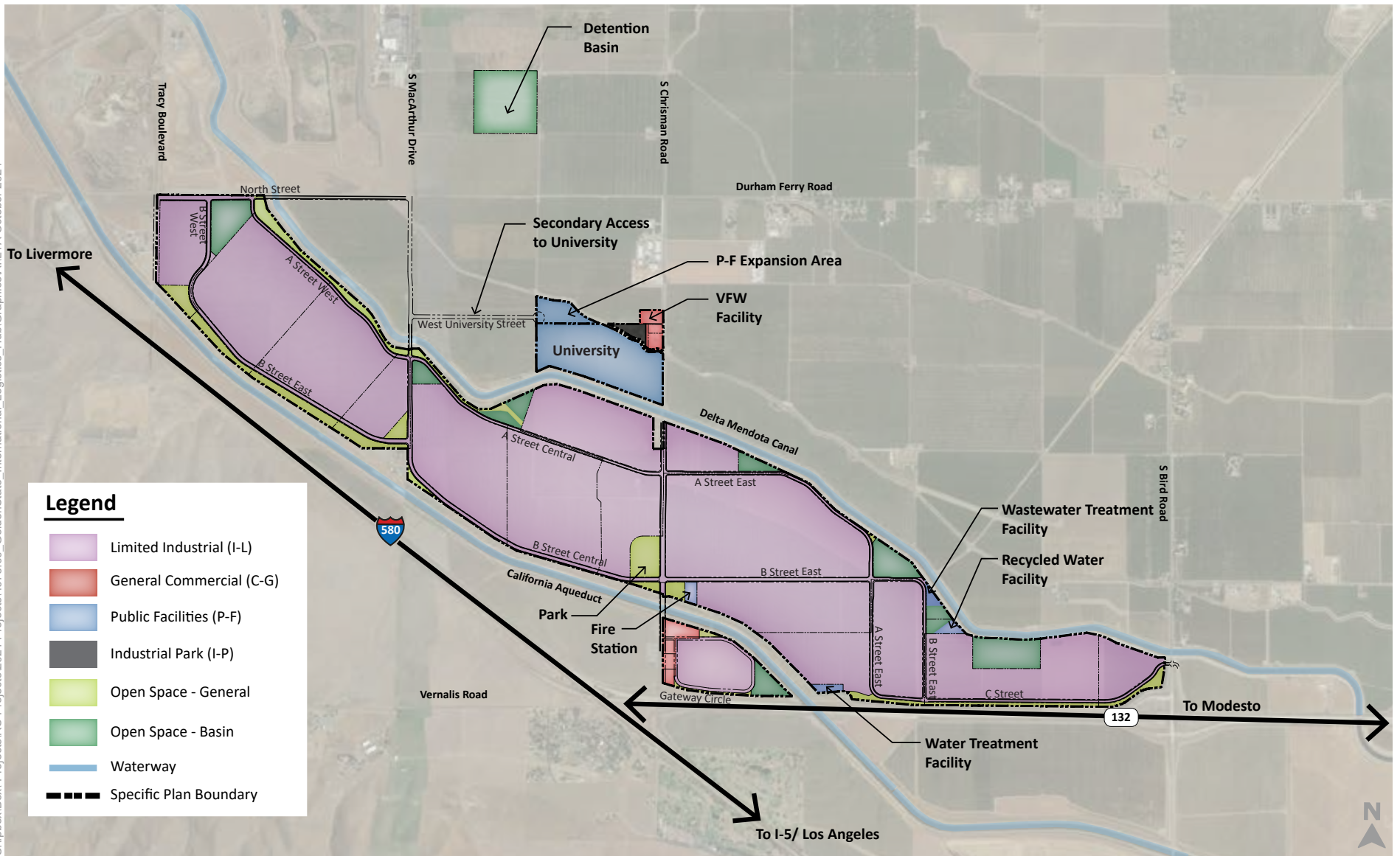


-  City Boundary
-  County Boundary
-  Project Site

Figure 1

Regional Setting





DATA SOURCE: DAVID BABCOCK + ASSOCIATES ARCHITECTURE LANDSCAPE PLANNING



Figure 2
Project Land Use Map

- The Gateway Center, which would be situated just north of SR 132, would feature a variety of highway commercial uses as well as 525,000 square feet of general industrial.

The “Initial Phase” of the project would consist of the development of 3,962,000 square feet of general industrial in Gateway East, several university buildings allowing for enrollment of 400 students, and the VFW building.

Applicable Transportation-Related Policies

This section presents potentially applicable federal, state, regional, and local regulatory requirements applicable to the project.

Pursuant to Senate Bill (SB) 743, Public Resources Code (PRC) Section 21099, and California Code of Regulations (CCR) Section 15064.3, generally, VMT has replaced congestion as the metric for determining transportation impacts under CEQA. Section 15064.3 of the CEQA Guidelines provides that VMT is the “most appropriate measure of transportation impacts” and mandates analysis of VMT impacts effective July 1, 2020. A project’s effect on automobile delay is no longer a consideration when identifying a significant impact; therefore, the impact of the project on delay-based traffic operations is not addressed in this EIR.

FEDERAL

Depending on the types of off-site improvements needed, policies of the Federal Highway Administration (FHWA) may be applicable. This is particularly the case for interstate freeways such as Interstate 5 and 580.

Surface Transportation Assistance Act (STAA)

The STAA of 1982 allows large trucks to operate on the Interstate and certain primary routes called collectively the National Network. These trucks, referred to as STAA trucks, are longer than California legal trucks. As a result, STAA trucks have a larger turning radius than most local roads can accommodate. On surface streets, STAA routes are designated either as Terminal or Service Access routes. Terminal routes are approved by the agency with jurisdiction over the roadway to enable the truck to reach its ultimate destination. Service Access routes allow STAA trucks to exit the interstate onto a local road, for one mile only, for food, fuel, lodging, or repair.

STATE

The State of California has enacted several pieces of legislation that outline the state's commitment to encourage land use and transportation planning decisions and investments that reduce VMT and contribute to reductions in greenhouse gas (GHG) emissions in line with state climate goals. Other recent state policies pertain to roadway safety.

Senate Bill 743

SB 743, passed in 2013, required the California Governor's Office of Planning and Research (OPR) to develop new guidelines that address transportation metrics under CEQA. Enacted as part of SB 743 (2013), PRC section 21099, subdivision (b)(1), directed the OPR to prepare, develop, and transmit to the Secretary of the Natural Resources Agency for certification and adoption proposed CEQA Guidelines addressing "criteria for determining the significance of transportation impacts of projects within transit priority areas. Those criteria shall promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In developing the criteria, [OPR] shall recommend potential metrics to measure transportation impacts that may include, but are not limited to, vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated."

Subdivision (b)(2) of PRC section 21099 further provides that "[u]pon certification of the guidelines by the Secretary of the Natural Resources Agency pursuant to this section, automobile delay, as described solely by level of service or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to [CEQA], except in locations specifically identified in the guidelines, if any."

OPR published its proposal for the comprehensive updates to the CEQA Guidelines in November 2017 which included proposed updates related to analyzing transportation impacts pursuant to SB 743. The updated CEQA Guidelines were adopted on December 28, 2018; and according to the new CEQA Guidelines Section 15064.3, VMT replaced congestion as the metric for determining transportation impacts. The guidelines state that "lead agencies may elect to be governed by these provisions of this section immediately. Beginning July 1, 2020, the provisions of this section shall apply statewide."

OPR published the *Technical Advisory on Evaluating Transportation Impacts in CEQA* ("Technical Advisory") in December 2018 to provide guidance to agencies implementing the new CEQA requirements.

Technical Advisory on Evaluating Transportation Impacts in CEQA (OPR, 2018)

The *Technical Advisory* provides advice and recommendations to CEQA lead agencies on how to implement the SB 743 changes. This includes technical recommendations regarding the assessment of VMT, thresholds of significance, VMT mitigation measures, and screening thresholds for certain land use projects. Lead agencies may consider and use these recommendations at their discretion and with the provision of substantial evidence to support alternative approaches. The *Technical Advisory* describes considerations agencies may use in selecting VMT metrics, calculation methodologies, and significance thresholds. The *Technical Advisory* does not mandate the use of specific metrics, methodologies or significance thresholds, because agencies have discretion to select those that are appropriate for the local land use and transportation context.

The *Technical Advisory* identifies “screening thresholds” to quickly identify when a project should be expected to cause a less-than-significant impact without conducting a detailed VMT analysis. The *Technical Advisory* suggests that projects meeting one or more of the following criteria should be expected to have a less-than-significant impact on VMT.

- Small projects – projects consistent with a SCS and local general plan that generate or attract fewer than 110 trips per day.
- Projects near major transit stops – certain projects (residential, retail, office, or a mix of these uses) proposed within ½ mile of an existing major transit stop or an existing stop along a high-quality transit corridor.
- Affordable residential development – a project consisting of a high percentage of affordable housing may be a basis to find a less-than-significant impact on VMT.
- Local-serving retail – local-serving retail development tends to shorten trips and reduce VMT. The *Technical Advisory* encourages lead agencies to decide when a project will likely be local-serving, but generally acknowledges that retail development including stores larger than 50,000 square feet might be considered regional-serving. The *Technical Advisory* suggests lead agencies analyze whether regional-serving retail would increase or decrease VMT (i.e., not presume a less-than-significant).
- Projects in low VMT areas – residential and office projects that incorporate similar features (i.e., density, mix of uses, transit accessibility) as existing development in areas with low VMT will tend to exhibit similarly low VMT.

The *Technical Advisory* identifies recommended numeric VMT thresholds for office and retail projects.

- Office projects that would generate vehicle travel exceeding 15 percent below (i.e., greater than 85 percent of) existing regional VMT per employee may indicate a significant transportation impact.
- Retail projects (and other non-residential/non-office projects) that result in a net increase in total VMT may indicate a significant transportation impact.

The *Technical Advisory* offers guidance regarding the above project types because “they tend to have the greatest influence on VMT”. It does not specifically address schools/universities, instead stating that “lead agencies, using more location-specific information, may develop their own more specific thresholds, which may include other land use types.”

The *Technical Advisory* also provides guidance on impacts to transit. Specifically, the *Technical Advisory* suggests that lead agencies generally should not treat the addition of new transit users as an adverse impact. As an example, the *Technical Advisory* suggests that “an infill development may add riders to transit systems and the additional boarding and alighting may slow transit vehicles, but it also adds destinations, improving proximity and accessibility.

Regarding trucks, the *Technical Advisory* first points out that CEQA Section 15064 refers to automobiles when referencing VMT. The document then offers a definition that automobiles consist of on-road passenger vehicles, including cars and light duty trucks. It further states that “Heavy-duty truck VMT could be included for modeling convenience and ease of calculation.” No further guidance is provided relating to how to address travel impacts of trucks, though Appendix 1 (Considerations About Which VMT to Count) and Appendix 2 (Induced Travel: Mechanisms, Research, and Additional Assessment Approaches) repeatedly refer to automobiles (and do not mention trucks) when describing these topics.

Caltrans is responsible for planning, designing, constructing, operating, and maintaining the State Highway System (SHS). Any improvements or modifications to the SHS within the study area would need to be approved by Caltrans. The following Caltrans planning documents emphasize the State of California’s focus on transportation infrastructure that supports mobility choice through multimodal options, smart growth, and efficient development:

- Smart Mobility Framework (Caltrans February 2010),
- Complete Streets Implementation Action Plan (Caltrans 2010),
- California Transportation Plan 2040 (Caltrans 2016),
- Strategic Management Plan 2015-2020 – 2019 Update (Caltrans 2019),
- State Highway System Management Plan (Caltrans 2019),

- VMT-Focused Transportation Impact Study Guide (Caltrans 2020), and
- Caltrans 2020–2024 Strategic Plan (Caltrans 2021).

Among these various reports, the following three documents are most applicable to the project.

VMT-Focused Transportation Impact Study Guide (TISG)

On May 20, 2020, the *VMT-Focused Transportation Impact Study Guide* (“TISG”) was adopted by Caltrans (2020). The TISG provides guidance on how Caltrans will review land use projects, with focus on VMT analysis and supporting state land use goals, state planning priorities, and GHG emission reduction goals; as well as identifying land use projects’ possible transportation impacts to the State Highway System and potential non-capacity increasing mitigation measures. The TISG indicates that Caltrans intends to “transition away from requesting LOS or other vehicle operations analyses of land use projects,” instead placing the focus on VMT and safety.

The TISG emphasizes that VMT analysis is Caltrans’ primary review focus and references the *Technical Advisory* as a basis for the guidance in the TISG. Notably, the TISG recommends the use of the recommended thresholds in the *Technical Advisory* for land use projects. The TISG also references the *Technical Advisory* for screening thresholds that would identify projects and areas presumed to have a less-than-significant transportation impact. Caltrans supports streamlining for projects that meet these screening thresholds because they help achieve VMT reduction and mode shift goals.

Local Development Review (LDR) Safety Review Practitioners Guidance

The *Local Development Review (LDR) Safety Review Practitioners Guidance* (Caltrans, 2024) advises practitioners how to evaluate project-related safety impacts on the state highway system. It stops short of including specific thresholds of significance. The analytical approach described in the guidance focuses on vulnerable road users (i.e., bicyclists and pedestrians) and underserved communities; enhancing safety for pedestrians, bicyclists, transit, and vehicular modes; and applying both reactive and systemic perspectives. Lastly, it reiterates Caltrans supports for shifting away from using delay-based metrics for analysis in CEQA.

The guidance outlines how queuing should be reviewed for traffic safety impacts. Appendix B “Freeway Exit-Ramp Queuing Analysis” provides practitioners with specific guidance on analysis of project effects on freeway off-ramp queuing. The following test is applied at freeway off-ramps:

- If the Project adds two or more car lengths to the ramp queue that will extend into the freeway mainline, then the location must be reviewed for traffic safety impacts. This review must evaluate speed differential between the off-ramp queue and the mainline of the freeway during the same period.

Traffic safety mitigation may be requested if freeway exit ramp queuing does not occur under the existing condition, but project-generated traffic volumes will cause a queue to extend onto the freeway mainline, creating a speed differential of 30 miles per hour (mph) or greater. When the speed differential increases above the 30-mph threshold, rear-end collisions increase resulting in an increase in severe injury and fatal collisions. Traffic safety mitigation shall not be requested under conditions where queuing already exists on a freeway exit ramp. The significance of that traffic safety impact by the project must be determined on a case-by-case basis.

The guidance does not offer any suggested practices for evaluating queuing at turn lanes on the state highway system. However, queues that spill out of a left-turn lane on a conventional highway can present similar safety concerns as a freeway off-ramp. They are therefore evaluated in this study in the same manner as off-ramps are treated. Vehicle queuing is analyzed using 95th percentile queues (from Simtraffic) for key turning movements at turn lanes and off-ramps on the state highway system. Since the queuing results are reported on state highway facilities, the precise (non-rounded) 95th percentile queue (in feet) is reported in accordance with Caltrans District 10 preferences.

Lastly, the guidance identifies the following six challenge areas as high priorities in California as they represent the greatest opportunity to reduce fatalities and severe injuries: lane departures, impaired driving, speed management, pedestrians, bicyclists, and intersection. This topic, which pertains to details related to the collision history on the state highway system near the project site, is analyzed in detail in this report.

Caltrans 2020–2024 Strategic Plan

The *Caltrans 2020–2024 Strategic Plan* lists “Safety First” as its top goal through 2024 (Caltrans 2021). The 2020 Caltrans Annual Accomplishments Report describes the *Four Pillars of Traffic Safety*, which will help guide the department toward the ultimate goal of zero deaths or severe injuries on California roads by 2050. The Four Pillars of Traffic Study are:

- Double Down on What Works
- Accelerate Advanced Technology
- Lead Safety Culture Change
- Integrate Equity

Each of these pillars, including their applicability to the project, are described later in this report.

Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act Report

This report by the CA Department of Justice is meant to help lead agencies pursue CEQA compliance and promote environmentally-just development for warehouse project proposals. The document provides information on feasible best practices and mitigation measures. It describes how truck traffic from warehouses can present substantial safety issues, especially if truck traffic passes through residential areas, school zones, or other places where pedestrians are common. It recommends the following measures be considered for these conditions.

- Design, clearly mark, and enforce truck routes that keep trucks out of residential neighborhoods and away from other sensitive receptors.
- Install signs in residential areas noting that truck and employee parking is prohibited.
- Require preparation and approval of a truck routing plan describing the facility's hours of operation, types of items to be stored, and truck routing to and from the facility to designated truck routes that avoids passing sensitive receptors. The plan should hold facility operators responsible for violations of the truck routing plan, and a revised plan should be required from any new tenant that occupies the property before a business license is issued. The approving agency should retain discretion to determine if changes to the plan are necessary, including any additional measures to alleviate truck routing and parking issues that may arise during the life of the facility.
- Construct new or improved transit stops, sidewalks, bicycle lanes, and crosswalks, with special attention to ensuring safe routes to schools.
- Consult with the local public transit agency and secure increased public transit service to the project area.
- Designate areas for employee pickup and drop-off.
- Implement traffic control and safety measures, such as speed bumps, speed limits, or new traffic signs or signals.
- Place facility entry and exit points on major streets that do not have adjacent sensitive receptors.
- Restricting the turns trucks can make entering and exiting the facility to route trucks away from sensitive receptors.
- Construct roadway improvements to improve traffic flow.
- Prepare a construction traffic control plan prior to grading, detailing the locations of equipment staging areas, material stockpiles, proposed road closures, and hours of construction operations, and designing the plan to minimize impacts to roads frequented by passenger cars, pedestrians, bicyclists, and other non-truck traffic.

REGIONAL

San Joaquin Council of Governments (SJCOG) 2022 RTP/SCS

The San Joaquin Council of Governments (SJCOG) is comprised of the County of San Joaquin and the cities of Stockton, Lodi, Manteca, Tracy, Ripon, Escalon and Lathrop. SJCOG is the federally designated Metropolitan Planning Organization and serves as the regional transportation planning agency and a technical and informational resource for these jurisdictions. In August 2022, the SJCOG Board voted to adopt the *2022 Regional Transportation Plan and Sustainable Communities Strategy (RTP/SCS)* ("2022 RTP/SCS"). This document serves as the region's long-range transportation plan and provides guidance for decisions about transportation spending priorities. It includes a list of planned and funded transportation improvements utilized in this report. Chapter 3 includes various policies and strategies that may be relevant to this study including:

Policy: Enhance the Environment for Existing and Future Generations and Conserve Energy

- Strategy No. 4: Improve air quality by reducing transportation-related emissions.

Policy: Maximize Mobility and Accessibility

- Strategy No. 5: Optimize the public transportation system to provide efficient and convenient access for users of all income levels.
- Strategy No. 7: Provide transportation improvements to facilitate nonmotorized travel, including incorporation of complete streets elements as appropriate.
- Strategy No. 8: Improve freight access to key strategic economic centers.
- Strategy No. 9: Promote safe and efficient strategies to improve the movement of goods by air, water, rail, and roadway.

Policy: Increase Safety and Security

- Strategy No. 10: Facilitate projects that reduce the number and severity of traffic incidents.
- Strategy No. 11: Support local and state efforts for transportation network resiliency, reliability, and climate adaptation.

Policy: Preserve the Efficiency of the Existing Transportation System

- Strategy No. 12: Prioritize projects that make more efficient use of the existing road network.
- Strategy No. 13: Support the continued maintenance and preservation of the existing transportation system.

- Strategy No. 14: Promote electric power, alternative fuels and autonomous technologies for freight and agriculture.
- Strategy No. 15: Manage the adoption of electric vehicles and private connected and autonomous vehicles.
- Strategy No. 16: Promote electric power, alternative fuels, and autonomous technologies for public transit.

Policy: Support Economic Vitality

- Strategy No. 17: Support transportation improvements that improve economic competitiveness, revitalize commercial corridors and strategic economic centers, and enhance travel and tourism opportunities.

Policy: Promote Interagency Coordination and Public Participation for Transportation Decision-Making and Planning Efforts

- Strategy No. 21: Provide equitable access to transportation planning.

Policy: Maximize Cost-Effectiveness

- Strategy No. 25: Support the use of state and federal grants to supplement local funding and pursue discretionary grant funding opportunities from outside the region.
- Strategy No. 27: Maximize funding of existing transportation options.

Policy: Improve the Quality of Life for Residents

- Strategy No. 30: Enhance public health through active transportation projects.

San Joaquin County Regional Congestion Management Program (RCMP)

The Federal Congestion Management Process requires metropolitan planning organizations such as SJCOG to develop and implement a Regional Congestion Management Program (RCMP) to fulfill its SJCOG's requirements as a metropolitan area with a population exceeding 200,000. In addition, there is an opportunity to integrate Performance-Based Planning and Programming (PBPP) performance metrics and provide information of interest to our jurisdictions. Its focus is on reducing single occupant vehicle (SOV) travel while minimizing the need for increasing roadway capacity. It also provides additional resources for the development and deployment of new congestion management technologies.

The *SJCOG Regional Congestion Management Program 2022 Monitoring Report* (Kimley Horn, 2023) measures regional congestion and multimodal performance measures through ongoing systematic monitoring. Performance measures serve to gauge system performance and track progress toward achieving congestion management objectives. However, the CMP no longer includes roadway or



intersection operations targets such as LOS C. Instead, it focuses on multimodal performance metrics for bicycling, walking, and transit as well as VMT, travel reliability, pavement management, and safety.

SJCOG Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan

The *SJCOG Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan* (Alta, 2012) was developed to identify bikeways and pedestrian projects of regional significance in order to prioritize funding and facilitate project implementation. The plan's vision to meet the needs for people of all ages and abilities in San Joaquin County by improving and enhancing the existing bicycle and pedestrian network. Its goals are to increase bicycle and pedestrian travel throughout the county, improve bicycle, pedestrian, and school access safety, and increase education and awareness of bicycling and walking in San Joaquin County. Its objectives are to increase the mileage of bicycle and pedestrian facilities in San Joaquin County by 20% between 2012 and 2022, and increase the competitiveness of local jurisdictions for grant funding for bicycle, pedestrian, and Safe Routes to School improvements.

Measure K Sales Tax

Measure K is a ½ cent sales tax that helps fund transportation improvements in San Joaquin County. The program is operated by SJCOG. Measure K was originally approved by voters in 1990. It was renewed by a 2006 vote, which will extend the sales tax through 2041. Major improvements target San Joaquin County freeways, streets and roads, public transit networks, pedestrian, and bicycle friendly programs. According to the Measure K interactive project map¹, the widening of Linne Road from two to four lanes between Tracy Boulevard and Chrisman Road is included in the program. No improvements are shown along Chrisman Road.

San Joaquin County Regional Transportation Impact Fee (RTIF)

The RTIF is a county-wide, multi-jurisdiction capital improvement funding program that covers a portion of the costs for new transportation facilities required to serve new development within the County. New development throughout the county is subject to the fee. The funding derived from the RTIF program is used in combination with other funding available to complete the needed transportation and transit improvements. The RTIF capital project list contained on RTD's website does not show any planned, funded transportation improvements within the study area (though partial funding is included for the I-205/Chrisman Road interchange).

¹ [Interactive Project Map | San Joaquin Council of Governments, CA \(sjcog.org\)](https://www.sjcog.org/Interactive-Project-Map)



San Joaquin Regional Transit District Short-Range Transit Plan

The *San Joaquin Regional Transit District Short-Range Transit Plan (SRTP)* for fiscal years (FY) 2018-2019 to 2027-2028 serves as a guide for the development of the goals objectives, and policies for future transit services in the Stockton Metropolitan Area (SMA) and unincorporated San Joaquin County over the next 10 years. Official RTD boundaries do not include the incorporated San Joaquin County cities of Lodi, Lathrop, Manteca, Escalon, Ripon and Tracy. The SRTP proposes strategies that will guide transit development while containing costs within available revenues.

The SRTP outlines over \$20 million in operating improvements and an additional \$200 million in capital improvements to benefit San Joaquin County and its citizens. It identifies various service objectives to “provide the highest level of transit service to the greatest number of people within RTD’s financial means”. That includes enhanced service within the Stockton area, improved mobility for persons with disabilities, improved quality of intercity commuter service, and coordination with local jurisdictions and developers to incorporate transit services and amenities within land use planning to establish transit-oriented development. The SRTP does not explicitly cite any planned transit system improvements within the project vicinity.

San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 9410

San Joaquin Valley Air Pollution Control District (SJVAPCD) Rule 9410 (eTrip) requires major employers (with 100 or more employees) in the region to develop and implement TDM strategies. Adopted in 2009, the Employer Trip Reduction Implementation Plan (eTRIP) encourages employees to reduce single-occupancy vehicle trips, thus reducing pollutant emissions associated with work commutes. These strategies can include employee shuttles, staggered work hours, telecommuting options, transit subsidies, carpool/vanpool programs, and many other strategies. More information on this program can be found at: [4681 thru 4802 \(valleyair.org\)](http://4681thru4802.valleyair.org). It is also discussed in more detail in Chapter 8 of the report.

LOCAL

Goals, policies, and objectives from various planning documents published by San Joaquin County are relevant to the project. After this information is presented, planning documents and potentially applicable policies of the City of Tracy are presented given its proximity to the project site.

San Joaquin County General Plan

The Transportation and Mobility component of Chapter 3.2 (Public Facilities and Services Element) of the *San Joaquin County General Plan* (2016) includes the following goals and policies:



- **Goal TM-1: To maintain a comprehensive and coordinated multimodal transportation system that enhances the mobility of people, improves the environment, and is safe, efficient, and cost effective.**
- Policy TM-1.1 [Transportation System Safety]: The County shall manage the transportation system to ensure safe operating conditions. (PSP).
- Policy TM-1.3 [Multimodal System]: The County shall encourage, where appropriate, development of an integrated multi-modal transportation system that offers attractive choices among modes including pedestrian ways, public transportation, roadways, bikeways, rail, waterways, and aviation, and reduces air pollution and greenhouse gas emissions. (RDR/PSP).
- Policy TM-1.4 [Regional Transportation Facilities]: The County shall work with Caltrans, SJCOG, and the cities in the County where appropriate to plan, develop, and maintain regional transportation facilities, and to identify existing and future transportation corridors that should be linked across jurisdictional boundaries so that sufficient right-of-way may be preserved. (PSP/IGC).
- Policy TM-1.5 [Regional Transportation Plan Development]: The County shall provide input into the development of the San Joaquin Council of Governments Regional Transportation Plan as appropriate to ensure County roads and facilities are adequately addressed. (PSP/IGC).
- Policy TM-1.6 [Automobile Dependency Alternatives]: The County shall support public and private efforts where appropriate to provide alternative choices to single occupant driving. (IGC/JP).
- Policy TM-1.7 [Energy Conservation]: The County shall develop the transportation system to reduce vehicle miles traveled, conserve energy resources, minimize air pollution, and reduce greenhouse gas emissions. (RDR/PSP).
- Policy TM-1.10 [Eliminate Gaps]: The County shall strive to eliminate “gaps” in roadways, bikeways, and pedestrian networks by planning and seeking funding to construct grade-separated crossings of rail lines, canals, creeks, and other barriers to improve connectivity and encourage construction of new bikeways and pedestrianways in and between existing communities where appropriate. (RDR/PSP/FB).
- Policy TM-1.11 [Transportation System Improvements]: The County shall require new development to provide transportation system improvements necessary to serve the development. (RDR/FB).
- Policy TM-1.12 [Transportation and Land Use]: The County shall ensure that transportation system investments and improvements support existing and future sustainable land use patterns.
- Policy TM-1.16 [Transportation Capacity and Development]: The County shall schedule transportation improvements to coordinate with land use development and transportation demand. Transportation investments and service capacity shall be planned to correspond to the development and travel demand identified by plans of local communities. (RDR/PSP).



- **Goal TM-2: To improve County roadways to include pedestrian, bicycle, and transit facilities to better serve people who use these active transportation modes.**
- Policy TM-2.4 [Rural Complete Streets]: The County shall strive to serve all users on rural roadways in the County and shall design and construct rural roadways to serve safely bicyclists, transit passengers, and agricultural machinery operators. This includes:
 - Constructing wide shoulders to provide a safe space for bicyclists, and agricultural machinery vehicles;
 - Removing visual barriers along rural roads, particularly near intersections, to improve the visibility of bicyclists; and
 - Coordinating with local jurisdictions and SJCOG to ensure multimodal connections are established and maintained between jurisdictions. (RDR/PSP)
- Policy TM-2.5 [Reconstructed Rural Complete Streets]: The County may require, based on community support and feasibility and the County's Bicycle Master Plan, reconstructed streets in rural areas to accommodate bicyclists and agricultural machinery, except where facility improvements are determined to be cost prohibitive. (RDR/PSP).
- Policy TM-2.7 [New Development]: The County shall require all new developments to provide their fair share of roadway facilities for alternative transportation modes to reduce automobile demand. (RDR).
- Policy TM-2.8 [Private Complete Streets]: The County shall encourage large private developments (e.g., office parks, apartment complexes, retail centers) to provide internal complete streets that connect to the existing roadway system. (RDR).
- **Goal TM-3: Maintain a safe, efficient, and cost-effective roadway system for the movement of people and goods.**
- Policy TM-3.2 [Urban Roadways]: The County shall require, where feasible, new development in Urban Communities to construct roadways to County standards and complete streets principles, including curb, gutter, and sidewalks. Bike lanes shall be required, where feasible, for improvements identified in the San Joaquin County Bicycle Master Plan. (RDR).
- TM-3.3 [Onsite Circulation Systems]: The County shall require new development to design on-site circulation systems and parking facilities to minimize backup on County roadways. (RDR).
- TM-3.4 [Roadway Plan Coordination]: The County shall coordinate roadway improvements with regional plans, such as the countywide Regional Transportation Plan and Regional Transportation Improvement Plan Program, the Congestion Management Program, and the Measure K Strategic Plan funding program. (PSP/IGC).



- TM-3.6 [Right-of-Way Preservation]: The County shall strive to preserve road rights-of-way necessary to implement the circulation system included in the General Plan using Special Purpose Plans or other means, where appropriate. (PSP).
- TM-3.7 [Frontage Standards]: For developments that are located adjacent to a County roadway, the County shall require access onto County roads. (RDR).
- TM-3.10 [Rural Road Traffic]: The County should monitor the use of rural roads by commuters as bypass routes from gridlocked arterials to gather data for use in any future traffic studies or plans designed to reduce the traffic impact on the operation of agricultural machinery. (PSP/PSR).
- TM-3.11 [Rural Traffic Management Areas]: The County shall mitigate excessive commuter diversion traffic through the development and adoption of rural traffic management plans. Where applicable, the County shall prepare a rural traffic management plan when public concerns are raised about excessive traffic or the County identifies issue areas, County Public Works Director confirms that a defined rural area is experiencing excessive commuter traffic due to diversion, and a survey of an area's property owners, with at least 33 percent responding, shows at least 50 percent are in support of a plan. (PSP).
- VM-3.12 [Development Rights-of-Way]: The County shall require dedication and improvement of necessary on and off-site rights-of-way at the time of new development, in accordance with the County's Functional Classification, Standard Drawings, and Level of Service Standards. (RDR).
- **Goal TM-4: To maintain and expand a safe, continuous, and convenient bicycle system and pedestrian network.**
- TM-4.1 [Pedestrian and Bicycle Network Continuity]: The County shall strive to eliminate gaps in the rural bicycle network by constructing or designating new bike facilities, where appropriate, and in accordance with the San Joaquin County Bicycle Master Plan.
- TM-4.2 [Speed Management Policies]: The County shall strive to implement current CVC codes for uses as speed management policies that support driving speeds on all streets within Urban and rural Communities and City Fringe Areas that are safe for pedestrians and bicyclist. (RDR).
- TM-4.1 [Pedestrian and Bicycle Network Continuity]: The County shall strive to eliminate gaps in the rural bicycle network by constructing or designating new bike facilities, where appropriate, and in accordance with the San Joaquin County Bicycle Master Plan.

San Joaquin County Bicycle Master Plan Update

The *San Joaquin County Bicycle Master Plan Update* (2020) is intended to provide a bicycle network that is well connected, safe, and enjoyable for County residents and visitors. The 2020 update of the prior 2010 plan included an updated vision, goals, and policies, updated existing conditions and current best practices,

presentation of a network of high-quality bikeways serving “all ages and abilities”, recommendations for decreasing automobile/bicycle conflicts; and means to improve the quality of bikeways.²

Appendix A to the 2020 update includes a list of proposed bikeways including the following in the vicinity of the proposed project:

- Class II bike lane on Chrisman Road from Eleventh Street to Linne Road.
- Class II bike lane on Linne Road from MacArthur Drive to Chrisman Road.
- Class III bike route on Chrisman Road from Linne Road to Durham Ferry Road.
- Class III bike route on Durham Ferry Road from Chrisman Road to SR 33.
- Class IV separated bikeway on Linne Road from Corral Hollow Road to MacArthur Drive.

Chapter 2 describes each of these four classes of bicycle facilities in detail. It should be noted that the 2020 RTP/SCS project list does not explicitly include the above projects. However, it does indicate that specific projects listed in the *Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan* are included. That document included ‘vision’ projects near the project site including a Class III bike route on Chrisman Road from Eleventh Street to the California Aqueduct, and a Class III bike route on Durham Ferry Road from Chrisman Road to Kasson Road.

San Joaquin County VMT Thresholds Study

The *San Joaquin County VMT Thresholds Study* (GHD, 2020) describes how San Joaquin County will implement Senate Bill 743. The report has not been formally adopted by the San Joaquin County Board of Supervisors. Nevertheless, it has previously been applied on various studies requiring VMT analysis. The *San Joaquin County VMT Thresholds Study* describes how, in large part, the County is endorsing the majority of the recommendations from the *Technical Advisory*. As this report is highly technical and raises various concepts and topics not otherwise introduced, the detailed methods outlined in the study and applicability for project analysis are discussed in Chapter 6.

² [final-sjc-bike-plan-update nov-19 2020-optimized.pdf](#)

San Joaquin County Local Road Safety Plan (LRSP)

The San Joaquin County LRSP provides a framework to develop a comprehensive transportation safety management program that proactively identifies potential safety issues in the unincorporated county and applies strategic and proven solutions to address them. It assesses roadway safety in the County, identifies locations for improvements, and recommends engineering countermeasures. An LRSP is a multi-disciplinary approach to traffic safety that creates the opportunity for the County to partner with stakeholders and other agencies who may have a role in implementing recommendations.

The LRSP adopts a Safe System Approach and encourages forward thinking strategies, addressing the fact that historical approaches to traffic safety have not been effective enough in preventing fatal and serious injuries. Commitment from County staff and road safety partners to prioritize safety in their efforts and implement both proven and innovative ideas are key to the LRSP being impactful and in line with recent commitments at the national and state level. The County's roadway network is large and complex, but incremental efforts focused on safety that are already occurring and expected to expand in future years aim to reduce collision risk on County roadways. The County is committed to reaching its goal of eliminating all preventable roadway fatalities and serious injuries by 2050.

Driving or biking under the influence was the most cited primary collision factor for fatal and serious injuries (45 percent), higher than the statewide average of 28 percent. There was a total of 1,428 DUI collisions, of which, 219 (5 percent) resulted in a fatal or serious injury outcome.

Table 4 of the LRSP shows a list of priority intersections by collision severity score. The Eleventh Street/Bird Road intersection is within the study area and ranks first overall. The LRSP cites a planned safety project at that location (though details of its components are not provided). The 5th ranked intersection is Eleventh Street/Kasson Road/Grant Line Road, with the LRSP mentioning that the roundabout present at the intersection was restriped in 2016.

Figure 30 of the LRSP shows priority intersections and segments for investment given their collision severity score. No facilities were identified within this project's vicinity aside from the two intersections mentioned above.

San Joaquin County Traffic Impact Mitigation Fee (TIMF) Program

This fee program applies to new development in unincorporated San Joaquin County. The fee schedule can be found on the County's website (at: [Traffic Fees \(sjgov.org\)](https://www.sjgov.org/traffic-fees)). The *San Joaquin County Traffic Impact Mitigation Fee (TIMF) Program Annual Report (2023)* describes various planned improvements that the TIMF would help fund. The only improvement within the study area that it would fund would be a roundabout at Eleventh Street/Bird Road.

City of Tracy General Plan

The *City of Tracy General Plan* (2011) is the principal policy and planning document for guiding future conservation, enhancement and development in the City. It represents the basic policy direction of the Tracy City Council on basic community values, ideals and aspirations to govern a shared environment through 2025. The General Plan addresses all aspects of development including land use, transportation, housing, economic development, public facilities and infrastructure and open spaces, among other topics.

The Circulation Element of the General Plan contains the following relevant goals, policies, objectives, and actions that may be related to the proposed project's transportation impacts:

Goal CIR-1 A roadway system that provides access and mobility for all of Tracy's residents and businesses while maintaining the quality of life in the community.

- *Objective CIR-1.1 Implement a hierarchical street system in which each street serves a specific, primary function and is sensitive to the context of the land uses served.*
 - Policy P2. The City shall preserve rights-of-way needed for future roadway and freeway interchange improvements through dedication or acquisition as adjacent properties develop or redevelop.
 - Policy P3. The City shall continue to apply traffic mitigation fee programs to fund transportation infrastructure, based on a fair share of facility use.
 - Policy P4. The City should continue to pursue regional, County and State funding to fund roadway projects. These potential funding sources may include Measure K sales tax revenues, a regional or countywide transportation impact fee, and other existing and future revenue sources.
 - Policy P5. The City shall continue to participate in regional transportation funding decisions, including Measure K reauthorization, regional or countywide transportation fees, and prioritization of State funded projects.
 - Policy P6. The Roadway Master Plan update shall identify necessary improvements to various interchanges on I-205 and I-580 based on land use designations and with particular attention to Terminal Access Routes in accordance with Surface Transportation Assistance Act of 1982 (STAA).
 - Action A3. Consult with San Joaquin County and the City of Lathrop to ensure that adequate rights-of-way are preserved in the City's Sphere of Influence.
- *Objective CIR-1.4 Protect residential areas from commercial truck traffic.*
 - Policy P1. Significant new truck traffic generating uses shall be limited to locations along designated truck routes, in industrial areas or within ¼-mile of freeways.
 - Policy P2. The City shall enforce designated truck routes based on the existing City ordinance.
 - Action A1. Update the truck route designations periodically as needed.

- Action A2. Maintain a map of truck routes in the City.
- *Objective CIR-1.5 Protect residential areas from through traffic and high travel speeds by facilitating free flow of traffic on major streets.*
 - Policy P1. Use of local residential streets by non-local and commercial traffic shall be discouraged. The City may consider techniques such as route signs and route maps. This policy should not restrict the ability of local vehicle and nonmotorized transportation to utilize residential collectors as an effort to encourage higher levels of roadway connectivity.

City of Tracy Draft Infrastructure Master Plan Impact Fee Nexus Study (2023)

This plan, which is currently in draft form, would update impact fees for new development within the City of Tracy. The plan identifies \$665 million in transportation improvements that would be funded by the project. The following improvements within the study area are included in this program:

- Chrisman Road widening from two to four lanes from Eleventh Street to Schulte Road (\$16.2 million)
- Chrisman Road widening from two to four lanes from Schulte Road to Valpico Road (\$12.8 million)
- Linne Road widening from two to four lanes from Corral Hollow Road to Tracy Blvd (\$16.2 million)
- Linne Road widening from two to four lanes from Tracy Blvd to east City limits (1/4 mile west of MacArthur Drive) (\$11.0 million)
- Widen Chrisman Road to four lanes (across railroad tracks) at Schulte Road (\$1.7 million)
- Widen Corral Hollow Road to four lanes (across railroad tracks) north of Linne Road (\$1.7 million)
- Widen Tracy Boulevard to four lanes (across railroad tracks) north of Linne Road (\$1.7 million)
- Corral Hollow Road/Linne Road intersection improvements (\$5.5 million)
- Tracy Boulevard/Linne Road intersection improvements (\$4.7 million)
- Chrisman Road/Eleventh Street intersection improvements (\$2.2 million)
- Chrisman Road/Valpico Road intersection improvements (\$1.6 million)

City of Tracy Citywide Roadway and Transportation Master Plan ("TMP") (2022)

The *City of Tracy TMP* (2022) is a comprehensive document that describes existing and projected travel conditions in the City of Tracy. Besides including a detailed description of the City of Tracy travel demand model, it also describes specific planned roadway improvements, and other factors.

City of Tracy Truck Routes Map

The City of Tracy website includes a link ([11x17 Portrait \(cityoftracy.org\)](https://cityoftracy.org/11x17/Portrait)) to its current truck route map (dated October 2022). That map shows the following truck routes in the project vicinity:

- Chrisman Road is a STAA truck route from SR 132 to Eleventh Street
- Eleventh Street is a STAA truck route from Mac Arthur Drive to I-205
- Through truck routes include Corral Hollow Road from Linne Road to I-580, Linne Road easterly to Tracy Boulevard, and Tracy Boulevard south of Linne Road
- Local truck routes include Tracy Boulevard from Linne Road to Valpico Road, Valpico Road from Tracy Boulevard to MacArthur Drive, and MacArthur Drive to Eleventh Street

The map specifies that only California legal trucks (and not STAA trucks) are permitted on through truck routes. Chapter 2 provides more information regarding truck routes in Tracy.

City of Tracy Bikeways Master Plan

The *City of Tracy Bikeways Master Plan* (2005) displays existing bikeways (as of 2005) and planned bikeway facilities including proposed bike segments and a long range bikeways plan. Proposed bikeways address bikeway system inconsistencies and gaps. The only planned bikeway in the project vicinity is the addition of Class II bike lanes on Linne Road from Corral Hollow Road to MacArthur Drive. The document also includes a long range 'Orbital' bikeway route that would run along the edge of the city for a 20-mile loop. This would include Chrisman Road north of Linne Road and Linne Road between Chrisman Road and Corral Hollow Road. The City is currently updating several of its infrastructure master plans. However, an updated plan regarding bicycle facilities is not currently (as of December 2024) on the City's website.

Transportation-Related Comments on the NOP of the EIR

A number of agencies, organizations, and individuals provided written comments on the Notice of Preparation (NOP) for the Pacific Gateway EIR. Those comments that are transportation-related and may necessitate analysis under CEQA are summarized below:



- Regarding improvements within the right-of-way of the Delta Mendota Canal, where existing or new proposed bridge crossings exceed 2 lanes of travel in either direction, additional requirements may be necessary to provide safe crossings. The proposed crossing modifications shall be reviewed and approved by Reclamation and SLDMWA.
- Consider the information in the linked document when preparing the draft environmental impact report (found at: <https://oag.ca.gov/system/files/media/warehouse-best-practices.pdf>).
- Consider measures to reduce emissions associated with the project to help the State meet its air quality goals.
- Include trip distribution in transportation analysis to determine impacts to nearby city and county roads.
- The traffic analysis for the project needs to identify its impacts and per the San Joaquin County General plan, shall pay its fair share cost for the necessary improvements. Facilities of note include State Route 132 (SR 132), Interstate 5 (I-5), and State Route 33 (SR 33) in Stanislaus County.
- Project related impacts on air quality should be reduced to levels below the District's significance thresholds through incorporation of design elements such as the use of cleaner Heavy Heavy-Duty (HHD) trucks and vehicles, measures that reduce Vehicle Miles Traveled (VMTs), and measures that increase energy efficiency.
- Adequately characterize and justify an appropriate trip length distance for off-site Heavy Heavy-Duty (HHD) truck travel to and from the Project site. Based on the following factors: 1) the Project consists of a warehouse/distribution center that is expected to generate a high volume of HHD truck trips, and 2) HHD trucks generally travel further distances for distribution. The District recommends the environmental review include a discussion characterizing an appropriate trip length distance for HHD truck travel, and reflect such appropriate distance supported by project-specific factors.
- Require HHD truck routing patterns that limit exposure of residential communities and sensitive receptors to emissions.
- Incorporate signage and "pavement markings" to clearly identify on-site circulation patterns to minimize unnecessary on-site vehicle travel.
- Require truck entries be located on streets of a higher commercial classification.
- Incorporate bicycle racks and electric bike plug-ins.
- Evaluate HHD truck routing patterns for the Project, with the aim of limiting exposure of residential communities and sensitive receptors to emissions. evaluation would consider the current truck routes, the quantity and type of each truck (e.g., Medium Heavy-Duty, HHD, etc.), the destination



and origin of each trip, traffic volume correlation with the time of day or the day of the week, overall Vehicle Miles Traveled (VMT), and associated exhaust emissions. The truck routing evaluation would also identify alternative truck routes and their impacts on VMT and air quality

- Incorporate design elements (e.g., installing bikeways) within the Project that enhance walkability and connectivity to result in an overall reduction of vehicles miles traveled (VMT) and improve air quality within the area.
- The Project may be subject to District Rule 9410 (Employer Based Trip Reduction) if the project would result in employment of 100 or more “eligible” employees.
- Environmental review should include a discussion characterizing an appropriate trip length distance for HHD truck travel, and reflect such appropriate distance supported by project-specific factors

The vast majority of the bulleted items listed above are addressed in this report.

Several comments pertained to trip length information for off-site heavy duty truck travel. This information is included in the EIR based on resources described in this report. However, the heavy duty truck trip length data itself is not included here, because as described later, heavy duty truck VMT is not analyzed under CEQA.

2. ENVIRONMENTAL (EXISTING) SETTING

This chapter describes the existing transportation system including the roadway, bicycle, pedestrian, and transit facilities in the project vicinity.

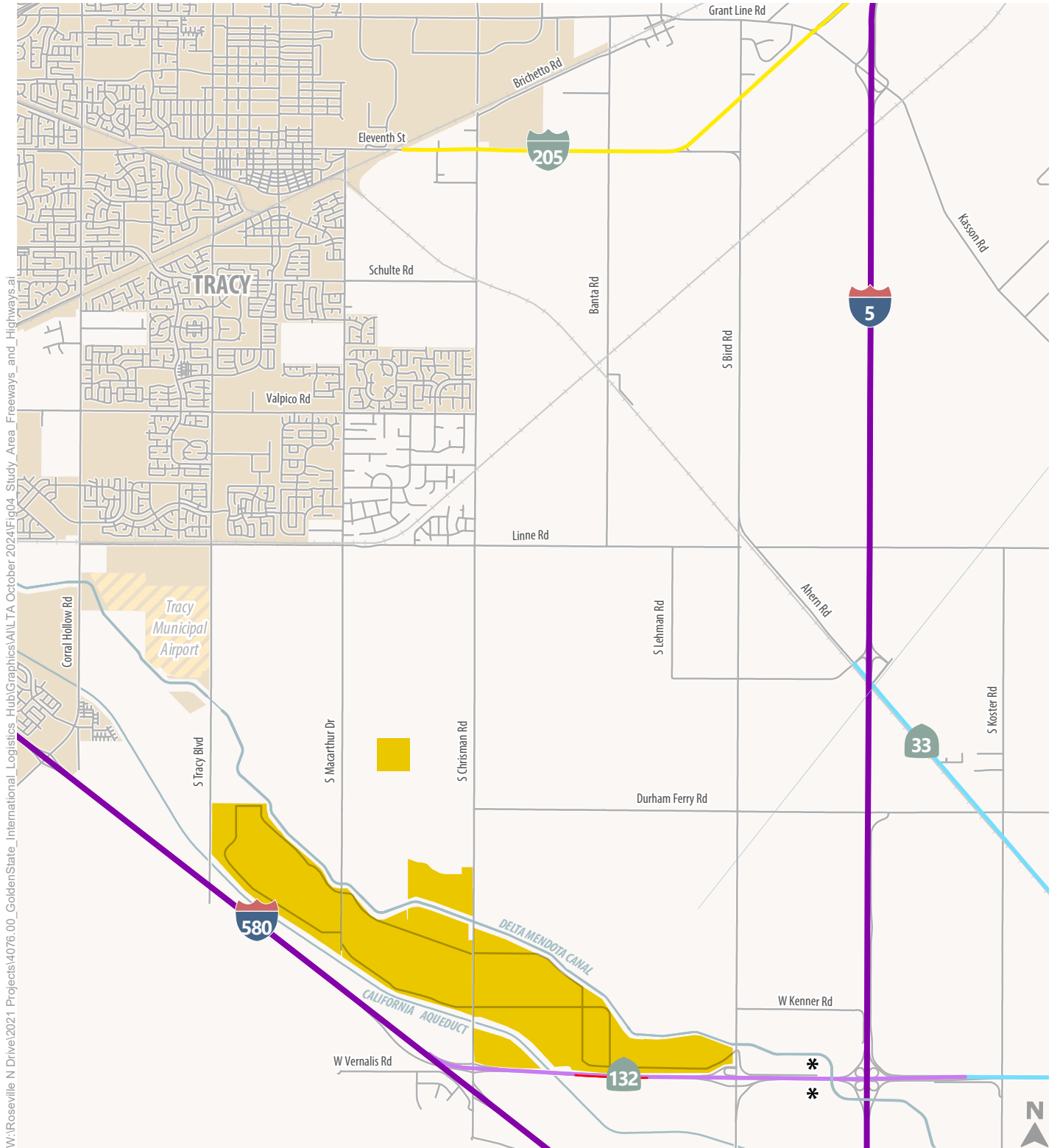
Roadway System

The roadway system in the project vicinity consists of a series of freeways, highways, and surface streets (See **Figure 3**). Freeways in the project vicinity include Interstate 5 (I-5), Interstate 580 (I-580), and State Route (SR) 132 between I-580 and I-5. Highways in the project vicinity include SR 132 east of I-5, and SR 33. These facilities represent the “State Highway System” in the project vicinity and are owned / operated by Caltrans.

Figure 4 displays the functional classification and number of lanes on roadways in the project vicinity. This figure is derived from Figure TM-1 of the Public Facilities and Services Element of the *San Joaquin County General Plan* (2016). Portions of Tracy Boulevard and MacArthur Drive are designated as principal arterials, while Chrisman Road and portions of Linne Road and Corral Hollow Road are designated as minor arterials. Durham Ferry Road, Bird Road, Ahern Road, and portions of Linne Road, Tracy Boulevard, MacArthur Drive, and Corral Hollow Road are designated as major or minor collectors.

Most of the freeways in the project vicinity consist of two or three lanes in each direction. However, the eastbound direction of SR 132 features an approximate 3,500-foot segment that is a single lane within the two mile distance between the Chrisman Road and Bird Road interchanges. I-5 and I-580 in the study area have posted speed limits of 70 miles per hour (mph), while SR 132 features a 55-mph speed limit. Speed limits on surface street roadways in the project vicinity range from 35 to 55 mph with Chrisman Road ranging from 45 to 55 mph.

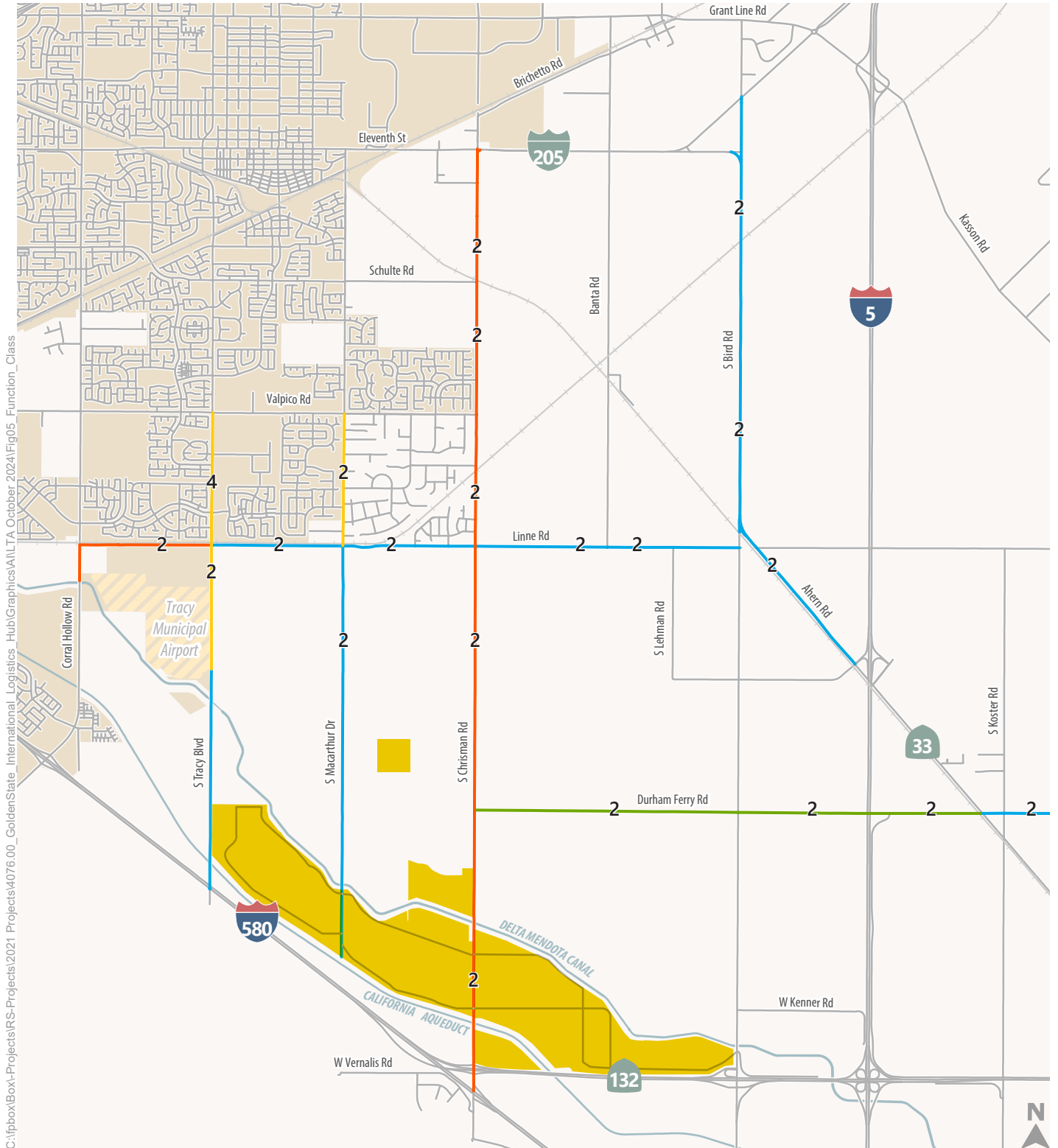
Figure 5 displays the location of bridges on surface streets within the study area. These are primarily two-lane crossings of either the California Aqueduct or Delta Mendota Canal. This figure also shows the location of 11 at-grade railroad crossings on surface streets in the project vicinity.



- Project Site
- City Boundary
- 4-lane Interstate Freeway
- 4-lane State Freeway
- Eastbound direction narrows to a single lane for 3,500 feet
- 2-lane Conventional Highway
- 4-lane Conventional Highway
- * A third (auxiliary) lane is provided in each direction between Bird Road and I-5

Figure 3

Study Area Freeways and Highways



- Project Site
- City Boundary

- Function Classification
- Principal Arterials
 - Minor Arterials
 - Major Collector
 - Minor Collector
 - Local Road

X Roadway Number of Lanes
(Excluding turn pockets or center turn lanes)

Figure 4

Existing Roadway Network Number of Lanes & Function Classification



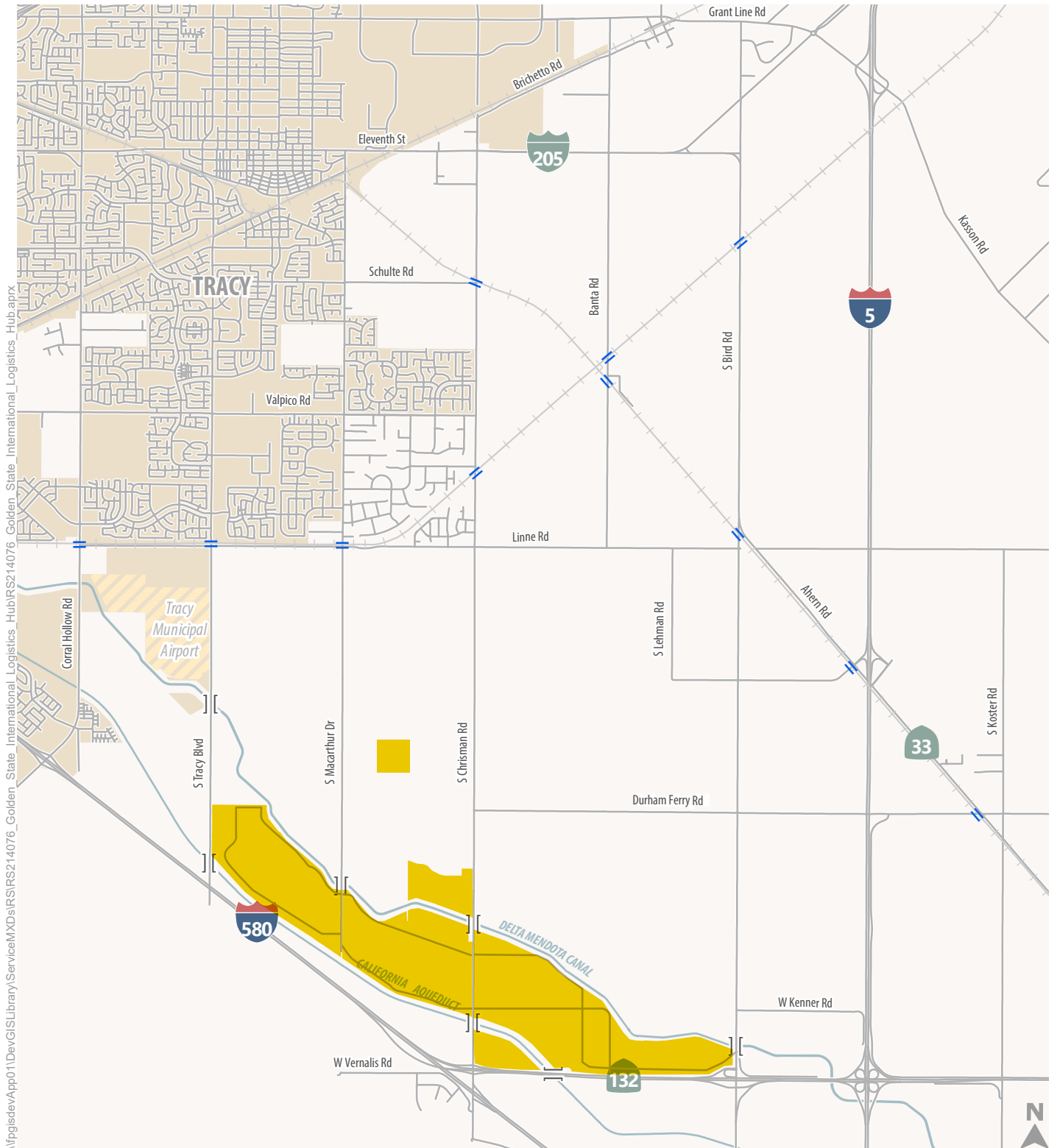


Figure 5

Study Area Bridges and At-Grade Railroad Crossings



The current City of Tracy City limits map (per City of Tracy GIS viewer³) shows a one-half mile segment of Chrisman Road north of Valpico Road and a 0.75-mile segment of Linne Road east of Tracy Boulevard being within the City limits. Tracy's Sphere of Influence (SOI) boundary includes Chrisman Road northerly from Valpico Drive to Eleventh Street. This information is insightful to understand when considering City of Tracy fee programs and project fair share responsibilities.

Truck Routes

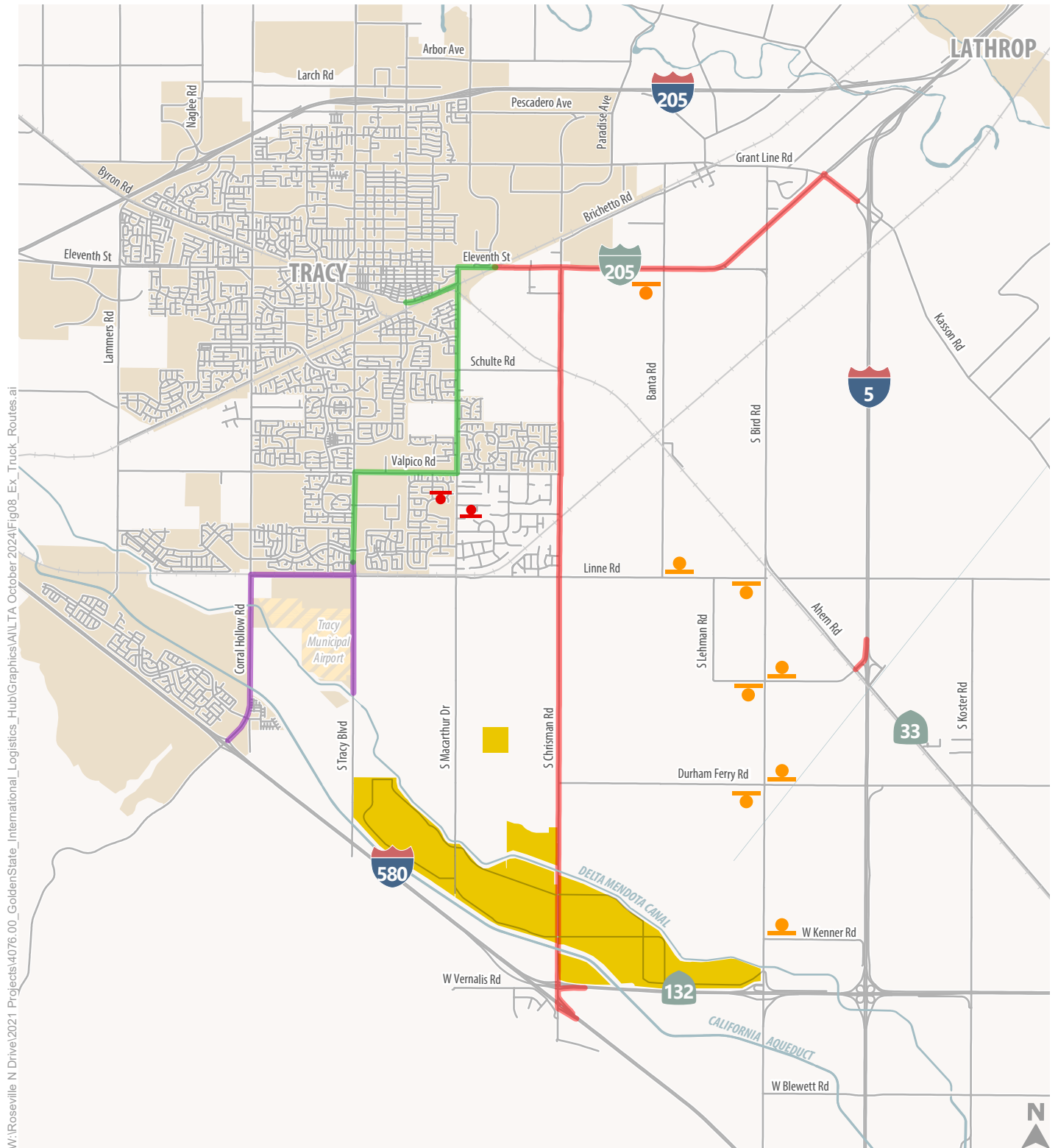
Figure 6 displays the location of existing truck routes in the project vicinity. As shown, Chrisman Road between SR 132 and Eleventh Street is a Surface Transportation Assistance Act (STAA) route. Eleventh Street is also a STAA route. This figure also shows the various truck restrictions signs present in the project vicinity. These signs are important because they determine where project heavy duty trucks can travel and where they cannot.

There are also several local or through routes in the study area as shown in Figure 6. Through truck routes are generally defined as primary routes for trucks traveling within and through a city. Local truck routes are typically on major thoroughfares that provide direct access to local origins and destinations.

Existing Traffic Volumes

Figure 7 displays the existing Average Daily Traffic (ADT) on roadways in the project vicinity based on traffic counts performed at most locations in Fall 2024. In some cases, counts from 2022 were used in instances where comparisons of 2022 to 2024 volumes at adjacent locations did not yield any traffic growth. Schools were in session, the weather was clear, and no unusual traffic conditions were noted during the counts. The roadway counts included both the volume of traffic and number of axles, collected during two mid-weekdays.

³ Source: <https://cityoftracy.maps.arcgis.com/apps/webappviewer/index.html?id=4887f49856a846f4923ee99275b335bf>



- | | | |
|---|---|---|
|  Project Site |  Local Truck Route |  "No Trucks" Sign |
|  City Boundary |  Thru Truck Route |  "Commercial Vehicles Over 7 Tons Prohibited" Sign |
| |  STAA Truck Route | |

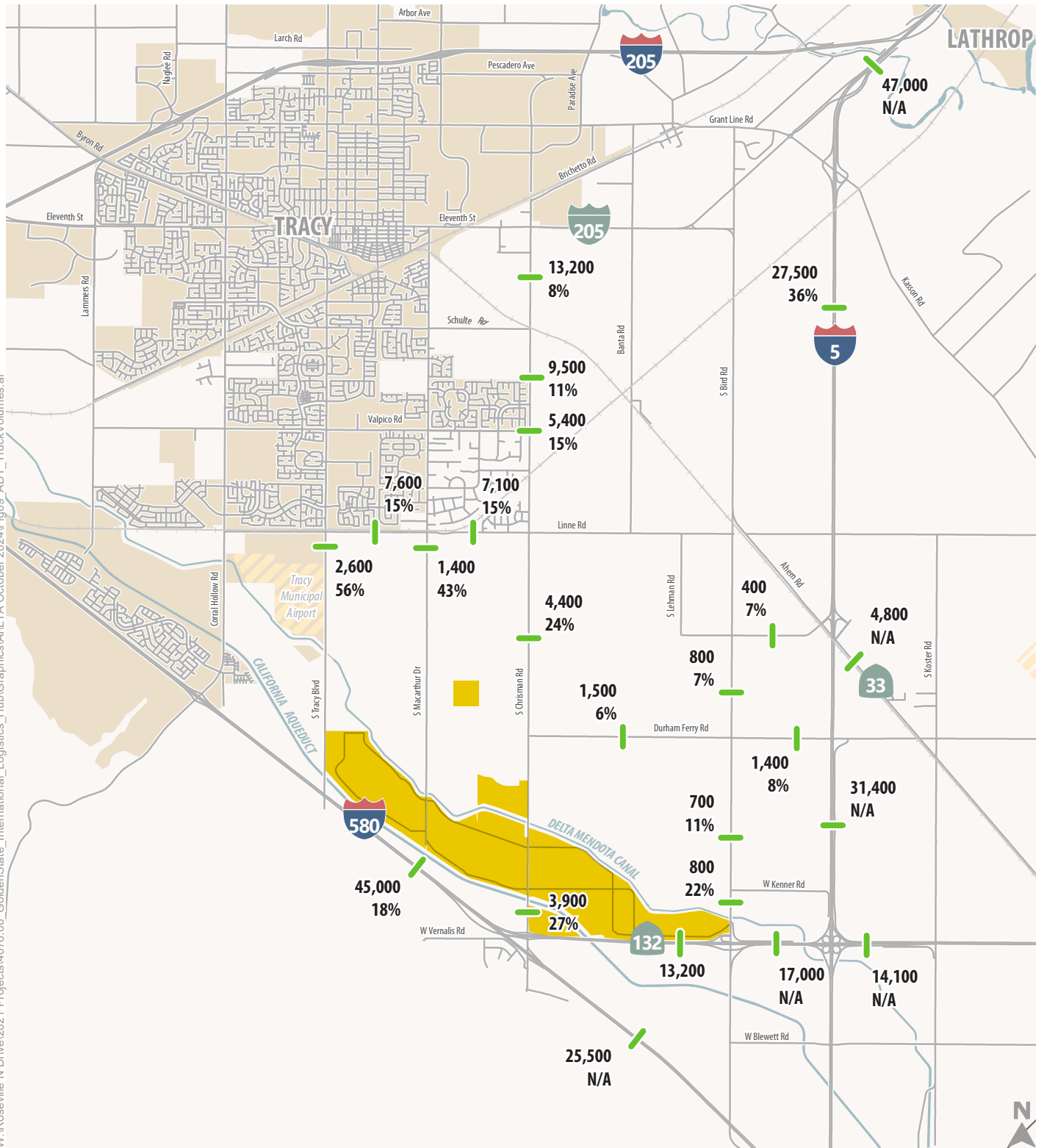
Figure 6



Source: STAA Terminal Access Routes San Joaquin County (May 2019)
and City of Tracy Truck Route Map (December 2019)

Study Area Existing Truck Routes

W:\Roseville N Drive\2021 Projects\4076.00 GoldenSlate_International_Logistics_Hub\Graphics\WILTA October 2024\Fig09 ADT_TruckVolumes.ai



- Study Roadway Segment
- Project Site
- X,XXX** Average Daily Traffic Volume
- XX%** & Truck Traffic Percentage
- N/A** Not Applicable (As Truck Percentage Was Estimated, not Verified)

Notes:
In this context, HCM definition of trucks is used which is any truck with 2 axle and 6 wheels, and all trucks with 3 or more axles.

Figure 7

Average Daily Traffic Volumes & Truck Percentages - Existing Conditions

The data on Figure 7 is not directly used for any type of operational analysis. Rather, it is intended for informational purposes only and as inputs for other parts of the EIR. This figure indicates that Chrisman Road carries approximately 3,900 ADT north of SR 132 with volumes gradually increasing to 13,200 ADT south of Eleventh Street. Durham Ferry Road east of Chrisman Road carries 1,500 ADT.

Trucks are defined (using the *Highway Capacity Manual, TRB, 2022* definition) as vehicles consisting of three or more axles as well as vehicles with two axles and dual tires on the rear axle. Figure 7 shows the percentage of daily trips that are trucks on roadways in the project vicinity. As shown, truck volumes are a large percentage of existing traffic on several roadways near the project site. **Table 1** shows the number of daily trucks on those roadways. As shown, truck traffic on Chrisman Road varies from about 1,030 to 1,100 trucks per day depending on the segment. Truck traffic is also considerable on portions of other roadways including Linne Road, MacArthur Drive (south of Linne Road) and Tracy Boulevard (south of Linne Road). Approximately 85 trucks per day were observed on Durham Ferry Road east of Chrisman Road.

Table 1:
Truck Traffic on Surface Streets – Existing Conditions

Segment ¹	Average Daily Traffic (All vehicles) ¹	Percent Trucks ²	Number of Trucks Per Day ²
Chrisman Road north of SR 132	3,902	26.5%	1,034
Chrisman Road between Eleventh Street and Schulte Road	13,188	8.3%	1,095
Tracy Boulevard south of Linne Road	2,644	55.3%	1,462
MacArthur Drive south of Linne Road	1,382	43.2%	597
Bird Road between Durham Ferry Road and Kenner Road	740	10.8%	80
Durham Ferry Road east of Chrisman Road	1,470	5.8%	85
Linne Road west of Chrisman Road	7,124	14.7%	1,047

Notes:

1. Based on counts collected in 2022 or Fall 2024.
2. Trucks shown here are based on the HCM definition of trucks which is vehicles with three or more axles and vehicles with two axles and dual tires on the rear axle.

Source: Fehr & Peers, 2024.

Vehicle Queuing

Vehicle queuing is analyzed for freeway off-ramps and State Highway System surface street intersections that could potentially be adversely affected by the project. Traffic volumes, lane configurations, vehicle fleet mix, traffic controls, and many other inputs are entered into a Simtraffic microsimulation model, which then reports the 95th percentile queues for critical movements. This queue, which is often used for design

purposes (along with the need for deceleration) represents the length of queued traffic for which there is a 5% or less chance that the actual queue would be greater. Because trucks represent a considerable portion of the vehicle fleet mix in the project vicinity, the proportion of trucks and their average lengths were entered into the model. The methodology is consistent with procedures described in the *Highway Capacity Manual (HCM)* (Transportation Research Board, 2022). Since the queuing results are reported on state highway facilities, the precise (non-rounded) 95th percentile queue (in feet) is reported in accordance with Caltrans District 10 guidance.

The SimTraffic models were validated to existing conditions using performance metrics such as volume served and 95th percentile queue length (as measured during the traffic counts). Consistent with Caltrans District 10 requirements, SimTraffic analysis results are the average of 12 SimTraffic runs.

The following State Highway System intersections were selected for vehicle queuing analysis (based on expected usage by project trips):

- Ahern Road/SR 33/I-5 SB Ramps/Lehman Road – I-5 SB off-ramp and SR 33 southbound left-turn
- Ahern Road/SR 33/I-5 NB Ramps/Lehman Road – SR 33 southbound left-turn
- Chrisman Road/SR 132 WB Ramps – off-ramp
- Chrisman Road/SR 132 EB Ramps – off-ramp
- Chrisman Road/I-580 WB Ramps – off-ramp
- Bird Road/SR 132 EB Ramps – off-ramp
- Bird Road/SR 132 WB Ramps – off-ramp

The lane configurations and existing AM and PM peak hour volumes at each intersection listed above are shown in Figure 16. Traffic volumes are modest at most locations and no vehicle queues exceeding the existing storage currently occur. The existing 95th percentile queues are reported in Chapters 3 and 4 as part of comparative queuing analyses with 'plus project' scenarios.

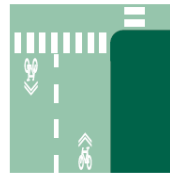
Bicycle and Pedestrian System

As the project site and adjacent areas are rural, bicycle and pedestrian facilities are generally not present. The nearest pedestrian facilities are crosswalks at three of the four legs of the signalized Chrisman Road/Linne Road intersection, which is adjacent to Jefferson School.

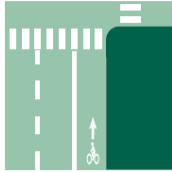
Below is an illustration of the four types of bicycle facilities that exist in many communities. Facilities in the project vicinity include primarily Class II bike lanes.



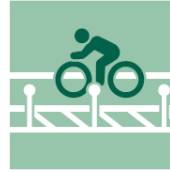
Class I Bicycle Path
Off-street pathway for pedestrians and bicyclists, no autos.



Class III Bicycle Route
Designated route for bicyclists that share travel lanes with autos



Class II Bicycle Lane
Dedicated on-street space for bicyclists, delineated by white strips and signage.



Class IV Separated Bikeways
Fully protected on-street space for bicyclists. Protection provided by planter boxes, parked cars, raised curbs, or flexible posts.

Illustration of Class I through IV bicycle facilities

Bicycle and pedestrian travel were recorded as part of the intersection counts. No bicyclists or pedestrians were observed during the four-hour count period at the Chrisman Road/Durham Ferry Road intersection, two pedestrians and no bicyclists were observed at the Chrisman Road/Linne Road intersection, and six pedestrians and one bicyclist was observed at the MacArthur Drive/Linne Road intersection. Thus, travel by walking and biking is infrequent in the project vicinity.

Transit System

No public transportation facilities or routes exist in the immediate vicinity of the project site. However, transit services are provided in the study area by Altamont Commuter Express (ACE) train service, Tracy's TRACER Bus Service, and buses operated by San Joaquin Regional Transit District (RTD).

The ACE train operates as a commuter rail service between Stockton and San Jose. A station is situated in the northeast quadrant of the Tracy Boulevard/Linne Road intersection. On weekdays, four westbound trains stop at this station in the morning (at 4:41 AM, 6:06 AM, 7:11 AM, and 8:03 AM) and four eastbound trains stop at this station in the evening (at 5:11 PM, 6:11 PM, 7:11 PM, and 8:14 PM). It is a 30 to 35 minute ride between the Tracy and Stockton stations, and a 12-minute ride between the Tracy and Lathrop/Manteca stations. The daily round trip fare from Stockton to Tracy is \$12.25 and daily round trip fare from Lathrop/Manteca to Tracy is \$11.75.

TRACER operates several bus routes within the City of Tracy. The majority of these routes operate north of Linne Road with the exception of Route H, which services the neighborhood of Tracy Hills (along Corral Hollow Road). Two different commuter routes and one local route within City of Tracy stop at the ACE Station on Tracy Boulevard. San Joaquin RTD operates three routes that have stops in Tracy at its main transit station located on Central Avenue south of Eleventh Street.

It is noteworthy to mention that no bus services currently operate in the International Park of Commerce (IPC) located several miles to the north of the project site along I-580. RTD Routes 90 and 97 include three stops in each direction of Grant Line Road between MacArthur Drive and Eleventh Street, adjacent to the Northeast Industrial (NEI) warehousing area.

Nearby Schools

The following two schools are located in the project vicinity:

- Jefferson School – situated in the southeast quadrant of the Chrisman Road/Linne Road intersection, about two miles north of the project’s northerly boundary. A middle school serving grades 5 – 8, Jefferson School is part of the Jefferson School District (source: [Jefferson School / Overview \(jeffersonschooldistrict.com\)](https://jeffersonschooldistrict.com)).
- New Jerusalem Elementary School – situated in the northeast quadrant of the Durham Ferry Road/Koster Road intersection, about four miles east of the project site. Serving grades K – 8, this school is part of the New Jerusalem School District (source: <https://www.njesd.net/en-US>).
- Delta Charter Elementary School – situated along Koster Road north of New Jerusalem Elementary School. Serving grades K – 8, this school is also part of the New Jerusalem School District.

Jefferson School

On regular school days, instructions begins at 8:15 AM and concludes at 3 PM. The school, which opened in approximately 2016, features a ‘north’ parking lot along Linne Road and a ‘south’ parking lot along Chrisman Road. Each parking lot is described below:

- North Parking Lot Along Linne Road – features 79 parking spaces. The westerly driveway (located 480 feet east of Chrisman Road) on Linne Road permits inbound movements only. The easterly driveway permits both inbound and outbound movements. This parking lot is the primary location for student pick-up and drop-off. To provide space for student drop-off and pick-up from private vehicles, the westerly driveway widens to two inbound lanes for a distance of about 300 feet, with the outside lane reserved for student pick-up and drop-off and the inside lane for through traffic. The easterly driveway features stop-control approaching Linne Road.
- South Parking Lot Along Chrisman Road – features 58 parking spaces. Its more northerly driveway (located 365 feet south of Linne Road) permits outbound movements only, while its more southerly driveway permits both inbound and outbound movements. This parking lot is used for some student pick-up and drop-off, bus loading, and staff parking. Similar to the north parking lot, this

lot features a counterclockwise on-site drive aisle for student pick-up and drop-off. The northerly driveway features stop-control approaching Chrisman Road.

Linne Road approaching and along the school frontage has the following characteristics:

- One lane in each direction separated by centerline double-yellow line striping (i.e., passing prohibited). A dedicated left-turn lane on westbound Linne Road is not provided at either school driveway.
- SCHOOL ZONE and SCHOOL SPEED LIMIT 25 WHEN CHILDREN ARE PRESENT (with flashing light) signs are posted on eastbound Linne Road west of Chrisman Road and westbound Linne Road east of the school. A 330-foot right-turn lane is provided on eastbound Linne Road at the westerly driveway. NO STOPPING ANY TIME signs are posted along this turn lane, to presumably discourage parents/guardians from waiting in this lane to drop-off/pick-up their student.

Chrisman Road approaching and along the school frontage has the following characteristics:

- One lane in each direction separated by centerline double-yellow line striping (i.e., passing prohibited). A dedicated left-turn lane is not provided at either school driveway.
- SCHOOL ZONE, SPEED LIMIT 45, and SCHOOL SPEED LIMIT 25 WHEN CHILDREN ARE PRESENT sign (with flashing light) signs are posted on northbound Chrisman Road approaching the school and on southbound Chrisman Road north of Linne Road.

Pavement markings showing a 45 MPH speed limit are in place on portions of Chrisman Road south of the school and Linne Road west of the school.

Field observations were performed at Jefferson School on a weekday in December 2023. The afternoon peak hour condition was chosen for observation because it typically has more severe queuing (than the morning) due to parents waiting in queue to pick-up students. Key observations at the north parking lot were:

- Motorists began to queue at the westerly driveway on Linne Road at about 2:45 PM, 15 minutes prior to the school instruction ending. The queue eventually spilled back into the eastbound right-turn lane on Linne Road (see **Image 1**). During the observations, no vehicles were observed waiting in the westbound through lane on Linne Road to turn into the westerly driveway (though such occurrences likely happen on occasion).
- School staff were present in the north parking lot to urge motorists to pull forward to pick-up students, thereby lessening the queue. At one point, school staff were positioned at the easterly driveway to direct outbound traffic onto Linne Road. Traffic levels and queuing subsided about 3:15 PM, 15 minutes after students were released for the day.



Key observations at the south parking lot were:

- The severity and duration of queuing was generally less than at the north parking lot. This driveway was used by school buses (see **Image 2**). Although queues did not spill back onto Chrisman Road during the observation day, it is conceivable such occurrences do occur.



Image 1: Vehicles queued in eastbound Linne Road right-turn lane at westerly Jefferson School driveway at 3 PM.



Image 2: School buses in south parking lot during student release at 3 PM.

New Jerusalem and Delta Charter Elementary Schools

This subsection describes that intersection including its traffic controls, lane configurations, nearby school facilities, relevant street signs, bicycle/pedestrian facilities, traffic volumes, and collision history.

- Traffic Control: All Way Stop.
- Lane Configuration: Single (shared left/through/right) lane on all four approaches.
- Nearby School Facilities: the southeast and northwest quadrants of the intersection are used for staff/parent parking and school bus staging. Multiple driveways are located along Durham Ferry Road serving both of these unpaved lots.
- Relevant Street Signs: SCHOOL ZONE signs are located in both directions of Durham Ferry Road approaching Koster Road and on southbound Koster Road approaching the schools. SPEED LIMIT 25 MPH signs (when children are present) are located on all four approaches to the intersection.
- Bicycle/Pedestrian Facilities: No sidewalks or bicycle facilities exist in the intersection vicinity. High visibility (striped yellow) crosswalks are located on the north and east legs of the intersection to accommodate travel between the schools and parking lots in the northwest and southeast corners of the intersection. The northeast corner crosswalk treatment is atypical given the proximity of a northbound one-way only drive aisle that begins at Durham Ferry Road.
- Traffic Volumes: In 2024 (while schools were in session), Durham Ferry Road west of Koster Road was measured to carry (in both directions) 315 AM peak hour vehicles and 290 PM peak hour vehicles.
- Collision History: The Traffic Injury Management System (<https://tims.berkeley.edu/>) database indicates that there were no reported injury collisions at the Durham Ferry Road/Koster Road intersection between January 1, 2018 and December 31, 2022.

3. PROJECT TRAVEL CHARACTERISTICS

This chapter presents the proposed project's land uses and expected travel characteristics. This chapter also analyzes how project trips (both the Initial Phase and Project Buildout) would affect queuing at off-ramps and turn lanes on the State Highway System.

Project Description

Figure 2 shows the project land use map. There are five distinct development areas: Gateway West, Central and East (consisting of general industrial uses), University Center (consisting of university plus mix of retail, business park, and the VFW Building), and Gateway Center (featuring general industrial, electrified truck and auto charging, retail, restaurants, and hospitality uses). **Table 2** displays the land use type and assumed quantity of development in each area. As shown, much of the site would be developed with general industrial uses, which would total 24,674,000 million square feet. The industrial space is specifically being contemplated to consist of warehouse/logistics buildings similar in nature and size to those existing elsewhere in the area.

The initial phase would consist of construction of the VFW Building, development for the first University Building (25,000 square feet) to support 400 students, and 3,962,000 square feet of industrial in Gateway East (30% of its buildout).

Figure 8 shows the project's internal roadway network under Project Buildout conditions. The following existing roadways would be widened to accommodate project buildout:

- Chrisman Road would be widened to a four-lane arterial along the entirety of the project frontage, which extends for 1.3 miles from SR 132 northerly to 1,200 feet north of the Delta Mendota Canal. The traffic operations analysis (conducted as part of the LTA) found that widening of Chrisman Road to six lanes would be necessary from SR 132 to B Street to meet County LOS requirements.
- MacArthur Drive would be widened to a two-lane industrial street from North Street to A Street, and to a four-lane arterial from A Street to B Street.

Figure 9 shows the project's spacing of five signalized intersections along Chrisman Road. The spacing is the result of early planning efforts that focused on achieving at least 1,000 feet between signalized intersections to facilitate traffic flow along the corridor. Corridor constraints included the California Aqueduct, Delta Mendota Canal, a small drainage channel located directly north of the university property, and differences in grade between Chrisman Road and adjacent properties that dictated where signalized intersections could be located.

**Table 2:
Project Buildout Land Uses**

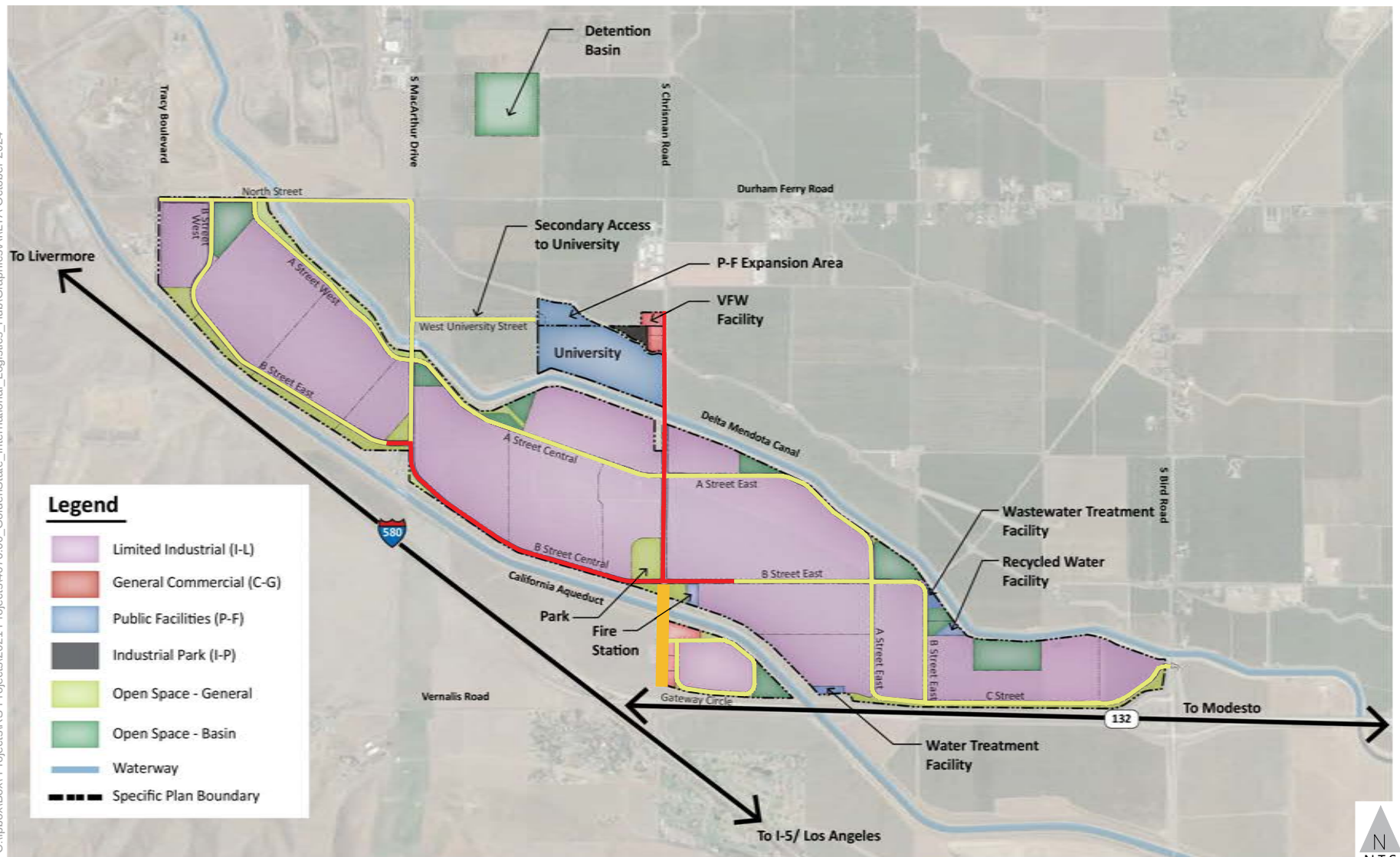
Development Area	Land Use	Quantity	Notes
Gateway West	Limited Industrial	6,169 ksf	-
Gateway Central	Limited Industrial	6,856 ksf	-
Gateway East	Limited Industrial	11,124 ksf	-
University Center	University	5,000 students	1,600 dorm beds and 1,379 ksf of buildings with expansion in place (assumed in analysis)
	Industrial Park (Business)	93 ksf	Business Professional located along Chrisman Road
	Commercial/Retail (Service)	38.91 ksf	Shopping Plaza located along Chrisman Road
	VFW Tracy Post	11.5 ksf	Veterans of Foreign Wars (VFW) Building
Gateway Center	Limited Industrial	525 ksf	-
	Vehicle Fueling & Restaurants (Lot 1)	8 auto / 8 truck fuel positions, 8 ksf convenience store, 4 ksf fast food restaurant with drive-through lane, 8 ksf sit-down restaurant	No long-term (overnight) truck parking provided. Thus, does not qualify as a truck stop.
	Commercial/Retail/Service/Hotel (Lot 2)	4 ksf fast casual restaurant, 6 ksf sit-down restaurant, 5 ksf bank, and 5 ksf retail	-
	Fast-Food Restaurants with Drive-Through (Lot 3)	9.6 ksf	Two restaurants
	Hotel (Lot 4)	60 ksf	120 room Business Hotel
	Electrified Truck and Auto Charging Lots	- 1	-

Notes:

¹ Refer to Table 8 for details.

ksf = thousand square feet.

Source: *Pacific Gateway Revised Project Description* (September 29, 2024) and information from project applicant regarding likely specific uses in Gateway Center.



- 4 Lane Arterial
- 2 Lane Local Industrial Street
- Subsequent traffic operations analysis revealed that
Christmas Road would need to be six lanes between SR 132 and B Street*
- * Three northbound and two southbound lanes are recommended
across the California Aqueduct.



Figure 8
Project Roadway Network

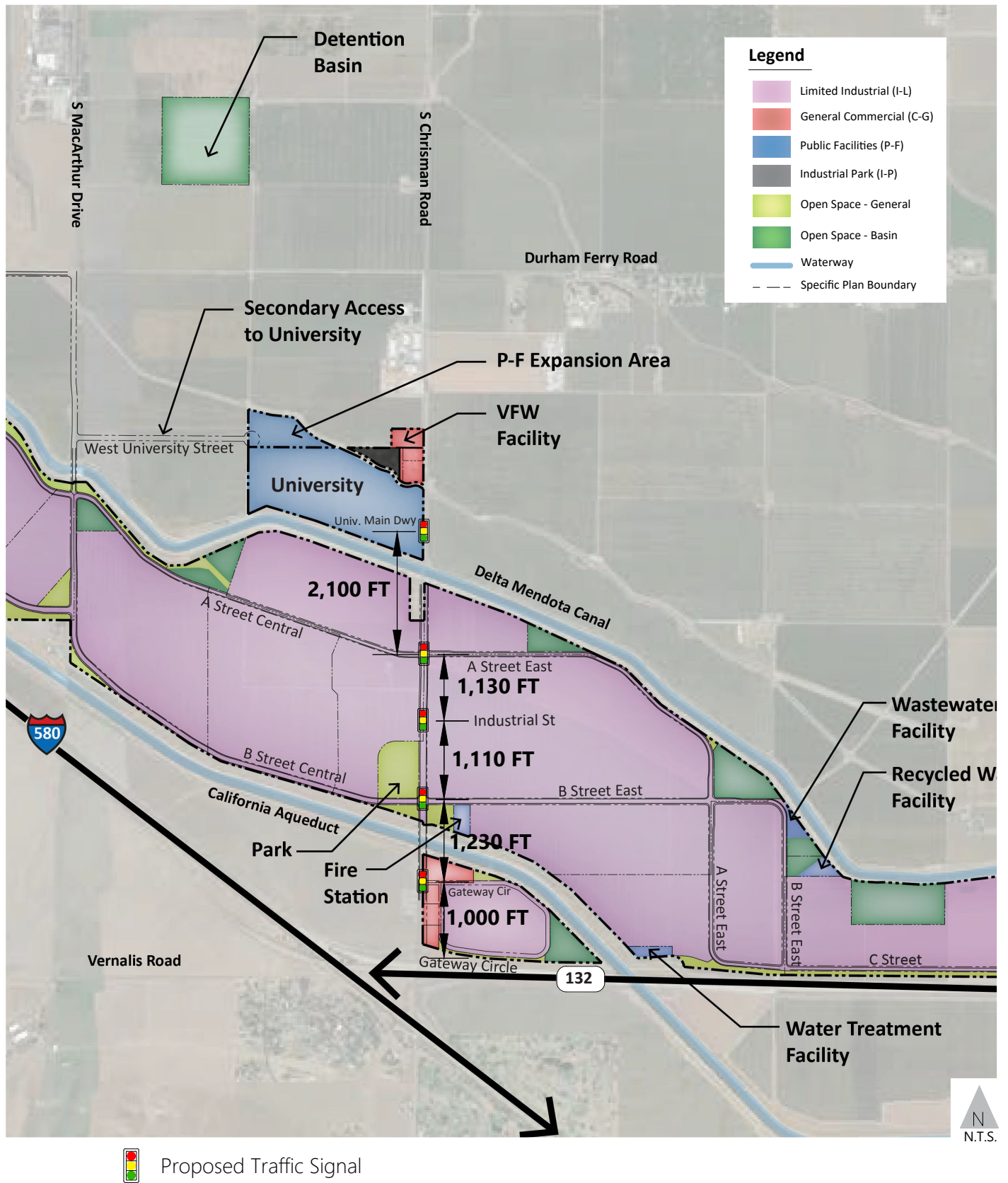


Figure 9
Project Intersection Spacing
on Chrisman Road



Each signalized intersection is described below from south to north:

- Gateway Center Signalized Driveway – would be situated on Chrisman Road 1,000 feet north of the SR 132 WB ramps. This would be a T-intersection.⁴
- B Street Signalized Intersection – would be spaced 1,230 feet north of the Gateway Center Signalized Driveway and function as the primary access to the industrial areas from the south.
- Gateway East Industrial Signalized Driveway – would be spaced 1,110 feet north of the B Street intersection. It would be a T-intersection, serving exclusively the East industrial area.
- A Street Signalized Intersection – would be spaced 1,130 feet north of the East Area Industrial Signalized Driveway and function as the primary access to the industrial areas from the north.
- University Main Signalized Driveway – would be spaced 2,100 feet north of A Street. This would be a T-intersection.

Unsignalized driveways (with total numbers proposed shown in parentheses) would also be provided along Chrisman Road as follows: Gateway Center (1), Gateway East (5), Gateway Central (4), and University Center (1). All unsignalized driveways would be restricted to right-turns only except for the unsignalized university driveway that would also allow left-turn ingress.

The new Bird Road/C Street/Vernalis Drive intersection would be relocated 150 to 200 feet south of the current Vernalis Drive intersection location. The new intersection would be designed either as a signalized intersection or as a single-lane roundabout including appropriate geometrics to accommodate truck turning radius requirements. According to the site civil engineer (Kier & Wright), the intersection's spacing along Bird Road would exceed the minimum 400-foot spacing distance (as described in the latest version of Caltrans' *Highway Design Manual*) to the SR 132 WB ramps intersection.

The initial phase of development would consist of partial buildout of Gateway East, University Center, and the VFW Building. The following accesses were assumed for each initial phase component:

- Gateway East – Construction of B Street and Private Driveway (north of B Street) east of Chrisman Road. Both would be signalized and include dedicated northbound right-turn and southbound left-turn lanes on Chrisman Road and westbound left- and right-turn lanes.
- University Center – Construction of Main University driveway as an unsignalized intersection. It would include a dedicated northbound left-turn lane on Chrisman Road and a stop-controlled eastbound left/right lane exiting the university.

⁴ For analysis purposes, it is assumed that movements to the Shell gas station on the west side of Chrisman Road would be restricted to right-turns only. However, it would potentially be feasible for a new driveway connection to be created opposite the Gateway Center signalized driveway to provide access to the gas station.

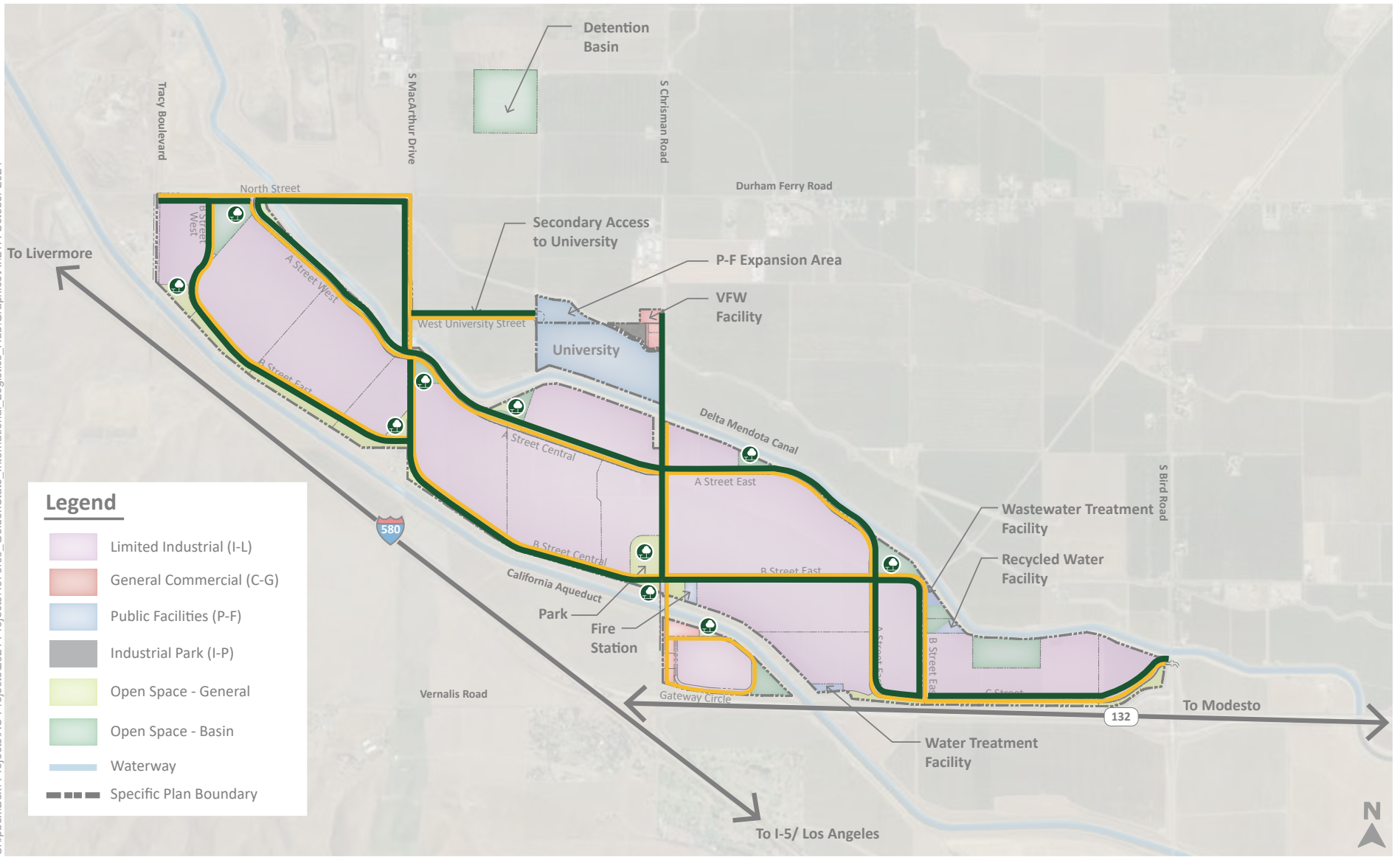
- VFW Building – would have its own driveway access north of the university. Under initial phase conditions, this driveway would permit all movements and Chrisman Road would remain as is (i.e., not be widened).

Under the initial phase of development, direct access (via C Street) to Bird Road would not be provided.

The *Pacific Gateway Specific Plan* (David Babcock & Associates, November 2024) provides typical cross-sections for project streets. The following describes the typical cross-sections for the two main types of streets to be constructed within the project site and along the project frontages:

- Four-Lane Major Arterial: two travel lanes (26 feet total) in each direction would be separated by a 14-foot raised median.
- Two-Lane Local Industrial Street: one travel lane in each direction would be separated by either a two-way left-turn lane (TWLTL) or raised median. Lane widths would vary from 15 to 16 feet and median width would range from 13 to 14 feet.

Figure 10 shows the project's planned bicycle and pedestrian network, as well as the location of ten on-site parks. The vast majority of new on-site roadways would feature a 12-foot multi-use (two-way) path on either the south or west side of street and a 5-foot wide sidewalk on the other side. Although not shown on the figure, crosswalks would be provided at signalized intersections and some unsignalized intersections.



DATA SOURCE: DAVID BABCOCK + ASSOCIATES ARCHITECTURE LANDSCAPE PLANNING and Kier Wright

-  Class I Multi-Use Path
(12-foot width permitting two-way travel by both bicylists and pedestrians)
-  Sidewalk
-  Park

Notes:

1. Bicycle and pedestrian facilities are shown for each side of the street.
2. Crosswalks to be provided at all signalized intersections and certain unsignalized intersections. They are not shown here.



Figure 10
Project Bicycle and Pedestrian Network

Project Travel Characteristics

This section presents the project's (both Initial Phase and Project Buildout) expected trip generation and distribution/assignment characteristics.

Trip Generation Rates

The project's trip generation was estimated using both published trip rates from the most recent version of the *Trip Generation Manual, 11th Edition* (Institute of Transportation Engineers, 2021) and locally collected data for warehouse/logistics operations in San Joaquin County. **Table 3** presents the unadjusted (i.e., without consideration for internal trips or pass-by trips to retail) vehicular trip generation rates for the retail, restaurants, bank, hotel, gas station, community center, business park, and university land uses. Various footnotes at the bottom of Table 8 describe in detail how specific land uses were treated.

San Joaquin Countywide Warehousing Data Collection and Travel Behavior Study (Fehr & Peers, 2021)

This study, henceforth referenced as the "*San Joaquin Countywide Warehousing Travel Behavior Study*" is being introduced during the proposed project's trip generation discussion because this study was a fundamental part of estimating the proposed project's travel characteristics. This study is described in detail below. Fehr & Peers undertook the *San Joaquin Countywide Warehousing Travel Behavior Study* in 2021 to better understand the travel behavior of existing warehousing buildings across San Joaquin County. It was prepared in response to an initial review of local and regional planning efforts, which had revealed a lack of data and understanding of the travel characteristics of these types of facilities. This data was used to estimate the trips generated by the industrial component of the project.

Fehr & Peers collected 72 hours of driveway vehicle classification count data at 39 warehousing buildings across San Joaquin County in June 2021.⁵

⁵ Six of the 39 sites were also counted in June 2019 prior to the onset of the COVID-19 pandemic. All but one of these locations was situated in IPC. Together, they total just over 5 million square feet of warehouse space. Comparison of the June 2021 to June 2019 trip generation totals revealed that the June 2021 weighted average daily trip rate was 16% greater than the June 2019 rate. This implies that the use of trip generation data collected during the COVID-19 pandemic did not understate trips (and if anything, resulted in a more conservative trip generation total due to increased ecommerce during the pandemic).

Table 3:
Unadjusted Trip Generation Rates (Non-Industrial Uses) by Land Use Type

Land Use	ITE Code	Amount	Unit Type	Daily Trip Rate ¹	AM Peak Hour ¹		PM Peak Hour ¹	
					Trip Rate	%in/ %out	Trip Rate	%in/%out
University	550	5,000	students	1.56	0.15	78%/22%	0.15	32%/68%
Business Professional	710	93	ksf	11.71	1.69	88%/12%	1.68	17%/83%
Retail	822	5 & 38.9	ksf	54.45	2.36	60%/40%	6.58	50%/50%
Community Center (VFW Post)	495	11.5	ksf	28.82	1.91	66%/34%	2.50	47%/53%
Convenience Store/Gas Station ²	945	8	Auto Fuel Positions	345.75	31.6	50%/50%	26.9	50%/50%
Truck Fuel Station ³	-	8	Truck Fuel Positions	90.13	13.25	53%/47%	2.0	50%/50%
Fast-Food Restaurant with Drive-Through Window	934	4 & 9.6	ksf	467.48	44.61	51%/49%	33.03	52%/48%
Sit-Down Restaurant	932	8 & 6	ksf	107.2	9.57	55%/45%	9.05	61%/39%
Fast Casual Restaurant	930	4	ksf	97.14	1.43	50%/50%	12.55	55%/45%
Bank with Drive-Through Window	912	5	ksf	100.35	9.95	58%/42%	21.01	50%/50%
Business Hotel	312	120	Rooms	4.02	0.36	39%/61%	0.36	55%/45%
EV Charging Lot – Autos ⁴	-	-	Auto Charge Positions	-	-	50%/50%	-	50%/50%
EV Charging Lot – Trucks ⁵	-	24	Truck Charge Positions	12	0.6	45%/55%	0.5	55%/45%

Note:

1. Rates derived from the *Trip Generation Manual, 11th Edition* unless otherwise specified. Weighted average rate applied in all cases (due to lack of equation available, poor R² value) with exception of business professional, where equations were used.
2. Subcategory chosen was size of Convenience Market: 5.5 – 10 ksf.
3. AM and PM peak hour trip rates based on data collected on Tuesday, August 20, 2024 at truck fueling station at 490 Devlin Road in Napa. Data showed substantially fewer trucks fill up in the afternoon than in the morning. This station is adjacent to SR 12 / SR 29, which carry a combined 3,000 trucks per day that could divert into fueling station. Daily trip rate based on applying AM plus PM peak hour to daily rate ratio from ITE code 945 to AM and PM peak hour rates for this land use.
4. Trip generation estimates derived from StreetLight Data, Inc. from March - May 2023 at the Tesla Supercharger lot situated on SR 41 just east of I-5 in Kings County showed an average of 25 inbound vehicles on mid-week days; peak hours were mid-day. Trips generated appear not to depend on the amount of charging parking spaces, for which there are 53.
5. Though several electric truck charging stations have been recently constructed in Southern California, none are considered viable count locations yet because usage is very limited (due to low volumes of EV trucks on roadways). Trip rates and in/out percentages based on likely truck driver behavior (i.e., partial charges mid-day) and overnight longer charges.

ksf = thousand square feet.

Source: Fehr & Peers, 2024.

The data collection was performed by National Data & Surveying Services (NDS) using cameras to count and classify vehicles entering and exiting the individual building driveways. The 39 warehousing buildings totaled over 25.7 million square feet, representing roughly 28% of all warehousing building space in San Joaquin County based on Colliers 21Q1 estimates. This data was used to develop weighted average trip generation rates per thousand square feet (ksf) for warehousing uses in San Joaquin County including within the cities of Tracy, Stockton, Lathrop, Manteca, and Lodi. The 39 warehousing buildings, including their occupying tenant, type of warehouse, and square footage, are shown in **Image 3** below.

City	Customer	Prologis	# Driveways	Type	Square Feet
Lathrop	California Logistics	Yes	3	Warehouse	1,235,000
Lathrop	Tesla, Inc.	Yes	1	Manufacturing	92,747
Manteca	Ford Motor Company	Yes	2	Warehouse	608,860
Stockton	Innovel Solutions Inc	Yes	2	Warehouse	780,393
Tracy	UPS Supply Chain	Yes	2	Warehouse	795,732
Stockton	Pratt Corrugated Holdings	Yes	2	Warehouse	350,892
Stockton	HJ Heinz	Yes	2	Warehouse	500,199
Stockton	Prism Team Services, Inc.	Yes	3	Warehouse	443,640
Tracy	Leggett & Platt	Yes	1	Warehouse	158,065
Tracy	Orchard Supply Company	Yes	2	Warehouse	346,524
Stockton	Fox Head, Inc.	Yes	2	Warehouse	388,000
Stockton	General Mills Sales, Inc.	Yes	2	Warehouse	735,980
Stockton	Amazon.com Services, Inc.	Yes	2	Warehouse	388,183
Stockton	Pitney Bowes	Yes	2	Warehouse	186,944
Stockton	Niagara Bottling, LLC	Yes	1	Warehouse	512,000
Stockton	Homesite Services, Inc.	Yes	1	Warehouse	39,200
Stockton	Masonite Corporation	Yes	2	Warehouse	180,000
Stockton	Kraft Foods Group, Inc.	Yes	1	Warehouse	351,788
Stockton	Coastal Pacific Food	Yes	1	Warehouse	500,004
Tracy	Restoration Hardware	Yes	4	Warehouse	283,712
Tracy	IPC Best Buy	Yes	5	Warehouse	641,364
Lathrop	Wayfair	No	2	Warehouse	1,167,000
Lathrop	Home Depot	No	1	Distribution Center	953,000
Lodi	Pacific Coast Producers	No	4	Warehouse	1,500,000
Lodi	Dart Container	No	2	Warehouse	340,000
Manteca	Lowes	No	3	Warehouse	570,000
Stockton	Dollar Tree	No	1	Warehouse	855,000
Manteca	UPS	No	2	Warehouse	560,000
Manteca	Cargill Food	No	2	Warehouse	350,000
Stockton	KeHE Distributors	No	2	Warehouse	770,000
Tracy	International Paper	No	1	Warehouse	375,000
Tracy	IPC Zinus	Yes	2	Warehouse	664,333
Tracy	IPC Medline	Yes	3	Warehouse	1,005,500
Tracy	IPC Smuckers	Yes	3	Warehouse	403,560
Tracy	IPC Amazon	Yes	4	Warehouse	1,001,449
Tracy	PP Costco	No	2	Warehouse	1,161,306
Tracy	PP Safeway	No	4	Warehouse	2,200,000
Tracy	NEI Amazon	Yes	3	Fulfillment	1,124,921
Tracy	NEI Crate & Barrel	Yes	5	Warehouse	1,225,680
Total			89		25,745,976

Image 3: Specific warehouses (including location, tenant and size) counted as part of San Joaquin Countywide Warehousing Travel Behavior Study

Trip generation data collected at each warehouse was classified as generated either by autos (which include light and medium duty trucks) and heavy-duty trucks. **Table 4** shows the average trip generation rates that were observed for daily, AM peak hour, and PM peak hour conditions. These trip rates were used to estimate the number of auto and truck trips generated by the project's industrial uses.

Table 4: Average Trip Generation Rates per KSF from San Joaquin Countywide Warehousing Data Collection and Travel Behavior Study

Source	Daily Trip Rate per ksf			AM Peak Hour Trip Rate per ksf			PM Peak Hour Trip Rate per ksf		
	Autos	Heavy Duty Trucks	All Vehicles	Autos	Heavy Duty Trucks	All Vehicles	Autos	Heavy Duty Trucks	All Vehicles
All 39 Buildings	1.07 (70%)	0.45 (30%)	1.52	0.15 (83%)	0.03 (17%)	0.18	0.19 (91%)	0.02 (9%)	0.21

Notes:

ksf = thousand square feet.

Source: Fehr & Peers, data collected in June 2021.

The trip rates in Table 4 were compared against potentially applicable warehousing categories contained in the *Trip Generation Manual*. The following categories were examined:

- Industrial Park (ITE Code 130) – was not used due to the uncertainty of the types of uses contained in the parks that were surveyed and the age of the ITE database (i.e., more than half of the data points used to develop trip rates were collected in Year 2000 or prior).
- Warehousing (ITE Code 150) – displayed average trip rates per ksf of 1.71, 0.17, and 0.18 for daily, AM peak hour, and PM peak hour conditions, respectively. This is in the same general range as the values shown in Table 9. Additionally, this database has a large number of data points and data is fairly recent (i.e., less than one-quarter were collected prior to 2000). It also includes trips made by trucks, which are also similar to values shown in Table 4.
- High-Cube Fulfillment Center Warehouse Non-Sort (ITE Code 155) – displayed average trip rates per ksf of 1.81, 0.15, and 0.16 for daily, AM peak hour, and PM peak hour conditions, respectively, which is also within the same general range as the values shown in Table 4.

The primary drawback to using the trip rates from the ITE Warehousing land use category is that it is based on case studies of much smaller sized projects (when compared to the project's size) from across the US. Whereas the project proposes over 24 million square feet of warehouse space, the average size of those case studies is below 500,000 square feet.

The primary drawback to using the trip rates from the ITE High-Cube Fulfillment Center Warehouse Non-Sort land use category is that it may result in an underestimate of truck trips. Whereas Table 4 shows a truck trip rate of 0.45 trucks per ksf, this category's rate was 0.23 trucks per ksf, nearly half as much as observations made at 39 different warehousing sites in San Joaquin County.

Table 4 indicates that, on a daily basis, trucks represented about 30% of all trips generated by the 39 warehouse buildings. However, during the AM and PM peak hours, trucks represented only 17% and 9% of total trips generated, respectively. This occurs for two primary reasons. First, the AM and PM peak hours

experience surges in employee arrivals/departures. Second, the temporal distribution of arriving/departing truck trips across a typical weekday shows surges during the mid-morning and early afternoon periods (i.e., outside of the traditional AM and PM peak hours). Refer to **Images 4** and **5** for hourly auto and truck arrival/departure profiles from the *San Joaquin Countywide Warehousing Data Collection and Travel Behavior Study*. The project is expected to have similar temporal travel behavior characteristics.

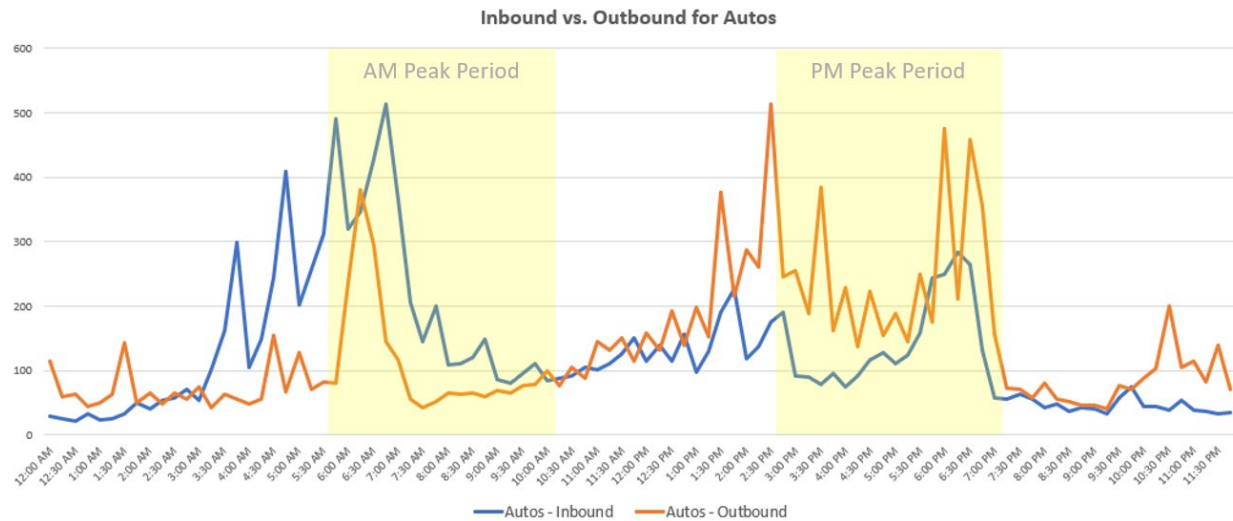


Image 4: Temporal Arrival and Departure Patterns of autos (source: *San Joaquin Countywide Warehousing Travel Behavior Study*)

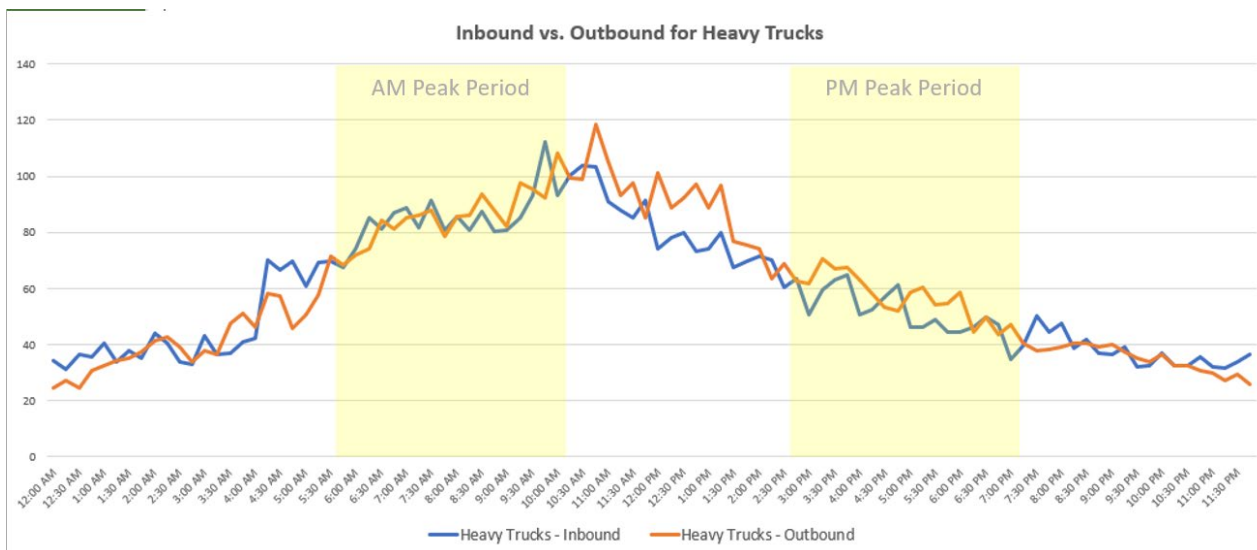


Image 5: Arrival and Departure Patterns of Trucks (source: *San Joaquin Countywide Warehousing Travel Behavior Study*)

Project Trip Generation Estimates

Table 5 shows the Project Buildout estimated trip generation during weekday AM and PM peak hours, and on a weekday daily basis for Gateway West, Central, and East industrial areas.

Table 6 shows the Project Buildout estimated trip generation during weekday AM and PM peak hours, and on a weekday daily basis for the University Center area. Note that this table includes reductions in trips due to internal trip-making between the university and adjacent on-site uses. These estimates were developed using the Mixed-Use Trip Generation (MXD+) model.⁶ Adjustments were also made for pass-by trips to the shopping plaza.

Table 7 shows the Project Buildout estimated trip generation during weekday AM and PM peak hours, and on a weekday daily basis for the Gateway Center area. This table also shows expected internal and pass-by trips. Some of the pass-by trips are made by trucks that are en route to or from the adjacent project industrial areas. Additionally, there are also some diverted-link trips from SR 132 and I-580 to access the truck and auto EV charging lots.

Pass-by trips do not represent new vehicles added to Chrisman Road, whereas diverted-link trips are considered new trips added to this segment.

Table 8 displays the number of new trips generated by the three industrial areas, University center, and Gateway Center. As shown, project buildout would generate 52,900 new trips per day with about 21% (11,200) being trucks. Project buildout would generate 5,900 new AM peak hour trips and 6,600 new PM peak hour trips. The three industrial areas are responsible for 69% of all new daily trips generated (including 97% of new truck trips). University Center generates 18% of all new daily trips while Gateway Center generates 13%.

Table 9 displays the number of new trips generated by the initial phase of development. As shown, project buildout would generate 7,000 new trips per day with about 26% (1,784) being trucks. The initial phase would generate 800 AM peak hour trips and 920 PM peak hour trips.

Table 10 compares the new trips generated by the initial phase versus project buildout. This table indicates that the initial phase's trip generation represents about 13% of the total buildout trips generated.

⁶ More information on MXD+ can be found at: [mxd+ - Fehr & Peers](#)

Table 5: Proposed Project Buildout Trip Generation – Gateway West, Central, and East Industrial Areas

Area	Land Use	Daily ¹						AM Peak Hour ¹						PM Peak Hour ¹					
		Autos			Trucks			Autos			Trucks			Autos			Trucks		
		In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot
Gateway West	Limited Industrial (6,169 ksf)	3,300	3,300	6,601	1,388	1,388	2,776	629	296	925	93	93	185	457	715	1,172	62	62	123
Gateway Central	Limited Industrial (6,856 ksf)	3,668	3,668	7,336	1,543	1,543	3,085	699	329	1,028	103	103	206	508	795	1,303	69	69	137
Gateway East	Limited Industrial (11,124 ksf)	5,951	5,951	11,903	2,503	2,503	5,006	1,135	534	1,669	167	167	334	824	1,289	2,114	111	111	222
Total		12,919	12,919	25,840	5,434	5,434	10,867	2,463	1,159	3,622	363	363	725	1,789	2,799	4,589	242	242	482

Notes:

¹ Based on trip rates in Table 4.

Values may not sum exactly due to rounding.

ksf = thousand square feet.

Source: Fehr & Peers, 2024.

Table 6: Proposed Project Buildout Trip Generation – University Center

Land Use	Daily ¹						AM Peak Hour ¹						PM Peak Hour ¹					
	Autos			Trucks			Autos			Trucks			Autos			Trucks		
	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot
University	3,890	3,890	7,780	10	10	20	583	165	748	1	1	2	239	509	748	1	1	2
Business Professional	540	540	1,081	4	4	8	138	19	157	0	0	0	27	129	156	0	0	0
Shopping Plaza	1,049	1,049	2,098	10	10	20	54	36	90	1	1	2	127	127	254	1	1	2
VFW Tracy Post	165	165	331	0	0	0	14	7	21	0	0	0	13	14	27	0	0	0
Gross Trips	5,644	5,644	11,290	24	24	48	789	227	1,016	2	2	4	406	779	1,185	2	2	4
Internal Trips (BP/Retail) ²	-63	-63	-126	0	0	0	-5	-5	-10	0	0	0	-8	-8	-16	0	0	0
Internal Trips (Univ/Retail) ³	-508	-508	-1,016	0	0	0	-21	-21	-42	0	0	0	-62	-62	-124	0	0	0
External Trips University	3,636	3,636	7,272	10	10	20	575	152	727	1	1	2	208	478	687	1	1	2
External Trips Business Prof	509	508	1,017	4	4	8	136	16	152	0	0	0	23	125	148	0	0	0
External Trips Shopping Plaza	763	764	1,526	10	10	20	38	26	64	1	1	2	92	92	185	1	1	2
External Trips VFW Tracy Post	165	165	331	0	0	0	14	7	21	0	0	0	13	14	27	0	0	0
Shopping Plaza Pass-by Trips ⁴	-305	-306	-610	0	0	0	-15	-10	-26	0	0	0	-37	-37	-74	0	0	0
Shopping Plaza New Trips	458	458	916	10	10	20	23	16	38	1	1	2	55	55	111	1	1	2
Total New Trips	4,768	4,767	9,535	24	24	48	748	191	939	2	2	4	301	672	973	2	2	4

Notes:

¹ Based on trip rates in Table 5 (from *Trip Generation Manual*).

² Estimated internalization of (auto) trips between business professional and shopping plaza of 4% during each time period based on MXD+ model output.

³ Internalization of 25% of retail trips with university assumed given their proximity to one another and large student presence.

⁴ Pass-by percentages (40% for retail) are based on the *Trip Generation Manual*.

Values may not sum exactly due to rounding.

Source: Fehr & Peers, 2024.

Table 7: Proposed Project Buildout Trip Generation – Gateway Center

Land Use	Daily ¹						AM Peak Hour ¹						PM Peak Hour ¹					
	Autos			Trucks			Autos			Trucks			Autos			Trucks		
	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot
Limited Industrial	281	281	562	118	118	236	54	25	79	8	8	16	39	61	100	5	5	11
Convenience Store/Gas Station	1,381	1,381	2,762	2	2	4	127	127	254	0	0	0	108	107	215	0	0	0
Truck Fuel Station	0	0	0	360	360	720	0	0	0	56	50	106	0	0	0	8	8	16
Fast-Food Restaurant with Drive-Through Window	3,174	3,174	6,348	5	5	10	309	298	607	0	0	0	234	215	449	0	0	0
Sit-Down Restaurant	428	428	856	1	1	2	42	35	77	0	0	0	44	28	72	0	0	0
Fast Casual Restaurant	194	194	389	1	1	2	3	3	6	0	0	0	27	23	50	0	0	0
Bank with Drive-Through Window	251	251	502	0	0	0	29	21	50	0	0	0	53	53	105	0	0	0
Business Hotel	240	240	480	1	1	2	17	26	43	0	0	0	20	17	37	0	0	0
EV Charging Lot – Autos	38	38	76	0	0	0	3	3	6	0	0	0	2	2	4	0	0	0
EV Charging Lot – Trucks	0	0	0	144	144	288	0	0	0	7	7	14	0	0	0	6	6	12
Gross Trips	5,987	5,987	11,975	632	632	1264	584	538	1,122	71	65	136	527	506	1,032	19	19	39
Internal Trips (bet retail, bank, hotel, restaurants, gas station) ²	-170	-170	-340	0	0	0	-16	-16	-32	0	0	0	-14	-14	-28	0	0	0
Retail / Restaurant / Gas Pass-by Trips ³	-2,599	-2,599	-5,198	0	0	0	-245	-245	-490	0	0	0	-221	-221	-442	0	0	0
Truck Fueling / EV (Truck & Auto) Charging Pass-by Trips ³	-28	-28	-57	-378	-378	-756	-2	-2	-4	-45	-45	-90	-2	-2	-3	-11	-11	-22
Truck Fueling / EV (Truck & Auto) Charging Diverted-Link Trips	-10	-10	-20	-126	-126	-252	-1	-1	-2	-15	-15	-30	-1	-1	-1	-3	-3	-6
New External Trips	3,180	3,180	6,360	128	128	256	320	274	594	11	5	16	289	268	558	5	5	10

Table 7: Proposed Project Buildout Trip Generation – Gateway Center

Land Use	Daily ¹						AM Peak Hour ¹						PM Peak Hour ¹					
	Autos			Trucks			Autos			Trucks			Autos			Trucks		
	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot

Notes:

¹ Based on trip rates in Table 5 (from *Trip Generation Manual*.) and other sources.

² Estimated internal (auto) trips of 3% for all time periods based on MXD+ model output.

³ Pass-by percentages per the *Trip Generation Manual*.

Truck Fueling / EV (Truck & Auto) Charging trips are expected to be 75% pass-by and 25% diverted-link.

Values may not sum exactly due to rounding.

Source: Fehr & Peers, 2024.

Table 8: Proposed Project Buildout Trip Generation

District	New Daily Trips ¹			New AM Peak Hour Trips ¹			New PM Peak Hour Trips ¹		
	Autos	Trucks	Total	Autos	Trucks	Total	Autos	Trucks	Total
Gateway West, Central, and East	25,840	10,867	36,707	3622	725	4,347	4,589	482	5,071
University Center	9536	48	9,584	938	4	942	973	4	977
Gateway Center	6,360	256	6,615	594	16	610	558	10	568
New Trips	41,736	11,171	52,906	5,154	745	5,899	6,120	496	6,616

Notes:

¹ Based on trip totals in previous tables.

Source: Fehr & Peers, 2024.

Table 9: Proposed Project Initial Phase Trip Generation

District	Land Use & Amount	Daily ¹						AM Peak Hour ¹						PM Peak Hour ¹					
		Autos			Trucks			Autos			Trucks			Autos			Trucks		
		In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot	In	Out	Tot
Gateway East	3,962 ksf Limited Industrial	2,120	2,120	4,240	891	891	1,782	404	190	594	60	60	120	294	459	753	40	40	80
University Center	400 students	311	311	622	1	1	2	47	13	60	0	0	0	19	41	60	0	0	0
	11.5 ksf VFW Tracy Post	165	165	330	0	0	0	14	7	21	0	0	0	13	14	27	0	0	0
Gross (New) Trips ²		2,596	2,596	5,192	892	892	1,784	465	210	675	60	60	120	326	514	840	40	40	80

Notes:

¹ Based on trip rates in Tables 4 and 5.

² Due to non-complementary nature of uses, no internalization expected.

Values may not sum exactly due to rounding.

Ksf = thousand square feet.

Source: Fehr & Peers, 2024.

Table 10: Proposed Project Buildout versus Initial Phase Trip Generation

Scenario	Daily New Trips ¹			AM Peak Hour New Trips ¹			PM Peak Hour New Trips ¹		
	Autos	Trucks	Total	Autos	Trucks	Total	Autos	Trucks	Total
Initial Phase	5,192	1,784	6,976	675	120	795	840	80	920
Project Buildout	41,736	11,171	52,907	5,154	745	5,899	6,120	496	6,616
Ratio	12.4%	16.0%	13.2%	13.1%	16.1%	13.5%	13.7%	16.1%	13.9%

Notes:

¹ Based on trip rates in previous tables.

Source: Fehr & Peers, 2024.

Project Trip Distribution/Assignment

The *San Joaquin Countywide Warehousing Travel Behavior Study* included the purchase of multiple Big Data datasets from StreetLight Data, Inc. for the warehousing sites. These data sources are derived from location-based services (LBS) data and complex machine learning algorithms to understand travel behavior across the country.⁷

Mobile device data was obtained for warehouses located within and near the City of Tracy (i.e., consisting of IPC, NEI, and Patterson Pass collectively referred to as the “Central Valley Gateway”). By studying where mobile devices are located over the course of the day (i.e., during overnight vs. daytime hours), it was possible to determine which devices were associated with employee trips versus visitor trips. Global Positioning System (GPS)-based freight metrics for medium to heavy duty commercial trucks were also obtained to understand the origin-destination and length of commercial vehicle trips. Trip origins and destinations were then tracked at a Census Block Group level.

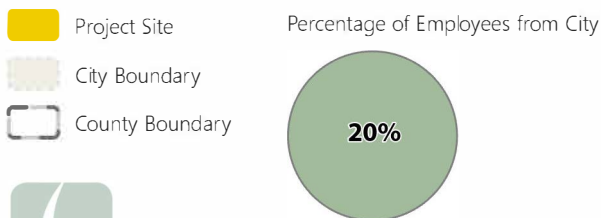
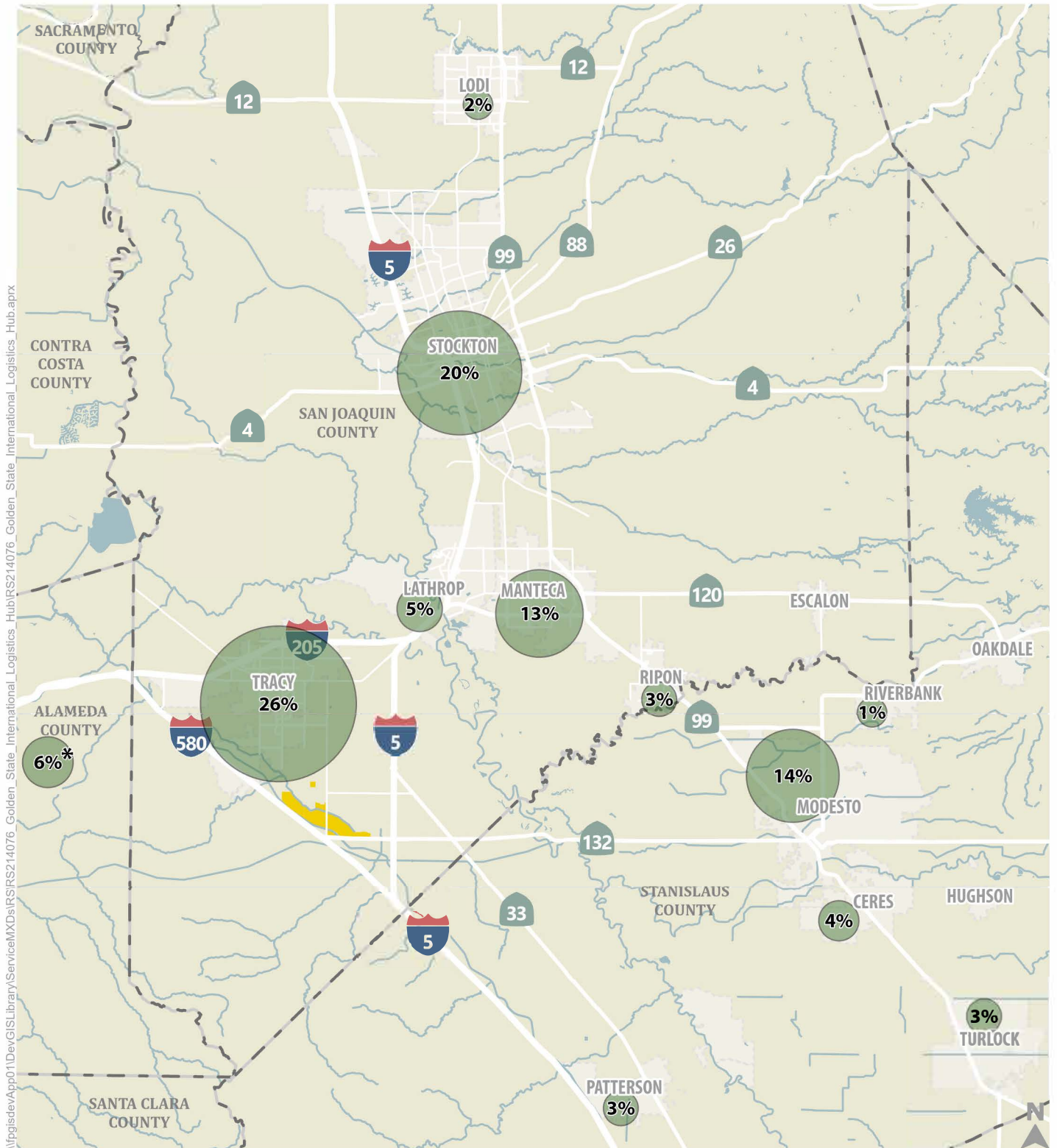
Figure 11 displays the expected residence location of employees that would work at the proposed project’s warehouses. These percentages were derived from the closely located Central Valley Gateway employee residence locations, but also took into consideration the project’s location. To accomplish this, a statistical model was built to calibrate the relative proportion of Central Valley Gateway employee residence locations for both major and minor cities in the region against the StreetLight data.

The modeling relied on 2020 US Census statistics (related to population, age, employed persons, and college educated) and travel time/distance. Once the model was adequately calibrated to match Central Valley Gateway employee residence locations, it was then applied to the proposed project in consideration of its specific location. **Appendix A** of separately bound appendix contains the model.

What is “Big Data”?

“Big Data” is used in a variety of disciplines such as retail/market studies, transportation, and economics. It uses anonymous location records from smart phones and in-vehicle navigation devices to understand travel behaviors, patterns, and user types.

⁷ StreetLight Data, Inc. processes approximately 40 billion anonymized location records per month from smart phones and navigation devices in connected cars and trucks and uses machine learning to transform these records into aggregated and normalized route-based travel patterns. Data is validated using permanent traffic counters and embedded sensors, and normalized with multiple data sources, including parcel data, digital road network data, and census information.



* Includes cities of Pleasanton, Livermore, and Dublin

Figure 11

Warehouse Employee Residence Distribution - Existing Plus Project Conditions

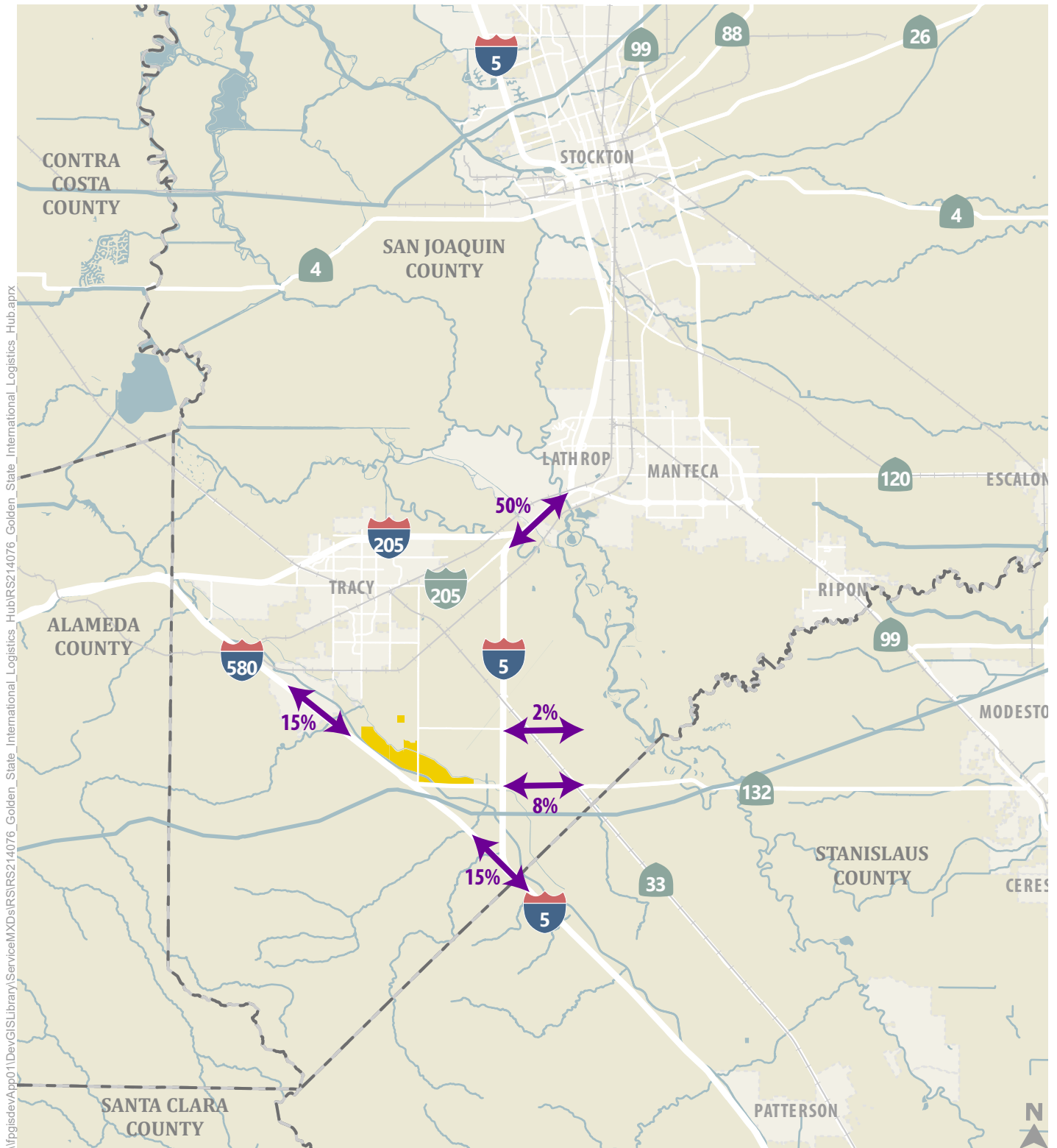
Figure 11 indicates that the largest share of employees is expected to come from the City of Tracy (26%), followed by Stockton (20%), Modesto (14%), and Manteca (13%). Among those passenger vehicle trips that would utilize I-5 between SR 120 and the City of Tracy, they would have the choice of several competing routes to access the project site. The Pacific Gateway LTA provided a detailed analysis (based on travel time surveys) of which routes project trips would be likely to use. This route assignment is factored into the VMT analyses presented in Chapter 6.

Figure 12 displays the expected distribution of trucks generated by the proposed project's warehousing buildings. As shown, truck access is provided via Chrisman Road, which is an STAA route between SR 132 and Eleventh Street. These percentages were derived from the *San Joaquin Countywide Warehousing Travel Behavior Study*. As shown, 50% of truck trips are expected to be distributed to/from the north on I-5 toward Stockton. Another 15% would be distributed to/from south on I-5 and 15% would be distributed to/from the northwest on I-580 (toward the Bay Area). Heavy duty truck trips are expected to utilize designated truck routes, which are shown on Figure 6. They were not assumed to use roads that have current weight restrictions.

Durham Ferry Road between Chrisman Road and SR 33 is a special circumstance (as it relates to trucks) that warrants further discussion. It does not currently have any truck weight restrictions on it. And trucks were observed using it (85 of the 1,500 daily trips are trucks). Based on input from San Joaquin County Department of Public Works Department staff,⁸ it is anticipated that should the project be approved and constructed, signage would be placed on this segment of Durham Ferry Road prohibiting through truck travel. However, it is possible that some truck drivers may not adhere to these signs. Accordingly, the analysis that follows assumes a modest level of trucks would use this segment of Durham Ferry Road despite the presence of these signs. The specific volumes and directions of travel are presented later in this chapter.

The retail, business park, and university land uses were entered into the City of Tracy travel demand model. The model was then applied to estimate their expected distribution of trips for each land use. Nearly half of the retail and university trips are expected to be distributed to/from the north on Chrisman Road toward the City of Tracy.

⁸ Personal communication with Jeffrey Levers, Senior Transportation Engineer, November 23, 2022.



- City Boundary
- County Boundary

XX% Inbound Trip Distribution

Note: External truck distribution totals sum to 90%. Remaining 10% are trips between project site and other logistics/warehouse sites in the area.

Figure 12

Warehouse Truck Trip Distribution



Traffic Forecasts

Project Buildout and Initial Phase trips were assigned to the surrounding roadway system based on each scenario's expected trip generation, distribution, and assignment procedures. **Figures 13** and **14** show the ADT on existing and new project study roadways under Existing Plus Project Buildout conditions. **Figure 15** shows volumes on the existing street network for Existing Plus Initial Phase conditions.

The prior pages displayed numerous different components of the project's trip distribution. To understand the distribution of trips for all land uses combined, it is necessary to calculate the net increase in trips between existing and existing plus project buildout conditions for each of the five gateway streets that would be used to access the project site. This data is shown in **Table 11**. This table reveals the following key conclusions:

- Auto trips are well-distributed across the various gateway streets. The majority (73%) of these trips are expected to use Chrisman Road from the north or south to access the project site. The secondary accesses of Tracy Boulevard, MacArthur Drive and C Street west of Bird Road would each serve between 6% and 12% of project trips.
- Approximately two-thirds of truck trips are expected to enter/exit the project site via Chrisman Road north of SR 132. These trips would pass through the SR 132/Chrisman Road interchange.
- Chrisman Road north of SR 132 would experience the largest increase in traffic of any roadway segment. Project buildout would add 26,300 daily trips (28% trucks), which is about 50% of all external project trips.

Table 11:
Distribution of Daily Project Buildout Trips – Existing Plus Project Conditions

Project Gateway Access	Project Buildout Trips Only					
	Autos		Trucks		Total	
	#	%	#	%	#	%
Tracy Boulevard south of Linne Road	2,550	6%	0	0%	2,550	5%
MacArthur Drive south of Linne Road	3,670	9%	0	0%	3,670	7%
Chrisman Road south of Durham Ferry Road	11,650	28%	1,640	15%	13,290	25%
C Street west of Bird Road	5,040	12%	2,160	19%	7,200	14%
Chrisman Road north of SR 132	18,880	45%	7,420	66%	26,300	50%
Total	41,790	100%	11,220	100%	53,010	100%

Notes:

Values are rounded to the nearest 10 vehicles.

Source: Fehr & Peers, 2024.

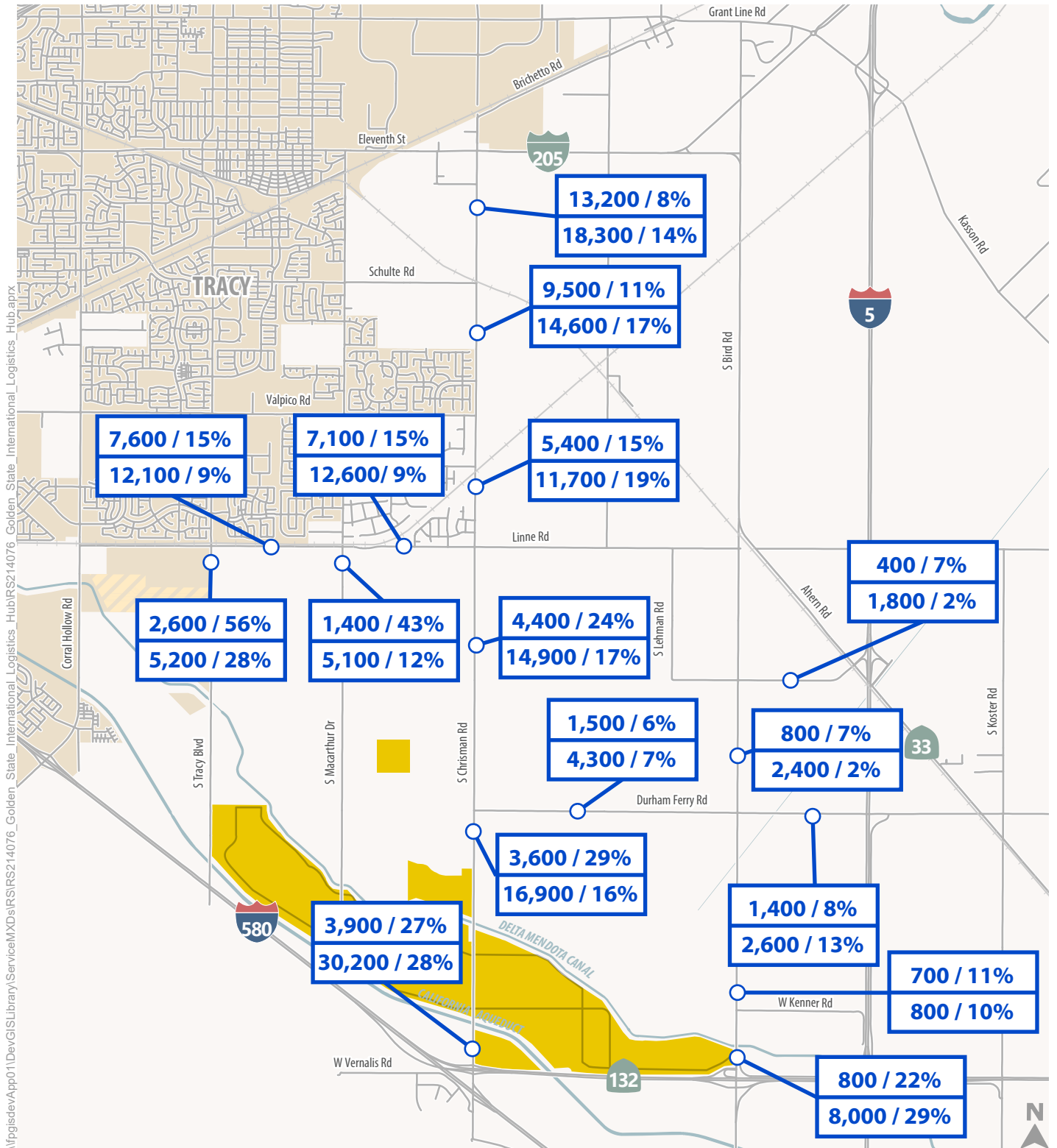
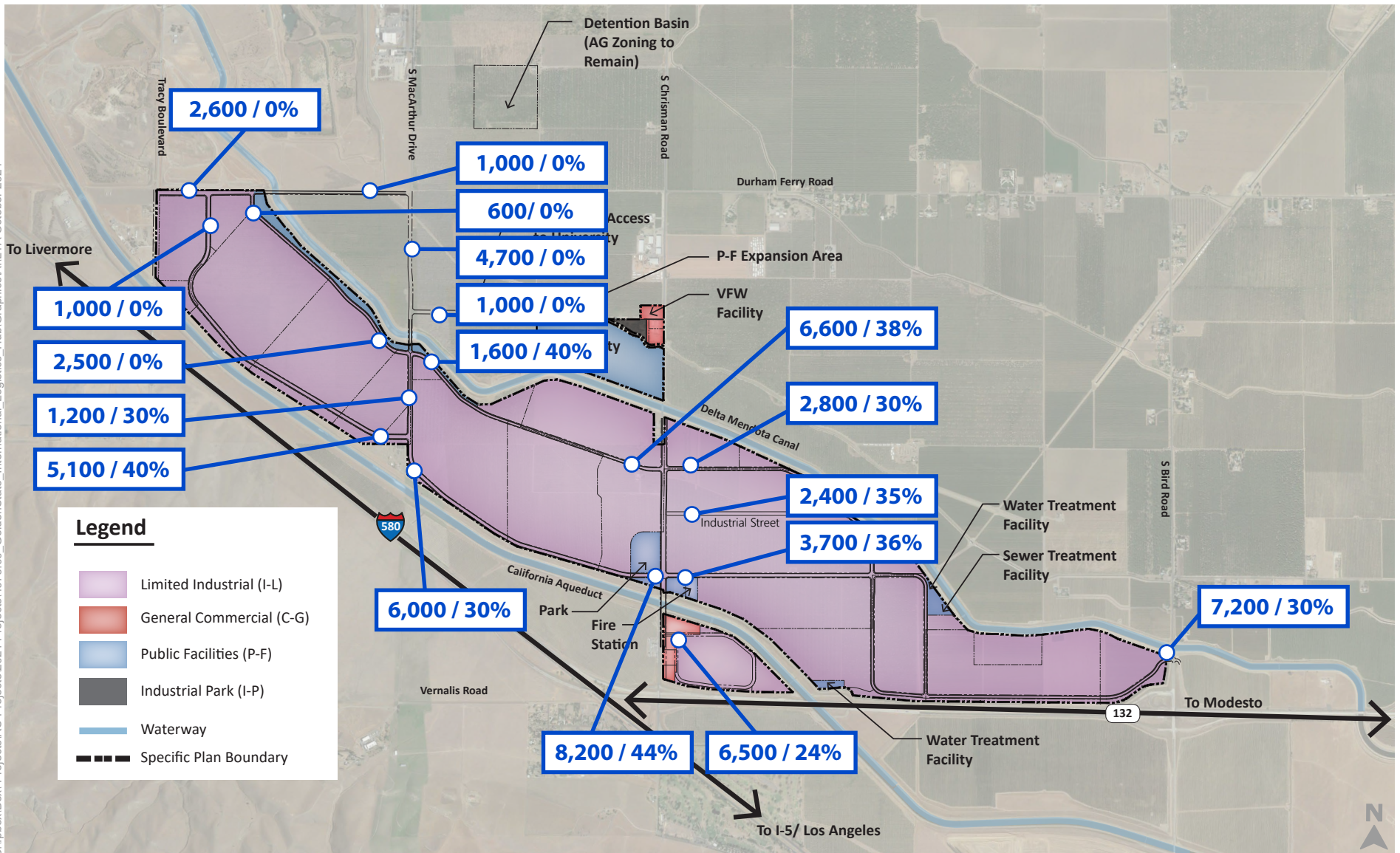


Figure 13

Average Daily Traffic Volumes -
Existing Plus Project Buildout Conditions





DATA SOURCE: DAVID BABCOCK + ASSOCIATES ARCHITECTURE LANDSCAPE PLANNING

Average Daily Traffic (Both Directions)

xx,xxx / xx%

Existing Plus Project ADT / HV%

Figure 14

Average Daily Traffic Volumes -
Existing Plus Project Buildout Conditions

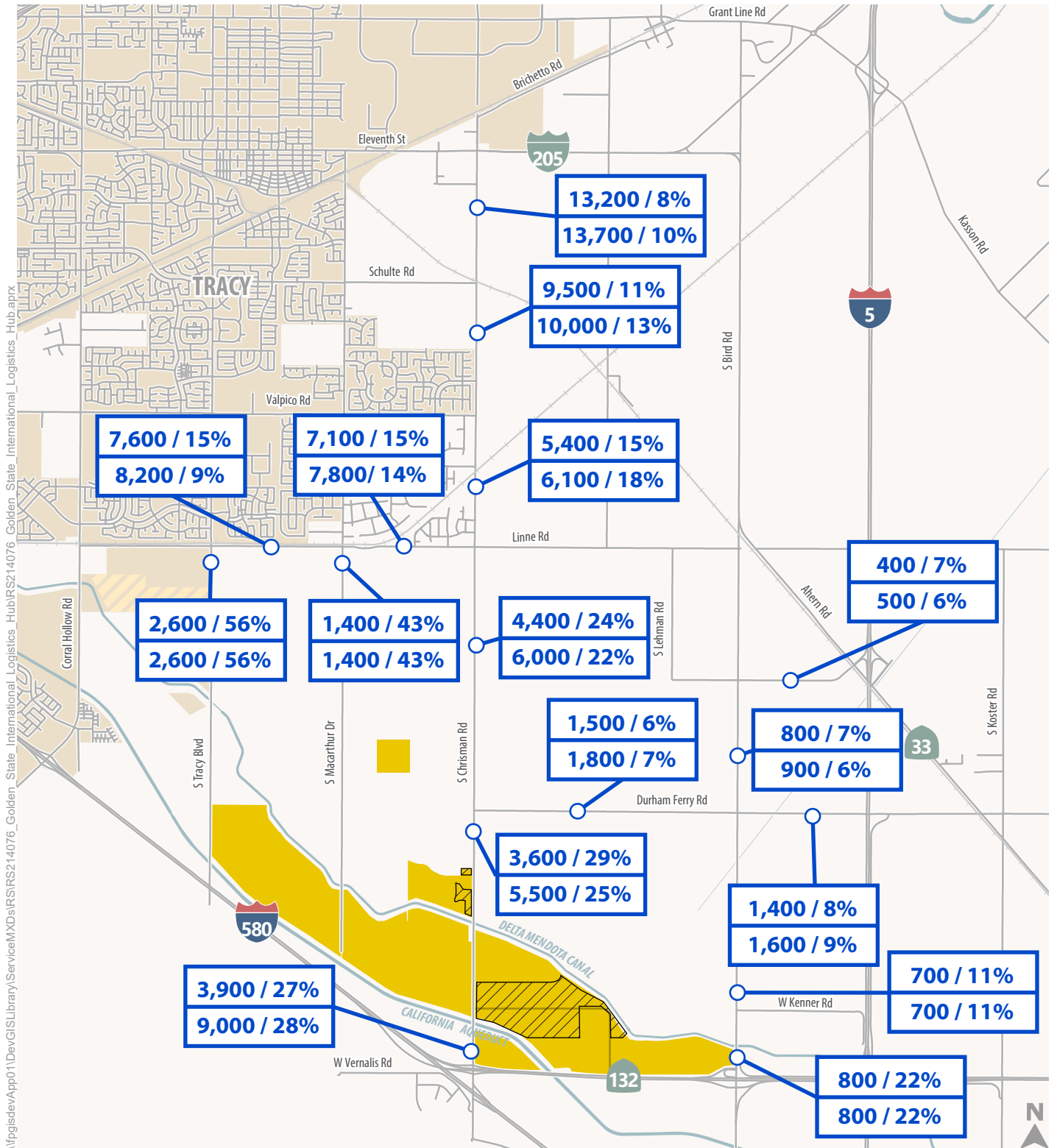


Figure 15

Average Daily Traffic Volumes -
Existing Plus Project Phase 1 Conditions



The project would add 2,800 vehicles to Durham Ferry Road east of Chrisman Road, of which trucks would constitute 220 of those trips. The initial phase would add 300 vehicles to this segment, with 25 being trucks.

Vehicular queuing is analyzed at the five intersections located on the State Highway System in the project vicinity. The chosen locations represent intersections in which project trips could cause or exacerbate queuing concerns. **Figure 16** shows the AM and PM peak hour traffic volumes, lane configurations, and traffic controls at these intersections under Existing, Existing Plus Initial Phase, and Existing Plus Project Buildout Conditions.

95th Percentile Vehicle Queues – Existing Plus Initial Phase Conditions

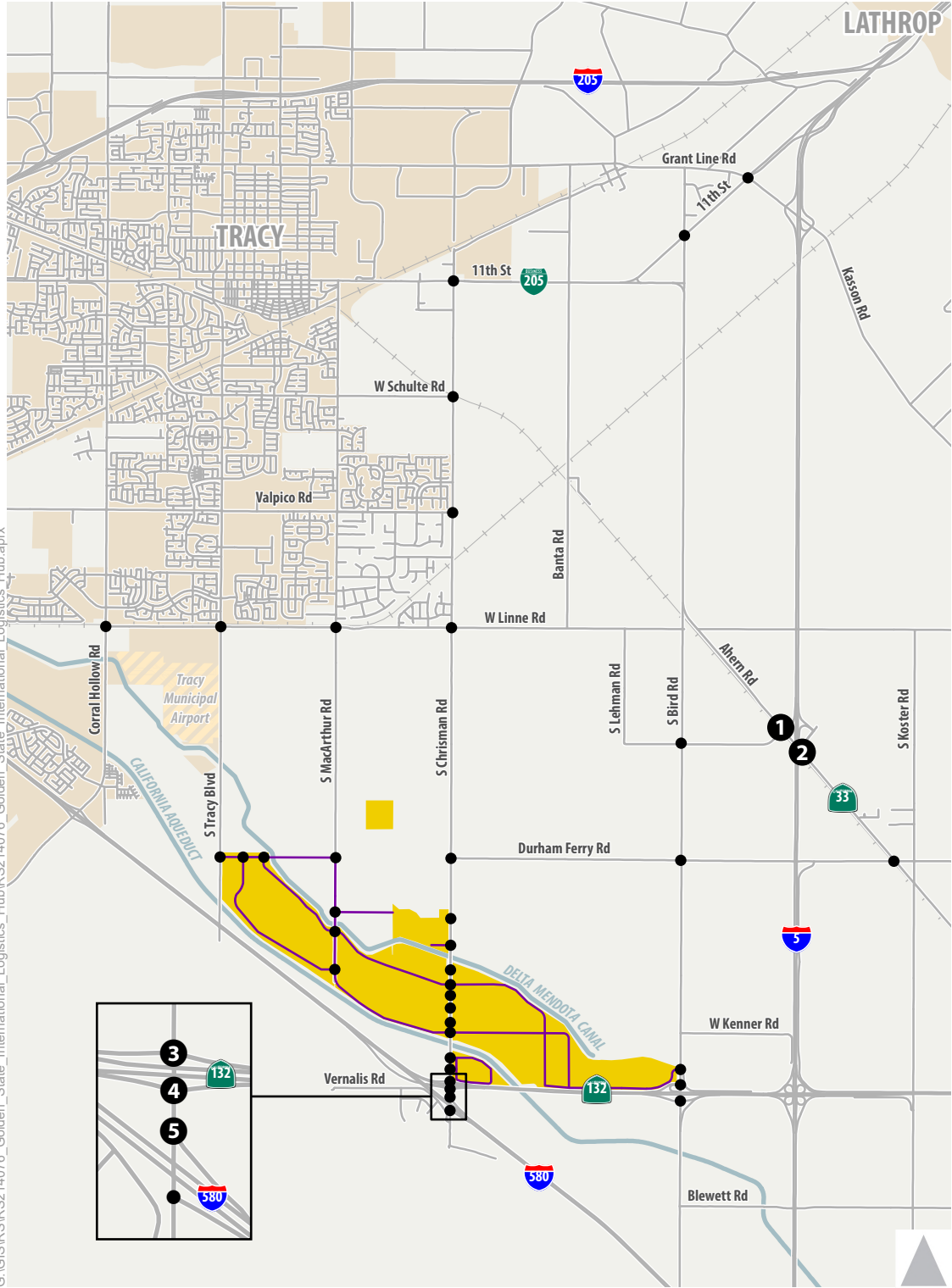
Table 12 shows Existing Plus Initial Phase AM and PM peak hour 95th percentile queue lengths at state highway study locations. As shown, initial phase trips would not cause any vehicle queues to spill back onto a freeway mainline at a study highway intersection. Refer to **Appendix B** of separately bound appendix for technical calculations.

95th Percentile Vehicle Queues – Existing Plus Project Buildout Conditions

Table 13 shows Existing Plus Project Buildout AM and PM peak hour 95th percentile queue lengths at state highway study locations. Refer to **Appendix B** of separately bound appendix for technical calculations.

Key findings from this table are:

- Project buildout would cause 95th percentile queues to spill back onto the freeway mainline at both off-ramps at the SR 132/Chrisman Road interchange. These queues would cause queuing on Chrisman Road, which would cause the queue on the I-580 westbound off-ramp to also spill back to the mainline.



Existing

1. Ahern Rd/Lehman Rd/SB I-5 Ramps	2. Ahern Rd/NB I-5 Ramps	3. S Chrisman Rd/SR 132 WB Ramps	4. S Chrisman Rd/SR 132 EB Ramps	5. S Chrisman Rd/I-580 WB Off-Ramp

Initial Phase

1. Ahern Rd/Lehman Rd/SB I-5 Ramps	2. Ahern Rd/NB I-5 Ramps	3. S Chrisman Rd/SR 132 WB Ramps	4. S Chrisman Rd/SR 132 EB Ramps	5. S Chrisman Rd/I-580 WB Off-Ramp

Existing Plus Project Buildout

1. Ahern Rd/Lehman Rd/SB I-5 Ramps	2. Ahern Rd/NB I-5 Ramps	3. S Chrisman Rd/SR 132 WB Ramps	4. S Chrisman Rd/SR 132 EB Ramps	5. S Chrisman Rd/I-580 WB Off-Ramp

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign

Figure 16
Peak Hour Traffic Volumes and Lane Configurations
at Vehicle Queuing Study Locations -
Existing Conditions Scenarios

Table 12: 95 th Percentile Vehicle Queues – Existing Plus Project Initial Phase Conditions						
Intersection	Movement	Available Storage ¹	Existing Conditions		Existing Plus Initial Phase Conditions	
			95 th Percentile Queue (ft.) ²			
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
10. Ahern Road/SR 33/I-5 SB Ramps/Lehman Road	WB Off-Ramp LT/TH/RT	1,250 ft.	114 ft.	158 ft.	90 ft.	118 ft.
	SB LT	175 ft.	0 ft.	21 ft.	0 ft.	18 ft.
11. Ahern Road/SR 33/I-5 NB Ramps	SB LT	185 ft.	49 ft.	32 ft.	36 ft.	29 ft.
14. Chrisman Road/SR 132 WB Ramps	WB Off-Ramp LT/TH	850 ft.	74 ft.	25 ft.	835 ft.	91 ft.
	WB Off-Ramp RT	850 ft.	114 ft.	75 ft.	113 ft.	102 ft.
15. Chrisman Road/SR 132 EB Ramps	EB Off-Ramp LT/TH/RT	825 ft.	59 ft.	89 ft.	90 ft.	153 ft.
16. Chrisman Road/I-580 WB Ramps ³	WB Off-Ramp LT/TH	1,160 ft.	0 ft.	0 ft.	6 ft.	3 ft.
	WB Off-Ramp RT	1,160 ft.	0 ft.	0 ft.	0 ft.	0 ft.

Notes:

1. Defined as distance to the freeway off-ramp gore point.

2. 95th percentile queue based on output from SimTraffic model.

3. Off-ramp consists of a stop-controlled left-turn lane and an uncontrolled right-turn lane that merges onto Chrisman Road. In addition to this storage, an additional 950 feet of off-ramp queuing space is provided downstream of the gore point.

SR 132/Bird Road interchange off-ramps not shown because Initial Phase would not provide a connection to Bird Road.

Bolded values indicate that 95th percentile queue exceeds available storage.

Source: Fehr & Peers, 2024.

Table 13:
95th Percentile Vehicle Queues – Existing Plus Project Buildout Conditions

Intersection	Movement	Available Storage ¹	Existing Conditions		Existing Plus Project Buildout Conditions	
			95 th Percentile Queue (ft.) ²			
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
10. Ahern Road/SR 33/I-5 SB Ramps/Lehman Rd	WB Off-Ramp LT/TH/RT	1,250 ft.	114	158	161	239
	SB LT	175 ft.	0	21	0	25
11. Ahern Road/SR 33/I-5 NB Ramps	SB LT	185 ft.	49	32	65	69
14. Chrisman Road/SR 132 WB Ramps	WB Off-Ramp LT/TH	850 ft.	74	25	> 1,500	> 1,500
	WB Off-Ramp RT	850 ft.	114	75	> 1,500	> 1,500
15. Chrisman Road/SR 132 EB Ramps	EB Off-Ramp LT/TH/RT	825 ft.	59	89	925	914
16. Chrisman Road/I-580 WB Ramps ³	WB Off-Ramp LT/TH	1,160 ft.	0	0	224	1,231
	WB Off-Ramp RT	1,160 ft.	0	0	49	192
18. Bird Road/SR 132 EB Ramps	EB Off-Ramp LT	1,535 ft.	16	73	19	111
19. Bird Road/SR 132 WB Ramps	WB Off-Ramp LT	1,485 ft.	17	27	409	430
	WB Off-Ramp RT	260 ft.	158	19	245	19

Notes:

1. Defined as distance to the freeway off-ramp gore point.

2. 95th percentile queue based on output from SimTraffic model.

3. Off-ramp consists of a stop-controlled left-turn lane and an uncontrolled right-turn lane that merges onto Chrisman Road. In addition to this storage, an additional 950 feet of off-ramp queuing space is provided downstream of the gore point.

Bolded values represent a 95th percentile queue length that exceeds the available storage.

"> 1,500 " is shown to represent queuing that spills onto freeway mainline a considerable distance.

Source: Fehr & Peers, 2024.

Image 6 is a screenshot from the Simtraffic microsimulation model that illustrates how traffic operations would be impacted at the SR 132/Chrisman Road interchange under project buildout conditions if no improvements were made. As shown, extensive queuing would occur on the eastbound off-ramp, westbound off-ramp, and southbound approaches.

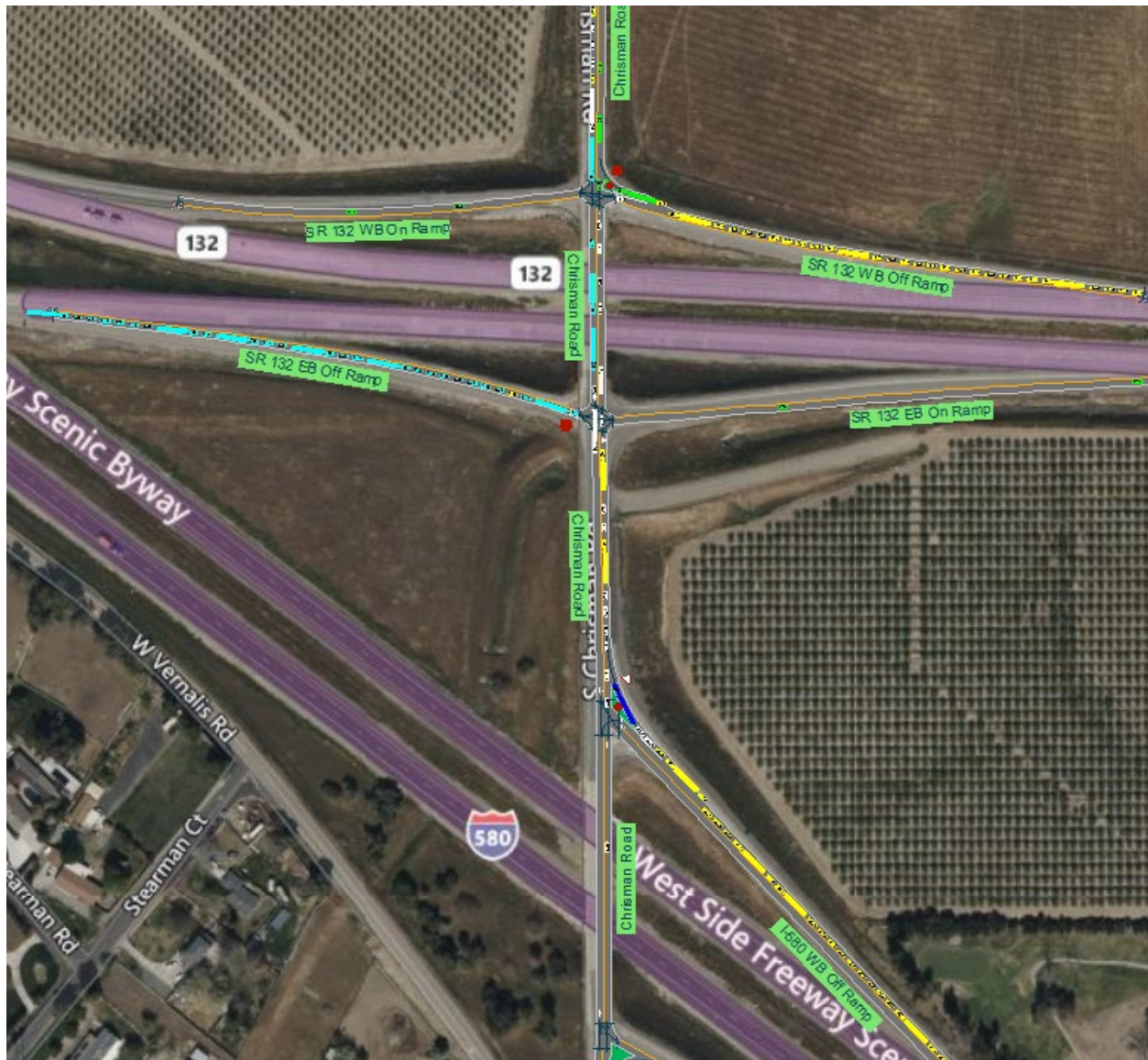


Image 6: PM peak hour queuing at the SR 132/Chrisman Road interchange under Existing Plus Project Buildout conditions

4. CUMULATIVE SETTING

This chapter describes the cumulative setting, which is a CEQA-required scenario that considers reasonably foreseeable land developments and transportation improvements. As is discussed in more detail below, both the City of Tracy and SJCOG travel demand models are used in this study. The City of Tracy travel demand model has a 2042 horizon year, while the SJCOG travel demand model has a 2046 horizon year.

Land Use Assumptions

The City of Tracy Refined travel demand model was used to develop estimates of cumulative background traffic forecasts on roadways in the project vicinity. This model has more granularity than the more regional SJCOG model and is therefore better capable of developing forecasts at a neighborhood/community level. The City of Tracy Refined travel demand model projects the following increases in dwelling units and employment in the project vicinity⁹ between the base year (2019) and 2042 models:

- 7,262 single-family units
- 3,920 multi-family units
- 5,402 retail employees¹⁰
- 4,260 service employees¹⁰
- 10,751 other employees¹⁰

This growth represents a 33% increase in single-family and 51% increase in multi-family units. Non-residential growth is even greater at a 201% increase for retail employees, 48% increase for service employees, and 126% increase in other employees. The *City of Tracy TMP* specifies that retail, service, and other employees have unit yields of 2 employees per ksf, 3 employees per ksf, and 1 employee per ksf, respectively. Further, the *City of Tracy TMP* notes that service employees are generally professional office-related while “other employees” work at industrial uses such as warehouses. Using those definitions, the additional employment translates into the following non-residential growth within the study area:

- 2,700 ksf retail
- 1,420 ksf office
- 10,751 ksf industrial

⁹ For purposes of this comparison, a large geographic area bounded by SR 132 on the south, I-5 on the east, I-205 on the north, and I-580 on the west was chosen.

¹⁰ These represent jobs situated within the City of Tracy, which may be filled either by Tracy residents or persons residing outside of Tracy.

Most land use growth is expected to occur in the north and west parts of the City of Tracy. Minimal growth is forecast for the area east of Chrisman Road between SR 132 and Eleventh Street. The totals on the previous page only represent the growth within the defined boundary. Additional development is also expected elsewhere in the City of Tracy and within its SOI. The City's model extends westerly into Alameda County and easterly covering the cities of Stockton, Lathrop, and Manteca within San Joaquin County as well as various cities in Stanislaus County such as Modesto.

Similar to the City of Tracy model, the SJCOG model covers the entirety of San Joaquin County as well as adjacent counties. By being regional in nature, the model is able to capture the full length of vehicle trips being made (as required under SB 743) versus only the portion of the trip within SJCOG boundaries.

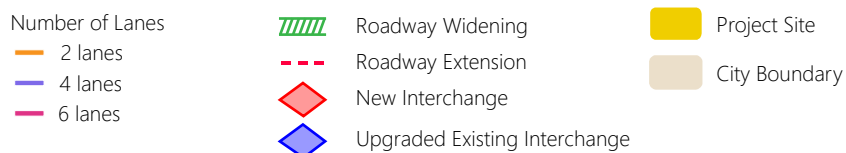
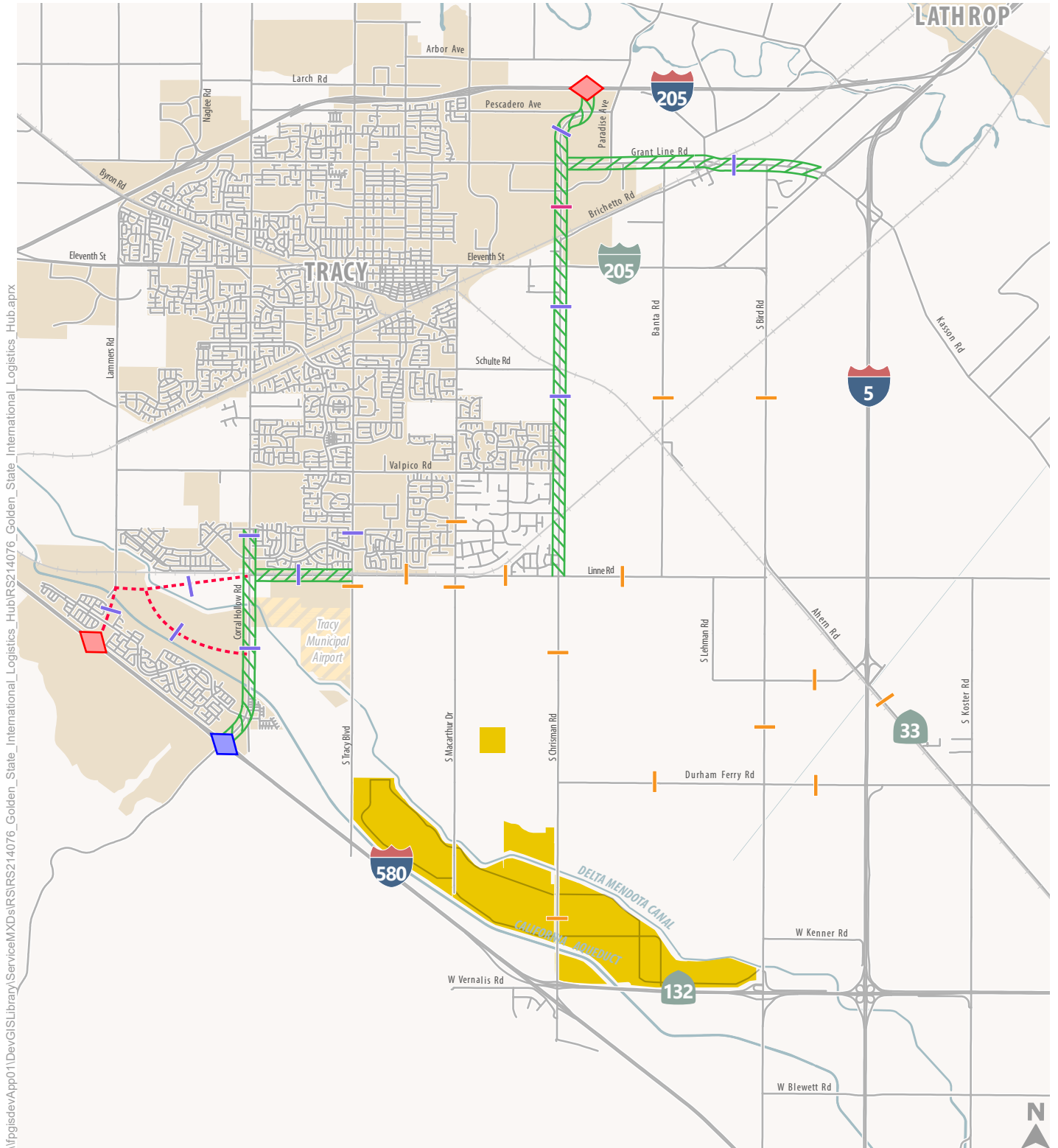
Roadway Network Assumptions

Figure 17 displays the planned cumulative roadway network improvements within the project vicinity. This figure shows several extended existing roadways, widened existing roadways, and new roadways that are planned for construction by 2042. The list of cumulative roadway improvements was derived from Appendix F (Project List) of the *San Joaquin Council of Governments (SJCOG) Adopted 2022 Regional Transportation Plan/Sustainable Communities Strategy*.¹¹ Appendix F lists specific freeway, interchange, and surface street improvements that are assumed to be funded as well as an "open to traffic date." The *City of Tracy TMP* was also consulted to identify specific roadways assumed to be in place within its jurisdiction by 2042. The following cumulative roadway project list was reviewed and approved by San Joaquin County staff.¹² These improvements were assumed in place under cumulative conditions.

- New I-205/Chrisman Road interchange
- Chrisman Road widening to four lanes between I-205 and Linne Road (with exception of segment between Eleventh Street and Grant Line Road, which would be six lanes)
- Grant Line Road widened to four lanes from Chrisman Road to Eleventh Street
- New I-580/Lammers Road interchange
- Extension of Lammers Road southerly as four-lane road from current terminus to new interchange
- Extension of Linne Road with four lanes from Corral Hollow Road to Lammers Road
- Widening of Linne Road to four lanes from Corral Hollow Road to Tracy Boulevard
- Upgrade of I-580/Corral Hollow Road interchange
- Widening of Corral Hollow Road to four lanes from I-580 to north of Linne Road
- I-205 Managed Lanes project (one freeway lane added in each direction)

¹¹ Source: [Adopted 2022 RTP/SCS Plan | San Joaquin Council of Governments, CA \(sjocog.org\)](https://www.sjocog.org/adopted-2022-rtp/scs-plan)

¹² Email from Jeffrey Levers, San Joaquin County Department of Public Works, March 3, 2023.



Notes:
Improvements only within study area are shown.
Additional improvements beyond study area
also planned and assumed (see report text).

Figure 17
Cumulative Roadway Network

Per San Joaquin County staff input, the model also includes the planned I-580/Iron Horse Parkway interchange. This interchange, which would be situated between the existing Patterson Pass/International Parkway interchange and the future Lammers Road interchange, was assumed because the model also includes future land development whose ability to develop would depend on the new interchange's presence.

Traffic Forecasting Methodology

A set of Cumulative No Project traffic forecasts were developed using the City of Tracy Travel Demand Model. These forecasts are provided for informational purposes and as inputs to other parts of analyses contained in the EIR. The following forecasting adjustment procedure known as the "difference method" was utilized to develop these forecasts:

$$\text{Cumulative No Project Forecast} = \text{Existing Traffic Count} + \\ (\text{Cumulative Model Forecast} - \text{Base Year Model Forecast})$$

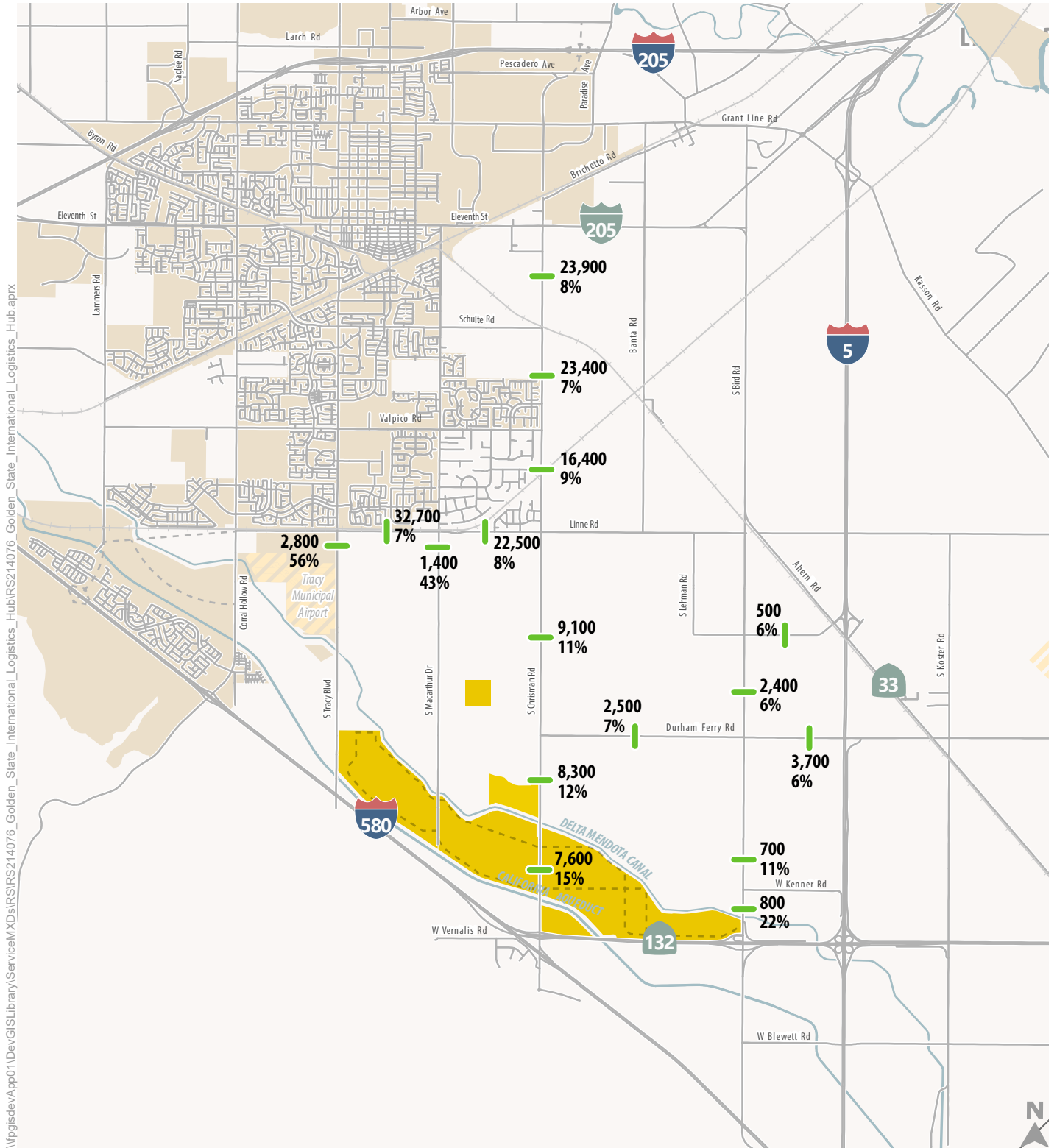
In instances where the roadway currently does not exist, the direct model forecast is used. This well-known and frequently utilized approach accounts for any inaccuracies in forecasts in the base year model that otherwise could translate to the cumulative year model.

Traffic Forecasts

Figure 18 shows the ADT on roadways near the project site under Cumulative No Project conditions. The following describes expected traffic growth on study roadways between existing and cumulative conditions:

- The greatest increase occurs on Linne Road east of Tracy Boulevard, in which the volume increases from 7,600 to 32,700 ADT. This is driven by land use growth in the area as well as the extension of Linne Road to Lammers Road near its new interchange with I-580.
- The ADT increases from 13,200 to 23,900 on Chrisman Road between Eleventh Street and Schulte Road.
- The ADT increases from 3,900 to 7,600 on Chrisman Road north of SR 132.
- The ADT increases from 1,500 to 2,500 on Durham Ferry Road east of Chrisman Road.

In summary, considerable background traffic growth (total volume nearly doubles and over 10,000 ADT are added) is expected on Chrisman Road between Eleventh Street and Linne Road. Traffic growth on Chrisman Road from Linne Road to SR 132, while representing more than a doubling of traffic, is only a net increase of 3,700 daily vehicles. Modest traffic growth occurs on Durham Ferry Road east of Chrisman Road.



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- Study Roadway Segment
- Project Site
- X,XXX** Average Daily Traffic Volume
- XX%** & Truck Traffic Percentage
- - - Future Roadway
- City Boundary

Figure 18

Average Daily Traffic Volumes & Truck Percentages - Cumulative No Project Conditions



95th Percentile Vehicle Queues – Cumulative No Project Conditions

Table 14 shows the 95th percentile queues for key turning movements at state highway study intersections under Cumulative No Project conditions. As shown, the 95th percentile queue in the I-5 southbound off-ramp at SR 33 would spill back to the I-5 mainline. All other 95th percentile queues would remain within the available storage.

Table 14: 95 th Percentile Vehicle Queues – Cumulative No Project Conditions				
Intersection	Movement	Available Storage ¹	95 th % Queue ¹	
			AM Peak Hour	PM Peak Hour
10. Ahern Road/SR 33/I-5 SB Ramps/Lehman Road	WB Off-Ramp LT/TH/RT	1,250 ft.	153 ft.	1,602 ft.
	SB LT	175 ft.	8 ft.	43 ft.
11. Ahern Road/SR 33/I-5 NB Ramps	SB LT	185 ft.	93 ft.	25 ft.
14. Chrisman Road/SR 132 WB Ramps	WB Off-Ramp LT/TH	850 ft.	96 ft.	40 ft.
	WB Off-Ramp RT	850 ft.	116 ft.	77 ft.
15. Chrisman Road/SR 132 EB Ramps	EB Off-Ramp LT/TH/RT	825 ft.	66 ft.	132 ft.
16. Chrisman Road/I-580 WB Ramps ²	WB Off-Ramp LT/TH	1,160 ft.	13 ft.	13 ft.
	WB Off-Ramp RT	1,160 ft.	13 ft.	10 ft.
18. Bird Road/SR 132 EB Ramps	EB Off-Ramp LT	1,535 ft.	16 ft.	73 ft.
19. Bird Road/SR 132 WB Ramps	WB Off-Ramp LT	1,485 ft.	17 ft.	27 ft.
	WB Off-Ramp RT	260 ft.	158 ft.	19 ft.

Notes:

1. 95th percentile queue based on output from SimTraffic model.
2. Off-ramp consists of a stop-controlled left-turn lane and an uncontrolled right-turn lane that merges onto Chrisman Road. In addition to this storage, an additional 950 feet of off-ramp queuing space is provided downstream of the gore point. Bolded cells represent 95th percentile queues that exceed the available storage.

Source: Fehr & Peers, 2024.

5. CUMULATIVE PLUS PROJECT CONDITIONS

This chapter presents the estimated number of daily trips the surrounding roadways would carry under this scenario. It also analyzes the project's effects on vehicle queuing. Refer to **Appendix C** of separately bound appendix for technical calculations. As there would not be an initial phase of development under cumulative conditions, such a scenario is not presented in this chapter.

Project Travel Characteristics

The project's travel characteristics under cumulative conditions are expected to be similar to the Existing Plus Project scenario. Thus, the same trip generation, distribution, and traffic assignment procedures described in Chapter 3 were utilized under cumulative conditions.

Traffic Forecasts

Figure 19 shows the ADT on the existing study roadways under Cumulative Plus Project conditions. As the volumes on project roadways are not expected to appreciably change between Existing Plus Project and Cumulative Plus Project conditions, they are not shown here.

The following key findings are derived from these figures:

- Under Cumulative Plus Project conditions, traffic volumes on Chrisman Road between SR 132 and Eleventh Street would range from about 20,000 to 34,000 ADT with higher volumes near the two end points, and lower volumes in the middle portion of the corridor.
- Durham Ferry Road east of Chrisman Road would experience an increase in traffic from 2,500 (no project) to 5,300 (plus project) vehicles per day. Approximately 305 trucks per day (85 existing plus 220 project buildout trucks) are expected to use this segment.
- Under Cumulative Plus Project conditions, traffic volumes on Bird Road north of SR 132 would carry 8,000 ADT with 29% of those trips being trucks.

Figure 20 shows the AM and PM peak hour traffic volumes, lane configurations, and traffic controls at the intersections on the State Highway System being analyzed for vehicular queuing under Cumulative No Project and Cumulative Plus Project Buildout Conditions.

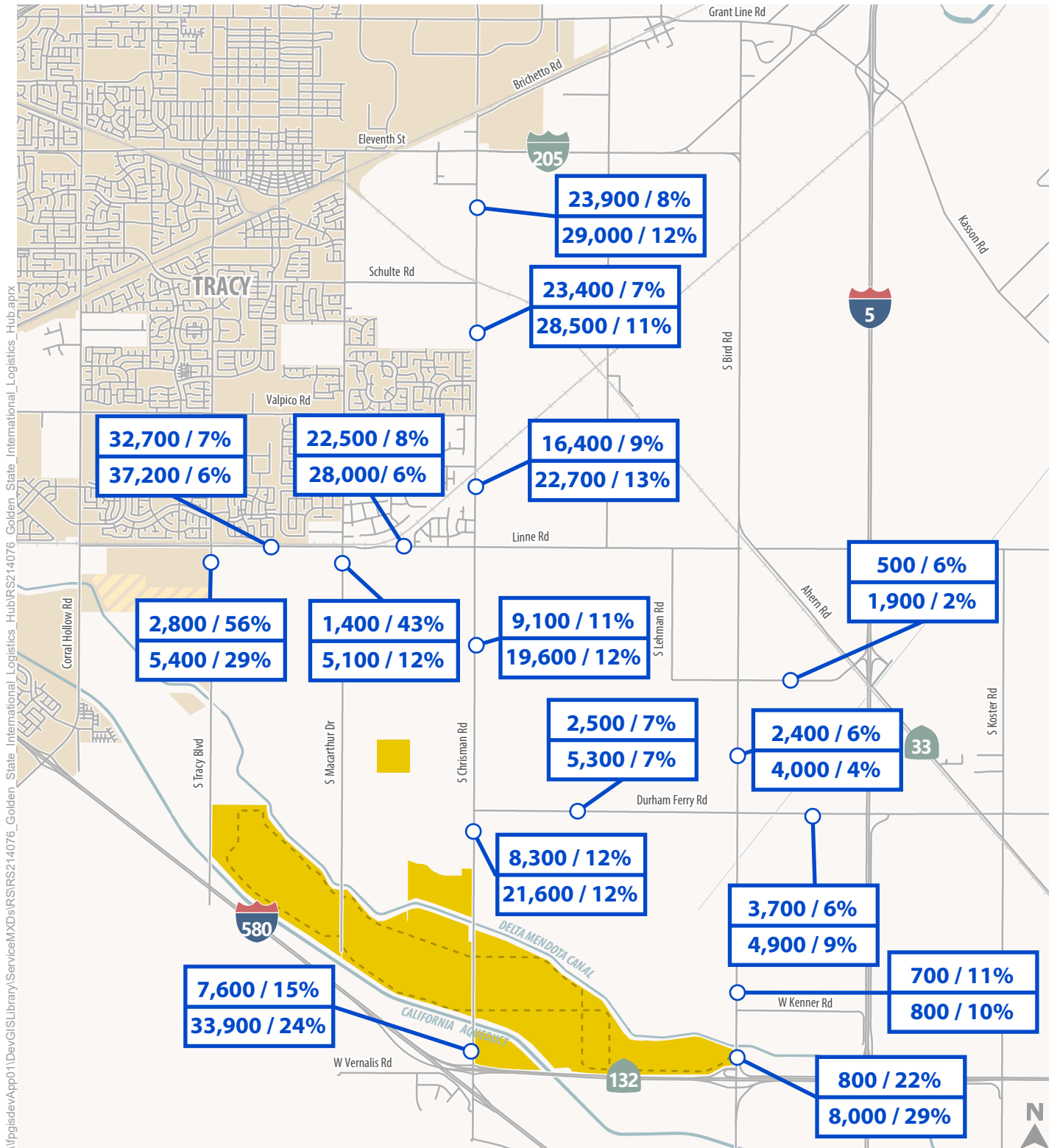
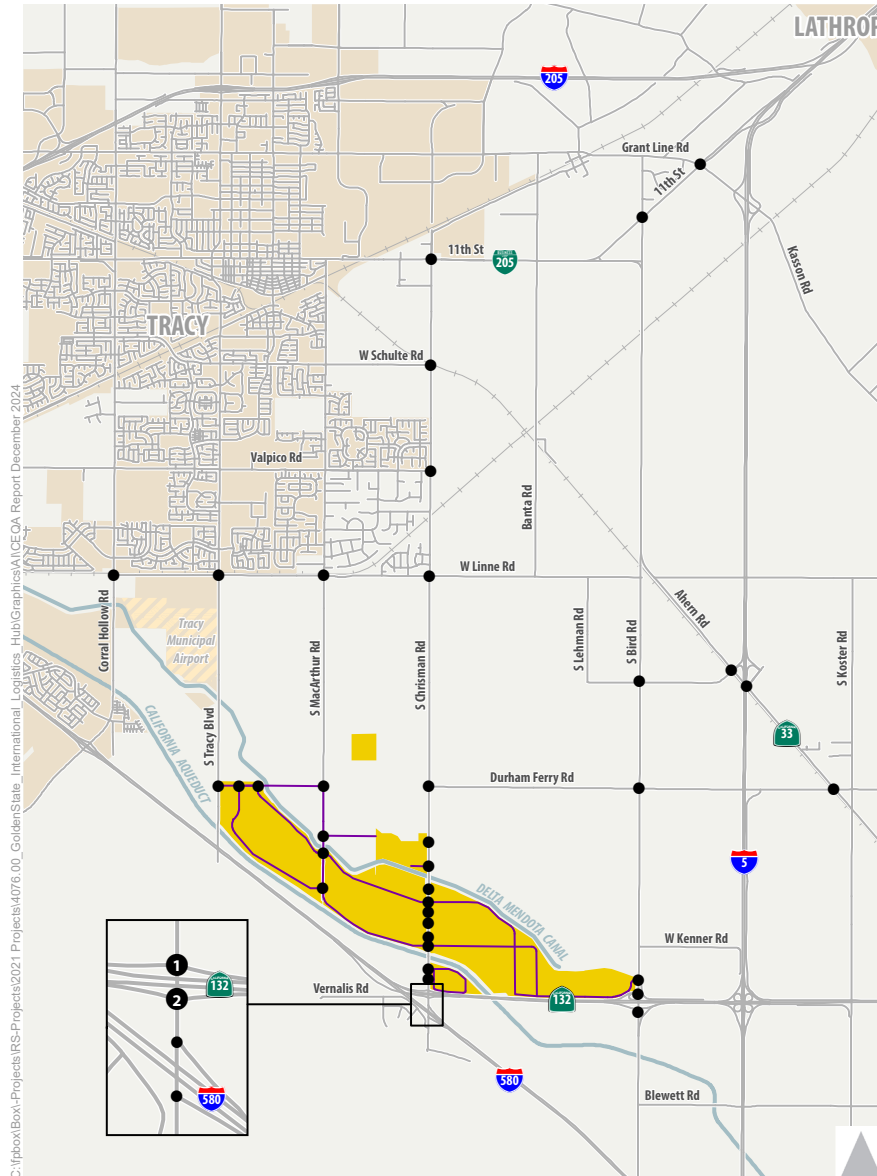


Figure 19

Average Daily Traffic Volumes - Cumulative Plus Project (Buildout)





Cumulative No Project

1. S Chrisman Road/SR 132 WB Ramps	2. S Chrisman Road/SR 132 EB Ramps
70 (40) 150 (240) 70 (30) 0 (5) 10 (10) SR 132 WB Off Ramp 20 (20) 160 (240)	90 (170) 70 (90) SR 132 EB Off Ramp 20 (140) 0 (5) 10 (30) 160 (120) 10 (20)

Cumulative Plus Project

1. S Chrisman Road/SR 132 WB Ramps	2. S Chrisman Road/SR 132 EB Ramps
230 (840) 760 (1,520) 1,150 (740) 0 (5) 10 (10) SR 132 WB Off Ramp 20 (20) 660 (540)	200 (840) 570 (1,190) SR 132 EB Off Ramp 340 (320) 0 (5) 10 (30) 340 (240) 10 (20)

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- Traffic Signal
- Stop Sign

Figure 20

Peak Hour Traffic Volumes and Lane Configurations
at Vehicle Queuing Study Locations -
Cumulative Conditions Scenarios

95th Percentile Vehicle Queues – Cumulative Plus Project Conditions

Table 15 shows the Cumulative Plus Project AM and PM peak hour 95th percentile queue lengths at state highway study locations. As shown, the number of movements having 95th percentile queue lengths that exceed their available storage would increase from one to five locations. Refer to **Appendix C** of separately bound appendix for technical calculations.

Table 15: 95 th Percentile Vehicle Queues – Cumulative Plus Project Conditions						
Intersection	Movement	Available Storage ¹	Cumulative No Project Conditions	Cumulative Plus Project Conditions		
			95 th Percentile Queue (ft.) ¹			
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
10. Ahern Road/SR 33/I-5 SB Ramps/Lehman Road	WB Off-Ramp LT/TH/RT	1,250 ft.	153 ft.	1,602 ft.	240 ft.	1,623 ft.
	SB LT	175 ft.	8 ft.	43 ft.	9 ft.	37 ft.
11. Ahern Road/SR 33/I-5 NB Ramps	SB LT	185 ft.	93 ft.	25 ft.	102 ft.	79 ft.
14. Chrisman Road/SR 132 WB Ramps	WB Off-Ramp LT/TH	850 ft.	96 ft.	40 ft.	> 1,500 ft.	> 1,500 ft.
	WB Off-Ramp RT	850 ft.	116 ft.	77 ft.	> 1,500 ft.	> 1,500 ft.
15. Chrisman Road/SR 132 EB Ramps	EB Off-Ramp LT/TH/RT	825 ft.	66 ft.	132 ft.	> 1,500 ft.	> 1,500 ft.
16. Chrisman Road/I-580 WB Ramps ²	WB Off-Ramp LT/TH	1,160 ft.	13 ft.	13 ft.	332 ft.	1,406 ft.
	WB Off-Ramp RT	1,160 ft.	13 ft.	10 ft.	65 ft.	165 ft.
18. Bird Road/SR 132 EB Ramps	EB Off-Ramp LT	1,535 ft.	16 ft.	73 ft.	19 ft.	111 ft.
19. Bird Road/SR 132 WB Ramps	WB Off-Ramp LT	1,485 ft.	17 ft.	27 ft.	409 ft.	430 ft.
	WB Off-Ramp RT	260 ft.	158 ft.	19 ft.	245 ft.	19 ft.

Notes:

1. 95th percentile queue based on output from SimTraffic model.
 2. Off-ramp consists of a stop-controlled left-turn lane and an uncontrolled right-turn lane that merges onto Chrisman Road. In addition to this storage, an additional 950 feet of off-ramp queuing space is provided downstream of the gore point.
- "> 1,500 " is shown to represent queuing that spills onto freeway mainline a considerable distance. Specific values shown for intersection 10 due to subsequent significance determination.

Source: Fehr & Peers, 2024.

6. VMT ANALYSIS

This chapter first describes the various methods used to calculate the proposed project's VMT under baseline and cumulative conditions. It then presents VMT results for each of the project's land use components.

VMT Defined

VMT is defined as one mile of travel driven by a motorist in a vehicle regardless of the number of occupants or type of engine (e.g., internal combustion engine versus electric). Per the *Technical Advisory*, VMT is expressed on a daily (weekday) basis. VMT totals are not truncated at agency boundaries; rather, they represent the entire distance of the trip. Although this simple definition of VMT may be helpful, methodologies recommended by the two documents described in the following section require a more nuanced approach to calculating and analyzing VMT, which is described in this chapter.

VMT, in and of itself, is not a measure of traffic congestion, though it is used to compare the relative efficiency of multiple land use-transportation planning scenarios.

VMT Analysis Methodologies

The following two documents are the most influential in how the VMT analysis is performed in this study:

- *Technical Advisory on Evaluating Transportation Impacts in CEQA* (OPR, 2018)
- *San Joaquin County VMT Thresholds Study* (GHD, 2020)

The *Technical Advisory* was discussed at length in Chapter 1. This section summarizes the content of the *San Joaquin County VMT Thresholds Study* and describes how it is being applied in this study.

As noted previously, the *San Joaquin County VMT Thresholds Study* adopts many of the recommended technical approaches and guidance contained in the *Technical Advisory*. **Table 16** describes the considerable extent to which this analysis is being performed consistent with the *San Joaquin County VMT Thresholds Study*.

Table 16:
Usage of Methodologies and Guidance from *San Joaquin County VMT Thresholds Study*

General Topic	Guidance from <i>San Joaquin County VMT Thresholds Study</i>	Notes / Comments
Selection of Travel Demand Model	Use SJCOG travel demand model	The 2016 base year and 2046 future year SJCOG models were used to conduct the VMT analysis of employment uses.
Employment Land Use VMT Measurement	Home-based-work (HBW) Auto VMT per employee	This VMT metric was used. This metric is not all VMT generated by an employment center divided by total employees. It is the VMT specifically associated with employees driving between home and work. Since employees are not expected to be driving heavy duty trucks to/from work and home, the VMT is associated with autos only.
Specific Employment VMT Threshold	15% below the unincorporated countywide average	San Joaquin County staff sent an email on November 7, 2023 showing an updated average VMT per employee of 38.1 for unincorporated San Joaquin County. As is described later, the 2016 base year SJCOG model applied by Fehr & Peers yields an average VMT per employee within unincorporated San Joaquin County that is within 1.3% of this statistic, meaning a consistent approach is attained by using this model. This study also utilizes the 15% below unincorporated countywide average threshold.
Treatment of Retail Projects	Endorses the <i>Technical Advisory</i> guidance that local-serving retail (i.e., 50,000 square feet or less) is presumed to cause a less than significant VMT impact.	This study utilizes this guidance.
Treatment of Truck VMT	"The County may elect to include an assessment of truck VMT if it is reasonable to assume that the project would result in a significant change in the pattern, frequency, or length of truck trips. Truck VMT would be assessed in terms of net change in total truck VMT."	This study presents VMT for automobiles. VMT associated with heavy duty trucks has also been calculated for analysis of greenhouse gas emissions and is included in other parts of the EIR.
Treatment of Transportation Projects	"Transportation impacts of a transportation project should be calculated based on the net change in total VMT. If a project would likely lead to a substantial or measurable increase in vehicle travel, the County should conduct an analysis to assess the amount of induced travel."	This report includes analysis of VMT impacts associated with any proposed project roadway widenings.

Note: See following pages for additional VMT-related analysis methodologies and discussions.

Source: Fehr & Peers, 2024.



Use of Various Travel Demand Models

As noted in Table 16, VMT associated with the employment uses is being estimated using the SJCOG travel demand model consistent with the *San Joaquin County VMT Thresholds Study*. However, this model is regional in nature and may not be best suited to calculate the VMT for some of the project's smaller land use components. Accordingly, the City of Tracy Refined travel demand model was used to calculate the VMT of the university, VFW, and retail uses. It is noteworthy that those land uses do not require a comparison against a countywide VMT per employee threshold.

VMT Analysis under Baseline and Cumulative Conditions

The tables that follow report both baseline and cumulative VMT for each project land use component. The baseline VMT is derived from the 2016 SJCOG model or the 2019 City of Tracy Model. The cumulative VMT is derived from the 2046 SJCOG model or the 2042 City of Tracy Model. Different VMT values occur under each horizon year because the existing and planned land uses and roadway networks are different between the two horizons.

VMT Calculated Separately for Various Project Land Use Components

VMT is calculated separately for the warehouse, office, university, and VFW Tracy Post. This is necessary to determine the significance of project impacts for each of these land use types, and also needed as inputs into other technical areas of the DEIR. VMT for the retail and other ancillary support uses was combined into a single table for documentation purposes.

VMT Analysis for Initial Phase and Project Buildout

Because the environmental effects of Initial Phase are being analyzed separately, separate VMT estimates are developed under baseline with Initial Phase conditions.

Qualitative Evaluation of Significance of VMT Impacts Associated with University

Neither the *Technical Advisory* nor the *San Joaquin County VMT Thresholds Study* provide guidance on how to analyze VMT associated with a new university. In light of this and with the overall intent of SB 743 in mind, the significance of VMT generated by the university is examined relative to the expected VMT characteristics of other universities in San Joaquin County and in consideration of the proposed university's land uses and location.

Project-Generated Versus Project Effect on VMT

All VMT calculations reported in this study are “project-generated VMT”, not “project effect on VMT”. Project-generated VMT refers to the amount of travel its users would generate. In contrast, project effect on VMT refers to how the VMT of an entire area would change if a project was approved and constructed. Project effect on VMT is mentioned prominently in the *Technical Advisory*, but only raised in the *San Joaquin County VMT Thresholds Study* in the context of studying the effects of adding new retail uses. Project effect on VMT is not calculated in this study because no such analysis is necessary to achieve consistency with the *San Joaquin County VMT Thresholds Study*.

VMT Generated by Project Land Use Type

Table 17 displays the home-based work (HBW) auto VMT per employee for the warehouse uses under baseline conditions (Initial Phase and Project Buildout) and cumulative (Project Buildout). Also shown is the number of warehouse employees including those in Gateway West, Central, and East, and Gateway Center. The far right column shows the total HBW auto VMT generated by all warehouse employees.

Table 17: Warehouse Auto VMT Generated			
Scenario	HBW Auto VMT per Employee ¹	Number of Employees ²	HBW Auto VMT Generated by Employees ³
Baseline Plus Initial Phase	59.1	2,401	141,899
Baseline Project Buildout	46.5	14,953	695,315
Cumulative Project Buildout	43.3	14,953	647,465

1 Calculated using the 2016 and 2046 SJCOG travel demand model. VMT shown is only associated with employee travel between the project and residence.

2 Number of employees based on assumption of 1,650 sq. ft. per employee. Buildout total includes 24,149,000 sq. ft. in Gateway West, Central, and East, and 525,000 sq. ft. in Gateway Center. Initial Phase consists of 3,962,000 sq. ft. in Gateway East.

3 Calculated by multiplying average VMT per employee by number of employees. VMT shown is only associated with employee travel between the project and home.

HBW = Home-based work (i.e., travel from home to work).

Source: Fehr & Peers, 2024.

As shown, under Baseline Project Buildout conditions, approximately 46.5 VMT per employee is generated. Since most employees do not leave the worksite during their shift, this amounts to a pair of 23-mile one-way commutes between the job site and residence. The reasonableness of this value was checked by calculating the average commute distance for warehouse employees based on the employee residence data in Figure 11. That calculation yielded a one-way commute distance of 20 miles. It is unrealistic to expect a regional travel demand

model to precisely estimate warehouse employee trip lengths. But the model does provide a reasonable estimate given the average calculated from Figure 11. The VMT per employee decreases by 7% under cumulative conditions likely due to the introduction of additional residential in Tracy, which results in shorter overall commute distances to the project site.

Table 18 displays the HBW auto VMT per employee for the office component within the University Center under baseline and cumulative conditions. The SCJOG model has a different employment input for office versus industrial employees. The result of this different classification is greater VMT per office employee versus warehouse employee. This outcome is aligned with academic research showing that all else being equal, trip lengths tend to increase as employee salary increases (i.e., greater willingness to drive further if higher salary offered).

Table 18: Office Auto VMT Generated			
Scenario	HBW Auto VMT per Employee ¹	Number of Employees ²	HBW Auto VMT Generated by Employees ³
Baseline Project Buildout	66.8	372	24,850
Cumulative Project Buildout	62.1	372	23,101

1 Calculated using the 2016 and 2046 SJCOG travel demand model. VMT shown is only associated with employee travel between the project and residence.

2 Number of employees based on assumption of 250 sq. ft. per employee (93,000 sq. ft. / 250 sq. ft./emp = 372 employees).

3 Calculated by multiplying average VMT per employee by number of employees. VMT shown is only associated with employee travel between the project and home.

Source: Fehr & Peers, 2024.

Tables 19 and 20 display the total auto VMT generated by the university campus and its adjacent shopping plaza.

Table 21 compiles the total auto VMT generated by the commercial uses in Gateway center including convenience store/gas station, fast-food, sit-down, and fast casual restaurants, bank, business hotel and EV charging lot.

Table 22 displays the total auto VMT generated by the VFW Tracy Post building.

Table 19:
University Campus Auto VMT Generated

Scenario	Measure	External Daily Auto Trips ¹	Average Trip Length ²	Total Auto VMT Generated ³
Baseline Plus Initial Phase	VMT Generated by Autos	622	15.7	9,765
Baseline Project Buildout		7,272	15.7	114,170
Cumulative Project Buildout		7,272	15.9	115,625

1 Calculated based on university (non-internalized) auto trip generation estimates.

2 Average trip length calculated from the base year and future year City of Tracy travel demand model.

3 VMT generated is the product of the non-internalized university auto trips and the average trip length.

Source: Fehr & Peers, 2024.

Table 20:
University Center Shopping Plaza Auto VMT Generated

Scenario	Measure	External Daily Auto Trips ¹	Average Trip Length ²	Total Auto VMT Generated ³
Baseline Project Buildout	VMT Generated by Autos	916	11.2	10,259
Cumulative Project Buildout		916	12.6	11,542

1 Calculated based on non-internalized, non-pass-by trips.

2 Average trip length calculated from the base year and future year City of Tracy travel demand model.

3 VMT generated is the product of the non-internalized, non-pass-by retail auto trips and the average trip length.

Source: Fehr & Peers, 2024.

**Table 21:
Gateway Center Commercial Uses Auto VMT Generated**

Scenario	Measure	External Daily Auto Trips ¹	Average Trip Length ²	New Trips - Auto VMT Generated ³	Diverted-Link Trips - Auto VMT Generated ⁴
Baseline Project Buildout	VMT Generated by Autos	5,798	11.2	64,938	10
Cumulative Project Buildout		5,798	12.6	73,055	10

1 Includes new auto trips generated by convenience store/gas station, fast-food, sit-down, and fast casual restaurants, bank, business hotel and EV charging lot. Auto trips associated with industrial are excluded here and instead shown in Table 19.

2 Average trip length calculated from the base year and future year City of Tracy travel demand model.

3 VMT generated is the product of the non-internalized, non-pass-by retail auto trips and the average trip length.

4 20 diverted-link auto trips that would come from SR 132. These trips would be about 0.5 mile in length, resulting in 10 added VMT.

Source: Fehr & Peers, 2024.

**Table 22:
VFW Building Auto VMT Generated**

Scenario	Measure	External Daily Auto Trips ¹	Average Trip Length ¹	Total Auto VMT Generated ³
Baseline Plus VFW Post ⁴	VMT Generated by Autos	330	11.2	3,696
Cumulative Project Buildout		330	12.6	4,158

1 Calculated based on trip generation estimates.

2 Since model does not have a 'community center/VFW Building' land use category, average trip length assumed to be the same as for retail, which is a similar type of trip attractor.

3 VMT generated is the product of the non-internalized auto trips and the average trip length.

4 VMT result is the same for VFW Post whether part of Initial Phase only or buildout of full Specific Plan.

Source: Fehr & Peers, 2024.

Project Roadway Widening Effect on VMT

The proposed project would construct new roadways and widen existing roadways. These capacity expansions could induce more VMT due to changes in background travel demand, route choice, and other factors. The following describes several analyses performed for this topic.

City of Tracy Travel Demand Model Estimates of Induced Near-Term VMT Caused by Project Roadways

The new roadways constructed by the project would accommodate primarily project trips only. The project would widen a portion of MacArthur Drive within the project site to four lanes, which would accommodate primarily project trips only. The project would widen 1.3 miles of Chrisman Road from SR 132 to the north project limits from two to four lanes. These two roadway widenings were added first to the base year City of Tracy travel demand model and then also added to the cumulative year version of the model. The models were then run and the total VMT within the model area was compared without and with the improvements. The base year model has network-wide (i.e., all travel on all streets/highways/freeways in the model extents on a daily basis) approximately 79 million VMT, while the cumulative year model has network-wide approximately 128 million VMT. The model was not sensitive to the change in capacity along these roadways (i.e., VMT didn't change at all under the base year model and decreased by 5 VMT under the cumulative model).

Long-Term Induced VMT due to Roadway Capacity Increase

The National Center for Sustainable Transportation at UC Davis developed an induced VMT calculator to estimate how adding lane-miles to a roadway network would increase VMT in the 5 to 10 year range. The calculator (found at [California Induced Travel Calculator \(ucdavis.edu\)](https://ucdavis.edu/california-induced-travel-calculator)) applies only to Principal Arterials and higher (i.e., freeway/highway) classifications. Chrisman Road is classified as a Minor Arterial (per [California Road System - Functional Classification \(arcgis.com\)](https://arcgis.com/california-road-system-functional-classification)). Thus, this tool is not appropriate to estimate any induced VMT that could be caused by the widening of this roadway.

7. ROADWAY SAFETY ASSESSMENT

This chapter begins by providing an overview of Caltrans' "Four Pillars of Traffic Safety", which will help guide the department toward the ultimate goal of zero deaths or severe injuries on California roads by 2050. It then presents the collision history for state highways in the project vicinity. Finally, it includes a detailed analysis of expected changes in travel and potential needed infrastructure upgrades on SR 132 adjacent to the project site.

Four Pillars of Traffic Safety

Caltrans' *2020-2024 Strategic Plan*¹³ lists "Safety First" as its top goal through 2024. The *2020 Caltrans Annual Accomplishments Report* describes the Four Pillars of Traffic Safety, which are:

1. *Double Down on What Works*
2. *Accelerate Advanced Technology*
3. *Lead Safety Culture Change*
4. *Integrate Equity*

Each of these pillars, including their applicability to the proposed project, are described below.

1. *Double Down on What Works*

This pillar focuses on implementing applicable countermeasures from FHWA's Proven Safety Countermeasures program (<https://safety.fhwa.dot.gov/provencountermeasures/>). This program contains 20 types of countermeasures including several crosscutting strategies that address multiple safety focus areas.

Caltrans and San Joaquin County design standards include many of these treatments including: roadway design improvements at horizontal curves, reduced left-turn conflicts at intersections, median barriers, traffic signals with retroreflective backplates, corridor access management, dedicated left/right turn lanes at intersections, roundabouts, medians/pedestrian crossing islands, road diets, and walkways. Other treatments from the FHWA program that could be considered for the proposed project include systemic application of low-cost countermeasures at stop-controlled intersections (e.g., advanced warning signs), leading pedestrian intervals (i.e., pedestrians receive WALK indication before motorists to enhance visibility), USLIMITS2 (a free, web-based tool designed to help practitioners assess and establish safe, reasonable, and consistent speed limits for specific segments of roadway), horizontal curve enhanced delineation and pavement friction, and pedestrian hybrid beacons.

¹³ [Caltrans 2020-2024 Strategic Plan](#)

2. Accelerate Advanced Technology

This pillar refers to increased and proactive usage of advanced technologies known to improve safety. Examples at traffic signals include vehicle queue spillback detection, coupled with a fixed Changeable Message Sign (CMS) sign upstream to alert drivers of either slowed or stopped traffic ahead. Other examples include extinguishable / blackout signs placed on traffic signal poles to advise travelers of regulatory or advisory conditions (e.g., no right-turn on red, look left for vehicles, etc.). Additionally, adaptive traffic signal systems are now being implemented in a number of corridors in urban areas. These systems can update their traffic signal timings in real-time, in response to changes in traffic flows, to better serve travelers (source: [Adaptive Traffic Management: SCOOT | Traffic Management | Siemens Mobility USA](#)).

3. Lead Safety Culture Change

The Safe System approach represents a paradigm shift in roadway safety philosophy. Whereas previously the focus of roadway safety was on preventing collisions, now it is on preventing fatal and severe collisions. Before, the emphasis was on improving human behavior to reduce collision frequency, but now it is recognized that humans make mistakes and are vulnerable, and that roadway design must consider these factors. The Safe System approach refocuses transportation system design and operation on anticipating human mistakes and lessening impact forces to reduce crash severity and save lives. In the Safe System approach, the principles related to prevention of collision-related deaths and serious injuries are:

- Reduce System Kinetic Energy/Control Speeding
- Coordinate and Share Responsibility
- Proactively Address Risks

Some of these Safe System principles (e.g., reduce system kinetic energy) can be employed as part of the project design. Others are more regional and programmatic in nature, requiring leadership and commitment by regional and state agencies and other stakeholders. Through preparation of a Local Roadway Safety Plan (LRSP), San Joaquin County has proactively addressed risks through a systemic approach to safety (versus simply reacting to high collision locations).

4. Integrate Equity

The *2020-2024 Strategic Highway Safety Plan* lists “Integrate Equity” as one of its four guiding principles and a way to address institutional and systemic biases. This principle supports a better understanding of the effects of socioeconomic and demographic influences on fatal and serious injury crashes. Understanding these effects includes use of data related to race, income, population density, and other demographic, socioeconomic, and location-based information. Equity in safety may also relate to disparate treatment of different modes of travel.

The proposed project has been designed to accommodate all modes of travel by adding a robust network of bicycle and pedestrian facilities along its boundary and within its site. Accommodation of public transportation is also provided. Along the majority of project roadways, facilities supporting these modes of travel are physically separated from the roadway system to provide greater levels of protection to these vulnerable users. However, active transportation modes do not extend to adjacent communities from which some project employees may reside. This condition is specifically addressed in Chapter 8 (Impacts and Mitigation Measures).

Collision History on State Highway System in Study Area

The collision history of the three freeways that would be used by project traffic was analyzed using the Transportation Injury Mapping System (TIMS) database. This is a free and publicly available dataset of reported injury collisions on local and state roadways. TIMS data was obtained for a 6.5-year period from January 1, 2018 through June 30, 2024. The dataset consists of numerous variables associated with each collision including time of day, day of week, date, primary collision factor, collision type, number of involved parties, collision severity, weather conditions, lighting, pavement conditions, involvement of bicyclist, pedestrian, or motorcycle, driver impaired, driver age and gender. The TIMS database classifies collisions as either fatal, severe, or injury-only. The results are shown in **Table 23**. Key findings from this table are:

- I-580 experienced far more injury collisions than either I-5 or SR 132. This is primarily attributable to much greater traffic levels on this freeway than the other facilities. Similarly, I-580 had more fatal and severe injury collisions than the two other two freeways combined. The most common type of collision on I-580 was a rear-end type and the most common primary collision factor was unsafe speed.
- In terms of number of injury collisions involving trucks, 22 of 35 such collisions occurred on I-580. Only two collisions within the study portion of SR 132 (between the I-580/Chrisman Road interchange and I-5 interchange) involved trucks. Given that Caltrans' online traffic count data suggests this segment of SR 132 carries about 3,000 trucks per day, this represents a relatively low crash rate.
- Regarding vulnerable road users (i.e., bicyclists and pedestrians), a total of three such injury collisions were reported.

Table 23: Roadway Safety Injury Collision Statistics on State Highway System in Project Vicinity

Segment	Dist.	Number of Collisions ¹			Most Common Collision Type	Most Common Primary Collision Factor	Specific Collision Types		
		Total	# Resulting in a Fatality	# Resulting in a Severe Injury			# Involving Bicyclist or Pedestrian	# Involving Trucks	# DUI Collisions
SR 132 from Chrisman Road to I-5	2.97 mi	27	2	3	Rear End	Unsafe Speed	1	2	3
I-5 from I-205 to I-580	12.70 mi	52	2	7	Sideswipe	Improper Turning	0	11	12
I-580 from Corral Hollow Road to I-5	8.80 mi	136	5	13	Rear End	Unsafe Speed	2	22	13

Notes:

¹ Data only shows reported collisions that involved an injury.

DUI: Driving Under the Influence (of alcohol or drugs).

Source: TIMS data from January 1, 2018 through June 30, 2024.

8. IMPACTS AND MITIGATION MEASURES

This chapter begins by presenting the thresholds of significance to be used to identify significant adverse transportation impacts. It then identifies project-specific and cumulative impacts of the proposed project based on those thresholds. Impact statements are provided for the topics of VMT and roadway safety/hazards, which are the criteria used to evaluate roadway system impacts. Impact statements are also provided for the bicycle, pedestrian, and transit systems, and emergency access.

Mitigation measures are recommended to lessen the significance of identified impacts. This chapter does not draw conclusions as to whether the mitigation measure would mitigate the impact to a less than significant level or whether the impact would remain significant after mitigation. Such conclusions are presented in the EIR based on the data provided here.

Thresholds of Significance

The following thresholds of significance are used to determine whether implementing the proposed project would result in a significant environmental impact. The thresholds are based on guidance from Appendix G of the CEQA Guidelines, and policies of San Joaquin County and other responsible agencies listed previously. The proposed project would cause a significant impact if it would:

Roadway Network

1. For project land use components whose VMT impacts are otherwise not presumed to be less-than-significant based on *San Joaquin County VMT Thresholds Study* thresholds, exceed the applicable VMT threshold as follows:
 - Warehouse and University Center Office: Average VMT per employee exceeds 85% of the unincorporated countywide average.
 - University Campus: VMT generation rate is not considered 'efficient' based on its placement and on-site amenities (note that San Joaquin County does not have quantitative thresholds for universities; hence, the approach taken here was necessary).
 - University Center Retail, VFW Building, and Gateway Center Retail/Restaurants/Service: a determination is made as to whether these uses would qualify as local-serving retail based on the *San Joaquin County VMT Thresholds Study*.

Bicycle and Pedestrian Network

2. Conflict with adopted policies, plans, or programs regarding bicycle or pedestrian facilities.

Transit Services and Facilities

3. Disrupt existing or planned transit facilities or conflict with adopted policies, plans, or programs regarding transit facilities or service.
4. Create a demand for transit that is currently unmet.

Hazards

5. Cause the 95th percentile queue length at a freeway off-ramp to extend beyond the gore point onto the mainline (or exacerbate a current or future deficient condition by increasing the 95th percentile queue by two or more vehicles).
6. Cause the 95th percentile queue length in the left-turn lane at an at-grade intersection on the State Highway System to exceed the available storage (or exacerbate a current or future deficient condition by increasing the 95th percentile queue by two or more vehicles).
7. Substantially increase hazards due to geometric design features (e.g., sharp curves or dangerous intersections) or incompatible uses.

Emergency Vehicle Response

8. Adversely affect emergency vehicle response times.

Note that the thresholds pertaining to vehicle queue lengths exceeding freeway off-ramp or left-turn lane storage on state highways is based on guidance from the *Local Development Review (LDR) Safety Review Practitioners Guidance* (Caltrans, 2024).

Unless otherwise noted, all identified mitigation measures should be applied to all phases of the project.

Project-Specific Impacts and Mitigation Measures

With regard to the significance criterion related to VMT per employee, it is noted that the methodology treats all employees the same. But in reality, different outcomes should be expected when considering VMT per office versus warehouse employee. Placing office space near residential or other sensitive receptors (e.g., schools, parks, etc.) does not cause the same type of nuisance or potential environmental harm as placing warehouse/industrial uses in that same location. To avoid those adverse effects, responsible planning dictates that the warehouse space be situated a sufficient distance away from those uses to avoid or minimize these effects. The SJVAPCD comment letter on the NOP reiterates this. However, this has the effect of increasing the distance between the warehouse location and most employee residences. Unless a robust multi-modal transportation system is available to provide alternatives to driving, average VMT per warehouse employee will normally be greater than average VMT per office employee.

The above concept is described in *Warehouse Projects: Best Practices and Mitigation Measures to Comply with the California Environmental Quality Act Report* (CA Department of Justice, 2022), albeit in a slightly different form by stating, "Proactive planning can take many forms. Land use designation and zoning decisions should channel development into appropriate areas. For example, establishing industrial districts near major highway and rail corridors but away from sensitive receptors can help attract investment while avoiding conflicts between warehouse facilities and residential communities."

Roadway Network VMT

Impact TR-1: Significant Adverse VMT Impacts Caused by Warehouse and Office Land Use Components

Table 24 shows that the unincorporated countywide average VMT per employee is 38.6 under baseline conditions. The significance threshold is 85% of that value or 32.8 VMT per employee. The last two rows show the warehouse and office VMT per employee under baseline conditions with Initial Phase and Project Buildout.

Initial Phase

Table 24 indicates Initial Phase of the warehouse uses would have a VMT per employee rate that is 80% above the significance threshold. Accordingly, this impact is **significant**.

Project Buildout

Table 24 indicates that both the warehouse and office uses would have VMT per employee averages that are 42% and 104%, respectively, above the significance threshold. Accordingly, this impact is **significant**.

**Table 24:
Comparison of Warehouse and Office Baseline Auto VMT per Employee against Significance Threshold**

Scenario	Measure	HBW Auto VMT per Employee ¹	
		Warehouse Uses	Office Uses
Unincorporated Countywide Average – Baseline	VMT Generated by Autos	38.6	
85% of Unincorporated Countywide Average - Baseline		32.8	
Project Initial Phase		59.1	N / A
Project Buildout		46.5	66.8

¹ Calculated using the 2016 SJCOG travel demand model. VMT shown is only associated with employee travel between the project and residence.

N / A = Not Applicable (as Initial Phase does not include office space).

Source: Fehr & Peers, 2024.

Mitigation TR-1a (Initial Phase and Project Buildout): *The project applicant shall comply with SJVAPCD Rule 9410 (Employer Based Trip Reduction).*

SJVAPCD Rule 9410 (found at: <https://ww2.valleyair.org/media/tlbogtid/rule-9410.pdf>) was adopted by the District Governing Board in 2009 and requires major employers in the region to implement an Employer Trip Reduction Implementation Plan (ETRIP). Two types of worksites are identified: Tier 1 worksites consist of 100 to 249 eligible employees, while Tier 2 worksites have at least 250 eligible employees (who worked at least 16 consecutive weeks during the previous fiscal year). Eligible employees are any employees excluding the following: emergency health and safety employees, employment agency personnel, farm workers; field personnel, field construction workers, home garage employees, on-call employees, part-time employees, seasonal employees, volunteers, and employees who do not report to work during the peak period, which is defined as 6 AM to 10 AM. The number of eligible employees that work for a major employer would determine whether that employer falls into a Tier 1 or 2 worksite.

Table 1 of Rule 9410 indicates that Tier 1 and 2 worksites shall implement an ETRIP that achieves at least 44 and 66 points, respectively, based on selecting various TDM strategies, which fall into the following four groups: Marketing Strategies, Program Support Strategies, Service and Facilities Strategies, and Transportation, Alternative Schedule, and Incentives Strategies. Table 2 of Rule 9410 contains 59 different strategies that could be considered to reduce vehicle trips. Strategies are applicable only to eligible employees.

It is not known how many of the individual warehouse tenants will qualify as a Tier 1 or 2 worksite because of uncertainties around start time, shift hours and amount of square feet per employee. And it is not possible to identify which specific strategies that tenants of individual buildings would select since they have not been

identified, signed leases, etc. Accordingly, it is not possible to quantify the VMT savings achieved by the strategies that would be selected.

Mitigation TR-1b (Initial Phase and Project Buildout): *The project applicant shall implement the following transportation demand management (TDM) strategies, some of which may overlap with strategies selected under Rule 9410, that have been determined to be feasible and will have a material effect on reducing VMT.*

1. *Implement a Voluntary Commute Trip Reduction (CTR) program. Required elements of the program include:*
 - *Commute Trip Reduction Marketing - implements a marketing strategy to promote the project site employer's CTR program (which includes a guaranteed ride home program).*
 - *Ridesharing Program - implements a ridesharing program and establishes a permanent transportation management association with funding requirements for employers.*
 - *Subsidized or Discounted Transit Program - provides subsidized or discounted, or free transit passes for employees.*
 - *End-of-Trip Bicycle Facilities - installs and maintains end-of-trip facilities (including bike parking, bike lockers, showers, and personal lockers) for employee use.*
 - *Employer-Sponsored Vanpool - implements an employer-sponsored vanpool service for employee groups of 5 to 15 people.*
2. *Implement Employee Parking Cash-Out program – requires project employers to offer employees the choice of foregoing their current subsidized/free parking for a cash payment (in exchange for not driving).*
3. *Expand Bikeway Network – construct a Class I off-street multi-use path or Class II on-street bike lane in each direction of MacArthur Drive for the two-mile distance from the north edge of the project site to Linne Road.*
4. *Extend Public Transit Service to Project Site – expand San Joaquin RTD fixed-route bus service to the project site.*
5. *Operate a private employee shuttle system during peak periods that circulates within the site and off-site to the ACE Station located on Tracy Boulevard at Linne Road.*

Most of the above strategies are ongoing measures that would begin in Initial Phase and continue through Project Buildout. The exception is Strategy #2 (Expand Bikeway Network), which would be a one-time physical improvement. As is discussed in more detail in Impact TR-5 (Bicycle/Pedestrian Facilities), this measure would be triggered with subsequent development phases beyond the initial phase.

Most of the above TDM strategies are included in the *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity* (California Air Pollution Control Officer Association (CAPCOA), 2021). In late 2021, the CAPCOA Board of Directors adopted this report (henceforth known as the “CAPCOA GHG Reduction Handbook”). In addition to listing a variety of TDM strategies, the CAPCOA GHG Reduction Handbook presents the maximum effectiveness that a given strategy or set of strategies can have. However, that effectiveness can vary considerably depending on geographic context (urban, suburban, versus rural), tenant type, and availability of non-auto modes). The following pages investigate in more detail each of the five recommended TDM strategies above.

Voluntary Commute Trip Reduction (CTR) Program

The CAPCOA GHG Reduction Handbook suggests that the voluntary CTR program could achieve up to a 4% reduction in employee generated VMT. However, given the project’s location and type of employment uses, less than a 4% reduction is to be expected. For analysis purposes, a 2% reduction is assumed based primarily on the program achieving an increase in carpooling and usage of the vanpool program.

Employee Parking Cash-Out Program

The CAPCOA GHG Reduction Handbook suggests that this program could achieve up to a 12% reduction in VMT (based on 6 case studies in California in 1992). This program will only be effective if combined with the other strategies that improve project access via biking and transit. Further, there is clear overlap when considering how this program will overlap with transit. For analysis purposes, a 3% reduction is assumed based on the premise that other modes of travel are also upgraded to become viable.

Expand Bikeway Network

The CAPCOA GHG Reduction Handbook suggests that expanding the bike network could achieve up to a modest 0.5% reduction in VMT. This generic value does not consider any of the project-specific conditions, such as a large workforce a relatively short distance from the project and typical warehouse worker wages, which may encourage greater usage of active transportation modes.

Figure 12 indicates that 26% of warehouse employees are estimated to reside in the City of Tracy. According to the 2022 ACS¹⁴, about 2.5% of Tracy residents (who do not work at home) commute to work by walking or bicycle. For analysis purposes, it is assumed that 2% of City of Tracy residents who work at the project site commute to the project site by bicycling as a result of this dedicated bicycle facility. Each one-way bicycle commute is assumed to be five miles in length for analysis purposes. Mathematically, assuming each bicycle

¹⁴

[S0801: Commuting Characteristics ... - Census Bureau Table](#)

commute trip averages five miles, the VMT reduction is 125 for Initial Phase and 778 for Project Buildout.¹⁵ When reported as an overall decrease in VMT per employee, these VMT reduction totals represent approximately a 0.01% decrease. This very small decrease is due to the measure not applying to three-quarters of employees and only saving 10 VMT for a small subset of employees that it would apply to.

Extend Public Transit Service to Project Site

The *CAPCOA GHG Reduction Handbook* suggests that providing transit service to the project site could achieve up to a 4.6% reduction in VMT. However, it is unknown what routes would be operated, service duration, headways, etc. To be conservative, a 2% bus public mode split is assumed based on at least 30-minute headways during peak commute periods.

Private Employee Shuttle System

This scenario, if operated in combination with discounted transit passes to financially incentivize its use, offers considerable VMT savings opportunities. According to Figure 12, 38% of project employees would reside in Stockton, Lathrop, and Manteca. However, given ACE train schedules, only a small subset of employees residing in these three cities that work at the project site would be able to take advantage of the subsidized ACE train ride and private shuttle service package. Based on automobile-only (i.e., employee travel) traffic data collected at various warehouses, 15% of all auto trips entered the selected warehouse driveways during a time period where a substitute westbound ACE train ride (followed by a short shuttle ride to the warehouse) would allow for on-time arrival for their shift¹⁶. Further, not all employees whose shift times align with these train schedules will choose to take advantage of the service. For analysis purposes, it is assumed that one in five (20%) of employees eligible to use this service will choose to use it. This translates into a VMT reduction of 972 for the Initial Phase and 6,056 for Project Buildout.¹⁷ Although the program appears to be an effective means to

¹⁵ Calculated as follows:

Initial Phase: 2,401 employees * 26% live in Tracy * 2% bike * 5 mile trip * 2 trips per day = 125 VMT savings

Project Buildout: 14,953 emps * 26% live in Tracy * 2% bike * 5 mile trip * 2 trips per day = 778 VMT savings

¹⁶ The morning arrival window was determined to be more restrictive than the afternoon return window in which 19% of all auto trips exiting the selected warehouse driveways did so during a time period where a short shuttle ride from the warehouse to the ACE train would enable the employee to catch an eastbound ACE train heading toward Lathrop/Manteca or Stockton.

¹⁷ Calculated as follows:

Initial Phase: 2,401 employees * 18% live in Lathrop/Manteca * 15% of employees with schedules that enable program use * 20% that choose to use program * 25 mile round trip + 2,401 employees * 20% live in Stockton * 15% of employees with schedules that enable program use * 20% that choose to use program * 45 mile round trip = 972 VMT savings

Project Buildout: 14,953 employees * 18% live in Lathrop/Manteca * 15% of employees with schedules that enable program use * 20% that choose to use program * 25 mile round trip + 14,953 employees * 20% live in Stockton * 15% of employees with schedules that enable program use * 20% that choose to use program * 45 mile round trip = 6,056 VMT savings

transport employees to/from work without relying on auto VMT for the majority of the trip, it would only apply to an estimated 6% of all employees (given residence location and work start/end scheduling). Assuming 20% of the eligible employees choose to use it, that translates into about 179 of the 14,953 warehouse employees using the program. When reported as an overall decrease in VMT per employee, this program achieves a 0.7% reduction for Initial Phase and a 0.9% reduction for Project Buildout.

Table 25 displays the expected effectiveness of the mitigation measures included in Mitigation TR-1b at reducing the VMT per employee of warehouse employees. While the net effect of these measures was an 8% reduction in VMT, the resulting VMT per employee estimates would remain well above the significance threshold for determination of a VMT impact. While the Mitigations from TR-1a (Rule 9410) would also provide some VMT savings, it is not known how much savings would be achieved given the uncertainty of what strategies would be selected and to how many employers that program would apply.

Table 25: Mitigation Measure Effectiveness at Reducing Warehouse Auto VMT Generated for Baseline Conditions		
Mitigation Measures (TDM Strategies) ¹	Percent Auto VMT Reduced per Employee ¹	
	Initial Phase ²	Project Buildout
Voluntary Commute Trip Reduction (CTR) Program	2%	2%
Employee Parking Cash-Out Program	3%	3%
Expand Bikeway Network	-	0.01%
Extend Public Transit Service to Project Site	2%	2%
Private Employee Shuttle System	0.7%	0.9%
Total	7.7%	7.9%
Mitigation Measures (TDM Strategies) Overall Effectiveness	HBW Auto VMT per Employee	
	Initial Phase	Project Buildout
Without Mitigation Measures	59.1	46.5
With Mitigation Measures	54.5	42.8
Significance Threshold	32.8	32.8
VMT Reduced to Below Threshold?	No	No

¹ See discussion and calculations of TDM strategy effectiveness on previous pages.

² Initial Phase would have identical TDM strategies as Project Buildout with the exception of excluding the expanded bike network.

HBW = Home-based work (i.e., travel from home to work).

Source: Fehr & Peers, 2024.

A similar table could not be prepared for the office employees because details of their likely residence locations, work shifts, etc. are not known. However, the same general conclusion is drawn for office employee VMT as warehouse employee VMT, which is that the identified mitigation measures would not reduce VMT to below the identified threshold.

The *CAPCOA GHG Reduction Handbook* offers cautions on the effects of combining different TDM Strategies, stating the following: *"The combining of some measures is not always beneficial, linear, complementary, or accurate...There may be diminishing returns when certain measures are implemented together.... There may be competition between measures."* The VMT reduction totals in Table 25 were calculated by summing each individual strategy's own expected effectiveness. If they had alternatively been calculated using "multiplicative dampening", the overall result would have been a 7.7% reduction for Project Buildout. This illustrates that the cautionary language contained in the *CAPCOA GHG Reduction Handbook* is more applicable when there are a number of TDM strategies that would have a moderate to substantial effect on VMT when applied.

With the exception of the bikeway network described previously, programs that would be expected to generate less than a 0.5% VMT reduction were excluded because they were deemed ineffective at reducing employee VMT. These include implementing carshare, bikeshare, or scootershare programs, and implementing transit-supportive roadway treatments. Providing bus rapid transit (BRT) is effective at reducing VMT but requires an existing bus route to be present that becomes converted to BRT. Since no such route exists, this strategy would not apply under baseline conditions.

Pricing workplace parking may be considered a viable TDM strategy under certain circumstances and geographic contexts. However, none of the other warehouse project owner/operators in the Central Valley Gateway area require their employees to pay for parking. Implementing such a requirement would put the proposed project at an economic disadvantage versus the other projects, both in terms of competing for tenants and employees. Pricing employee parking is typically only considered in urban contexts where there are many forms of alternative non-auto transport available. For these reasons, pricing workplace parking is considered an infeasible mitigation measure. A mandatory CTR program, which includes penalties for non-compliance, regular monitoring and reporting is also considered infeasible for the same reason. In lieu of a mandatory program, a voluntary program is recommended as a mitigation.

Monitoring

With regard to Mitigation Measure TR-1a (Comply with SJVAPD Rule 9410), employers must complete and submit an Employer Registration form to the Air Pollution Control Officer (APCO) of the SJVAPCD within 180 days of becoming subject to the trip reduction requirements of Rule 9410. According to Rule 9410, ETRIP strategies are phased in over a period of three years. An employer may submit a single ETRIP that covers multiple

worksites when those worksites are using the same ETRIP measures. If worksites are using differing ETRIP measures, then each worksite should have its own ETRIP.

Rule 9410 also requires employers to collect information on the modes of transportation used for each employee's commute each day of the Commute Verification Period, which is a period of at least one week (selected by the employer) that is representative of typical work week conditions. The employer is required to submit its sampling methodology to the District 120 days prior to the start of the calendar year in which the employer intends to use the method. The APCO shall notify employers of its approval or disapproval of this method within 60 days of receipt.

No later than March 31st of each year, the employer shall submit a report to the APCO containing the results of the Commute Verification for the previous calendar year (including number of forms distributed, the number completed and returned, total number of trips to and from work, and the total number of each commute mode for the employees during the Commute Verification period).

Although truck generated VMT is not being evaluated for potentially significant VMT impacts, it is worth noting that the project site is considered to be in an efficient location as it relates to truck VMT. First, it is situated along a STAA route. Second, it is adjacent to SR 132, which provides direct connectivity to I-580 (for travel to/from the west toward the Bay Area) and I-5, which is the main north-south goods movement corridor in California. Third, by being situated within this area of the Central Valley, truck travel is convenient to a number of large cities including Stockton, Modesto, Manteca, and several Bay Area cities. It would almost certainly be less efficient if the project were instead situated many miles to the south on I-5 or along the State Route 99 corridor.

Impact TR-2 Significant Adverse VMT Impacts Caused by University Project Land Use Component

A table similar to Table 24 cannot be prepared for the university uses because a quantitative VMT threshold for universities has not been established by San Joaquin County.

Although the university would include some student housing, the considerable travel distance between the university and likely off-site student and staff residence locations suggests that the university would not be considered a "VMT efficient" land use. San Joaquin County has only one other private, four-year university (University of Pacific). That university is located in the central part of the City of Stockton, has student dormitories, and is well-served by transit. Part of the intent of SB 743 relates to the placement of land uses in VMT-efficient areas. This is accomplished by comparing proposed projects against similar land uses to determine whether they would be located in more or less VMT-efficient locations. The proposed university would be much less transportation efficient than the other four-year private university in San Joaquin County for reasons cited above.

Initial Phase and University Buildout

Initial Phase and buildout of the university are each considered non-VMT efficient for reasons cited above. Accordingly, this impact is **significant**.

Mitigation TR-2a (University Initial Phase and University Buildout): *The project applicant shall comply with SJVAPCD Rule 9410 (Employer Based Trip Reduction).* See Mitigation Measure TR-1a for details including monitoring requirements.

Mitigation TR-2b (University Initial Phase and Buildout): *Implement TDM Strategies 1, 4, and 5 from Mitigation Measure TR-1b (TDM Strategies).*

Mitigation TR-2c (University Initial Phase and Buildout): *Either implement TDM Strategy 2 from Mitigation Measure TR-1b (TDM Strategies) or charge staff and students a fee to park.*

TDM Strategies 1, 4, and 5 consist of a voluntary CTR program, extending public transit service to the project, and providing a private employee shuttle system. These strategies are also applicable to university students and staff. Consistent with guidance from the *CAPCOA GHG Reduction Handbook*, Mitigation Measure TR-2b has a choice of two options (i.e., employee parking cash-out or paid parking). Both should not be pursued simultaneously as it would represent application of the same concept twice.

It would be speculative to estimate the VMT savings associated with the above measures as it is not known precisely where university students and staff would live and it is not known how they would react to parking pricing. Additionally, the proportion of the university's VMT that is attributable to students versus staff is not known making such calculations difficult.

Impact TR-3 *Less Than Significant VMT Impacts Caused by Retail, Restaurant, Gas Station, Hotel, VFW Tracy Post Project, and Electrified Truck and Auto Charging Lots Land Use Components*

The following land use components are considered local-serving for reasons that follow:

- University Center (39,000 square foot shopping plaza and 11,500 VFW Building) – The shopping plaza is considered local-serving given its small size and immediate proximity to the university. The VFW Tracy Post is considered a local-serving use since it is to be a resource to the surrounding community.
- Gateway Center (20,000 square feet of convenience store and restaurants associated with vehicle fueling, 20,000 square feet of restaurant, bank, and retail service, 10,000 square feet of fast-food restaurants, 60,000 square foot hotel, and Electrified Truck and Auto Charging Lots) – These uses would be situated immediately adjacent to or along the main commute route to the project's job center (i.e., Gateway West, Central, and East). In total, the project would have 14,953 warehouse employees, 372



office employees, and 5,000 university students (plus staff). These ancillary uses are intended to support the project's job and student population. They will help reduce VMT by shortening trips for essential goods and services. The gas station and electrified truck and auto charging lots will serve a similar purpose given the amount of auto and truck traffic expected on the adjacent segment of Chrisman Road at project buildout. Additionally, these uses are situated in close proximity to SR 132 and I-580, thereby allowing short detours off each freeway for refueling/recharging. In this sense, they are 'local-serving' to these freeways.

Page 41 of the *County of San Joaquin VMT Thresholds Study* (GHD, 2020) recommends the following with respect to retail uses: "Retail projects less than 50,000 square feet shall be presumed to have less than significant VMT effects if they are deemed locally serving. If the County determines the market geography of a retail project is in question an analysis should be conducted to verify the project does not generate regional trips."

In summary, the project's potential retail, restaurant, gas station, hotel, VFW Tracy post uses, and electrified truck and auto charging lots are considered local-serving for reasons stated above. No further VMT analysis of these uses is conducted as their VMT impacts are **less than significant** and no mitigation is required.

Impact TR-4: Less Than Significant VMT Impacts Associated with Widening Chrisman Road Along Project Frontage and MacArthur Drive within the project site

The section of Chapter 6 entitled "Project Roadway Widening Effect on VMT" concluded that under near-term conditions, the widening of Chrisman Road along the project frontage and widening of MacArthur Drive within the project site would not cause a net increase in travel and VMT. This conclusion was reached by adding both roadway improvements to the City of Tracy travel demand model and calculating the total VMT generated within the model boundary without and with the widenings in place. Accordingly, this impact is **less than significant**, and no mitigation is required.

Bicycle and Pedestrian Facilities

Impact TR-5: Conflicts with Adopted Policies, Plans, or Programs Regarding Bicycle or Pedestrian Facilities

The project would not eliminate or adversely affect an existing bikeway or pedestrian facility in a way that would discourage its use. It would also not interfere with the implementation of any of the proposed or planned bikeways in the project vicinity (see Page 30 for list). However, it would cause an inconsistency with several San Joaquin County General Plan policies (1.3, 1.6, 1.10, 2.5, and 2.7) pertaining to providing multimodal transportation options, reducing auto dependency, and eliminating gaps in the bikeway system.

Initial Phase

The initial phase would construct frontage improvements along Chrisman Road in Gateway East and University Center to facilitate development in those areas. There would continue to not be any dedicated bicycle facilities north of the project that would connect it to the existing residential land uses (north of Linne Road) that could serve as potential residences for some Initial Phase employees, students, and staff. The initial phase's industrial land uses are in Gateway East (east of Chrisman Road) and further from these residential areas than anywhere else in the Specific Plan. An employee residing in South Tracy would be required to ride at least four miles one-way on Linne Road and Chrisman Road to reach the Initial Phase land uses. That considerable biking distance, along with the fact that the initial phase is about 14% of the project's total industrial employment and number of university students (i.e., would generate few riders), suggests that Initial Phase impacts are **less than significant**, and no mitigation is required.

Project Buildout

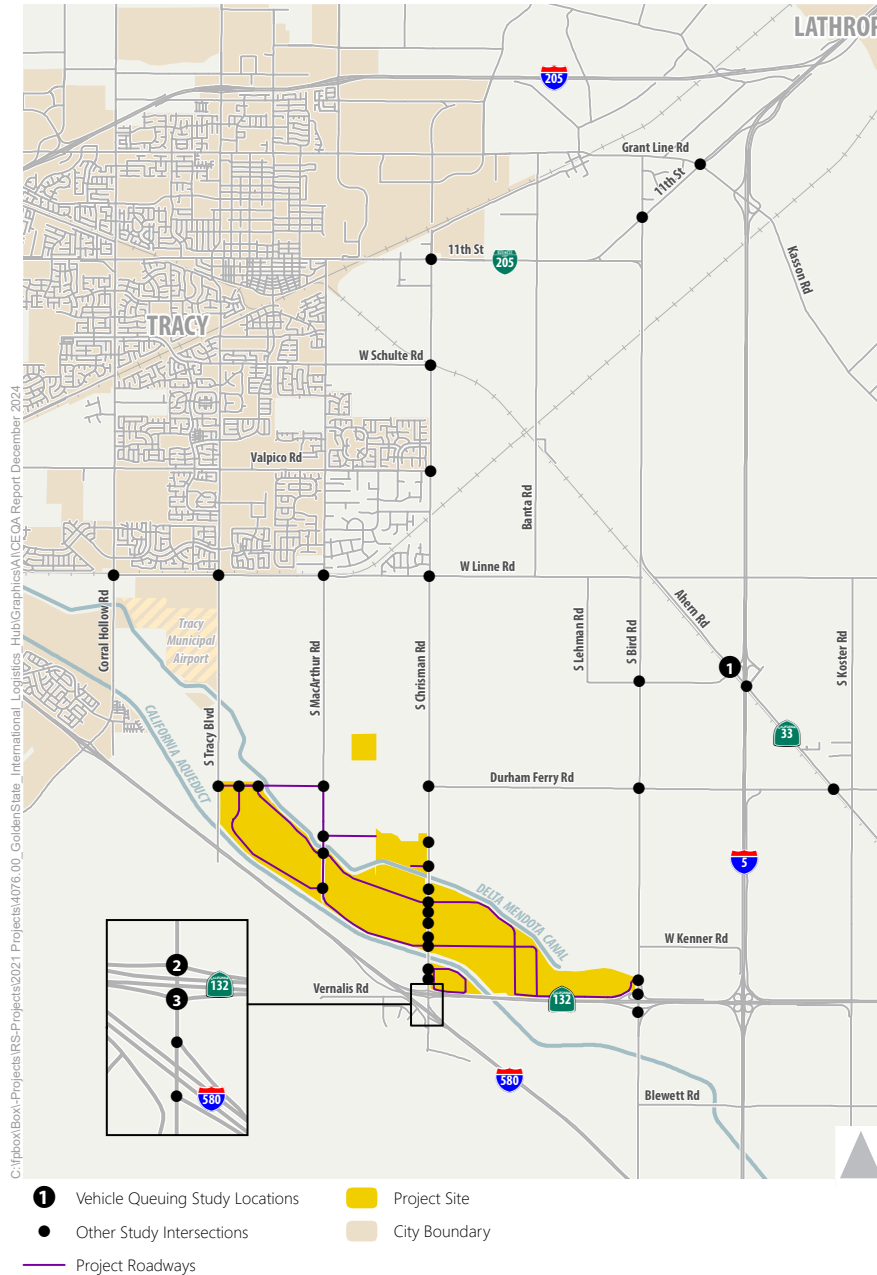
At Project Buildout, approximately 1.33 miles of bicycle and pedestrian improvements would be constructed along one or both sides of the project frontage along Chrisman Road. However, there would continue to be no dedicated bicycle facilities between the project site and residential areas to the north (i.e., north of Linne Road). Given the project's number of employees and students and the lack of any planned bicycle facilities to connect the project site with residential areas to the north, this impact is **significant**.

It is unlikely that project employees would choose to walk from the nearest residential areas in South Tracy. Thus, the need for connecting pedestrian facilities is much less than the need for bicycle facility connectivity.

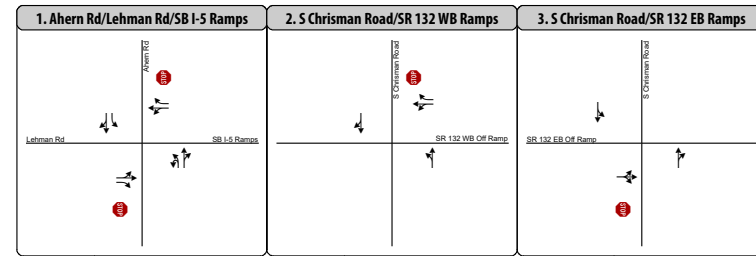
Mitigation TR-5 (Triggered by Subsequent Phases of Development Beyond Initial Phase): Implement TDM Strategy 3 from Mitigation Measure TR-1b (TDM Strategies).

This measure requires the project applicant to construct a Class I off-street multi-use path or Class II on-street bike lane in each direction of MacArthur Drive for the two-mile distance between the north edge of the project and Linne Road. This would provide much improved bicycle connectivity between the project site and existing uses to the north. It would also provide alternatives to driving for Tracy residents who work at the site, consistent with General Plan Policies TM-1.3 and 1.6. This would be required for subsequent phases of project development beyond Initial Phase. It is not required for Initial Phase because it is located east of Chrisman Road, far from where this connection would be. According to San Joaquin County Assessor Maps, this segment of MacArthur Drive has a minimum right-of-way (ROW) of 40 feet. This is sufficient to provide a 12-foot travel lane and 6-foot bike lane in each direction, or to provide two 12-foot travel lanes and a 12-foot multi-use Class I path. Widening could either occur on both sides of the street, or on one side only depending on available ROW.

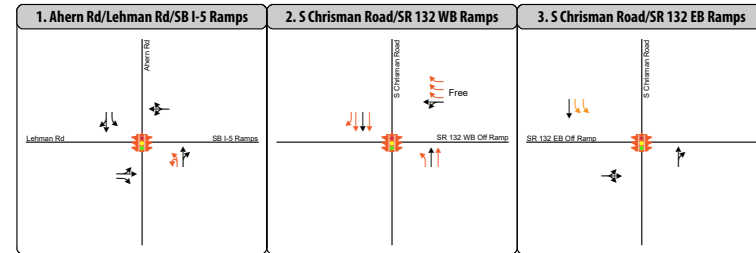
Figure 22 illustrates the location of the above bicycle lane improvement project, as well as various other recommended project-specific physical off-site mitigation measures identified for significant impacts.



Existing



Recommended Improvements



- Existing Turn Lane
- Recommended Turn Lane
- Existing Traffic Signal
- Recommended Traffic Signal
- Stop Sign

Note: Only intersections improvements are recommended are shown.

Figure 21

Existing Plus Project Buildout Recommended
Off-Site Improvements to Address Queuing Deficiencies



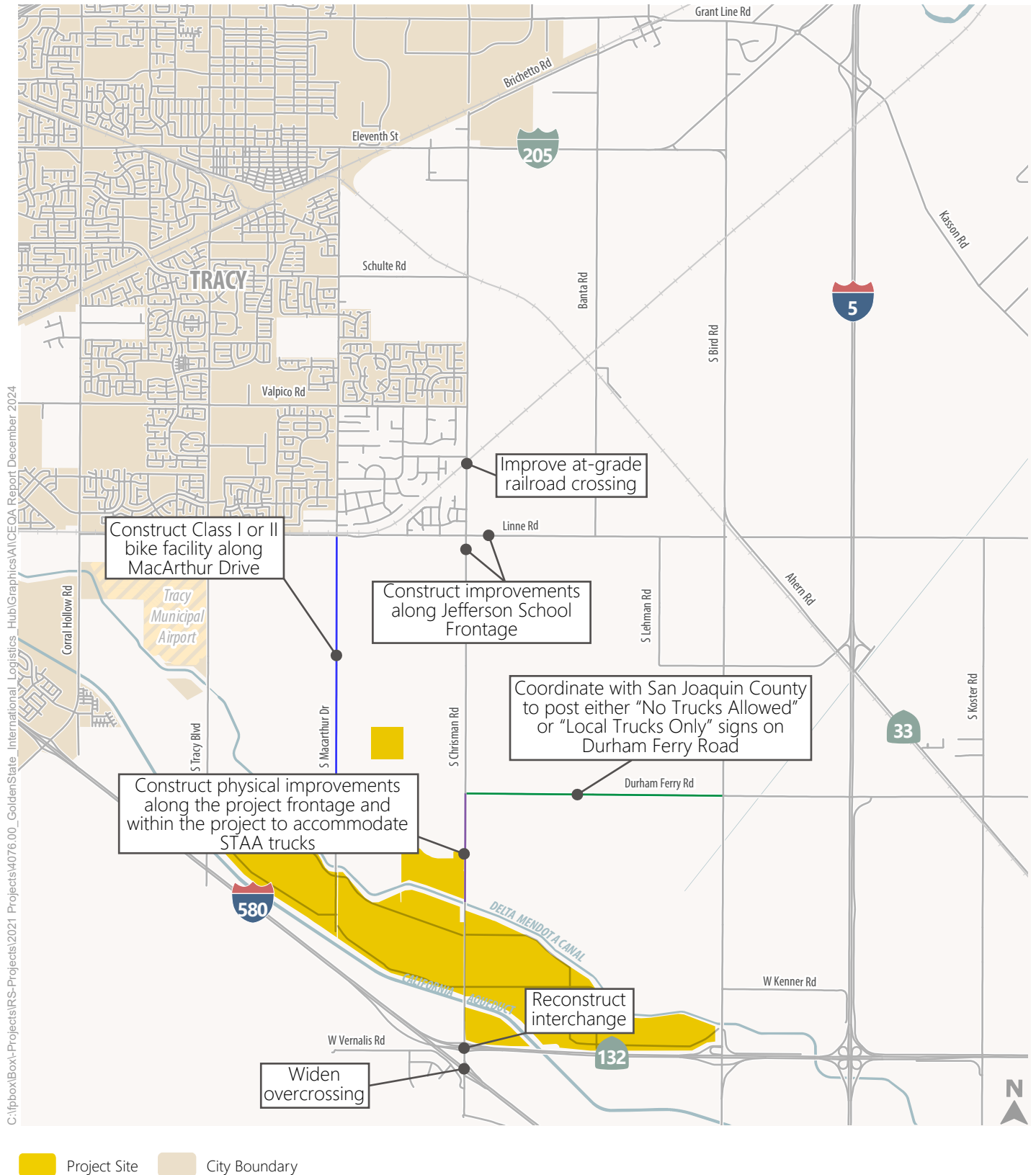


Figure 22

Recommended Physical Mitigation Measures for Significant Impacts under Existing Plus Project Buildout Conditions

Transit Services and Facilities

Impact TR-6: Inadequate Transit Service to Meet Demand

The project would not eliminate or adversely affect existing transit access as no service is currently provided in the immediate project vicinity. The lack of any existing or planned fixed-route bus service to the area would lead to an unmet demand for transit service. According to earlier calculations in this chapter, approximately 170 industrial employees are estimated to use the ACE train to travel between the site, and Lathrop/Manteca, and Stockton. Usage of the RTD fixed-route bus is unknown as it depends on routing, frequency, etc. This impact is **significant**.

Mitigation TR-6 (Initial Phase and Project Buildout): Implement TDM Strategies 4 and 5 from Mitigation Measure TR-1b (TDM Strategies)

These strategies would extend San Joaquin RTD fixed-route bus service to the project site and operate a private shuttle that circulates within the site and off-site to the ACE Station in Tracy. Although implementing these measures would provide transit service to the project site, there is no guarantee that RTD would approve the service change.

Roadway Safety / Design Standards:

Impact TR-7: Freeway Off-Ramp and State Highway Intersection Queues Exceed Available Storage

Initial Phase

Table 12 displays the AM and PM peak hour 95th percentile queues at queuing study locations (located on the State Highway System) under Existing Plus Initial Phase conditions. As shown, none of these locations would experience new adverse queuing conditions or worsening of an already deficient condition under Existing Plus Initial Phase conditions. Therefore, this impact would be **less than significant**.

Project Buildout

Table 13 shows the AM and PM peak hour 95th percentile queues at queuing study locations (located on the State Highway System) under Existing Plus Project Buildout conditions. As shown, four of the seven locations shown in this table would experience queuing that exceeds the available storage. This impact would be **significant**.

Mitigation TR-7 (Triggered by Subsequent Phases of Development Beyond Initial Phase): The project applicant shall prepare transportation phasing analyses, to the satisfaction of the San Joaquin County Public Works

Department, that determines when subsequent phases of project development (beyond Initial Phase) trigger construction of the geometric improvements described in **Table 26** and shown on **Figure 21** (or an equivalent or more effective set of alternate improvements).

Table 26:
Recommended Improvements to Address Queuing Deficiencies – Existing Plus Project Buildout Conditions

#	Facility	Lead Agency	Description of Improvement(s)
Interchange Improvements			
SR 132/Chrisman Road interchange		Caltrans	Reconstruct with wider (6-lane) overcrossing, ramp widening, and signals at both ramp intersections. Secondary improvements will likely include a deceleration lane on westbound SR 132 at the interchange, on-ramp ramp metering, and widening of the adjacent Chrisman Road overcrossing at I-580 (for lane alignment purposes).
Intersection Improvements			
14	Chrisman Road/SR 132 WB Ramps	Caltrans	Signalize with lanes shown on Figure 21, operate with protected left-turn phasing, and provide a deceleration lane and a two-lane off-ramp approaching the interchange on westbound SR 132.
15	Chrisman Road/SR 132 EB Ramps	Caltrans	Signalize with lanes shown in Figure 21, widen eastbound SR 132 on-ramp to accommodate two receiving lanes, and operate with protected left-turn phasing.
16	Chrisman Road/I-580 WB Off-Ramp	Caltrans	Widening of existing overcrossing or construction of second parallel overcrossing likely needed for lane alignment with widened SR 132/Chrisman Road interchange.
17	Chrisman Road/I-580 EB On-Ramp	Caltrans	
Notes: Additional improvements may be required on County-maintained roadways to maintain consistency with General Plan LOS policy goals. This includes a traffic signal at SR 132 WB Ramps/Bird Road interchange due to operational problems that would otherwise occur if it remained side-street stop. Source: Fehr & Peers, 2024.			

The effectiveness of the improvements shown in Table 26 were analyzed under Existing Plus Project Buildout conditions using the SimTraffic microsimulation model. The results are shown in **Table 27** and indicate that the proposed improvements would reduce the extent of queuing such that all 95th percentile queues would be less than the available storage. Refer to **Appendix D** of separately bound appendix for technical calculations. Therefore, no excess queuing would occur.

Table 27:
95th Percentile Vehicle Queues – Existing Plus Project Buildout Conditions with Improvements

Intersection	Movement	Available Storage ¹	95 th Percentile Queue (ft.) ²						
			Existing Conditions		Existing Plus Project Buildout Conditions				
					Without Improvements		With Improvements ³		
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	95 th Percentile Queue Requirement Met?
14. Chrisman Road/SR 132 WB Ramps	WB Off-Ramp LT/TH	850 ft. ⁴	74	25	> 1,500	> 1,500	30	36	Yes
	WB Off-Ramp RT	850 ft. ⁴	114	75	> 1,500	> 1,500	360	230	Yes
15. Chrisman Road/SR 132 EB Ramps	EB Off-Ramp LT/TH/RT	825 ft.	59	89	925	914	518	334	Yes
16. Chrisman Road/I-580 WB Off-Ramp	WB Off-Ramp LT/TH	1,160 ft.	0	0	224	1,231	52	24	Yes

Notes:

1. Defined distance to the freeway off-ramp gore point. Represented on a per lane basis.
 2. 95th percentile queue based on output from SimTraffic model.
 3. Refer to Table 26 for description of improvements.
 4. Amount of storage to be provided is unknown. For analysis purposes, it is assumed to be identical to existing conditions.
- Bolded values represent a 95th percentile queue length that exceeds the available storage.
"> 1,500 " is shown to represent queuing that spills onto freeway mainline a considerable distance.
Source: Fehr & Peers, 2024.

Once development continues beyond the initial phase, an interim set of improvements at the SR 132/Chrisman Road interchange (i.e., less than what is described in Table 26, likely maintaining overcrossing structures and signaling both ramp intersections) would be needed. That interim improvement would eventually be replaced with the ultimate improvements.

The improvements described above are on the State Highway System, which is owned and operated by Caltrans. There is no guarantee they will support the identified improvements.

Impact TR-8: Increased Hazards due to Geometric Design Features

Initial Phase and Project Buildout

The project would generate a substantial amount of new truck trips, which have greater turning radius requirements, pavement deterioration effects, and vehicle storage requirements than passenger vehicles. This impact is **significant**.

Mitigation TR-8 (Initial Phase and Project Buildout): *The project applicant shall construct physical improvements at project access intersections along Chrisman Road (and within the various industrial areas) in accordance with San Joaquin County design standards. Additional considerations should be made for the need to accommodate STAA trucks, enhanced pavement structural sections, and increased truck turn lane storage.*

It would be premature at this juncture to identify every specific design detail required at each project access and on-site intersection. Instead, to ensure that the project roadway designs provide the necessary infrastructure improvements to accommodate the special travel needs of trucks, the following performance standards are established for this mitigation measure:

- All street sections that would be constructed, replaced, or widened by the project are designed with the appropriate Traffic Index (TI) to ensure that the structural section can accommodate the added weight of trucks for that street section.
- All left and right turn lanes constructed at intersections along Chrisman Road and within the various project industrial areas provide adequate vehicle storage to accommodate the 95th percentile vehicle queues (considering cumulative travel demands and the effects of trucks on storage requirements).
- Intersection designs consider curb return radii requirements, width of receiving travel lanes, placement of traffic control equipment, and other design parameters to ensure that trucks can perform left and right-turns without encroaching onto oncoming travel lanes, running over curbs, or colliding with signal equipment or signs.

The roadway design review process (overseen by the San Joaquin County Public Works Department) will ensure that these performance standards are met.

Impact TR-9: Increased Hazards due to Incompatible Land Uses on Durham Ferry Road

Initial Phase and Project Buildout

Durham Ferry Road features a number of rural residential dwellings east of Chrisman Road. There are currently no truck weight restriction signs posted on Durham Ferry Road. As shown on Figure 6, "Commercial Vehicles Over 7 Tons Prohibited" signs are posted in each direction of Bird Road between Durham Ferry Road and Lehman Road. Thus, trucks of any weight traveling to/from the project site and I-5 to the north could use the I-5/SR 33 interchange via Durham Ferry Road. Trucks weighing less than seven tons could use Lehman Road to Bird Road.

Assuming no truck movement restrictions remain, the initial phase of the project would add an estimated 25 trucks per day to this segment, while full Project Buildout would add 220 trucks per day. These would represent 30% and 260% increases, respectively, over the current level of truck traffic (85 trucks per day). The increase in project truck trips to Durham Ferry Road east of Chrisman Road would create an incompatibility with the adjacent rural residences. This impact is **significant**.

Mitigation TR-9 (Initial Phase and Project Buildout): *The project applicant shall coordinate with San Joaquin County to post a combination of either "No Trucks Allowed" or "Local Trucks only" signs on Durham Ferry Road between Chrisman Road and SR 33.*

The addition of these signs would discourage trucks from using this segment of Durham Ferry Road east of Chrisman Road. Depending on the degree that truck drivers comply with them, supplemental enforcement activities could also be necessary. Truck travel characteristics from concrete plants situated south of the SR 132/Bird Road interchange and helpful in understanding compliance in this geographic area. During AM peak hour, 306 trucks use Bird Road south of the SR 132 interchange. Only 6 trucks were observed traveling to/from the north of the interchange beyond Kenner Road where trucks over 7 tons are prohibited (via posted signs). This indicates very strong compliance, though this is not the case everywhere in Joaquin County.

Impact TR-10 Increased Hazards due to Incompatible Land Uses near Chrisman Road/Linne Road Intersection

Jefferson School is located in the southeast quadrant of the Chrisman Road/Linne Road intersection. It features vehicular accesses from both streets and experiences surges in traffic during morning student drop-off and afternoon student pick-up. Excluding minimum days, school starts at 8:15 AM and ends at 3 PM. Chrisman Road north of Linne Road carries a bi-directional volume of 569 vehicles from 8-9 AM, 609 vehicles from 3-4 PM, and 428 vehicles from 4-5 PM. Similarly, Linne Road west of Chrisman Road carries a bi-directional volume of 564 vehicles from 8-9 AM, 686 vehicles from 3-4 PM, and 520 vehicles from 4-5 PM. It is apparent from these counts (i.e., more traffic from 3-4 PM than 4-5 PM) and field observations that trips associated with Jefferson School influence traffic levels on these roadways.

Initial Phase

During the AM peak hour, Initial Phase would add approximately 180 vehicles to Chrisman Road south of Linne Road. Initial Phase would add almost no traffic to Linne Road east of Chrisman Road. Additionally, the total trips generated under the Initial Phase is modest compared to Project Buildout, and diversion of trips away from Chrisman Road south of Eleventh Street is not expected. This impact is considered **less than significant** and no mitigation is required.

Project Buildout

During the AM peak hour, Project Buildout would increase the volume of traffic on Chrisman Road south of Linne Road from 580 to 1,330 vehicles (both directions combined). During this same hour, Project Buildout would increase the volume of traffic on Linne Road east of Chrisman Road from 750 to 1,030 vehicles. The considerable increases that would occur along Linne Road east of Chrisman Road are a result of project trips (both autos and trucks) diverting from Chrisman Road to Bird Road (to access Eleventh Street) which carries far less traffic. These increases are considerable and are likely to cause conflicts with motorists entering/exiting Jefferson School from both public streets to drop-off or pick-up students.

In addition, the widening of Chrisman Road south of Linne Road from two to four lanes would eventually be necessary to meet San Joaquin County LOS policy standards. Some of the widening would require roadway encroachment into the school property, resulting in the roadway travel lanes being closer to school buildings than today. This impact is considered **significant**.

Mitigation TR-10 (Triggered by Subsequent Phases of Development Beyond Initial Phase): *The project applicant shall coordinate with the San Joaquin County Public Works Department and administrators at Jefferson School and Jefferson School District to identify and construct a set of improvements that minimize conflicts between project trips and motorists entering/exiting Jefferson School. Potential improvements to be considered include (but are not limited to):*

- *Installation of traffic signal at Linne Road/Jefferson School Easterly Driveway*
- *Construction of westbound left-turn lanes on Linne Road at both Jefferson School Driveways*
- *Construction of southbound left-turn lane on Chrisman Road at Jefferson School Southerly Driveway (including a guard rail or cable barrier system along the Chrisman Road school frontage)*
- *Speed feedback signs in each direction of Linne Road approaching Jefferson School and on northbound Chrisman Road approaching Jefferson School*

The new signal on Linne Road would be 750 feet from the Chrisman Road/Linne Road signalized intersection, which is considered adequate signal spacing. If a traffic signal were to be installed on Chrisman Road to serve the south parking lot, the northerly driveway would be the logical choice (as it is the primary exit). However, it



is situated only 410 feet south of the Chrisman Road/Linne Road signalized intersection, which is considered too close to install a new traffic signal (based on standard engineering practices for suburban signal spacing).

Bullet 3 above includes installation of a standard guard rail (such as found on highway/roadway curves) or a cable barrier system (which are now commonly being installed in highway medians to prevent run-off-road collisions involving the opposite direction of travel). This recommendation is intended to address potential concerns over the widening of Chrisman Road adjacent to Jefferson School.

The above improvements are considered physically feasible as right-of-way is available for their construction. However, coordination with the Jefferson School District would be required to construct some of these improvements, as they would involve minor modifications (i.e., addition of signal equipment, such as vehicle loop detection) within the school district property. As noted in the final bullet above, the project applicant would be responsible for adding turn lanes, modifying signal phasing, and adding upgraded pedestrian facilities at the Chrisman Road/Linne Road intersection. Those improvements would improve the pedestrian environment at that intersection.

The following performance standards have been established for this mitigation measure (presuming the above or other equally effective physical improvements are chosen for construction):

- School-related trips do not queue beyond the storage provided in the left-turn lanes on westbound Linne Road constructed as part of this mitigation measure.
- School-related trips do not queue beyond the storage provided in the southbound left-turn lane at the Jefferson School southerly driveway constructed as part of this mitigation measure.
- The traffic signal at the Jefferson School Easterly Driveway/Linne Road does not cause undue delays (i.e., as measured by more lengthy queues forming at the north parking lot entrance) to school-related trips exiting this driveway during peak school hours.
- The northbound Chrisman Road approach to Linne Road is redesigned (as part of separate applicant-required widening to meet San Joaquin County General Plan LOS policies) to accommodate u-turn movements made by buses.

Impact TR-11: Increased Hazards due to Additional Vehicle/Train Conflicts

The project would add passenger vehicle and truck trips to various at-grade railroad crossings situated throughout the study area. **Table 28** shows the seven crossings that would experience the largest increases. The table describes the crossing location, number of trains, collision history, crossing equipment present, and roadway traffic volumes.

Table 28:
Project-Added Traffic to At-Grade Railroad Crossings

#	Crossing Location ¹	Trains Per Day ²	# of Collisions (Year) ²	Equipment Present ²			Average Daily Traffic (HV%)		
				Gate Arms	Warning Lights & Bells	Advanced Warning	Existing	Existing Plus Initial Phase	Existing Plus Project Buildout
1	Chrisman Road north of Schulte Road	4	0	Yes	Yes (including Overhead Light Assembly)	Warning Signs, Pavement Markings	13,200 (8%)	13,700 (10%)	18,300 (14%)
2	Chrisman Road north of Linne Road	12	3 (1980, 1985, 1987)	Yes	Yes	Warning Signs, Pavement Markings	5,400 (15%)	6,100 (18%)	11,700 (19%)
3	Lehman Road west of SR 33	4	0	Yes	Yes	Warning Signs, Pavement Markings ³	400 (7%)	500 (6%)	1,800 (2%)
4	Durham Ferry Road west of SR 33	4	0	Yes	Yes	Warning Signs, Pavement Markings ³	1,400 (8%)	1,600 (9%)	2,600 (13%)
5	Corral Hollow Road north of Linne Road	12	4 (1978, 1986, 2008, 2015)	Yes	Yes	Warning Signs, Pavement Markings	N / A	N / A	N / A
6	Tracy Boulevard north of Linne Road	12	1 (2011)	Yes	Yes	Warning Signs, Pavement Markings ⁴	N / A	N / A	N / A
7	MacArthur Drive north of Linne Road	12	1 (1977)	Yes	Yes	Warning Signs, Pavement Markings ⁴	N / A	N / A	N / A

Notes:

¹ Crossings shown here would experience the largest increase in traffic as a result of the project (among 11 crossings shown on Figure 5).

² Source: Federal Railroad Administration Railroad Crossing inventory found at: [Crossing Inventory Lookup | FRA \(dot.gov\)](https://www.fra.dot.gov/CrossingInventoryLookup)

³ Crossings are situated less than 75 feet west of the edge of the SR 33 intersection. Warning signs and pavement markings clearly visible on eastbound approach to crossings. Warning signs (for westbound traffic) are present immediately east of each crossing, but not readily visible to northbound left-turn and southbound right-turning traffic.

⁴ Crossings are situated 50 feet north of Linne Road intersection. Warning signs and pavement markings clearly visible on southbound approach to crossings. Warning signs (for northbound traffic) are present immediately east of each crossing, but not readily visible to eastbound left-turn and westbound right-turning traffic.

HV% = Percent of Average Daily Traffic consisting Heavy Duty trucks

N / A = No traffic volume information is available.

Source: Fehr & Peers, 2024.



Initial Phase

As shown in Table 28, Initial Phase would add 700 vehicles per day or less to the four crossings for which traffic forecasts were developed. Although forecasts were not developed for the other three locations, they would generally be used to a lesser degree by project trips. Because the level of traffic added by Initial Phase trips would be modest (relative to the existing volume) or would not cause the crossing to carry substantial levels of traffic overall, increased hazards at these railroad crossings are deemed **less than significant** and no mitigation is required.

Project Buildout

As indicated in Table 28, Project Buildout would add between 4,000 and 5,000 trips per day to the two at-grade crossings on Chrisman Road between Linne Road and Eleventh Street. Project-added traffic would be modest at the other crossings. Because the project would add considerable levels of traffic to the two Chrisman Road at-grade railroad crossings, there is a potential for increased conflicts between vehicles and trains, which is considered a **significant** impact.

The *City of Tracy Draft Infrastructure Master Plan Impact Fee Nexus Study* identifies the widening of Chrisman Road to four lanes (across railroad tracks) at Schulte Road. However, the widening of Chrisman Road north of Linne Road is not included.

Mitigation TR-11a (Triggered by Subsequent Phases of Development Beyond Initial Phase): *The project applicant shall make a fair share contribution to the City of Tracy to cover its proportionate cost to upgrade the Chrisman Road at Schulte Road at-grade railroad crossing.*

Mitigation TR-11b (Triggered by Subsequent Phases of Development Beyond Initial Phase): *The project applicant shall work with Union Pacific Railroad and CPUC to determine the need for appropriate upgrades to the Chrisman Road at-grade crossing north of Linne Road and to implement those improvements during subsequent phases beyond initial phase.*

Improvements are not warranted at the at-grade crossing on Durham Ferry Road west of SR 33 or Lehman Road west of SR 33 because there have not been any reported collisions involving trains at it and project-added traffic would be modest. Improvements are not warranted at the at-grade crossing on MacArthur Drive north of Linne Road as there has been just one reported collision in the past 48 years.

The types of improvements will vary by location. It may also be appropriate to install pedestrian/bicycle facilities and gates approaching/departing the crossing. Some locations may be candidates for constructing a narrow raised median approaching the at-grade crossing to physically prohibit motorists from being able drive around gate arms that are down. Where crossings are adjacent to an intersection and that intersection is planned to be



signalized, coordinated traffic signal timing plans with the railroad crossing pre-emption would likely be necessary. The improvements described above would require approvals from multiple agencies and public utilities. There is no guarantee they will support the identified improvements.

Impact TR-12: Increased Hazards Associated with Emergency Vehicle Response Times

The project includes an on-site fire station within Initial Phase (east of Chrisman Road) and robust on-site fire water distribution system and design elements intended to prevent fires. The project would also be situated within the Tracy Rural Fire District's and the San Joaquin County Sheriff's District. Station 93 is situated on Durham Ferry Road four miles to the east of the project site. Sutter Tracy Community Hospital is located in downtown Tracy, seven miles away. The Pacific Gateway LTA documents how improvements are available to maintain acceptable levels of service (per the San Joaquin County General Plan) at roadways and intersections throughout the study area under Existing Plus Project Buildout conditions. Thus, emergency vehicles are not expected to experience undue delays due to increased traffic in the area. This is a **less than significant** impact and no mitigation is required.

Cumulative Project Impacts and Mitigation Measures

This section presents the cumulatively considerable significant project impacts. Impacts are identified only for Project Buildout (and not for Initial Phase) given the cumulative nature of the analysis.

Roadway Network VMT

Impact TR-13: Cumulatively Significant Adverse VMT Impacts Caused by Warehouse and Office Land Use Components

Table 29 shows that the unincorporated countywide average VMT per employee is 29.5 under cumulative conditions. The significance threshold is 85% of that value or 25.1 VMT per employee. The last row shows the warehouse and office VMT per employee under cumulative conditions. This table indicates that both the warehouse and office uses would have VMT per employee averages that exceed the cumulative unincorporated Countywide average. Accordingly, this impact is considered cumulatively **significant**.

Table 29 Comparison of Warehouse and Business Park Cumulative Auto VMT per Employee against Significance Threshold			
Scenario	Measure	HBW Auto VMT per Employee ¹	
		Warehouse Uses	Office Uses
Unincorporated Countywide Average – Cumulative	VMT Generated by Autos	29.5 VMT per employee	
85% of Unincorporated Countywide Average – Cumulative		25.1 VMT per employee	
Cumulative Project Buildout		43.3 VMT per employee	62.1 VMT per employee

¹ Calculated using the 2046 SJCOG travel demand model. VMT shown is only associated with employee travel between the project and home.

Source: Fehr & Peers, 2024.

Mitigation TR-13 (Project Buildout): Implement Mitigation Measures TR-1a (Rule 9410) and TR-1b (TDM Strategies).

The effectiveness of these measures would be similar under both baseline and cumulative conditions. The main difference is that there is likely to be more robust transit service in the region under cumulative conditions. This would enable the private shuttle to become more effective.

Impact TR-14 Cumulatively Significant Adverse VMT Impacts Caused by University Project Land Use Component

The university's location a considerable distance from any existing or planned off-site student housing or staff residence locations suggests that the university would not be considered a "VMT efficient" land use. The proposed university would be much less transportation efficient than the other four-year private university (University of Pacific) in Central Stockton. Buildout of the university is considered non-VMT efficient for reasons cited above. Accordingly, this impact is considered cumulatively **significant**.

Mitigation TR-14 (University Buildout): Implement Mitigation Measure TR-1a (Rule 9410) and TDM Strategies 1, 2, 4, and 5 from Mitigation Measure TR-1b (TDM Strategies).

Impact TR-15 Cumulatively Less Than Significant VMT Impacts Caused by Retail, Restaurant, Gas Station, Hotel, VFW Tracy Post Project, and Electrified Truck and Auto Charging Lots Land Use Components

Similar to the finding under Existing Plus Project Buildout conditions, the project's retail, restaurant, gas station, hotel, VFW Tracy post project, and electrified truck and auto charging lots are considered local-serving uses given that they will support the project's combined 14,953 warehouse employees, 372 office employees, and 5,000 university students (plus staff). Additionally, these uses are situated in close proximity to SR 132 and I-580, thereby allowing short detours off each freeway for refueling/recharging. In this sense, they are 'local-serving' to these freeways. No further VMT analysis of these uses is conducted as their VMT impacts are **less than significant** and no mitigation is required

Impact TR-16: Cumulatively Less Than Significant VMT Impacts Associated with Widening Chrisman Road Along Project Frontage and MacArthur Drive within the project site

The section of Chapter 6 entitled "Project Roadway Widening Effect on VMT" concluded that under cumulative conditions, the widening of Chrisman Road along the project frontage and the widening of MacArthur Drive within the project site would not cause a net increase in travel and VMT. This conclusion was reached by adding both roadway improvements to the City of Tracy cumulative travel demand model and calculating the total VMT generated within the model boundary without and with the widenings in place. That same analysis also included a discussion of the project's potential to generate long-term induced VMT due to these roadway widenings. No applicable evaluations were available to perform such analyses. Accordingly, this impact is cumulatively **less than significant**, and no mitigation is required.

Bicycle and Pedestrian Facilities

Impact TR-17: Conflicts with Adopted Policies, Plans, or Programs Regarding Bicycle or Pedestrian Facilities under Cumulative Conditions

The project would not eliminate or adversely affect a planned bikeway or pedestrian facility in a way that would preclude its construction. However, it would cause an inconsistency with several San Joaquin County General Plan policies (1.3, 1.6, 1.10, 2.5, and 2.7) pertaining to providing multimodal transportation options, reducing auto dependency, and eliminating gaps in the bikeway system. Under cumulative conditions, there would continue to be no dedicated bicycle facilities between the project site and residential areas to the north (i.e., north of Linne Road). However, additional development is expected to occur, which will further increase the need for bicycle and pedestrian facilities. Given the project's large number of employees and students and the lack of any planned bicycle facilities to connect the project site with residential areas to the north, this impact is considered cumulatively **significant**.

It is unlikely that project employees would choose to walk from the nearest residential areas in South Tracy. Thus, the need for connecting pedestrian facilities is much less than the need for bicycle facility connectivity.

Mitigation TR-17 (Project Buildout): Implement TDM Strategy 3 from Mitigation Measure TR-1b (TDM Strategies).

Transit Services and Facilities

Impact TR-18: Cumulatively Inadequate Transit Service to Meet Demand

The project would not eliminate or adversely affect planned transit access as no service is currently provided or planned in the immediate project vicinity. Background development in the region will increase the demand for fixed-route bus service, and the project would further contribute to that increased demand. The lack of any existing or planned fixed-route bus service to the area would lead to an unmet demand for transit service. This impact is considered cumulatively **significant**.

Mitigation TR-18 (Project Buildout): Implement TDM Strategies 4 and 5 from Mitigation Measure TR-1b (TDM Strategies)

Roadway Safety / Design Standards

Impact TR-19: Freeway Off-Ramp and State Highway Intersection Queues Exceed Available Storage Under Cumulative Conditions

Table 15 shows the AM and PM peak hour 95th percentile queues at queuing study locations (located on the State Highway System) under Cumulative Plus Project Buildout conditions. As shown, four of the seven locations shown in this table would experience queuing that exceeds the available storage. This impact would be **significant**.

Mitigation TR-19 (Project Buildout): *The project applicant shall construct the geometric improvements described in **Table 30** (or an equivalent or more effective set of alternate improvements) and shown on **Figure 23**.*

Table 30: Recommended Improvements to Address Queuing Deficiencies – Cumulative Plus Project Conditions			
#	Facility	Lead Agency	Description of Improvement(s)
<i>Interchange Improvements</i>			
	SR 132/Chrisman Road interchange	Caltrans	Same as existing plus project improvement.
<i>Intersection Improvements</i>			
2	Ahern Road/SR 33/I-5 SB Ramps/Lehman Road	Caltrans	Install traffic signal and widen westbound and eastbound approaches to consist of a left-turn lane and a shared through/right lane. ¹
14	Chrisman Road/SR 132 WB Ramps	Caltrans	Same as existing plus project improvement.
15	Chrisman Road/SR 132 EB Ramps	Caltrans	Same as existing plus project improvement.
16	Chrisman Road/I-580 WB Off-Ramp	Caltrans	Widening of existing overcrossing or construction of second parallel overcrossing likely needed for lane alignment with widened SR 132/Chrisman Road interchange.
17	Chrisman Road/I-580 EB On-Ramp	Caltrans	
19.	Bird Road/SR 132 WB Ramps	Caltrans	Signalize intersection with lane configurations present.
Notes:			
¹ May require widening of at-grade railroad crossing situated on Lehman Road just west of SR 33.			
Additional improvements may be required on County- or City-maintained roadways to maintain consistency with applicable LOS policy goals.			
Source: Fehr & Peers, 2024.			

The effectiveness of these improvements was analyzed under Cumulative Plus Project Buildout conditions using the SimTraffic microsimulation model. The results are shown in **Table 31** and indicate that the proposed improvements would reduce the extent of queuing such that all 95th percentile queues would be less than the available storage. Refer to **Appendix D** of separately bound appendix for technical calculations.

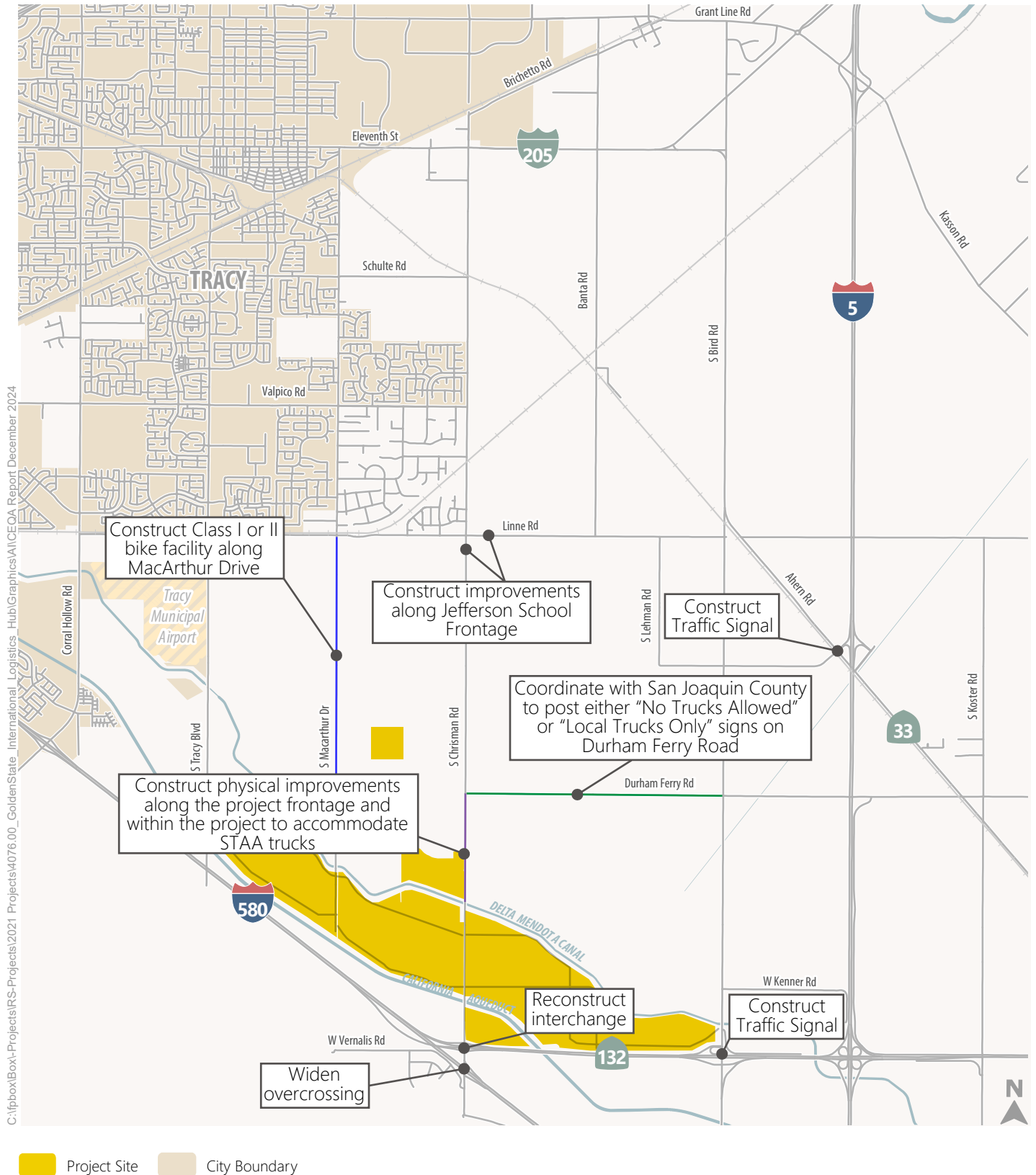


Figure 23

Recommended Physical Mitigation Measures for Significant Impacts under Cumulative Plus Project Buildout Conditions

Table 31:
95th Percentile Vehicle Queues – Cumulative Plus Project Conditions with Improvements

Intersection	Movement	Available Storage ¹	95 th Percentile Queue (ft.) ²					
			Cumulative No Project Conditions		Cumulative Plus Project Buildout Conditions			
					Without Improvements		With Improvements ³	
			AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
10. Ahern Road/SR 33/I-5 SB Ramps/Lehman Road	WB Off-Ramp LT/TH/RT ⁴	1,250 ft.	153 ft.	1,602 ft.	240 ft.	1,623 ft.	147 ft.	281 ft.
	SB LT	175 ft.	8 ft.	43 ft.	9 ft.	37 ft.	20 ft.	32 ft.
14. Chrisman Road/SR 132 WB Ramps	WB Off-Ramp LT/TH	850 ft. ⁴	96 ft.	40 ft.	> 1,500 ft.	> 1,500 ft.	38 ft.	40 ft.
	WB Off-Ramp RT	850 ft. ⁴	116 ft.	77 ft.	> 1,500 ft.	> 1,500 ft.	339 ft.	242 ft.
15. Chrisman Road/SR 132 EB Ramps	EB Off-Ramp LT	825 ft. ⁴	66 ft.	132 ft.	> 1,500 ft.	> 1,500 ft.	608 ft.	511 ft.
16. Chrisman Road/I-580 WB Ramps	WB Off-Ramp LT/TH	1,160 ft.	13 ft.	13 ft.	332 ft.	1,406 ft.	116 ft.	7 ft.
	WB Off-Ramp RT	1,160 ft.	-	-	65 ft.	165 ft.	79 ft.	7 ft.
19. Bird Road/SR 132 WB Ramps	WB Off-Ramp LT	1,485 ft.	17 ft.	17 ft.	> 1,500 ft.	> 1,500 ft.	416 ft.	373 ft.

Notes:

1. Defined as distance to the freeway off-ramp gore point.
 2. 95th percentile queue based on output from SimTraffic model.
 3. Refer to Table 30 for description of geometric modifications.
 4. Amount of storage to be provided is unknown. For analysis purposes, it is assumed to be identical to existing conditions. Bolded values represent a 95th percentile queue length that exceeds the available storage.
- "> 1,500 " is shown to represent queuing that spills onto freeway mainline a considerable distance.
- Source: Fehr & Peers, 2024.



Impact TR-20: Increased Hazards due to Geometric Design Features under Cumulative Conditions

Additional development is expected to occur in the project vicinity under cumulative conditions. That development, some of which is industrial-related, will increase traffic levels on roadways in the project vicinity. Development of the project would generate a substantial amount of new truck trips, which have greater turning radius requirements, pavement deterioration effects, and vehicle storage requirements than passenger vehicles. The project's contribution toward cumulative traffic growth and its proportion of trucks added is considered cumulatively considerable. Therefore, this impact is considered cumulatively **significant**.

Mitigation TR-20 (Project Buildout): Implement Mitigation TR-7 (Construct Physical Improvements to San Joaquin County Design Standards).

Impact TR-21: Increased Hazards due to Incompatible Land Uses on Durham Ferry Road under Cumulative Conditions

Additional development is expected to occur in the project vicinity under cumulative conditions. That development is expected to add approximately 100 trucks per day to Durham Ferry Road east of Chrisman Road. Project buildout (assuming no restrictions in truck travel are posted and enforced) would add an additional 220 trucks per day. There are no truck weight restriction signs posted on Durham Ferry Road. As shown on Figure 6, "Commercial Vehicles Over 7 Tons Prohibited" signs are posted in each direction of Bird Road between Durham Ferry Road and Lehman Road. Thus, trucks of any weight traveling to/from the project site and I-5 to the north could use the I-5/SR 33 interchange via Durham Ferry Road. Trucks weighing less than seven tons could use Lehman Road to Bird Road. Given that the project contributes about 69% of the growth in truck traffic under cumulative conditions to Durham Ferry Road east of Chrisman Road, its contribution is considered cumulatively considerable. The increase in project truck trips to Durham Ferry Road east of Chrisman Road would create an incompatibility with the adjacent rural residences. This impact is considered cumulatively **significant**.

Mitigation TR-21 (Project Buildout): Implement Mitigation TR-9 (Post a combination of either "No Trucks Allowed" or "Local Trucks only" signs on Durham Ferry Road between Chrisman Road and SR 33).

The addition of these signs would discourage trucks from using this segment of Durham Ferry Road east of Chrisman Road. Depending on compliance with them, enforcement activities could also be necessary.

Impact TR-22: Increased Hazards due to Incompatible Land Uses near Chrisman Road/Linne Road Intersection under Cumulative Conditions

Project increases in traffic along the frontages of Jefferson School are considerable when compared to overall traffic growth on this segment. Project trips are likely to cause conflicts with motorists entering/exiting Jefferson School to drop-off or pick-up students. This impact is considered cumulatively **significant**.

Mitigation TR-22 (Project Buildout): Implement Mitigation TR-10 (Construct improvements along Jefferson School frontages).

Impact TR-23: Increased Hazards due to Additional Vehicle/Train Conflicts under Cumulative Conditions

Additional development is expected to occur in the project vicinity under cumulative conditions. That development is expected to add vehicle trips to the various at-grade railroad crossings in the project vicinity. However, the project's contribution of passenger vehicle and truck trips to those at-grade railroad crossings would be considerable based on the overall level of expected background growth and amount of project traffic. Because the project would add cumulatively considerable levels of traffic to the two Chrisman Road crossings shown in Table 28, the potential for increased conflicts between vehicles and trains at these two crossings is considered a cumulatively **significant** impact.

Mitigation TR-24 (Project Buildout): Implement Mitigation Measures TR-11a and 11b (Fair Share Contributions and At-grade Crossing Upgrades).

Impact TR-25: Increased Hazards Associated with Emergency Vehicle Response Times

The project includes an on-site fire station and robust on-site fire water distribution system and design elements intended to prevent fires. The project would also be situated within the Tracy Rural Fire District and the San Joaquin County Sheriff's District. Station 93 is situated on Durham Ferry Road four miles to the east of the project site. Sutter Tracy Community Hospital is located in downtown Tracy, seven miles away. The Pacific Gateway LTA documents how improvements are available to maintain acceptable levels of service (per the San Joaquin County General Plan) at roadways and intersections throughout the study area under Cumulative Plus Project Buildout conditions. That scenario contemplates traffic from additional development expected to occur in the project vicinity under cumulative conditions. Emergency vehicles are not expected to experience undue delays due to increased traffic in the area under cumulative conditions. This is a cumulatively **less than significant** impact and no mitigation is required.

Construction Impacts Discussion

Project development would entail extensive construction to install backbone site roadway infrastructure, erect industrial and other buildings, and implement other project features. Improvements would be required to Chrisman Road along the project frontage, Bird Road, MacArthur Drive, and Tracy Boulevard. Off-site improvements are required at several different intersections and roadways as discussed previously. Among the required improvements are replacement bridges across the California Aqueduct and Delta Mendota Canal.

The initial phase of project development (i.e., partial buildout of Gateway East and University Center) would only require improvements at the six access points (two signalized accesses and four unsignalized accesses) along Chrisman Road serving these uses. **Image 7** shows Kier + Wright improvement drawings along Chrisman Road at Gateway East. As shown, left- and right-turns lanes would be added to Chrisman Road at the B Street and Private Industrial Driveway signalized intersections, requiring widening of Chrisman Road. However, that widening would not require any modifications to the California Aqueduct bridge located just south of B Street. Additionally, construction of these access points would not likely require any sustained closures of Chrisman Road. Temporary lane shifts, and manual traffic control during workdays may be required.

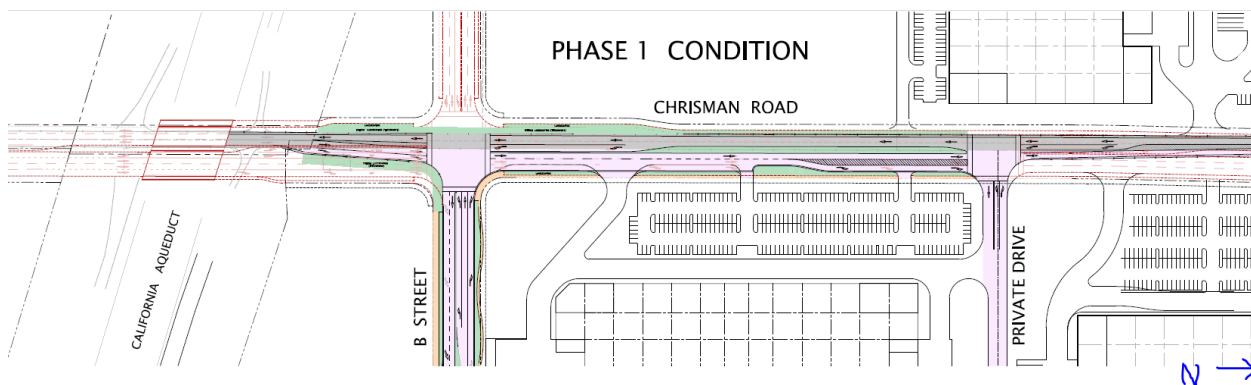


Image 7: Kier + Wright Improvement Drawings for Initial Phase Access from Chrisman Road (north is facing to the right)

As the project develops beyond the initial phase, additional on-site and off-site construction will be necessary. Due to the uncertainty of exact location and timing of subsequent phases, it is not possible to conclusively describe and evaluate what types of construction effects could occur. Supplemental studies, development of traffic control plans, etc. would be needed at that time.



It is recommended that the project be conditioned to develop a Construction Traffic Management Plan. An important part of that plan will relate to construction staging of bridge replacements of the California Aqueduct and Delta Mendota Canal, and the need for some travel lanes to remain open. That plan should include performance standards that should be met throughout project construction. Specific performance standards that could be considered include:

- Construction-related trucks operate only on designated truck routes (i.e., not on Durham Ferry Road) and do not idle or stage on any public streets.
- Construction-related employees do not park along public streets.
- Public streets are regularly maintained to be free of rocks and dirt.
- Construction hours and days of the week adhere to applicable policies.

The Construction Traffic Management Plan and any detour or construction traffic handling plans would be subject to review and approval by the San Joaquin County Department of Public Works.



Technical Appendix to

Final CEQA Transportation Impact Analysis Report

For Pacific Gateway

Prepared for:
Pacific Gateway CA, LLC

Sept 2025

RS21-4076

Appendix A: Trip Distribution Model

Model Calibration for Central Valley Gateway (June 2021 Conditions)

Purpose: This model uses a variety of demographic data to develop an independent estimate of expected commute shares to CVG for each of the 15 cities shown. This is then compared to Streetlight Data for calibration purposes.

Travel Distance Effectiveness Variable (short)
Discount for Well Above Average Education
Credit for for Well Below Average Education

Effect of variables
1.3 Shorter commute distances have an added attraction for jobs paying \$50,000/yr or less.
0.4 Stiff penalty due to much lower likelihood that employed persons from that city will work at site.
1.1 Slight credit given for larger percentage of population without college decrease.
1

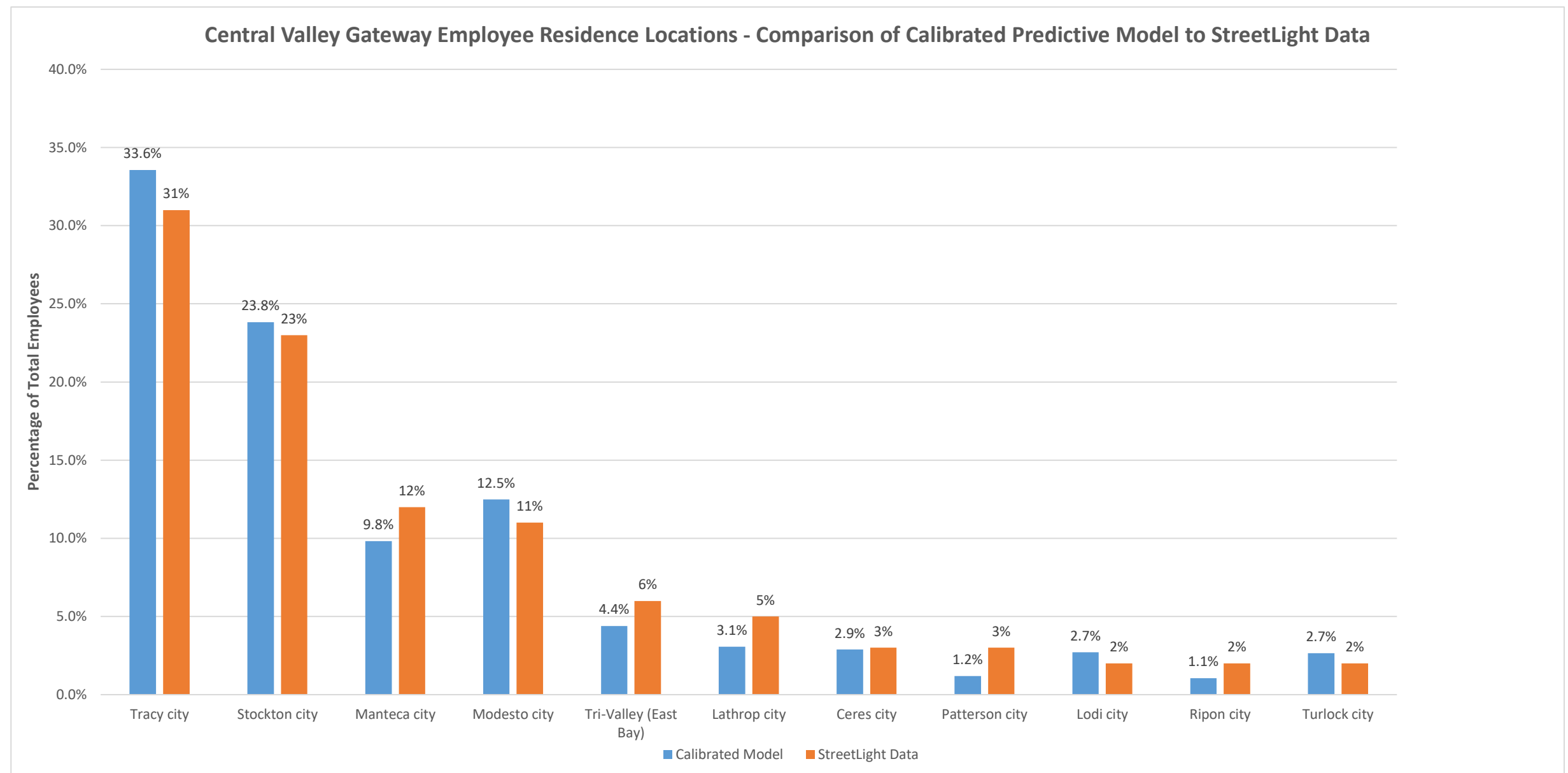
Area Name	Employed Persons	% of Households Making \$50,000 per year or less	Percent of Population Age 20-40	Percent of Population with Bachelors or Higher	Census Mean Travel Time to Work (min)	Employed Persons Age 20-40 YO and without Bachelors	Travel Distance (mi)	Travel Dist as % of Avg.	Factored Population	CVG Estimated Share	StreetLight Data Inc. Predicted Share
Lathrop city	9,800	24%	30%	19%	44.50	2,381	14.96	57%	4,776	3.06%	5%
Lodi city	29,500	48%	27%	21%	26.30	6,292	39.00	149%	4,231	2.71%	2%
Manteca city	38,300	36%	27%	17%	39.80	8,583	16.80	64%	15,327	9.82%	12%
Ripon city	7,700	29%	23%	22%	27.40	1,381	22.80	87%	1,652	1.06%	2%
Stockton city	125,600	36%	29%	19%	31.90	29,503	23.80	91%	37,190	23.83%	23%
Tracy city	44,700	20%	27%	22%	44.50	9,414	4.90	19%	52,397	33.57%	31%
Ceres city	20,200	45%	30%	11%	32.70	5,393	34.60	132%	4,497	2.88%	3%
Modesto city	91,200	33%	28%	19%	28.70	20,684	30.60	117%	19,499	12.49%	11%
Oakdale city	10,100	46%	24%	20%	37.70	1,939	39.60	151%	1,284	0.82%	0%
Patterson city	9,900	35%	28%	14%	45.60	2,384	29.00	111%	2,371	1.52%	3%
Riverbank city	10,400	35%	32%	14%	29.60	2,862	44.60	170%	1,851	1.19%	0%
Turlock city	32,400	34%	29%	25%	26.00	7,047	44.60	170%	4,144	2.65%	2%
Pleasanton city	38,500	14%	21%	66%	35.60	2,749	26.20	100%	1,431	0.92%	
Livermore city	47,300	18%	25%	45%	32.40	6,504	18.20	69%	3,898	2.50%	6%
Dublin city	33,000	13%	30%	68%	41.00	3,168	28.20	108%	1,532	0.98%	
	548,600			151607		110,286	2892172		156,080	100%	100%
			Weighted Avg.	28%		Weighted Avg.	26.2				

Source of Employment Levels: CA Employment Development Department (September 2022)
[p://www.labormarketinfo.edd.ca.c](http://www.labormarketinfo.edd.ca.c)

Source of Household Income (2018-2021 Inflation Adjusted Annual Average Household Income)
<https://data.census.gov/cedsci>

Source of Education and TT to work:
<https://www.census.gov/quickfacts/fact/table>





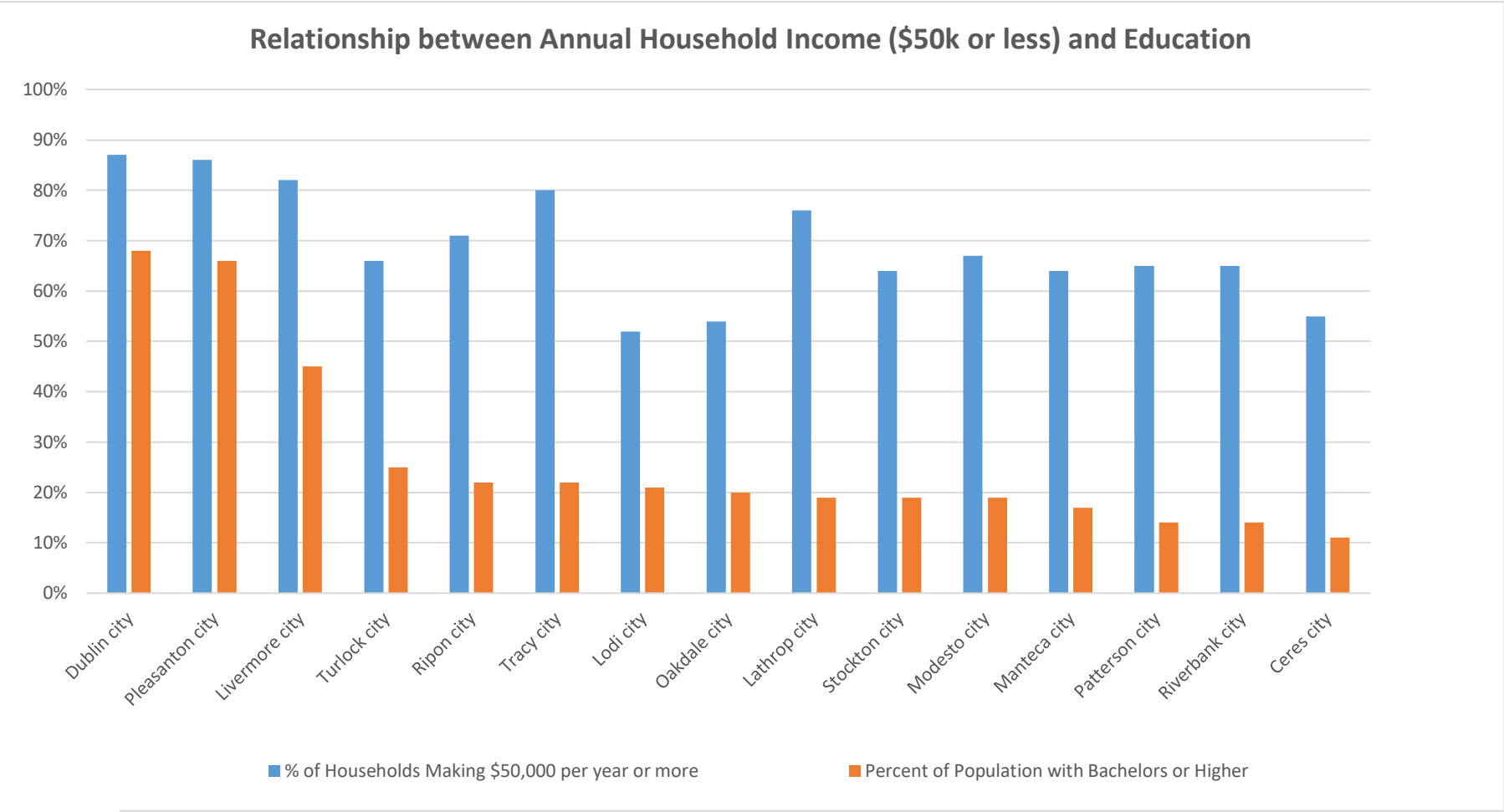
Explanation of outliers:

1. City of Tracy share overestimated likely due to excess influence (within the model framework) of very short commute distance.

Conclusion:

This chart indicates that this model closely matches the data collected through StreetLight Data, Inc for employees at CVG. Accordingly, the model is suitable to be applied to an alternate warehouse/logistics location within the same geographic proximity.

Correlation of Household Income and Education		
	% of Households Making \$50,000 per year or more	Percent of Population with Bachelors or Higher
Dublin city	87%	68%
Pleasanton city	86%	66%
Livermore city	82%	45%
Turlock city	66%	25%
Ripon city	71%	22%
Tracy city	80%	22%
Lodi city	52%	21%
Oakdale city	54%	20%
Lathrop city	76%	19%
Stockton city	64%	19%
Modesto city	67%	19%
Manteca city	64%	17%
Patterson city	65%	14%
Riverbank city	65%	14%
Ceres city	55%	11%
Correlation Coeff =	0.763341	



40% of square footage in NEI. 60% in IPC and PP.

Correlation Coefficient 0.763341

FEHR PEERS
9/29/2022

A correlation coefficient close to 1 indicates a strong correlation between the two datasets. Conversely, a large negative correlation coefficient represents an opposing correlation, while a correlation near zero represents no relationship between the datasets.

This outcome explains why only education level (and not household income) was used in the model calibration.

Model Application for Proposed Project

Travel Distance Effectiveness Variable (short)
Discount for Well Above Average Education
Credit for for Well Below Average Education

Effect of variables
1.3 Shorter commute distances have an added attraction for jobs paying
0.4 Stiff penalty due to much lower likelihood that employed persons from
1.1 Slight credit given for larger (above-average) percentage of populatic

Area Name	Employed Persons	Percent of Population Age 20-40	Percent of Population with Bachelors or Higher	Employed Persons Age 20-40 O and without Bachelors	Interim Share	Travel Distance to PP (mi)	% of Avg. Travel Dist	Factored Population	Proposed Project Share	Calibrated Model Share for CVG	Model Predicted Difference in Share due to new project location	StreetLight Inc. Estimated Share for CVG	Distance-Adjusted StreetLight Estimate for Proposed Project
Lathrop city	9,800	30%	19%	2,381	2%	16.00	63%	4,316	3.42%	3.06%	0.36%	5%	5.4%
Lodi city	29,500	27%	21%	6,292	6%	40.00	158%	3,987	3.16%	2.71%	0.44%	2%	2.4%
Manteca city	38,300	27%	17%	8,583	8%	18.00	71%	13,826	10.94%	9.82%	1.12%	12%	13.1%
Ripon city	7,700	23%	22%	1,381	1%	18.00	71%	2,023	1.60%	1.06%	0.54%	2%	2.5%
Stockton city	125,600	29%	19%	29,503	27%	25.00	99%	26,322	20.83%	23.83%	-3.00%	23%	20.0%
Tracy city	44,700	27%	22%	9,414	9%	7.00	28%	35,449	28.05%	33.57%	-5.52%	31%	25.5%
Ceres city	20,200	30%	11%	5,393	5%	29.00	114%	5,185	4.10%	2.88%	1.22%	3%	4.2%
Modesto city	91,200	28%	19%	20,684	19%	24.00	95%	19,222	15.21%	12.49%	2.72%	11%	13.7%
Oakdale city	10,100	24%	20%	1,939	2%	39.00	154%	1,260	1.00%	0.82%	0.17%	0%	0.2%
Patterson city	9,900	28%	14%	2,384	2%	22.00	87%	2,417	1.91%	1.52%	0.39%	3%	3.4%
Riverbank city	10,400	32%	14%	2,862	3%	34.00	134%	2,134	1.69%	1.19%	0.50%	0%	0.5%
Turlock city	32,400	29%	25%	7,047	6%	38.00	150%	4,700	3.72%	2.65%	1.06%	2%	3.1%
Pleasanton city	38,500	21%	66%	2,749	2%	34.00	134%	1,066	0.84%	0.92%	-0.07%		
Livermore city	47,300	25%	45%	6,504	6%	26.00	103%	3,297	2.61%	2.50%	0.11%	6.0%	6.0%
Dublin city	33,000	30%	68%	3,168	3%	36.00	142%	1,160	0.92%	0.98%	-0.06%		
	548,600		151607	110,286	100%	2795247		126,363	100%	100%	0%	100%	100%
	WEIGHTED AVG		28%	WEIGHTED AVG	WEIGHTE	25.3		Note 1			Note 2	Note 3	

- Conclusions:
- 1. The proposed project location results in a slight decrease in average commute distance versus CVG (25.3 vs. 26.2 miles), which is a 3.4% decrease.
 - 2. relative to CVG, proposed project location results in the following shifts in employee residence locations:
 - Tracy share decreases from 31% to 26% due to increased commute distance (and intervening opportunities)
 - Modesto share increases from 11% to 14% due to decreased commute distance.

Note 1: Applies the variables above (on a city-specific level) to the employed persons age 20-40 with
Note 2: Changes above or below 0.5% are highlighted in orange or green
Note 3: These totals were extrapolated from the StreetLight Data sum of 98% to 100%.



10/27/2022

Appendix B: Existing and Existing Plus Project Vehicle Queuing Calculations

1: Chrisman Rd & 11th St Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All	
Denied Delay (hr)	0	0	0	0	0	0	0	0	0	0.1	0	0.4	0	0	0	0.5
Denied Del/Veh (s)	0	0.1	0	0.3	0	0	0	0	0	1.4	1.4	3.4	0.1	0.1	0.1	0.8
Total Delay (hr)	0.1	0.4	2.4	0.1	0	3.7	3.8	0	1.6	0.4	1.2	0.1	0.1	0	14.1	
Total Del/Veh (s)	42.7	42.2	19	5.2	44.6	49.2	15.2	2.6	38.2	42.6	9	29.2	28.6	2.2	20.3	
Stop Delay (hr)	0.1	0.4	1.7	0.1	0	3.2	2	0	1.3	0.3	0.3	0.1	0.1	0	9.6	
Stop Del/Veh (s)	40.6	38.7	13.3	4.2	39.6	42.1	8	1.3	29.8	31.1	2.4	26.7	24.1	0.6	13.8	
Total Stops	7	31	241	44	4	258	346	12	127	27	69	14	13	1	1194	
Stop/Veh	0.88	0.89	0.54	0.57	1	0.95	0.39	0.35	0.83	0.84	0.14	0.78	0.72	0.05	0.48	
Travel Dist (mi)	1	4.5	57.8	9.8	0.6	41.9	140.1	5.4	38.9	8	118.7	4.4	4.5	5	440.6	
Travel Time (hr)	0.1	0.5	3.6	0.4	0.1	4.9	6.3	0.2	2.7	0.6	4.6	0.3	0.3	0.2	24.8	
Avg Speed (mph)	8	8	16	23	9	9	22	31	15	14	28	16	17	31	18	
Fuel Used (gal)	0	0.2	1.5	0.2	0	1.5	3.1	0.1	1.1	0.2	2.7	0.1	0.1	0.1	11.1	
Fuel Eff. (mpg)	26.4	27.5	38	47.1	29.6	27.1	45.1	57.5	35.4	34.1	44.6	31.4	31.5	39.5	39.7	
HC Emissions (g)	0	3	49	18	2	30	92	4	56	8	61	7	4	9	343	
CO Emissions (g)	7	63	983	324	27	705	2178	100	1064	173	1837	128	88	159	7837	
NOx Emissions (g)	0	6	129	44	3	63	250	10	134	20	178	18	11	24	892	
Vehicles Entered	8	34	446	76	4	266	890	34	151	31	477	18	18	21	2474	
Vehicles Exited	8	34	447	76	4	267	892	34	152	32	477	18	18	21	2480	
Hourly Exit Rate	8	34	447	76	4	267	892	34	152	32	477	18	18	21	2480	
Input Volume	7	37	456	74	4	272	891	34	150	30	482	20	19	19	2495	
% of Volume	110	91	98	103	100	98	100	99	102	107	99	91	96	112	99	
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Denied Entry After	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
Density (ft/veh)															413	
Occupancy (veh)	0	1	4	0	0	5	6	0	3	1	4	0	0	0	24	

10: Ahern Rd & Lehman Rd/SB I-5 Ramps Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBT	All
Denied Delay (hr)	0	0	0	0	0	0	0	0	0	0	0
Denied Del/Veh (s)	0.1	4.1	0.2	0.3	2.4	0	0.1	0	0	0.1	0.4
Total Delay (hr)	0	0	0.2	0	0	0	0	0.1	0	0	0.3
Total Del/Veh (s)	5.8	3.2	7	6.8	5.6	0.8	1.1	1.4	0.7	0.9	2.9
Stop Delay (hr)	0	0	0.1	0	0	0	0	0	0	0	0.2
Stop Del/Veh (s)	3.9	3.1	4.5	3.8	4.4	0	0.1	0	0	0	1.4
Total Stops	3	13	88	8	29	0	0	0	0	0	141
Stop/Veh	1	1	0.99	1	1.12	0	0	0	0	0	0.33
Travel Dist (mi)	0.5	2.2	21.3	1.8	6.3	0.2	1.4	36.2	1.6	20.5	92
Travel Time (hr)	0	0.1	1	0.1	0.3	0	0	0.7	0	0.4	2.8
Avg Speed (mph)	22	23	21	21	21	40	40	50	41	53	34
Fuel Used (gal)	0	0.1	0.6	0.1	0.2	0	0	1.1	0	0.6	2.7
Fuel Eff. (mpg)	42.6	39.4	37.9	36.4	32.6	33.8	41.5	32.8	44.6	33.5	34.5
HC Emissions (g)	0	3	22	2	28	0	0	34	4	49	144
CO Emissions (g)	6	41	377	38	423	4	22	1126	82	1129	3248
NOx Emissions (g)	1	7	57	6	68	0	2	115	10	135	400
Vehicles Entered	3	13	88	8	26	1	7	175	8	93	422
Vehicles Exited	3	13	88	8	26	1	7	175	8	93	422
Hourly Exit Rate	3	13	88	8	26	1	7	175	8	93	422
Input Volume	4	12	91	8	24	1	7	176	8	93	424
% of Volume	75	106	97	97	109	100	100	100	97	100	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0
Density (ft/veh)											3209
Occupancy (veh)	0	0	1	0	0	0	0	1	0	0	3

11: Ahern Rd & NB I-5 Ramps Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0	0	0	0	0	0	0	0
Denied Del/Veh (s)	0		0	0.2	0.2	0	0	0.1
Total Delay (hr)	0	0	0	0.1	0	0	0	0.2
Total Del/Veh (s)	5		2.8	1.7	0.5	2.2	1.2	1.3
Stop Delay (hr)	0	0	0	0	0	0	0	0
Stop Del/Veh (s)	4		2.8	0	0	1.2	0.3	0.2
Total Stops	1	0	8	0	0	5	0	14
Stop/Veh	1		1	0	0	0.28	0	0.03
Travel Dist (mi)	0.3	0	1.5	46.7	25.1	3.6	36.8	114
Travel Time (hr)	0	0	0.1	0.9	0.5	0.1	0.9	2.6
Avg Speed (mph)	27	27	23	51	47	36	40	45
Fuel Used (gal)	0	0	0.1	1.3	0.6	0.1	1.7	3.8
Fuel Eff. (mpg)	25	12.1	19.3	35.1	42.7	33.6	21.5	29.8
HC Emissions (g)	0	0	10	28	39	17	82	176
CO Emissions (g)	13	3	198	1143	969	338	2544	5209
NOx Emissions (g)	1	0	27	103	106	42	237	515

Vehicles Entered	1	0	7	179	97	17	178	479
Vehicles Exited	1	0	7	180	97	18	178	481
Hourly Exit Rate	1	0	7	180	97	18	178	481
Input Volume	2	0	7	182	97	23	176	487
% of Volume	50	0	100	99	100	77	101	99
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0
Density (ft/veh)								2203
Occupancy (veh)	0	0	0	1	1	0	1	3

13: Ahern Rd & Durham Ferry Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All	
Denied Delay (hr)	0		0	0	0	0	0	0	0	0	0	0	0
Denied Del/Veh (s)			0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Total Delay (hr)	0	0.1	0	0	0.1	0.1	0	0.7	0.2	0.2	0.2	0	1.6
Total Del/Veh (s)		10	3.1	7.2	8.2	4.4	6.5	14.5	7.4	13.4	5.7	10	
Stop Delay (hr)	0	0.1	0	0	0.1	0.1	0	0.2	0.1	0.1	0	0	0.7
Stop Del/Veh (s)		4.1	2.7	5.4	5.1	4.3	3.2	4.5	4	3.7	3.3	4.3	
Total Stops	0	46	4	3	51	98	6	173	119	65	4	569	
Stop/Veh		1	1	1	1	1	1	0.99	0.99	1	1	1	
Travel Dist (mi)	0.1	8.2	0.6	0.5	7.7	14.8	1.2	35.3	19.5	10.6	0.7	99.3	
Travel Time (hr)	0	0.3	0	0	0.4	0.8	0	1.3	0.8	0.4	0	4.2	
Avg Speed (mph)	24	27	28	18	18	19	29	27	26	25	26	24	
Fuel Used (gal)	0	0.2	0	0	0.2	0.4	0	1	0.5	0.3	0	2.7	
Fuel Eff. (mpg)	30.1	46.8	35.4	40.3	36.4	37.5	36.7	36.3	35.6	37.9	32.5	37.2	
HC Emissions (g)	1	5	3	0	8	1	0	45	8	23	3	97	
CO Emissions (g)	14	132	52	2	139	79	28	1329	481	511	58	2825	
NOx Emissions (g)	2	14	8	0	19	7	1	118	25	57	7	259	
Vehicles Entered	0	46	4	3	51	97	6	173	119	64	4	567	
Vehicles Exited	0	46	4	3	51	98	6	173	119	65	4	569	
Hourly Exit Rate	0	46	4	3	51	98	6	173	119	65	4	569	
Input Volume	1	43	2	4	51	99	7	168	117	66	2	560	
% of Volume	0	107	200	71	100	99	83	103	102	98	200	102	
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0	
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0	
Density (ft/veh)													875
Occupancy (veh)	0	0	0	0	0	1	0	1	1	0	0	4	

14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp Performance by movement

Movement	WBL	WBR	NBL	NBT	SBT	SBR	All	
Denied Delay (hr)	0	0.1	0	0	0	0	0	0.1
Denied Del/Veh (s)	0.4	4	0	0	0.2	0.2	0.2	0.9
Total Delay (hr)	0	0.1	0	0.1	0.1	0	0	0.2
Total Del/Veh (s)	4.7	3	1.6	1.5	2.5	0.2	1.9	
Stop Delay (hr)	0	0	0	0	0	0	0	0
Stop Del/Veh (s)	2.8	1.6	0.6	0.1	0	0	0	0.4
Total Stops	7	35	2	0	0	0	0	44
Stop/Veh	1	0.42	0.2	0	0	0	0	0.11
Travel Dist (mi)	1.1	13.7	0.7	9.9	7.6	5.3	38.3	
Travel Time (hr)	0	0.6	0	0.3	0.2	0.2	1.3	
Avg Speed (mph)	28	28	24	37	38	30	32	
Fuel Used (gal)	0	0.3	0	0.5	0.2	0.1	1.2	
Fuel Eff. (mpg)	43	43.1	51.3	20.8	32.3	45	32.3	
HC Emissions (g)	1	46	0	26	74	6	152	
CO Emissions (g)	23	824	7	769	1529	189	3341	
NOx Emissions (g)	2	113	0	73	179	14	382	
Vehicles Entered	7	84	10	143	92	65	401	
Vehicles Exited	7	84	10	142	93	64	400	
Hourly Exit Rate	7	84	10	142	93	64	400	
Input Volume	7	84	12	147	92	64	406	
% of Volume	97	100	85	97	101	100	98	
Denied Entry Before	0	0	0	0	0	0	0	
Denied Entry After	0	0	0	0	0	0	0	
Density (ft/veh)								2099
Occupancy (veh)	0	0	0	0	0	0	1	

15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All	
Denied Delay (hr)	0	0	0	0	0	0	0	0
Denied Del/Veh (s)	0.1	0.1	0	0	0	0	0	0
Total Delay (hr)	0	0	0.2	0	0.1	0	0	0.3
Total Del/Veh (s)	5.3	1.3	3.8	2.4	3.8	2.6	3.6	
Stop Delay (hr)	0	0	0	0	0	0	0	0.1
Stop Del/Veh (s)	4.3	1.5	0.2	0.2	1.9	0.4	0.8	
Total Stops	14	5	6	0	20	1	46	
Stop/Veh	1	1	0.04	0	0.32	0.03	0.17	
Travel Dist (mi)	2.3	0.8	13.5	0.7	4.3	2.6	24.1	

Travel Time (hr)	0.1	0	0.6	0	0.2	0.1	1
Avg Speed (mph)	27	31	23	20	20	31	24
Fuel Used (gal)	0.1	0	0.8	0	0.1	0.1	1.1
Fuel Eff. (mpg)	41.2	46.4	17.2	28.8	55.8	22.3	22.4
HC Emissions (g)	7	0	40	0	17	15	80
CO Emissions (g)	127	6	1172	14	278	354	1950
NOx Emissions (g)	18	1	113	1	39	38	209
Vehicles Entered	14	5	150	8	63	38	278
Vehicles Exited	14	5	149	8	63	38	277
Hourly Exit Rate	14	5	149	8	63	38	277
Input Volume	15	4	154	8	65	35	281
% of Volume	93	118	97	103	97	108	99
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Density (ft/veh)							1742
Occupancy (veh)	0	0	1	0	0	0	1

16: S Chrisman Road & I-580 WB Off Ramp Performance by movement

Movement	WBR	NBT	SBT	All	
Denied Delay (hr)	0.1		0	0	0.1
Denied Del/Veh (s)	3.9		0	0	2.4
Total Delay (hr)	0		0	0	0.1
Total Del/Veh (s)	1.4	0.6	1.2		1.2
Stop Delay (hr)	0		0	0	0
Stop Del/Veh (s)	0		0	0	0
Total Stops	0		0	0	0
Stop/Veh	0		0	0	0
Travel Dist (mi)	21.2	3.3	3.6	28.1	
Travel Time (hr)	0.7	0.1	0.1	0.9	
Avg Speed (mph)	35	51	41	37	
Fuel Used (gal)	0.4	0.1	0.2	0.7	
Fuel Eff. (mpg)	47.9	41.6	21.8	40.9	
HC Emissions (g)	37	1	21	59	
CO Emissions (g)	751	38	513	1301	
NOx Emissions (g)	98	4	54	156	
Vehicles Entered	115	33	41	189	
Vehicles Exited	114	33	41	188	
Hourly Exit Rate	114	33	41		188
Input Volume	118	34	39	191	
% of Volume	97	96	106	98	
Denied Entry Before	0	0	0	0	
Denied Entry After	0	0	0	0	
Density (ft/veh)				3985	
Occupancy (veh)	1	0	0	1	

17: S Chrisman Road & I-580 EB On Ramp Performance by movement

Movement	NBT	NBR	SBL	SBT	All	
Denied Delay (hr)	0		0	0	0	0
Denied Del/Veh (s)	0.1	0.1		0	0	0.1
Total Delay (hr)	0	0		0	0	0
Total Del/Veh (s)	0.3	1.8		0.7	0.7	0.6
Stop Delay (hr)	0	0		0	0	0
Stop Del/Veh (s)	0	0		0.1	0	0
Total Stops	0	0		1	0	1
Stop/Veh	0	0		0.05	0	0.01
Travel Dist (mi)	6.7	0.6	1.9	2	11.2	
Travel Time (hr)	0.1	0	0.1	0	0.2	
Avg Speed (mph)	55	38	31	50	47	
Fuel Used (gal)	0.2	0	0	0.1	0.3	
Fuel Eff. (mpg)	37.1	78.9	54.1	29.3	38.5	
HC Emissions (g)	1	0	5	6	13	
CO Emissions (g)	91	2	103	144	341	
NOx Emissions (g)	10	0	14	15	39	
Vehicles Entered	33	3	20	21	77	
Vehicles Exited	33	3	20	21	77	
Hourly Exit Rate	33	3	20	21		77
Input Volume	34	3	20	20	77	
% of Volume	96	92	99	108	100	
Denied Entry Before	0	0	0	0	0	
Denied Entry After	0	0	0	0	0	
Density (ft/veh)						
Occupancy (veh)	0	0	0	0	0	

18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp Performance by movement

Movement	EBL	EBR	NBT	NBR	SBL	SBT	All	
Denied Delay (hr)	0	0	0	0.1		0	0	0.1
Denied Del/Veh (s)	0	0	0.4	3.9		0.1	0	0.7

Total Delay (hr)	0	0.1	0	0	0	0.1	0.1
Total Del/Veh (s)	4.9	4.6	0.4	0.4	2.1	1.9	1.6
Stop Delay (hr)	0	0.1	0	0	0	0	0.1
Stop Del/Veh (s)	2.9	3.7	0	0	0.7	1.4	1.1
Total Stops	2	50	0	0	0	0	52
Stop/Veh	1	1	0	0	0	0	0.16
Travel Dist (mi)	0.2	4.7	16.7	8.3	0.5	15.9	46.3
Travel Time (hr)	0	0.3	0.4	0.3	0	0.7	1.7
Avg Speed (mph)	20	18	44	36	26	22	29
Fuel Used (gal)	0	0.1	0.7	0.2	0	1.1	2.1
Fuel Eff. (mpg)	50.5	46.4	24.6	42.3	29.3	13.9	21.6
HC Emissions (g)	0	26	226	75	1	267	595
CO Emissions (g)	0	367	4027	1304	24	4458	10180
NOx Emissions (g)	0	58	599	187	3	721	1567
Vehicles Entered	2	50	106	53	4	116	331
Vehicles Exited	2	50	106	52	4	116	330
Hourly Exit Rate	2	50	106	52	4	116	330
Input Volume	3	49	110	52	5	112	331
% of Volume	67	102	96	100	80	103	100
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Density (ft/veh)							2532
Occupancy (veh)	0	0	0	0	0	1	2

19: S Bird Rd & SR 132 WB Off On Ramps Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0	0	0	0	0	0	0
Denied Del/Veh (s)	0	0	0	0	0.1	0.1	0
Total Delay (hr)	0	0.1	0	0	0	0	0.2
Total Del/Veh (s)	5.1	4.3	1.8	0.4	1	0.1	2.5
Stop Delay (hr)	0	0.1	0	0	0	0	0.1
Stop Del/Veh (s)	3.7	3.2	0.3	0	0	0	1.4
Total Stops	3	93	6	0	0	0	102
Stop/Veh	1	1	0.07	0	0	0	0.43
Travel Dist (mi)	0.2	5.6	11.6	3.3	3	0.9	24.6
Travel Time (hr)	0	0.4	0.4	0.1	0.1	0	0.9
Avg Speed (mph)	15	15	31	43	41	34	26
Fuel Used (gal)	0	0.1	0.3	0.1	0.1	0	0.7
Fuel Eff. (mpg)	43.7	49.7	36.9	24.3	34.7	54.2	36.6
HC Emissions (g)	0	31	91	38	25	0	185
CO Emissions (g)	0	429	1534	681	453	9	3106
NOx Emissions (g)	0	59	237	100	64	1	461
Vehicles Entered	3	93	84	24	26	8	238
Vehicles Exited	3	93	84	24	26	8	238
Hourly Exit Rate	3	93	84	24	26	8	238
Input Volume	3	91	89	24	26	9	242
% of Volume	100	102	95	98	99	89	98
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Density (ft/veh)							2811
Occupancy (veh)	0	0	0	0	0	0	1

22: External Performance by approach

Approach	SB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.5	0.5
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	4.1	4.1
Travel Time (hr)	0.1	0.1
Avg Speed (mph)	54	54
Fuel Used (gal)	0.1	0.1
Fuel Eff. (mpg)	35.4	35.4
HC Emissions (g)	7	7
CO Emissions (g)	182	182
NOx Emissions (g)	20	20
Vehicles Entered	19	19
Vehicles Exited	19	19
Hourly Exit Rate	19	19
Input Volume	18	18
% of Volume	104	104
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		

Occupancy (veh)	0	0
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24: External Performance by approach

Approach	WB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.4	0.4
Total Del/Veh (s)	1.2	1.2
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	179.3	179.3
Travel Time (hr)	6.2	6.2
Avg Speed (mph)	29	29
Fuel Used (gal)	4.6	4.6
Fuel Eff. (mpg)	38.7	38.7
HC Emissions (g)	144	144
CO Emissions (g)	2634	2634
NOx Emissions (g)	388	388
Vehicles Entered	1050	1050
Vehicles Exited	1054	1054
Hourly Exit Rate	1054	1054
Input Volume	1059	1059
% of Volume	100	100
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	6	6

25: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.2	0.2
Total Del/Veh (s)	0.7	0.7
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	120	120
Travel Time (hr)	2.4	2.4
Avg Speed (mph)	50	50
Fuel Used (gal)	4	4
Fuel Eff. (mpg)	29.8	29.8
HC Emissions (g)	215	215
CO Emissions (g)	6166	6166
NOx Emissions (g)	620	620
Vehicles Entered	941	941
Vehicles Exited	942	942
Hourly Exit Rate	942	942
Input Volume	941	941
% of Volume	100	100
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	2	2

26: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.8	0.8
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.1	0.1
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	4.3	4.3
Travel Time (hr)	0.1	0.1
Avg Speed (mph)	31	31
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	17.2	17.2
HC Emissions (g)	25	25
CO Emissions (g)	530	530
NOx Emissions (g)	68	68
Vehicles Entered	23	23

Vehicles Exited	23	23
Hourly Exit Rate	23	23
Input Volume	24	24
% of Volume	98	98
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

27: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	1.7	1.7
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.4	0.4
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	26.5	26.5
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	31	31
Fuel Used (gal)	1	1
Fuel Eff. (mpg)	27.2	27.2
HC Emissions (g)	32	32
CO Emissions (g)	881	881
NOx Emissions (g)	97	97
Vehicles Entered	102	102
Vehicles Exited	102	102
Hourly Exit Rate	102	102
Input Volume	102	102
% of Volume	100	100
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

28: External Performance by approach

Approach	SB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.3	0.3
Total Del/Veh (s)	3.1	3.1
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.2	0.2
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	95.2	95.2
Travel Time (hr)	2.9	2.9
Avg Speed (mph)	33	33
Fuel Used (gal)	4.3	4.3
Fuel Eff. (mpg)	22.4	22.4
HC Emissions (g)	220	220
CO Emissions (g)	5700	5700
NOx Emissions (g)	653	653
Vehicles Entered	357	357
Vehicles Exited	354	354
Hourly Exit Rate	354	354
Input Volume	364	364
% of Volume	97	97
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	3	3

29: 11th St Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0	0	0
Denied Del/Veh (s)	0.1	0	0
Total Delay (hr)	0.1	1.3	1.4
Total Del/Veh (s)	0.5	4.3	3
Stop Delay (hr)	0	0	0
Stop Del/Veh (s)	0	0.1	0.1
Total Stops	0	1	1
Stop/Veh	0	0	0
Travel Dist (mi)	88.5	147.1	235.6
Travel Time (hr)	2	4.7	6.8

Avg Speed (mph)	44	31	35
Fuel Used (gal)	2.2	5.5	7.8
Fuel Eff. (mpg)	39.4	26.5	30.3
HC Emissions (g)	101	201	303
CO Emissions (g)	2373	6073	8445
NOx Emissions (g)	315	606	920
Vehicles Entered	543	1069	1612
Vehicles Exited	543	1070	1613
Hourly Exit Rate	543	1070	1613
Input Volume	553	1062	1616
% of Volume	98	101	100
Denied Entry Before	0	0	0
Denied Entry After	0	0	0
Density (ft/veh)			585
Occupancy (veh)	2	5	7

30: 11th St Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0	0.1	0.1
Denied Del/Veh (s)	0	0.3	0.2
Total Delay (hr)	1.2	0.4	1.6
Total Del/Veh (s)	4.8	1.1	2.7
Stop Delay (hr)	0	0	0
Stop Del/Veh (s)	0.1	0	0.1
Total Stops	8	0	8
Stop/Veh	0.01	0	0
Travel Dist (mi)	147.7	141.9	289.6
Travel Time (hr)	4.6	3	7.6
Avg Speed (mph)	32	49	39
Fuel Used (gal)	8.8	4.2	13.1
Fuel Eff. (mpg)	16.7	33.6	22.2
HC Emissions (g)	303	183	486
CO Emissions (g)	12184	5879	18063
NOx Emissions (g)	897	522	1419
Vehicles Entered	933	1187	2120
Vehicles Exited	931	1187	2118
Hourly Exit Rate	931	1187	2118
Input Volume	949	1193	2142
% of Volume	98	99	99
Denied Entry Before	0	0	0
Denied Entry After	0	0	0
Density (ft/veh)			515
Occupancy (veh)	5	3	7

69: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.3	0.3
Total Del/Veh (s)	4.1	4.1
Stop Delay (hr)	0.2	0.2
Stop Del/Veh (s)	2.9	2.9
Total Stops	51	51
Stop/Veh	0.22	0.22
Travel Dist (mi)	20.5	20.5
Travel Time (hr)	0.8	0.8
Avg Speed (mph)	25	25
Fuel Used (gal)	1.3	1.3
Fuel Eff. (mpg)	16	16
HC Emissions (g)	109	109
CO Emissions (g)	2492	2492
NOx Emissions (g)	293	293
Vehicles Entered	226	226
Vehicles Exited	226	226
Hourly Exit Rate	226	226
Input Volume	231	231
% of Volume	98	98
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

72: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.1	0.1

Total Del/Veh (s)	1.2	1.2
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.2	0.2
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	46.5	46.5
Travel Time (hr)	1	1
Avg Speed (mph)	47	47
Fuel Used (gal)	1.6	1.6
Fuel Eff. (mpg)	29.6	29.6
HC Emissions (g)	103	103
CO Emissions (g)	2417	2417
NOx Emissions (g)	303	303
Vehicles Entered	201	201
Vehicles Exited	201	201
Hourly Exit Rate	201	201
Input Volume	200	200
% of Volume	100	100
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

73: External Performance by approach

Approach	SE	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.6	0.6
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	48.3	48.3
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	53	53
Fuel Used (gal)	1.3	1.3
Fuel Eff. (mpg)	38.3	38.3
HC Emissions (g)	95	95
CO Emissions (g)	2177	2177
NOx Emissions (g)	269	269
Vehicles Entered	177	177
Vehicles Exited	177	177
Hourly Exit Rate	177	177
Input Volume	176	176
% of Volume	101	101
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

75: External Performance by approach

Approach	SW	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	1.5	1.5
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.3	0.3
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	2.6	2.6
Travel Time (hr)	0.1	0.1
Avg Speed (mph)	27	27
Fuel Used (gal)	0.1	0.1
Fuel Eff. (mpg)	25.8	25.8
HC Emissions (g)	4	4
CO Emissions (g)	94	94
NOx Emissions (g)	12	12
Vehicles Entered	14	14
Vehicles Exited	14	14
Hourly Exit Rate	14	14
Input Volume	15	15
% of Volume	92	92
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

76: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.1	0.1
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	1.9	1.9
Travel Time (hr)	0.1	0.1
Avg Speed (mph)	24	24
Fuel Used (gal)	0.1	0.1
Fuel Eff. (mpg)	30.7	30.7
HC Emissions (g)	6	6
CO Emissions (g)	96	96
NOx Emissions (g)	15	15
Vehicles Entered	8	8
Vehicles Exited	8	8
Hourly Exit Rate	8	8
Input Volume	8	8
% of Volume	97	97
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

78: NB I-5 Ramps Performance by movement

Movement	EBL	EBT	SBR	All
Denied Delay (hr)	0	0	0	0
Denied Del/Veh (s)	0	0	0.1	0
Total Delay (hr)	0	0	0	0
Total Del/Veh (s)	1.4	0.4	0.9	1.4
Stop Delay (hr)	0	0	0	0
Stop Del/Veh (s)	0.1	0.1	0	0.1
Total Stops	0	0	0	0
Stop/Veh	0	0	0	0
Travel Dist (mi)	23	0.2	2.5	25.6
Travel Time (hr)	0.8	0	0.1	0.9
Avg Speed (mph)	30	25	24	29
Fuel Used (gal)	0.9	0	0.1	1
Fuel Eff. (mpg)	24.8	14.8	38.1	25.5
HC Emissions (g)	55	3	7	65
CO Emissions (g)	1509	52	111	1671
NOx Emissions (g)	152	8	19	179
Vehicles Entered	113	1	9	123
Vehicles Exited	113	2	9	124
Hourly Exit Rate	113	2	9	124
Input Volume	120	1	9	130
% of Volume	94	267	97	96
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0
Density (ft/veh)				3149
Occupancy (veh)	1	0	0	1

79: External Performance by approach

Approach	WB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.2	0.2
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	9.7	9.7
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	30	30
Fuel Used (gal)	0.6	0.6
Fuel Eff. (mpg)	15.7	15.7
HC Emissions (g)	25	25
CO Emissions (g)	892	892
NOx Emissions (g)	73	73
Vehicles Entered	74	74
Vehicles Exited	74	74

Hourly Exit Rate	74	74
Input Volume	76	76
% of Volume	97	97
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

80: External Performance by approach

Approach	SB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.5	0.5
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	31.4	31.4
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	37	37
Fuel Used (gal)	1.4	1.4
Fuel Eff. (mpg)	22.8	22.8
HC Emissions (g)	94	94
CO Emissions (g)	2403	2403
NOx Emissions (g)	266	266
Vehicles Entered	113	113
Vehicles Exited	113	113
Hourly Exit Rate	113	113
Input Volume	120	120
% of Volume	94	94
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

81: External Performance by approach

Approach	WB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	2.8	2.8
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.7	0.7
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	11.7	11.7
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	32	32
Fuel Used (gal)	0.6	0.6
Fuel Eff. (mpg)	18.3	18.3
HC Emissions (g)	31	31
CO Emissions (g)	912	912
NOx Emissions (g)	90	90
Vehicles Entered	61	61
Vehicles Exited	60	60
Hourly Exit Rate	60	60
Input Volume	60	60
% of Volume	100	100
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

82: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.1	0.1
Total Del/Veh (s)	1.4	1.4
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.5	0.5
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	28.4	28.4
Travel Time (hr)	1.3	1.3
Avg Speed (mph)	23	23

Fuel Used (gal)	1	1
Fuel Eff. (mpg)	28.7	28.7
HC Emissions (g)	15	15
CO Emissions (g)	468	468
NOx Emissions (g)	50	50
Vehicles Entered	166	166
Vehicles Exited	166	166
Hourly Exit Rate	166	166
Input Volume	160	160
% of Volume	104	104
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

84: External Performance by approach

Approach	NW	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.4	0.4
Total Del/Veh (s)	5.2	5.2
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.6	0.6
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	51.4	51.4
Travel Time (hr)	1.6	1.6
Avg Speed (mph)	32	32
Fuel Used (gal)	3.3	3.3
Fuel Eff. (mpg)	15.5	15.5
HC Emissions (g)	107	107
CO Emissions (g)	4566	4566
NOx Emissions (g)	317	317
Vehicles Entered	271	271
Vehicles Exited	272	272
Hourly Exit Rate	272	272
Input Volume	268	268
% of Volume	101	101
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	2	2

85: External Performance by approach

Approach	SE	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.2	0.2
Total Del/Veh (s)	8.1	8.1
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.7	0.7
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	16.5	16.5
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	35	35
Fuel Used (gal)	1	1
Fuel Eff. (mpg)	16.6	16.6
HC Emissions (g)	78	78
CO Emissions (g)	1977	1977
NOx Emissions (g)	217	217
Vehicles Entered	71	71
Vehicles Exited	71	71
Hourly Exit Rate	71	71
Input Volume	72	72
% of Volume	98	98
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

103: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	1.7	1.7

Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.5	0.5
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	14.1	14.1
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	29	29
Fuel Used (gal)	0.9	0.9
Fuel Eff. (mpg)	14.8	14.8
HC Emissions (g)	162	162
CO Emissions (g)	2949	2949
NOx Emissions (g)	441	441
Vehicles Entered	71	71
Vehicles Exited	71	71
Hourly Exit Rate	71	71
Input Volume	73	73
% of Volume	97	97
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

111: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.2	0.2
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	3.5	3.5
Travel Time (hr)	0.1	0.1
Avg Speed (mph)	43	43
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	23.2	23.2
HC Emissions (g)	36	36
CO Emissions (g)	667	667
NOx Emissions (g)	97	97
Vehicles Entered	27	27
Vehicles Exited	27	27
Hourly Exit Rate	27	27
Input Volume	27	27
% of Volume	99	99
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

112: External Performance by approach

Approach	SB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.1	0.1
Total Del/Veh (s)	1.4	1.4
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.6	0.6
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	27.4	27.4
Travel Time (hr)	0.9	0.9
Avg Speed (mph)	31	31
Fuel Used (gal)	1.5	1.5
Fuel Eff. (mpg)	18	18
HC Emissions (g)	450	450
CO Emissions (g)	7863	7863
NOx Emissions (g)	1195	1195
Vehicles Entered	166	166
Vehicles Exited	166	166
Hourly Exit Rate	166	166
Input Volume	161	161
% of Volume	103	103
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

115: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.1	0.1
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	9	9
Travel Time (hr)	0.4	0.4
Avg Speed (mph)	23	23
Fuel Used (gal)	0.6	0.6
Fuel Eff. (mpg)	15.6	15.6
HC Emissions (g)	134	134
CO Emissions (g)	2169	2169
NOx Emissions (g)	366	366
Vehicles Entered	56	56
Vehicles Exited	56	56
Hourly Exit Rate	56	56
Input Volume	57	57
% of Volume	98	98
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

116: External Performance by approach

Approach	WB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.1	0.1
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	4.6	4.6
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	25	25
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	24.4	24.4
HC Emissions (g)	42	42
CO Emissions (g)	636	636
NOx Emissions (g)	105	105
Vehicles Entered	93	93
Vehicles Exited	93	93
Hourly Exit Rate	93	93
Input Volume	98	98
% of Volume	95	95
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

118: Bend Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0.2	0.2
Total Delay (hr)	0	0
Total Del/Veh (s)	0.1	0.1
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	6	6
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	30	30
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	26.9	26.9
HC Emissions (g)	50	50
CO Emissions (g)	761	761
NOx Emissions (g)	137	137
Vehicles Entered	52	52
Vehicles Exited	52	52
Hourly Exit Rate	52	52

120: Bend Performance by approach

Total Network Performance

Fehr & Pe€ 10/29/2024

?

GoldenSta AM Peak Hour

[illegible]

Queuing Penalty (veh)							
Storage Bay Dist (ft)	170			320	640		260
Storage Blk Time (%)	0	3				0	39
Queuing Penalty (veh)	0	1				0	190

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB	
Directions Served	LT	R	LT	R	UL	
Maximum Queue (ft)		53	77	136	86	8
Average Queue (ft)		4	14	56	36	0
95th Queue (ft)		27	52	114	96	4
Link Distance (ft)		896		1280		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			25		25	200
Storage Blk Time (%)		0	1	10	3	
Queuing Penalty (veh)		0	0	2	3	

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB	
Directions Served	L	R	TR	L	
Maximum Queue (ft)		17	85	10	85
Average Queue (ft)		1	11	1	9
95th Queue (ft)		9	52	9	49
Link Distance (ft)		1028		1368	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			25		180
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (ft)		78	117	131	126
Average Queue (ft)		15	33	57	57
95th Queue (ft)		49	80	111	107
Link Distance (ft)		919	783	1068	860
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB	
Directions Served	LT	R	LT	TR	
Maximum Queue (ft)		116	89	28	6
Average Queue (ft)		13	48	2	0
95th Queue (ft)		74	114	15	7
Link Distance (ft)		868		310	431
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			45		
Storage Blk Time (%)		0	1		
Queuing Penalty (veh)		0	0		

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB	
Directions Served	LTR	TR	LT	
Maximum Queue (ft)		84	10	156
Average Queue (ft)		17	1	35
95th Queue (ft)		59	6	114
Link Distance (ft)		865	426	310
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	
Directions Served	
Maximum Queue (ft)	

Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	18
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	SB
Directions Served	LT	R	R	L
Maximum Queue (ft)	27	168	3	7
Average Queue (ft)	2	72	0	0
95th Queue (ft)	16	143	4	5
Link Distance (ft)	444	444		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			600	215
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	NB	SB
Directions Served	L	R	L	TR
Maximum Queue (ft)	31	173	116	6
Average Queue (ft)	3	98	15	0
95th Queue (ft)	17	158	72	7
Link Distance (ft)	265	265		606
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			295	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 29: 11th St

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 30: 11th St

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	22	117
Average Queue (ft)	1	5
95th Queue (ft)	24	80
Link Distance (ft)	792	792
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 33: Chrisman Road & Logistics Center Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 38: Chrisman Road & University Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 78: NB I-5 Ramps

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary
Network wide Queuing Penalty: 12

1: Chrisman Rd & 11th St Performance by movement

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0	0	0	0	0	0	0.2	0.2	0	0	0	0.5	0	0	0.9
Denied Del/Veh (s)	0.1	0.1	0	0.1	0	0	2.3	0.9	0	1.3	1.3	3.3	0.2	0.2	1.2
Total Delay (hr)	0.3	0.6	5	0.3	0.1	0	9.3	2.8	0	1.5	0.3	1.1	0.4	0.2	21.8
Total Del/Veh (s)	45.9	47.8	21.8	6.9	124.9	104.7	16.4	2.5	43.3	45	7.6	34.5	35.2	6.1	28.80
Stop Delay (hr)	0.3	0.5	3.3	0.2	0.1	0	8.4	1.7	0	1.2	0.2	0.3	0.4	0.2	16.8
Stop Del/Veh (s)	41.2	42.7	14.5	5	113	94.5	10	1.5	36.1	34.6	1.9	31.6	30.7	4	22.1
Total Stops	20	39	453	68	3	412	258	10	103	20	52	36	15	5	1494
Stop/Veh	0.91	0.93	0.54	0.5	1.5	1.28	0.43	0.38	0.85	0.8	0.1	0.8	0.79	0.14	0.55
Travel Dist (mi)	2.9	5.5	109.7	18.1	0.4	49.3	94	4.1	30.7	6.2	122.7	11	4.6	8.3	467.6
Travel Time (hr)	0.4	0.7	7.5	0.9	0.1	10.9	4.6	0.1	2.3	0.5	4.7	0.8	0.3	0.3	34.1
Avg Speed (mph)	8	8	15	21	5	5	21	32	14	14	29	14	14	27	14
Fuel Used (gal)	0.1	0.2	2.9	0.4	0	3.1	2.5	0.1	0.9	0.2	2.7	0.4	0.2	0.2	13.9
Fuel Eff. (mpg)	25.3	24.5	37.8	47.6	16.6	15.9	37	52.4	33.5	33.1	45.7	29.3	30.6	39.8	33.7
HC Emissions (g)	0	1	59	15	1	24	98	2	50	5	54	12	1	1	325
CO Emissions (g)	23	46	1236	353	22	665	2429	63	922	111	1680	242	39	68	7898
NOx Emissions (g)	2	3	157	37	2	52	264	7	119	13	165	32	3	5	860
Vehicles Entered	22	41	828	136	2	316	604	26	120	24	493	44	19	35	2710
Vehicles Exited	22	41	825	135	2	311	601	26	119	25	493	44	19	35	2698
Hourly Exit Rate	22	41	825	135	2	311	601	26	119	25	493	44	19	35	2698
Input Volume	24	39	822	132	3	315	589	25	123	25	489	43	18	34	2681
% of Volume	93	104	100	102	67	99	102	105	97	101	101	102	107	103	101
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	1	1	0	0	0	0	0	0	0	2
Density (ft/veh)															302
Occupancy (veh)	0	1	8	1	0	11	4	0	2	0	4	1	0	0	33

10: Ahern Rd & Lehman Rd/SB I-5 Ramps Performance by movement

Movement	EBL	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0	0	0	0	0	0	0	0	0	0	0.1
Denied Del/Veh (s)		4.2	0.2	0.2	2.4	0	0	0.1	3.5	0.3	0.5
Total Delay (hr)	0	0	0.4	0	0	0	0	0	0	0.2	0.6
Total Del/Veh (s)		5.2	10.7	9.4	6.2	1.5	0.9	0.3	1.2	1.7	3.7
Stop Delay (hr)	0	0	0.3	0	0	0	0	0	0	0	0.4
Stop Del/Veh (s)		5.1	8.4	6.6	5.1	1	0	0	0.4	0	2.1
Total Stops	0	18	132	6	12	1	0	0	2	0	171
Stop/Veh		1	0.99	1	1	0.33	0	0	0.12	0	0.27
Travel Dist (mi)	0.1	2.9	31.8	1.4	2.8	0.6	22.3	0.9	3.4	72.1	138.2
Travel Time (hr)	0	0.2	1.7	0.1	0.1	0	0.5	0	0.1	1.5	4.2
Avg Speed (mph)	22	21	19	19	20	39	49	41	40	49	34
Fuel Used (gal)	0	0.1	0.9	0	0.1	0	0.7	0	0.1	2.1	4
Fuel Eff. (mpg)	45.9	41.3	35.1	38.2	31	45.8	31.6	51.3	38.4	34.9	34.6
HC Emissions (g)	0	0	52	0	15	0	21	3	18	82	191
CO Emissions (g)	0	7	827	5	223	8	747	62	350	2315	4542
NOx Emissions (g)	0	1	128	1	35	1	69	8	43	255	540
Vehicles Entered	0	17	131	6	11	3	111	5	16	327	627
Vehicles Exited	0	18	131	6	11	3	111	5	16	327	628
Hourly Exit Rate	0	18	131	6	11	3	111	5	16	327	628
Input Volume	1	18	135	6	10	3	112	4	17	323	630
% of Volume	0	100	97	96	107	100	99	118	94	101	100
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0
Density (ft/veh)											2128
Occupancy (veh)	0	0	2	0	0	0	0	0	0	1	4

11: Ahern Rd & NB I-5 Ramps Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBU	SBL	SBT	All
Denied Delay (hr)	0	0	0	0	0	0	0	0	0
Denied Del/Veh (s)	0	0	0.5	0.2	0.2	0	0	0	0.1
Total Delay (hr)	0	0	0	0	0	0	0	0.2	0.3
Total Del/Veh (s)	5.2	0.1	1.8	1.3	0.5	0.3	2.1	1.7	1.5
Stop Delay (hr)	0	0	0	0	0	0	0	0	0.1
Stop Del/Veh (s)	4.5	0	2	0	0	0	0.6	0.3	0.3
Total Stops	5	0	9	0	0	0	4	0	18
Stop/Veh	1	0	1	0	0	0	0.15	0	0.03
Travel Dist (mi)	0.9	0.2	1.7	26.8	20.9	0.1	5.6	93.8	150
Travel Time (hr)	0	0	0.1	0.5	0.5	0	0.2	2.2	3.5
Avg Speed (mph)	24	19	26	51	46	41	37	42	43
Fuel Used (gal)	0	0	0.1	0.7	0.5	0	0.1	3.8	5.3
Fuel Eff. (mpg)	22.5	12.4	22.6	35.9	41.2	37.9	38.8	24.9	28.3
HC Emissions (g)	0	4	3	11	50	0	11	168	247
CO Emissions (g)	36	69	94	493	1078	1	242	4915	6929
NOx Emissions (g)	2	12	8	50	131	0	28	511	742
Vehicles Entered	5	2	9	104	80	1	27	454	682
Vehicles Exited	5	2	9	103	80	1	27	455	682
Hourly Exit Rate	5	2	9	103	80	1	27	455	682

Input Volume	5	1	9	104	75	1	28	453	676
% of Volume	95	200	97	99	106	100	96	100	101
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0
Density (ft/veh)									1610
Occupancy (veh)	0	0	0	1	0	0	0	2	3

13: Ahern Rd & Durham Ferry Rd Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All	
Denied Delay (hr)	0	0	0	0	0	0	0	0	0	0	0	0.1	0	0.1
Denied Del/Veh (s)	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.5	0.5	0.5	0.5	0.4
Total Delay (hr)	0	0.4	0.1	0.1	0.1	0.1	0	0.3	0	0.5	3	0	4.6	
Total Del/Veh (s)	7.9	13.7	6.2	9.3	9	4	7.3	12.6	3.7	21.5	27.7	24.7	19.3	
Stop Delay (hr)	0	0.2	0.1	0	0	0.1	0	0.1	0	0.3	1.8	0	2.7	
Stop Del/Veh (s)	5.6	6.7	5.4	7.8	6.4	4.4	5.3	4.4	2.3	15.4	16	20.4	11.4	
Total Stops	6	99	52	22	27	60	6	99	4	76	389	7	847	
Stop/Veh	1	0.99	0.98	1	1	1	1	0.99	1	1	0.99	1	0.99	
Travel Dist (mi)	1	17.7	9.3	3.3	4.1	9.1	1.2	20.2	0.7	12.5	64.1	1.2	144.4	
Travel Time (hr)	0	0.8	0.4	0.2	0.2	0.5	0	0.7	0	0.8	4.3	0.1	8.1	
Avg Speed (mph)	24	23	25	17	18	19	29	28	32	16	15	14	18	
Fuel Used (gal)	0	0.5	0.3	0.1	0.1	0.2	0	0.5	0	0.4	1.9	0	4.1	
Fuel Eff. (mpg)	37.2	36.5	35.3	34.8	36.8	38.6	39.2	40.9	31.5	33.7	33.8	30.7	35.5	
HC Emissions (g)	0	7	2	3	3	1	0	30	4	5	50	3	108	
CO Emissions (g)	18	361	172	47	49	35	18	745	73	246	1555	60	3380	
NOx Emissions (g)	1	24	9	7	7	4	1	77	9	14	120	7	279	
Vehicles Entered	6	99	52	22	27	60	6	99	4	76	390	7	848	
Vehicles Exited	6	100	52	22	27	60	6	99	3	76	390	7	848	
Hourly Exit Rate	6	100	52	22	27	60	6	99	3	76	390	7	848	
Input Volume	5	101	49	24	26	62	5	102	2	78	384	5	843	
% of Volume	114	99	106	92	103	97	114	97	150	98	101	133	101	
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0	0	
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0	0	
Density (ft/veh)														454
Occupancy (veh)	0	1	0	0	0	0	0	1	0	1	4	0	8	

14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp Performance by movement

Movement	WBL	WBT	WBR	NBL	NBT	SBT	SBR	All	
Denied Delay (hr)	0	0	0	0	0	0	0	0	0
Denied Del/Veh (s)	0.2	0.2	4.2	0	0	0.2	0.2	0.4	
Total Delay (hr)	0	0	0	0	0	0.1	0	0.1	
Total Del/Veh (s)	5	6.5	0.8	1.2	1	1.4	0	1.2	
Stop Delay (hr)	0	0	0	0	0	0	0	0	
Stop Del/Veh (s)	3.6	2.5	0.3	0.4	0.3	0	0	0.2	
Total Stops	6	2	8	1	0	0	0	17	
Stop/Veh	1	1	0.3	0.12	0	0	0	0.04	
Travel Dist (mi)	1.1	0.2	4.5	0.5	11.6	14.7	1.2	33.8	
Travel Time (hr)	0	0	0.2	0	0.4	0.3	0	1	
Avg Speed (mph)	28	27	31	25	29	43	32	34	
Fuel Used (gal)	0	0	0.1	0	0.8	0.6	0	1.6	
Fuel Eff. (mpg)	42	56.2	50.2	47.2	13.9	24	41.3	21	
HC Emissions (g)	1	0	10	0	33	46	0	90	
CO Emissions (g)	15	1	173	9	1218	1441	29	2886	
NOx Emissions (g)	2	0	25	1	93	118	1	240	
Vehicles Entered	6	2	27	8	170	178	14	405	
Vehicles Exited	6	2	27	8	170	178	14	405	
Hourly Exit Rate	6	2	27	8	170	178	14	405	
Input Volume	9	2	27	10	167	180	13	408	
% of Volume	65	100	100	78	102	99	110	99	
Denied Entry Before	0	0	0	0	0	0	0	0	
Denied Entry After	0	0	0	0	0	0	0	0	
Density (ft/veh)									2544
Occupancy (veh)	0	0	0	0	0	0	0	1	

15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All	
Denied Delay (hr)	0	0	0	0	0	0	0	0	0
Denied Del/Veh (s)	0.2	0.1	0.2	0	0	0	0	0.1	
Total Delay (hr)	0.2	0	0	0.1	0	0	0	0.4	
Total Del/Veh (s)	5.9	10.8	4.1	3	2	1.3	1.5	3.1	
Stop Delay (hr)	0.1	0	0	0	0	0	0	0.1	
Stop Del/Veh (s)	3.6	4.4	3	0.1	0.3	0.3	0	1.2	
Total Stops	103	5	20	2	1	9	0	140	
Stop/Veh	1	1	1	0.02	0.08	0.12	0	0.34	
Travel Dist (mi)	16.9	0.8	3.4	7.2	1.1	5.2	7.6	42	
Travel Time (hr)	0.7	0	0.1	0.3	0.1	0.2	0.2	1.6	
Avg Speed (mph)	26	24	27	24	22	25	39	27	
Fuel Used (gal)	0.4	0	0.1	0.4	0	0.1	0.3	1.3	
Fuel Eff. (mpg)	39.1	39.2	37.7	18	33.7	65.8	26.8	31.5	
HC Emissions (g)	13	2	4	34	1	4	25	82	
CO Emissions (g)	394	39	99	764	29	72	676	2073	

NOx Emissions (g)	37	5	11	93	3	9	65	222
Vehicles Entered	102	5	20	85	12	76	113	413
Vehicles Exited	103	5	20	84	12	76	112	412
Hourly Exit Rate	103	5	20	84	12	76	112	412
Input Volume	102	4	19	82	13	81	111	413
% of Volume	101	125	107	102	94	94	101	100
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0
Density (ft/veh)								1146
Occupancy (veh)	1	0	0	0	0	0	0	2

16: S Chrisman Road & I-580 WB Off Ramp Performance by movement

Movement	WBL	WBR	NBT	SBT	All
Denied Delay (hr)	0	0.1	0	0	0.1
Denied Del/Veh (s)	0.3	4.1	0	0	1.1
Total Delay (hr)	0	0	0	0	0.1
Total Del/Veh (s)	3	1.1	0.3	0.9	0.9
Stop Delay (hr)	0	0	0	0	0
Stop Del/Veh (s)	2.4	0	0	0.1	0.1
Total Stops	2	0	0	0	2
Stop/Veh	1	0	0	0	0.01
Travel Dist (mi)	0.4	10.8	3	11.7	25.8
Travel Time (hr)	0	0.4	0.1	0.3	0.7
Avg Speed (mph)	32	35	52	40	39
Fuel Used (gal)	0	0.2	0.1	0.5	0.8
Fuel Eff. (mpg)	48	47	36.2	23.1	31.3
HC Emissions (g)	0	34	5	41	79
CO Emissions (g)	2	600	112	1084	1798
NOx Emissions (g)	0	88	14	108	210
Vehicles Entered	2	58	32	131	223
Vehicles Exited	2	58	32	131	223
Hourly Exit Rate	2	58	32	131	223
Input Volume	2	54	32	128	216
% of Volume	100	107	99	102	103
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0
Density (ft/veh)					4524
Occupancy (veh)	0	0	0	0	1

17: S Chrisman Road & I-580 EB On Ramp Performance by movement

Movement	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0	0	0	0	0
Denied Del/Veh (s)	0.1	0.2	0	0	0
Total Delay (hr)	0	0	0	0	0
Total Del/Veh (s)	0.2	1.9	0.9	1.3	0.9
Stop Delay (hr)	0	0	0	0	0
Stop Del/Veh (s)	0	0	0.1	0	0
Total Stops	0	0	2	0	2
Stop/Veh	0	0	0.02	0	0.01
Travel Dist (mi)	6.1	0.2	9.4	3.6	19.3
Travel Time (hr)	0.1	0	0.3	0.1	0.5
Avg Speed (mph)	54	38	30	43	38
Fuel Used (gal)	0.2	0	0.2	0.1	0.5
Fuel Eff. (mpg)	34.8	90.4	57.5	29	41.5
HC Emissions (g)	12	0	10	9	31
CO Emissions (g)	273	0	211	234	719
NOx Emissions (g)	36	0	25	25	85
Vehicles Entered	30	1	96	38	165
Vehicles Exited	30	1	96	38	165
Hourly Exit Rate	30	1	96	38	165
Input Volume	31	1	96	36	164
% of Volume	96	100	100	107	101
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0
Density (ft/veh)					3091
Occupancy (veh)	0	0	0	0	1

18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp Performance by movement

Movement	EBL	EBT	EBR	NBT	NBR	SBL	SBT	All
Denied Delay (hr)	0	0	0	0	0	0	0	0
Denied Del/Veh (s)	0	0	0	0.2	4.1	0.3	0	0.9
Total Delay (hr)	0.1	0	0	0.1	0	0	0	0.3
Total Del/Veh (s)	6	5.8	5.9	6.4	6	7.6	7.4	6.2
Stop Delay (hr)	0	0	0	0	0	0	0	0.1
Stop Del/Veh (s)	2.7	2.6	2.6	2.8	2.6	2.9	2.8	2.7
Total Stops	40	8	18	35	29	8	10	148
Stop/Veh	1	1	1	1	1	1	1	1
Travel Dist (mi)	3.8	0.7	1.7	5.5	4.5	1.1	1.3	18.7
Travel Time (hr)	0.2	0	0.1	0.3	0.2	0.1	0.1	0.9
Avg Speed (mph)	19	20	20	22	22	20	20	21

Fuel Used (gal)	0.1	0	0	0.1	0.1	0	0	0.5
Fuel Eff. (mpg)	50.9	49.2	52.6	38.6	37.1	28.1	28.7	39.6
HC Emissions (g)	0	2	6	20	17	0	0	45
CO Emissions (g)	9	26	81	301	251	20	24	712
NOx Emissions (g)	1	4	13	51	41	1	1	113
Vehicles Entered	40	8	18	35	28	8	10	147
Vehicles Exited	40	8	18	35	29	8	10	148
Hourly Exit Rate	40	8	18	35	29	8	10	148
Input Volume	41	7	17	35	25	8	9	143
% of Volume	97	110	106	100	115	97	108	103
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0
Density (ft/veh)								4579
Occupancy (veh)	0	0	0	0	0	0	0	1

19: S Bird Rd & SR 132 WB Off On Ramps Performance by movement

Movement	EBL	EBR	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0	0	0	0	0	0	0
Denied Del/Veh (s)	0	0	0.2	0	0.1	0.1	0.1
Total Delay (hr)	0	0	0.1	0.1	0	0	0.2
Total Del/Veh (s)	6.4	6.3	10.3	8.3	5.9	6.4	8.4
Stop Delay (hr)	0	0	0	0	0	0	0.1
Stop Del/Veh (s)	3	2.8	3.5	2.8	2.7	2.9	3
Total Stops	3	4	24	51	12	2	96
Stop/Veh	1	1	0.96	0.96	1	1	0.98
Travel Dist (mi)	0.2	0.3	3.3	7.1	1.4	0.3	12.6
Travel Time (hr)	0	0	0.2	0.4	0.1	0	0.7
Avg Speed (mph)	17	17	18	20	21	21	19
Fuel Used (gal)	0	0	0.2	0.3	0	0	0.5
Fuel Eff. (mpg)	57.6	57.5	20.8	25	48.2	46	25.8
HC Emissions (g)	0	0	24	14	0	0	39
CO Emissions (g)	2	0	413	314	3	1	734
NOx Emissions (g)	0	0	65	41	0	0	106
Vehicles Entered	3	4	24	52	12	2	97
Vehicles Exited	3	4	25	52	12	2	98
Hourly Exit Rate	3	4	25	52	12	2	98
Input Volume	4	3	24	53	14	3	101
% of Volume	71	133	103	99	87	67	97
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0
Density (ft/veh)							4079
Occupancy (veh)	0	0	0	0	0	0	1

22: External Performance by approach

Approach	SB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.6	0.6
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	7.2	7.2
Travel Time (hr)	0.1	0.1
Avg Speed (mph)	52	52
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	33.2	33.2
HC Emissions (g)	15	15
CO Emissions (g)	361	361
NOx Emissions (g)	42	42
Vehicles Entered	34	34
Vehicles Exited	34	34
Hourly Exit Rate	34	34
Input Volume	33	33
% of Volume	102	102
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

24: External Performance by approach

Approach	WB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.1	0.1
Total Del/Veh (s)	0.5	0.5
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0

Stop/Veh	0	0
Travel Dist (mi)	127.6	127.6
Travel Time (hr)	4.4	4.4
Avg Speed (mph)	29	29
Fuel Used (gal)	3.1	3.1
Fuel Eff. (mpg)	40.7	40.7
HC Emissions (g)	92	92
CO Emissions (g)	1526	1526
NOx Emissions (g)	251	251
Vehicles Entered	749	749
Vehicles Exited	748	748
Hourly Exit Rate	748	748
Input Volume	758	758
% of Volume	99	99
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	4	4

25: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.3	0.3
Total Del/Veh (s)	0.9	0.9
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	169.7	169.7
Travel Time (hr)	3.5	3.5
Avg Speed (mph)	49	49
Fuel Used (gal)	5.9	5.9
Fuel Eff. (mpg)	28.8	28.8
HC Emissions (g)	311	311
CO Emissions (g)	8986	8986
NOx Emissions (g)	899	899
Vehicles Entered	1332	1332
Vehicles Exited	1331	1331
Hourly Exit Rate	1331	1331
Input Volume	1343	1343
% of Volume	99	99
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	3	3

26: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.3	0.3
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	17.9	17.9
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	33	33
Fuel Used (gal)	0.9	0.9
Fuel Eff. (mpg)	19.2	19.2
HC Emissions (g)	47	47
CO Emissions (g)	1374	1374
NOx Emissions (g)	137	137
Vehicles Entered	98	98
Vehicles Exited	98	98
Hourly Exit Rate	98	98
Input Volume	97	97
% of Volume	101	101
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

27: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0

Total Del/Veh (s)	1.4	1.4
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.3	0.3
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	22.6	22.6
Travel Time (hr)	0.7	0.7
Avg Speed (mph)	30	30
Fuel Used (gal)	0.8	0.8
Fuel Eff. (mpg)	28.1	28.1
HC Emissions (g)	22	22
CO Emissions (g)	629	629
NOx Emissions (g)	68	68
Vehicles Entered	86	86
Vehicles Exited	88	88
Hourly Exit Rate	88	88
Input Volume	89	89
% of Volume	99	99
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

28: External Performance by approach

Approach	SB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.3	0.3
Total Del/Veh (s)	2.5	2.5
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.2	0.2
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	120.2	120.2
Travel Time (hr)	3.6	3.6
Avg Speed (mph)	33	33
Fuel Used (gal)	5.2	5.2
Fuel Eff. (mpg)	23	23
HC Emissions (g)	169	169
CO Emissions (g)	5419	5419
NOx Emissions (g)	543	543
Vehicles Entered	448	448
Vehicles Exited	450	450
Hourly Exit Rate	450	450
Input Volume	465	465
% of Volume	97	97
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	4	4

29: 11th St Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0.1	0	0.1
Denied Del/Veh (s)	0.2	0	0.1
Total Delay (hr)	0.2	0.7	0.9
Total Del/Veh (s)	0.6	3.3	1.7
Stop Delay (hr)	0	0	0
Stop Del/Veh (s)	0	0.1	0.1
Total Stops	0	1	1
Stop/Veh	0	0	0
Travel Dist (mi)	164.6	105.5	270.2
Travel Time (hr)	3.9	3.3	7.2
Avg Speed (mph)	43	32	38
Fuel Used (gal)	3.8	4	7.8
Fuel Eff. (mpg)	43.1	26.5	34.6
HC Emissions (g)	172	157	329
CO Emissions (g)	3750	4797	8548
NOx Emissions (g)	536	461	996
Vehicles Entered	1011	771	1782
Vehicles Exited	1012	770	1782
Hourly Exit Rate	1012	770	1782
Input Volume	1003	764	1767
% of Volume	101	101	101
Denied Entry Before	0	0	0
Denied Entry After	0	0	0
Density (ft/veh)			551
Occupancy (veh)	4	3	7

30: 11th St Performance by movement

Movement	EBT	WBT	All
Denied Delay (hr)	0	0.1	0.1
Denied Del/Veh (s)	0	0.3	0.1
Total Delay (hr)	2.6	0.6	3.2
Total Del/Veh (s)	6.8	2.4	5
Stop Delay (hr)	0.1	0.2	0.3
Stop Del/Veh (s)	0.2	0.9	0.5
Total Stops	49	24	73
Stop/Veh	0.04	0.03	0.03
Travel Dist (mi)	216.4	112	328.4
Travel Time (hr)	7.4	2.8	10.1
Avg Speed (mph)	29	42	33
Fuel Used (gal)	12.6	3.5	16.1
Fuel Eff. (mpg)	17.1	32	20.4
HC Emissions (g)	365	152	517
CO Emissions (g)	15173	4858	20031
NOx Emissions (g)	1131	432	1563
Vehicles Entered	1384	936	2320
Vehicles Exited	1386	937	2323
Hourly Exit Rate	1386	937	2323
Input Volume	1378	920	2298
% of Volume	101	102	101
Denied Entry Before	0	0	0
Denied Entry After	0	0	0
Density (ft/veh)			384
Occupancy (veh)	7	3	10

69: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.1	0.1
Total Del/Veh (s)	1.7	1.7
Stop Delay (hr)	0.1	0.1
Stop Del/Veh (s)	1	1
Total Stops	20	20
Stop/Veh	0.1	0.1
Travel Dist (mi)	17.6	17.6
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	36	36
Fuel Used (gal)	0.9	0.9
Fuel Eff. (mpg)	18.5	18.5
HC Emissions (g)	57	57
CO Emissions (g)	1656	1656
NOx Emissions (g)	158	158
Vehicles Entered	193	193
Vehicles Exited	193	193
Hourly Exit Rate	193	193
Input Volume	191	191
% of Volume	101	101
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

72: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.7	0.7
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.1	0.1
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	27.1	27.1
Travel Time (hr)	0.6	0.6
Avg Speed (mph)	48	48
Fuel Used (gal)	0.8	0.8
Fuel Eff. (mpg)	31.9	31.9
HC Emissions (g)	60	60
CO Emissions (g)	1311	1311
NOx Emissions (g)	177	177
Vehicles Entered	117	117
Vehicles Exited	117	117
Hourly Exit Rate	117	117
Input Volume	118	118
% of Volume	99	99
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		

Occupancy (veh)	1	1
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73: External Performance by approach

Approach	SE	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.1	0.1
Total Del/Veh (s)	0.9	0.9
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	123.6	123.6
Travel Time (hr)	2.4	2.4
Avg Speed (mph)	51	51
Fuel Used (gal)	3.3	3.3
Fuel Eff. (mpg)	37.5	37.5
HC Emissions (g)	197	197
CO Emissions (g)	4542	4542
NOx Emissions (g)	588	588
Vehicles Entered	453	453
Vehicles Exited	454	454
Hourly Exit Rate	454	454
Input Volume	452	452
% of Volume	100	100
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	2	2

75: External Performance by approach

Approach	SW	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	1.3	1.3
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.3	0.3
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	1.5	1.5
Travel Time (hr)	0.1	0.1
Avg Speed (mph)	27	27
Fuel Used (gal)	0.1	0.1
Fuel Eff. (mpg)	29.9	29.9
HC Emissions (g)	0	0
CO Emissions (g)	24	24
NOx Emissions (g)	2	2
Vehicles Entered	8	8
Vehicles Exited	8	8
Hourly Exit Rate	8	8
Input Volume	9	9
% of Volume	86	86
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

76: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.3	0.3
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.1	0.1
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	5.1	5.1
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	23	23
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	27.4	27.4
HC Emissions (g)	24	24
CO Emissions (g)	377	377
NOx Emissions (g)	62	62
Vehicles Entered	20	20
Vehicles Exited	20	20
Hourly Exit Rate	20	20
Input Volume	21	21

% of Volume	94	94
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

78: NB I-5 Ramps Performance by movement

Movement	EBL	EBT	SBR	All	
Denied Delay (hr)	0	0	0	0	0
Denied Del/Veh (s)	0	0	0.1	0	0
Total Delay (hr)	0	0	0	0	0
Total Del/Veh (s)	1.2	0.2	0.8	1.1	
Stop Delay (hr)	0	0	0	0	0
Stop Del/Veh (s)	0	0.1	0	0	0
Total Stops	0	0	0	0	0
Stop/Veh	0	0	0	0	0
Travel Dist (mi)	21.4	0.6	3.7	25.7	
Travel Time (hr)	0.7	0	0.2	0.9	
Avg Speed (mph)	30	25	23	29	
Fuel Used (gal)	0.8	0	0.1	1	
Fuel Eff. (mpg)	25.6	13.9	39.2	26.5	
HC Emissions (g)	45	11	6	62	
CO Emissions (g)	1301	184	93	1578	
NOx Emissions (g)	126	29	15	170	
Vehicles Entered	108	5	14	127	
Vehicles Exited	108	5	14	127	
Hourly Exit Rate	108	5	14	127	
Input Volume	103	5	14	122	
% of Volume	105	100	102	104	
Denied Entry Before	0	0	0	0	
Denied Entry After	0	0	0	0	
Density (ft/veh)				3035	
Occupancy (veh)	1	0	0	1	

79: External Performance by approach

Approach	WB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.4	0.4
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.1	0.1
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	3.1	3.1
Travel Time (hr)	0.1	0.1
Avg Speed (mph)	31	31
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	16.3	16.3
HC Emissions (g)	3	3
CO Emissions (g)	212	212
NOx Emissions (g)	11	11
Vehicles Entered	24	24
Vehicles Exited	24	24
Hourly Exit Rate	24	24
Input Volume	25	25
% of Volume	96	96
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

80: External Performance by approach

Approach	SB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.3	0.3
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	30	30
Travel Time (hr)	0.8	0.8
Avg Speed (mph)	36	36
Fuel Used (gal)	1.2	1.2
Fuel Eff. (mpg)	24.4	24.4
HC Emissions (g)	75	75
CO Emissions (g)	1951	1951
NOx Emissions (g)	217	217

Vehicles Entered	108	108
Vehicles Exited	108	108
Hourly Exit Rate	108	108
Input Volume	103	103
% of Volume	105	105
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

81: External Performance by approach

Approach	WB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	1.9	1.9
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.7	0.7
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	7.7	7.7
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	32	32
Fuel Used (gal)	0.4	0.4
Fuel Eff. (mpg)	19.2	19.2
HC Emissions (g)	16	16
CO Emissions (g)	525	525
NOx Emissions (g)	48	48
Vehicles Entered	40	40
Vehicles Exited	40	40
Hourly Exit Rate	40	40
Input Volume	37	37
% of Volume	109	109
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

82: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.1	0.1
Total Del/Veh (s)	1.5	1.5
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.6	0.6
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	30.3	30.3
Travel Time (hr)	1.4	1.4
Avg Speed (mph)	22	22
Fuel Used (gal)	1	1
Fuel Eff. (mpg)	28.9	28.9
HC Emissions (g)	17	17
CO Emissions (g)	461	461
NOx Emissions (g)	55	55
Vehicles Entered	179	179
Vehicles Exited	178	178
Hourly Exit Rate	178	178
Input Volume	180	180
% of Volume	99	99
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

84: External Performance by approach

Approach	NW	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.2	0.2
Total Del/Veh (s)	4.8	4.8
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.6	0.6
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	31	31
Travel Time (hr)	1	1
Avg Speed (mph)	32	32
Fuel Used (gal)	2	2

Fuel Eff. (mpg)	15.6	15.6
HC Emissions (g)	73	73
CO Emissions (g)	2855	2855
NOx Emissions (g)	213	213
Vehicles Entered	164	164
Vehicles Exited	164	164
Hourly Exit Rate	164	164
Input Volume	169	169
% of Volume	97	97
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

85: External Performance by approach

Approach	SE	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.8	0.8
Total Del/Veh (s)	6.4	6.4
Stop Delay (hr)	0.1	0.1
Stop Del/Veh (s)	0.6	0.6
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	106.7	106.7
Travel Time (hr)	3	3
Avg Speed (mph)	36	36
Fuel Used (gal)	6.2	6.2
Fuel Eff. (mpg)	17.2	17.2
HC Emissions (g)	193	193
CO Emissions (g)	8149	8149
NOx Emissions (g)	584	584
Vehicles Entered	464	464
Vehicles Exited	464	464
Hourly Exit Rate	464	464
Input Volume	458	458
% of Volume	101	101
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	3	3

103: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.8	0.8
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.1	0.1
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	18.4	18.4
Travel Time (hr)	0.5	0.5
Avg Speed (mph)	34	34
Fuel Used (gal)	0.9	0.9
Fuel Eff. (mpg)	19.5	19.5
HC Emissions (g)	50	50
CO Emissions (g)	1395	1395
NOx Emissions (g)	145	145
Vehicles Entered	93	93
Vehicles Exited	93	93
Hourly Exit Rate	93	93
Input Volume	98	98
% of Volume	95	95
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	1	1

111: External Performance by approach

Approach	NB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	2.8	2.8
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.4	0.4
Total Stops	0	0
Stop/Veh	0	0

Travel Dist (mi)	7.1	7.1
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	25	25
Fuel Used (gal)	0.3	0.3
Fuel Eff. (mpg)	22	22
HC Emissions (g)	19	19
CO Emissions (g)	395	395
NOx Emissions (g)	55	55
Vehicles Entered	54	54
Vehicles Exited	54	54
Hourly Exit Rate	54	54
Input Volume	56	56
% of Volume	96	96
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

112: External Performance by approach

Approach	SB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	4.7	4.7
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.9	0.9
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	4.5	4.5
Travel Time (hr)	0.2	0.2
Avg Speed (mph)	24	24
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	19.9	19.9
HC Emissions (g)	32	32
CO Emissions (g)	549	549
NOx Emissions (g)	89	89
Vehicles Entered	28	28
Vehicles Exited	27	27
Hourly Exit Rate	27	27
Input Volume	26	26
% of Volume	103	103
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

115: External Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0.1	0.1
Total Del/Veh (s)	4.4	4.4
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0.9	0.9
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	7.3	7.3
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	24	24
Fuel Used (gal)	0.4	0.4
Fuel Eff. (mpg)	19.8	19.8
HC Emissions (g)	49	49
CO Emissions (g)	830	830
NOx Emissions (g)	134	134
Vehicles Entered	44	44
Vehicles Exited	45	45
Hourly Exit Rate	45	45
Input Volume	41	41
% of Volume	110	110
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

116: External Performance by approach

Approach	WB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0	0
Total Delay (hr)	0	0
Total Del/Veh (s)	0.2	0.2

Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	1.3	1.3
Travel Time (hr)	0	0
Avg Speed (mph)	28	28
Fuel Used (gal)	0.1	0.1
Fuel Eff. (mpg)	24.4	24.4
HC Emissions (g)	8	8
CO Emissions (g)	131	131
NOx Emissions (g)	22	22
Vehicles Entered	27	27
Vehicles Exited	27	27
Hourly Exit Rate	27	27
Input Volume	27	27
% of Volume	99	99
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

118: Bend Performance by approach

Approach	EB	All
Denied Delay (hr)	0	0
Denied Del/Veh (s)	0.2	0.2
Total Delay (hr)	0	0
Total Del/Veh (s)	0.1	0.1
Stop Delay (hr)	0	0
Stop Del/Veh (s)	0	0
Total Stops	0	0
Stop/Veh	0	0
Travel Dist (mi)	7.6	7.6
Travel Time (hr)	0.3	0.3
Avg Speed (mph)	30	30
Fuel Used (gal)	0.2	0.2
Fuel Eff. (mpg)	37.6	37.6
HC Emissions (g)	16	16
CO Emissions (g)	251	251
NOx Emissions (g)	45	45
Vehicles Entered	67	67
Vehicles Exited	66	66
Hourly Exit Rate	66	66
Input Volume	66	66
% of Volume	101	101
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	0	0

120: Bend Performance by approach

Approach	EB	WB	All
Denied Delay (hr)	0	0	0
Denied Del/Veh (s)	0.1	0	0
Total Delay (hr)	0	0	0
Total Del/Veh (s)	0.1	4.4	3.4
Stop Delay (hr)	0	0	0
Stop Del/Veh (s)	0	0.9	0.7
Total Stops	0	0	0
Stop/Veh	0	0	0
Travel Dist (mi)	0.3	1.8	2.1
Travel Time (hr)	0	0.1	0.1
Avg Speed (mph)	29	19	20
Fuel Used (gal)	0	0.1	0.1
Fuel Eff. (mpg)	26.2	13.8	14.8
HC Emissions (g)	0	20	20
CO Emissions (g)	12	348	360
NOx Emissions (g)	1	55	56
Vehicles Entered	8	27	35
Vehicles Exited	8	27	35
Hourly Exit Rate	8	27	35
Input Volume	7	27	34
% of Volume	110	99	101
Denied Entry Before	0	0	0
Denied Entry After	0	0	0
Density (ft/veh)			
Occupancy (veh)	0	0	0

Total Network Performance

Denied Delay (hr)	6.5
Denied Del/Veh (s)	4.7
Total Delay (hr)	66.8
Total Del/Veh (s)	48
Stop Delay (hr)	48.6
Stop Del/Veh (s)	34.9
Total Stops	3970
Stop/Veh	0.79
Travel Dist (mi)	2557.1
Travel Time (hr)	135
Avg Speed (mph)	20
Fuel Used (gal)	101.2
Fuel Eff. (mpg)	25.3
HC Emissions (g)	3800
CO Emissions (g)	107757
NOx Emissions (g)	10816
Vehicles Entered	4911
Vehicles Exited	4885
Hourly Exit Rate	4885
Input Volume	15360
% of Volume	32
Denied Entry Before	0
Denied Entry After	11
Density (ft/veh)	459
Occupancy (veh)	129

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Queuing ar Existing Conditions

Golden Sta PM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	SB	
Directions Served	UL	T	T	R	UL	T	T	R	LT	R	LTR	
Maximum Queue (ft)		193	374	344	166	549	467	404	53	512	170	154
Average Queue (ft)		58	197	172	52	343	189	154	8	148	44	48
95th Queue (ft)		138	311	284	120	630	520	441	32	366	166	118
Link Distance (ft)			670	670			792	792		1345		1299
Upstream Blk Time (%)							2	0				
Queuing Penalty (veh)							10	0				
Storage Bay Dist (ft)		170			320	640			260		50	
Storage Blk Time (%)		0	11	0		6	1	0		38		
Queuing Penalty (veh)		0	7	0		17	2	0		184		

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB	SB	
Directions Served	LT	R	LT	R	UL	L	
Maximum Queue (ft)		18	38	206	86	14	49
Average Queue (ft)		1	14	80	20	1	2
95th Queue (ft)		8	40	158	75	6	21
Link Distance (ft)		896		1280			
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25		25	200	230
Storage Blk Time (%)		0	2	22	1		
Queuing Penalty (veh)		0	0	2	1		

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB	
Directions Served	L	R	TR	UL	
Maximum Queue (ft)		24	49	2	61
Average Queue (ft)		3	8	0	5
95th Queue (ft)		17	33	2	32
Link Distance (ft)		1028		1368	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			25		180
Storage Blk Time (%)		1	0		
Queuing Penalty (veh)		0	0		

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB	
Directions Served	LTR	LTR	LTR	LTR	
Maximum Queue (ft)		78	98	124	401
Average Queue (ft)		28	26	48	151
95th Queue (ft)		65	66	102	340
Link Distance (ft)		919	783	1068	860
Upstream Blk Time (%)					0

Queuing Penalty (veh)0

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB
Directions Served	LT	R	LT
Maximum Queue (ft)		40	8521
Average Queue (ft)		6	191
95th Queue (ft)		25	7512
Link Distance (ft)	868		310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			45
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)		109	283
Average Queue (ft)		44	010
95th Queue (ft)		89	244
Link Distance (ft)	865	426	310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	WB
Directions Served	L
Maximum Queue (ft)	15
Average Queue (ft)	1
95th Queue (ft)	9
Link Distance (ft)	1007
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	48
Average Queue (ft)	2
95th Queue (ft)	20
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)		87	96	90	80	3333
Average Queue (ft)		33	31	40	34	79
95th Queue (ft)		73	94	97	89	2932
Link Distance (ft)		444	444	820		681
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					600	215
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	NB	NB	SB
Directions Served	L	R	L	T	TR
Maximum Queue (ft)		53	31	89	9335
Average Queue (ft)		4	4	35	3713
95th Queue (ft)		27	19	97	8339
Link Distance (ft)		265	265		681606

Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)295
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 29: 11th St

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 30: 11th St

Movement	EB	EB	WB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	513	521	90	43
Average Queue (ft)	23	29	16	10
95th Queue (ft)	224	245	149	104
Link Distance (ft)	792	792	628	628
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 33: Chrisman Road & Logistics Center Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 38: Chrisman Road & University Driveway

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 78: NB I-5 Ramps

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary
Network wide Queuing Penalty: 179

HC Emissions (g)	7227
CO Emissions (g)	166747
NOx Emissions (g)	19250
Vehicles Entered	6425
Vehicles Exited	6428
Hourly Exit Rate	6428
Input Volume	18536
% of Volume	35
Denied Entry Before	0
Denied Entry After	1
Density (ft/veh)	640
Occupancy (veh)	120

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Fehr & Peers Page 0

SimTraffic Report

↑
Queuing and Blocking Report
Existing+Phase1 Conditions 11/27/2024

Intersection: 1: Chrisman Rd & 11th St

Movement						EB	EB	EB	EB	WB
WB	WB	WB	NB	NB	SB					
Directions Served						L	T	T	R	L
T	T	R	LT	R	LTR					
Maximum Queue (ft)						118	209	190	111	502
413	383	53	375	190	110					
Average Queue (ft)						43	122	98	37	257
169	151	12	137	41	28					
95th Queue (ft)						94	190	174	81	489
369	315	39	286	169	76					
Link Distance (ft)							670	670		
792	792		1345		1299					
Upstream Blk Time (%)										
0	0									
Queuing Penalty (veh)										
0	0									
Storage Bay Dist (ft)						170			320	640
	260			70						
Storage Blk Time (%)							2			1
0	1		31							
Queuing Penalty (veh)							1			6
0	0		153							

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB
NB					
Directions Served	LT	R	LT	R	UL

TR					
Maximum Queue (ft)	44	65	112	74	8
1					
Average Queue (ft)	4	19	49	30	0
0					
95th Queue (ft)	23	54	90	79	5
2					
Link Distance (ft)	896		1280		
1034					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		25		25	200
Storage Blk Time (%)	0	2	12	2	
Queuing Penalty (veh)	0	0	3	2	

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	L
Maximum Queue (ft)	19	61	2	62
Average Queue (ft)	1	9	0	7
95th Queue (ft)	10	41	2	36
Link Distance (ft)	1028		1368	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		25		180
Storage Blk Time (%)	0	1		
Queuing Penalty (veh)	0	0		

Intersection: 12: S Chrisman Road & Durham Ferry Road

Movement	WB	SB
Directions Served	LR	LT
Maximum Queue (ft)	70	32
Average Queue (ft)	34	3
95th Queue (ft)	59	17
Link Distance (ft)	1990	926
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	52	90	106	110
Average Queue (ft)	12	33	48	46
95th Queue (ft)	35	67	87	84
Link Distance (ft)	919	783	1068	860
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB
Directions Served	LT	R	LT
Maximum Queue (ft)	782	95	35
Average Queue (ft)	415	89	4
95th Queue (ft)	966	115	21
Link Distance (ft)	868		310
Upstream Blk Time (%)	15		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		45	
Storage Blk Time (%)	1	65	
Queuing Penalty (veh)	3	5	

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	117	11	171
Average Queue (ft)	45	0	54
95th Queue (ft)	90	6	123
Link Distance (ft)	865	426	310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	9
Average Queue (ft)	0
95th Queue (ft)	6
Link Distance (ft)	426
Upstream Blk Time (%)	
Queuing Penalty (veh)	

Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	26
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	457
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	SB
Directions Served	LT	R	L
Maximum Queue (ft)	26	128	23
Average Queue (ft)	3	52	1
95th Queue (ft)	17	110	10
Link Distance (ft)	444	444	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			215
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	NB
Directions Served	L	R	L
Maximum Queue (ft)	31	126	89
Average Queue (ft)	2	69	9
95th Queue (ft)	14	108	49
Link Distance (ft)	265	265	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			295
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 29: 11th St

Movement	WB
Directions Served	T

Maximum Queue (ft)	52
Average Queue (ft)	2
95th Queue (ft)	57
Link Distance (ft)	670
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 30: Chrisman Road & University Dwy

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	26	35
Average Queue (ft)	10	4
95th Queue (ft)	28	23
Link Distance (ft)	400	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 37: Chrisman Road & B St

Movement	WB	WB	NB	NB	SB
SB					
Directions Served	L	R	T	R	L
T					
Maximum Queue (ft)	221	109	40	126	92
86					
Average Queue (ft)	99	28	9	59	21
28					
95th Queue (ft)	180	74	34	104	74
69					
Link Distance (ft)	562		898		
3192					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150		250	150
Storage Blk Time (%)	2				0
Queuing Penalty (veh)	1				0

Intersection: 38: 11th St

Movement	EB	EB	EB	WB
Directions Served	T	T	R	T
Maximum Queue (ft)	170	200	66	18
Average Queue (ft)	6	12	2	1
95th Queue (ft)	112	162	74	17
Link Distance (ft)	792	792	792	628
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 78: NB I-5 Ramps

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary
Network wide Queuing Penalty: 176

% of Volume	97	106	104
Denied Entry Before	0	0	0
Denied Entry After	0	0	0
Density (ft/veh)			
Occupancy (veh)	0	0	0

Total Network Performance

Denied Delay (hr)	2.1
Denied Del/Veh (s)	1.0
Total Delay (hr)	40.7
Total Del/Veh (s)	20.1
Stop Delay (hr)	23.9
Stop Del/Veh (s)	11.8
Total Stops	3778
Stop/Veh	0.52
Travel Dist (mi)	3472.9
Travel Time (hr)	131.2
Avg Speed (mph)	27
Fuel Used (gal)	123.6
Fuel Eff. (mpg)	28.1
HC Emissions (g)	5063
CO Emissions (g)	142781
NOx Emissions (g)	14270
Vehicles Entered	7179
Vehicles Exited	7187
Hourly Exit Rate	7187
Input Volume	20633
% of Volume	35
Denied Entry Before	0
Denied Entry After	1
Density (ft/veh)	592
Occupancy (veh)	129

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SimTraffic Report



Queuing and Blocking Report

Existing+Phase1 Conditions 11/27/2024

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	WB
WB WB WB NB NB SB					
Directions Served	UL	T	T	R	L
T T R LT R LTR					
Maximum Queue (ft)	214	312	294	135	561
461 400 42 396 190 139					

Average Queue (ft)					53	186	164	48	349
186	155	6	127	36	45				
95th Queue (ft)					125	280	267	99	619
515	447	27	288	157	109				
Link Distance (ft)						670	670		
792	792		1345		1299				
Upstream Blk Time (%)									
2	0								
Queuing Penalty (veh)									
10	0								
Storage Bay Dist (ft)					170			320	640
	260			70					
Storage Blk Time (%)						10	0		6
0	0	28	0						
Queuing Penalty (veh)						6	0		17
1	0	145	0						

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB
SB					
Directions Served	LT	R	LT	R	UL
L					
Maximum Queue (ft)	25	44	148	75	14
41					
Average Queue (ft)	1	19	64	21	1
2					
95th Queue (ft)	11	46	118	69	7
18					
Link Distance (ft)	896		1280		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		25		25	200
230					
Storage Blk Time (%)	0	3	22	1	
Queuing Penalty (veh)	0	0	2	2	

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	UL
Maximum Queue (ft)	24	38	10	57
Average Queue (ft)	4	6	0	6
95th Queue (ft)	17	26	7	29
Link Distance (ft)	1028		1368	

Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		25	180
Storage Blk Time (%)	1	0	
Queuing Penalty (veh)	0	0	

Intersection: 12: S Chrisman Road & Durham Ferry Road

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	67	6	85
Average Queue (ft)	30	0	16
95th Queue (ft)	53	4	49
Link Distance (ft)	1990	638	926
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	76	75	96	325
Average Queue (ft)	27	26	40	118
95th Queue (ft)	59	57	77	251
Link Distance (ft)	919	783	1068	860
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	149	94	52	2
Average Queue (ft)	20	47	5	0
95th Queue (ft)	91	102	30	2
Link Distance (ft)	868		310	431
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	0	10		
Queuing Penalty (veh)	0	1		

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	210	4	141
Average Queue (ft)	76	0	44
95th Queue (ft)	153	3	100
Link Distance (ft)	865	426	310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	WB	SB
Directions Served	L	LT
Maximum Queue (ft)	6	29
Average Queue (ft)	0	1
95th Queue (ft)	3	14
Link Distance (ft)	1015	426
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	31
Average Queue (ft)	2
95th Queue (ft)	16
Link Distance (ft)	457
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	SB
Directions Served	LT	R	L
Maximum Queue (ft)	73	74	16
Average Queue (ft)	30	24	0
95th Queue (ft)	61	72	7
Link Distance (ft)	444	444	
Upstream Blk Time (%)			
Queuing Penalty (veh)			

Storage Bay Dist (ft)	215
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	NB
Directions Served	L	R	L
Maximum Queue (ft)	47	31	18
Average Queue (ft)	3	4	1
95th Queue (ft)	23	20	11
Link Distance (ft)	265	265	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			295
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 29: 11th St

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 30: Chrisman Road & University Dwy

Movement	EB	NB
Directions Served	LR	L
Maximum Queue (ft)	34	26
Average Queue (ft)	20	2
95th Queue (ft)	36	14
Link Distance (ft)	400	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 37: Chrisman Road & B St

Movement	WB	WB	NB	NB	SB
SB					

Directions Served	L	R	T	R	L
T					
Maximum Queue (ft)	243	138	39	110	78
77					
Average Queue (ft)	128	34	6	48	17
27					
95th Queue (ft)	212	85	26	89	63
65					
Link Distance (ft)	562		898		
3192					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		150		250	150
Storage Blk Time (%)	4				
Queuing Penalty (veh)	5				

Intersection: 38: 11th St

Movement	EB	EB	EB	WB	WB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	134	482	66	74	59
Average Queue (ft)	7	33	2	14	9
95th Queue (ft)	114	262	74	117	86
Link Distance (ft)	792	792	792	628	628
Upstream Blk Time (%)		0	0		
Queuing Penalty (veh)		0	0		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 78: NB I-5 Ramps

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 190

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SimTraffic Report

Occupancy (veh)

297

Fehr & Peers 11/13/2024



Queuing and Blocking Report Existing Plus Project
GoldenState International Logistics Center AM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement						EB	EB	EB	EB	WB
WB	WB	WB	NB	NB	SB					
Directions Served						L	T	T	R	L
T	T	R	LT	R	LTR					
Maximum Queue (ft)						146	256	222	198	700
876	441	71	1084	170	145					
Average Queue (ft)						46	143	110	77	699
812	176	12	408	104	33					
95th Queue (ft)						106	231	197	155	701
850	378	48	911	239	97					
Link Distance (ft)							670	670		
792	792		1345		1299					
Upstream Blk Time (%)										
65	0		0							
Queuing Penalty (veh)										
474	0		0							
Storage Bay Dist (ft)						170			320	640
	260			50						
Storage Blk Time (%)						0	4			88
0	1		49							
Queuing Penalty (veh)						0	2			390
2	0		305							

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement		EB	EB	WB	WB	NB
SB						
Directions Served		LT	R	LT	R	UL
TR						
Maximum Queue (ft)		65	83	235	86	19
1						
Average Queue (ft)		6	33	94	57	1
0						
95th Queue (ft)		34	64	179	101	9
1						
Link Distance (ft)		896		1280		
1154						
Upstream Blk Time (%)						
Queuing Penalty (veh)						

Storage Bay Dist (ft)		25	25	200
Storage Blk Time (%)	0	6	27	9
Queuing Penalty (veh)	0	0	25	20

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	L
Maximum Queue (ft)	28	86	12	96
Average Queue (ft)	2	14	0	22
95th Queue (ft)	15	59	5	66
Link Distance (ft)	1028		1368	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		25		180
Storage Blk Time (%)	0	1		0
Queuing Penalty (veh)	0	0		0

Intersection: 12: Chrisman Road & Durham Ferry Road

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	411	560	164	781
Average Queue (ft)	220	208	22	314
95th Queue (ft)	397	407	85	655
Link Distance (ft)	1984	2606		926
Upstream Blk Time (%)				1
Queuing Penalty (veh)				0
Storage Bay Dist (ft)			150	
Storage Blk Time (%)				15
Queuing Penalty (veh)				3

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	107	184	144	149
Average Queue (ft)	27	67	60	62
95th Queue (ft)	72	143	117	122
Link Distance (ft)	919	783	1068	860
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	939	95	292	502
Average Queue (ft)	924	95	43	441
95th Queue (ft)	961	96	192	687
Link Distance (ft)	868		310	431
Upstream Blk Time (%)	100		4	34
Queuing Penalty (veh)	0		38	0
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	5	66		
Queuing Penalty (veh)	81	5		

Intersection: 15: Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	932	262	345
Average Queue (ft)	883	38	297
95th Queue (ft)	918	209	400
Link Distance (ft)	865	426	310
Upstream Blk Time (%)	100	3	15
Queuing Penalty (veh)	0	10	100
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	156	73	18	76
Average Queue (ft)	30	8	2	7
95th Queue (ft)	302	64	19	44
Link Distance (ft)	1015		457	426
Upstream Blk Time (%)	2			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		70		
Storage Blk Time (%)		1		
Queuing Penalty (veh)		0		

Intersection: 17: Chrisman Road & I-580 EB On Ramp

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	2	62
Average Queue (ft)	0	5
95th Queue (ft)	2	35
Link Distance (ft)	1051	457

Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB
Directions Served	LT	R	T	R	L
Maximum Queue (ft)	36	166	23	47	214
Average Queue (ft)	3	74	1	2	76
95th Queue (ft)	18	142	14	24	166
Link Distance (ft)	444	444	820		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				600	215
Storage Blk Time (%)					0
Queuing Penalty (veh)					0

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	SB
Directions Served	L	R	T	L	TR
Maximum Queue (ft)	390	312	271	258	71
Average Queue (ft)	371	114	266	98	7
95th Queue (ft)	411	245	289	195	38
Link Distance (ft)	266	266	200		
1136					
Upstream Blk Time (%)	94	1	87		
Queuing Penalty (veh)	0	0	0		
Storage Bay Dist (ft)				295	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 78: NB I-5 Ramps

Movement
 Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 97: 11th St

Movement	EB	EB	EB	WB	WB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	62	224	66	699	645
Average Queue (ft)	2	10	2	677	480
95th Queue (ft)	59	122	74	752	833
Link Distance (ft)	792	792	792	628	628
Upstream Blk Time (%)			0	92	0
Queuing Penalty (veh)			0	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 122: 11th St

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary
Network wide Queuing Penalty: 1455

Fehr & Peers 11/13/2024

NOx Emissions (g)	44	44
Vehicles Entered	165	165
Vehicles Exited	165	165
Hourly Exit Rate	165	165
Input Volume	170	170
% of Volume	97	97
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	2	2

Total Network Performance

Denied Delay (hr)	33.9
Denied Del/Veh (s)	15.7
Total Delay (hr)	185.2
Total Del/Veh (s)	81.5
Stop Delay (hr)	95.5
Stop Del/Veh (s)	42.0
Total Stops	13856
Stop/Veh	1.69
Travel Dist (mi)	11534.7
Travel Time (hr)	523.7
Avg Speed (mph)	24
Fuel Used (gal)	401.0
Fuel Eff. (mpg)	28.8
HC Emissions (g)	24988
CO Emissions (g)	497410
NOx Emissions (g)	68956
Vehicles Entered	7725
Vehicles Exited	7693
Hourly Exit Rate	7693
Input Volume	51526
% of Volume	15
Denied Entry Before	6
Denied Entry After	53
Density (ft/veh)	387
Occupancy (veh)	490

Fehr & Peers 11/22/2024



Queuing and Blocking Report Existing Plus Project
GoldenState International Logistics Center AM Peak Hour

Intersection: 1: Chrisman Road

Movement	NB	NB	NB	SB	SB
Directions Served	T	T	T	T	T

Maximum Queue (ft)	51	64	30	9	22
Average Queue (ft)	2	3	1	0	1
95th Queue (ft)	25	33	25	8	11
Link Distance (ft)	287	287	287	1044	
1044					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 12: S Chrisman Road/Chrisman Road & Durham Ferry Road

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	203	69	173	185	92
47 210 182					
Average Queue (ft)	100	17	60	76	31
15 97 76					
95th Queue (ft)	172	46	134	148	72
42 177 152					
Link Distance (ft)		1960	2578	2578	
914 914					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250				250
150					
Storage Blk Time (%)	0				
1					
Queuing Penalty (veh)	0				
0					

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	WB	WB	NB
NB NB SB SB SB SB					
Directions Served	LT	R	R	R	L
T T T T T R					
Maximum Queue (ft)	50	357	387	322	56
320 326 670 645 574 443					
Average Queue (ft)	6	239	262	189	7
158 182 321 299 142 128					
95th Queue (ft)	30	338	360	293	35
300 327 620 590 383 302					
Link Distance (ft)		9685			
293 293 808 808 808					

Upstream Blk Time (%)								
1	1	0	1	1				
Queuing Penalty (veh)								
4	7	1	2	2				
Storage Bay Dist (ft)					400		1000	1000
					400			
Storage Blk Time (%)						0		
16			2	0				
Queuing Penalty (veh)						0		
2			8	0				

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement		EB	EB	EB	NB	SB
SB	SB					
Directions Served		L	L	TR	TR	L
L	T					
Maximum Queue (ft)		508	548	90	529	324
340	307					
Average Queue (ft)		276	316	8	251	278
276	152					
95th Queue (ft)		471	518	126	449	363
362	317					
Link Distance (ft)				1615	402	293
293	293					
Upstream Blk Time (%)					3	23
23	4					
Queuing Penalty (veh)					9	61
59	11					
Storage Bay Dist (ft)		1000	1000			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	15	98	12	106
Average Queue (ft)	1	6	0	8
95th Queue (ft)	16	52	6	59
Link Distance (ft)	1014		457	402
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		70		
Storage Blk Time (%)		0		
Queuing Penalty (veh)		0		

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	127
Average Queue (ft)	8
95th Queue (ft)	56
Link Distance (ft)	457
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB
SB					
Directions Served	LT	R	T	R	L
T					
Maximum Queue (ft)	29	165	42	34	250
117					
Average Queue (ft)	2	73	2	2	102
4					
95th Queue (ft)	15	142	19	20	217
67					
Link Distance (ft)	444	444	820		
681					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				600	215
Storage Blk Time (%)					1
Queuing Penalty (veh)					1

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB
SB					
Directions Served	L	R	T	L	T
TR					
Maximum Queue (ft)	391	298	537	358	366
558					
Average Queue (ft)	266	115	85	194	39
306					
95th Queue (ft)	411	241	346	347	230

520				
Link Distance (ft)	270	270	2302	681
620				
Upstream Blk Time (%)	15	0		0
0				
Queuing Penalty (veh)	0	0		0
0				
Storage Bay Dist (ft)			295	
Storage Blk Time (%)			6	
Queuing Penalty (veh)			2	

Intersection: 22: S Bird Rd & C St/W Vernalis Rd

Movement	EB	NB
Directions Served	LTR	L
Maximum Queue (ft)	174	125
Average Queue (ft)	91	22
95th Queue (ft)	148	80
Link Distance (ft)	410	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		150
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 30: Chrisman Road & University Dwy

Movement	EB	NB	NB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	56	113	10	2	24
Average Queue (ft)	19	48	0	0	2
95th Queue (ft)	44	90	9	3	14
Link Distance (ft)	2336		499	2578	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		250			250
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 31: Chrisman Road & University Main Driveway

Movement	EB	EB	NB	NB	NB
SB SB SB					
Directions Served	L	R	L	T	T
T T R					
Maximum Queue (ft)	91	92	263	137	165
314 332 174					

Average Queue (ft)	37	34	134	24	39
154 165 37					
95th Queue (ft)	72	71	223	94	113
268 283 107					
Link Distance (ft)		2231		883	883
499 499					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250		400		
250					
Storage Blk Time (%)					
1					
Queuing Penalty (veh)					
2					

Intersection: 32: Chrisman Road & PG Central Dwy

Movement	EB	WB
Directions Served	R	R
Maximum Queue (ft)	148	25
Average Queue (ft)	45	5
95th Queue (ft)	112	19
Link Distance (ft)	1980	1878
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 33: Chrisman Road & A St

Movement						EB	EB	EB	EB	WB
WB WB NB NB NB NB						NB	SB	SB	SB	SB
SB										
Directions Served						L	L	T	R	L
T R L L T T						R	L	L	T	T
R										
Maximum Queue (ft)						109	158	73	248	210
63 125 258 305 362 352						233	107	167	299	319
223										
Average Queue (ft)						30	56	9	92	73
9 34 121 145 143 147						34	40	72	148	159
54										
95th Queue (ft)						80	125	40	192	176
43 88 223 249 282 288						111	87	131	266	276
132										
Link Distance (ft)								2010		
1928				359	359				1077	

1077

Upstream Blk Time (%)	0	0	0	0					
Queuing Penalty (veh)	0	1	1	0					
Storage Bay Dist (ft)	250	250	250	250	250	250	250	250	250
Storage Blk Time (%)	0	1	1	1			0	1	
Queuing Penalty (veh)	1	4	4	1			0	0	
							1	2	

Intersection: 34: Chrisman Road & PG Central Dwy 2

Movement	EB	WB	NB	NB	SB
SB					
Directions Served	R	R	T	T	T
TR					
Maximum Queue (ft)	38	45	11	3	23
8					
Average Queue (ft)	12	12	0	0	1
0					
95th Queue (ft)	37	34	8	3	19
8					
Link Distance (ft)	2126	1836	633	633	359
359					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 35: Chrisman Road & East Area Industrial Dwy

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	195	106	425	417	228
161 205 236					

Average Queue (ft)	63	30	181	149	44
67 52 79					
95th Queue (ft)	150	79	360	321	143
127 149 191					
Link Distance (ft)	1690	1690	534	534	
633 633					
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)					150
250					
Storage Blk Time (%)				5	0
0					
Queuing Penalty (veh)				6	0
0					

Intersection: 36: Chrisman Road & PG East Dwy

Movement	WB	NB	NB	SB	SB
Directions Served	R	T	T	T	T
Maximum Queue (ft)	71	31	40	11	20
Average Queue (ft)	13	1	2	0	1
95th Queue (ft)	43	18	24	11	11
Link Distance (ft)	1729	458	458	534	534
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 37: Chrisman Road & B St

[illegible]

Storage Bay Dist (ft)	300			150	
150 750 750	250	250			250
Storage Blk Time (%)	0			8	0
0		0	5	8	
Queuing Penalty (veh)	0			3	0
0		0	5	6	

Intersection: 38: Chrisman Road & Gateway Center Dwy

Movement						WB	WB	WB	NB	NB
NB	NB	SB	SB	SB	SB	SB				
Directions Served						L	L	R	T	T
T	R	L	L	T	T	T				
Maximum Queue (ft)						364	426	380	340	342
338	243	211	212	240	246	294				
Average Queue (ft)						130	210	157	277	266
228	107	113	110	87	75	119				
95th Queue (ft)						289	359	298	329	342
329	243	196	184	204	187	251				
Link Distance (ft)							1730	1730	243	243
243				287	287	287				
Upstream Blk Time (%)									16	11
4	0			0	0	0				
Queuing Penalty (veh)									116	80
28	0			0	0	1				
Storage Bay Dist (ft)						350				
	150	300	300							
Storage Blk Time (%)						0	1			
12	1			0						
Queuing Penalty (veh)						0	2			
26	4			0						

Intersection: 39: Gateway Center Dwy 2 & Chrisman Road

Movement	WB	NB	NB	NB	NB
SB SB SB					
Directions Served	R	T	T	T	R
T T T					
Maximum Queue (ft)	177	330	338	272	22
6 18 41					
Average Queue (ft)	53	117	77	41	1
0 1 1					
95th Queue (ft)	134	271	212	162	25
4 15 33					
Link Distance (ft)	1764	808	808	808	
243 243 243					
Upstream Blk Time (%)			0		
0					
Queuing Penalty (veh)			0		
1					

Storage Bay Dist (ft)		150
Storage Blk Time (%)	1	
Queuing Penalty (veh)	1	

Network Summary
Network wide Queuing Penalty: 471

Fehr & Peers 11/22/2024

Total Del/Veh (s)	100.0
Stop Delay (hr)	213.4
Stop Del/Veh (s)	75.4
Total Stops	7748
Stop/Veh	0.76
Travel Dist (mi)	5186.2
Travel Time (hr)	1620.9
Avg Speed (mph)	12
Fuel Used (gal)	508.8
Fuel Eff. (mpg)	10.2
HC Emissions (g)	12619
CO Emissions (g)	268954
NOx Emissions (g)	23891
Vehicles Entered	9828
Vehicles Exited	9757
Hourly Exit Rate	9757
Input Volume	33206
% of Volume	29
Denied Entry Before	194
Denied Entry After	2253
Density (ft/veh)	149
Occupancy (veh)	417

Fehr & Peers 11/13/2024



Queuing and Blocking Report Existing Plus Project
Golden State International Logistics Center PM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	WB	WB	WB	NB	NB	SB	EB	EB	EB	EB	WB
Directions Served	T	T	R	LT	R	LTR	UL	T	T	R	L
Maximum Queue (ft)	852	713	67	1282	170	153	251	417	386	307	700
Average Queue (ft)	800	168	8	885	133	42	67	226	200	78	698
95th Queue (ft)	889	473	39	1756	247	106	164	348	318	180	725
Link Distance (ft)	792	792		1345		1299		670	670		
Upstream Blk Time (%)	65	0		20							
Queuing Penalty (veh)	344	0		0							
Storage Bay Dist (ft)		260			50		170			320	640
Storage Blk Time (%)							0	16	1	0	91

0	0	57	0					
Queuing Penalty (veh)				0	10	1	0	262
1	0	438	1					

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB
SB					
Directions Served	LT	R	LT	R	UL
L					
Maximum Queue (ft)	96	72	309	86	22
50					
Average Queue (ft)	9	45	118	46	1
4					
95th Queue (ft)	54	71	233	95	9
27					
Link Distance (ft)	896		1280		
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		25		25	200
230					
Storage Blk Time (%)	0	26	42	5	
Queuing Penalty (veh)	0	0	26	10	

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	UL
Maximum Queue (ft)	24	52	14	90
Average Queue (ft)	4	7	1	30
95th Queue (ft)	18	33	12	68
Link Distance (ft)	1028		1368	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		25		180
Storage Blk Time (%)	1	0		
Queuing Penalty (veh)	0	0		

Intersection: 12: Chrisman Road & Durham Ferry Road

Movement	WB	NB	SB	SB
Directions Served	LR	TR	L	T
Maximum Queue (ft)	488	2677	224	366
Average Queue (ft)	302	2314	101	129
95th Queue (ft)	544	3240	187	289

Link Distance (ft)	1984	2606		926
Upstream Blk Time (%)		32		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)			150	
Storage Blk Time (%)			7	3
Queuing Penalty (veh)			40	3

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	193	134	148	758
Average Queue (ft)	64	50	59	378
95th Queue (ft)	149	104	119	815
Link Distance (ft)	919	783	1068	860
Upstream Blk Time (%)				6
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	939	95	318	475
Average Queue (ft)	920	78	152	176
95th Queue (ft)	967	137	395	542
Link Distance (ft)	868		310	431
Upstream Blk Time (%)	100		36	10
Queuing Penalty (veh)	0		222	0
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	27	48		
Queuing Penalty (veh)	251	5		

Intersection: 15: Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	932	497	318
Average Queue (ft)	883	182	164
95th Queue (ft)	922	560	362
Link Distance (ft)	865	426	310
Upstream Blk Time (%)	100	30	5
Queuing Penalty (veh)	0	58	54
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	681	137	214	50
Average Queue (ft)	247	46	52	3
95th Queue (ft)	927	168	243	26
Link Distance (ft)	1015		457	426
Upstream Blk Time (%)	17		3	
Queuing Penalty (veh)	0		1	
Storage Bay Dist (ft)		70		
Storage Blk Time (%)		5		
Queuing Penalty (veh)		0		

Intersection: 17: Chrisman Road & I-580 EB On Ramp

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	17	70
Average Queue (ft)	2	5
95th Queue (ft)	20	33
Link Distance (ft)	1051	457
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	SB	SB
Directions Served	LT	R	T	L	T
Maximum Queue (ft)	137	93	10	215	27
Average Queue (ft)	50	35	0	62	0
95th Queue (ft)	114	100	8	150	0
Link Distance (ft)	444	444	820		681
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				215	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB
SB					
Directions Served	L	R	T	L	T
TR					
Maximum Queue (ft)	390	32	271	107	5
108					
Average Queue (ft)	363	3	228	28	0

28					
95th Queue (ft)	466	19	367	89	5
79					
Link Distance (ft)	266	266	200		681
1136					
Upstream Blk Time (%)	89		80		
Queuing Penalty (veh)	0		0		
Storage Bay Dist (ft)				295	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 78: NB I-5 Ramps

Movement
 Directions Served
 Maximum Queue (ft)
 Average Queue (ft)
 95th Queue (ft)
 Link Distance (ft)
 Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 97: 11th St

Movement	EB	EB	EB	WB	WB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	767	785	546	699	634
Average Queue (ft)	97	155	27	630	388
95th Queue (ft)	494	625	265	845	818
Link Distance (ft)	792	792	792	628	628
Upstream Blk Time (%)	0	0	0	83	0
Queuing Penalty (veh)	0	1	1	0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 122: 11th St

Movement
 Directions Served
 Maximum Queue (ft)
 Average Queue (ft)

95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Network Summary
Network wide Queuing Penalty: 1729

Fehr & Peers 11/13/2024

Stop/Veh	1.74
Travel Dist (mi)	10209.2
Travel Time (hr)	442.7
Avg Speed (mph)	24
Fuel Used (gal)	348.4
Fuel Eff. (mpg)	29.3
HC Emissions (g)	14577
CO Emissions (g)	337893
NOx Emissions (g)	42136
Vehicles Entered	6972
Vehicles Exited	6975
Hourly Exit Rate	6975
Input Volume	49748
% of Volume	14
Denied Entry Before	0
Denied Entry After	13
Density (ft/veh)	442
Occupancy (veh)	428

Fehr & Peers 11/22/2024



Queuing and Blocking Report Existing Plus Project
Golden State International Logistics Center PM Peak Hour

Intersection: 1: Chrisman Road

Movement	NB	NB	SB	SB
Directions Served	T	T	T	T
Maximum Queue (ft)	20	9	3	26
Average Queue (ft)	1	0	0	1
95th Queue (ft)	18	11	3	15
Link Distance (ft)	287	287	1044	1044
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 12: S Chrisman Road/Chrisman Road & Durham Ferry Road

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	207	104	266	248	123
188 203 135					
Average Queue (ft)	103	16	99	107	44
73 59 34					
95th Queue (ft)	180	60	204	200	91

142	149	98							
Link Distance (ft)						1960	2578	2578	
	914	914							
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)					250				250
150									
Storage Blk Time (%)					0	0		0	
2	1								
Queuing Penalty (veh)					0	0		0	
5	0								

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement						WB	WB	WB	WB	NB
NB	NB	SB	SB	SB	SB					
Directions Served						LT	R	R	R	L
T	T	T	T	T	R					
Maximum Queue (ft)						54	259	273	193	125
318	336	420	413	308	224					
Average Queue (ft)						10	122	140	86	10
165	183	199	208	93	85					
95th Queue (ft)						36	207	230	160	62
327	334	365	371	218	175					
Link Distance (ft)							9685			
293	293	808	808	808						
Upstream Blk Time (%)										
3	2									
Queuing Penalty (veh)										
8	7									
Storage Bay Dist (ft)						400		1000	1000	100
					400					
Storage Blk Time (%)										0
27				0						
Queuing Penalty (veh)										0
3				0						

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement						EB	EB	EB	NB	SB
SB	SB									
Directions Served						L	L	TR	TR	L
L	T									
Maximum Queue (ft)						373	389	67	384	312
318	204									
Average Queue (ft)						172	206	9	163	150
156	50									
95th Queue (ft)						312	334	35	311	291

289	145			
Link Distance (ft)		1615	402	293
293	293			
Upstream Blk Time (%)			0	1
1	0			
Queuing Penalty (veh)			1	4
5	0			
Storage Bay Dist (ft)	1000	1000		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	WB	NB	SB
Directions Served	L	T	LT
Maximum Queue (ft)	9	2	128
Average Queue (ft)	1	0	9
95th Queue (ft)	4	3	59
Link Distance (ft)	1014	457	402
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	67
Average Queue (ft)	5
95th Queue (ft)	32
Link Distance (ft)	457
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB
SB					
Directions Served	LT	R	T	R	L
T					
Maximum Queue (ft)	118	96	6	24	274
125					

Average Queue (ft)	44	33	0	1	107
6					
95th Queue (ft)	95	97	6	12	245
84					
Link Distance (ft)	444	444	820		
681					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				600	215
Storage Blk Time (%)					1
Queuing Penalty (veh)					0

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB
SB					
Directions Served	L	R	T	L	T
TR					
Maximum Queue (ft)	377	31	140	158	74
411					
Average Queue (ft)	214	3	18	49	10
247					
95th Queue (ft)	369	18	117	130	44
383					
Link Distance (ft)	270	270	2302		681
620					
Upstream Blk Time (%)	9				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)				295	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 22: S Bird Rd & C St/W Vernalis Rd

Movement	EB	NB	SB
Directions Served	LTR	L	LTR
Maximum Queue (ft)	481	92	3
Average Queue (ft)	385	9	0
95th Queue (ft)	602	47	3
Link Distance (ft)	410		362

Upstream Blk Time (%)	58	
Queuing Penalty (veh)	0	
Storage Bay Dist (ft)		150
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 30: Chrisman Road & University Dwy

Movement	EB	NB	SB
Directions Served	R	L	R
Maximum Queue (ft)	78	55	4
Average Queue (ft)	36	19	0
95th Queue (ft)	64	47	3
Link Distance (ft)	2336		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	250
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 31: Chrisman Road & University Main Driveway

Movement	EB	EB	NB	NB	NB
SB SB SB					
Directions Served	L	R	L	T	T
T T R					
Maximum Queue (ft)	169	166	137	213	213
243 266 52					
Average Queue (ft)	83	77	61	79	97
113 122 21					
95th Queue (ft)	139	137	108	164	180
194 216 49					
Link Distance (ft)		2231		883	883
499 499					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250		400		
250					
Storage Blk Time (%)		0			
0					
Queuing Penalty (veh)		0			
0					

Intersection: 32: Chrisman Road & PG Central Dwy

Movement	EB	WB
Directions Served	R	R
Maximum Queue (ft)	27	28

Average Queue (ft)	7	7
95th Queue (ft)	25	25
Link Distance (ft)	1980	1878
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 33: Chrisman Road & A St

Movement						EB	EB	EB	EB	WB
WB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
SB										
Directions Served						L	L	T	R	L
T	R	L	L	T	T	R	L	L	T	T
R										
Maximum Queue (ft)						151	173	102	274	163
81	118	247	269	251	244	114	95	124	310	318
168										
Average Queue (ft)						60	77	9	120	61
8	45	106	132	109	111	30	22	53	137	148
38										
95th Queue (ft)						118	136	56	228	130
42	91	211	226	208	207	81	64	98	240	253
107										
Link Distance (ft)								2010		
1928				359	359				1077	
1077										
Upstream Blk Time (%)										

Queuing Penalty (veh)

Storage Bay Dist (ft)						250	250		250	250
250	250	250	250			250	250	250		
Storage Blk Time (%)							0		1	
0	0	1	0	0					1	1
Queuing Penalty (veh)							0		1	
0	1	3	1	0					1	1
0										

Intersection: 34: Chrisman Road & PG Central Dwy 2

Movement	EB	WB	SB
Directions Served	R	R	T
Maximum Queue (ft)	76	49	2

Average Queue (ft)	33	19	0
95th Queue (ft)	62	40	2
Link Distance (ft)	2126	1836	359
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 35: Chrisman Road & East Area Industrial Dwy

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	144	90	305	296	127
106 181 220					
Average Queue (ft)	52	28	110	94	23
45 47 82					
95th Queue (ft)	118	70	230	201	77
86 125 178					
Link Distance (ft)	1690	1690	534	534	
633 633					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					150
250					
Storage Blk Time (%)				1	0
0					
Queuing Penalty (veh)				1	0
0					

Intersection: 36: Chrisman Road & PG East Dwy

Movement	WB	NB	SB	SB
Directions Served	R	T	T	T
Maximum Queue (ft)	55	7	16	52
Average Queue (ft)	22	0	1	4
95th Queue (ft)	45	8	11	46
Link Distance (ft)	1729	458	534	534
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 37: Chrisman Road & B St

Movement						EB	EB	EB	WB	WB
WB	NB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served						L	T	R	L	T
R	L	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)						337	652	957	222	140
97	285	252	280	286	143	75	211	439	490	290
Average Queue (ft)						112	113	519	98	17
37	138	137	132	133	46	17	48	219	256	40
95th Queue (ft)						254	605	965	188	76
82	241	220	247	244	106	53	131	383	420	156
Link Distance (ft)							2238	2238		
1906				1044	1044	1044			458	458

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

150	750	750				300				
						250	250			250
Storage Blk Time (%)						2			4	0
0								5	9	
Queuing Penalty (veh)						0			4	0
0								3	5	

Intersection: 38: Chrisman Road & Gateway Center Dwy

Movement						WB	WB	WB	NB	NB
NB	NB	SB	SB	SB	SB	SB				
Directions Served						L	L	R	T	T
T	R	L	L	T	T	T				
Maximum Queue (ft)						148	205	145	312	290
247	164	133	148	208	213	251				
Average Queue (ft)						34	94	52	192	164
127	50	59	77	79	90	123				
95th Queue (ft)						94	164	111	300	265
229	116	113	126	164	175	223				
Link Distance (ft)							1730	1730	243	243
243				287	287	287				
Upstream Blk Time (%)									3	1
0	0			0	0	0				
Queuing Penalty (veh)									14	6
1	0			0	0	0				
Storage Bay Dist (ft)						350				
150	300		300							
Storage Blk Time (%)										
2	0			0						
Queuing Penalty (veh)										
3	0			0						

Intersection: 39: Gateway Center Dwy 2 & Chrisman Road

Movement	WB	NB	NB	NB
Directions Served	R	T	T	T
Maximum Queue (ft)	88	100	50	18
Average Queue (ft)	33	10	3	1
95th Queue (ft)	73	55	29	11
Link Distance (ft)	1764	808	808	808
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 87

Fehr & Peers 11/22/2024

Appendix C: Cumulative Vehicle Queuing Calculations

Queuing at Cumulative No Project
Pacific Gat AM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R	L	L	T	T	R	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	97	198	326	329	189	220	226	327	354	295	319	266	333	342	340	731	165	176	129
Average Queue (ft)	30	62	170	181	51	113	131	194	195	110	148	92	100	175	253	327	71	68	49
95th Queue (ft)	75	132	276	291	133	190	203	295	300	206	276	196	216	302	370	623	135	142	99
Link Distance (ft)			632	632				5224	5224			5207	5207			3793	3793	3793	
Upstream Blk Time (%)																			
Queuing Penalty (veh)																			
Storage Bay Dist (ft)	200	200			320	640	640			260	250			250	250				250
Storage Blk Time (%)			5	0	0				2	0	3	0	0	3	10	18			
Queuing Penalty (veh)			5	0	0				11	1	3	0	0	4	28	49			

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	R	LT	R	UL	TR	L
Maximum Queue (ft)	87	86	205	86	14		6
Average Queue (ft)	14	20	73	40	1		1
95th Queue (ft)	53	63	153	102	7		3
Link Distance (ft)	896		1280			1034	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		25		25	200		230
Storage Blk Time (%)	2	2	18	5			
Queuing Penalty (veh)	0	0	5	6			

Intersection: 11: Ahern Rd & SB I-5 Ramps

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	L
Maximum Queue (ft)	24	85	42	124
Average Queue (ft)	4	14	2	28
95th Queue (ft)	18	60	22	93
Link Distance (ft)	1028		1368	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		25		180
Storage Blk Time (%)	1	1		0
Queuing Penalty (veh)	0	0		0

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	92	153	989	171
Average Queue (ft)	28	48	472	75
95th Queue (ft)	75	107	999	141
Link Distance (ft)	919	783	1068	860
Upstream Blk Time (%)			6	
Queuing Penalty (veh)			0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB
Directions Served	LT	R	LT
Maximum Queue (ft)	176	92	39
Average Queue (ft)	21	50	4
95th Queue (ft)	96	116	22
Link Distance (ft)	868		310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		45	
Storage Blk Time (%)	0	1	
Queuing Penalty (veh)	0	0	

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	86	40	181
Average Queue (ft)	22	1	43
95th Queue (ft)	66	16	127
Link Distance (ft)	865	426	310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	WB
Directions Served	L
Maximum Queue (ft)	20
Average Queue (ft)	2
95th Queue (ft)	13
Link Distance (ft)	1007

Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	77
Average Queue (ft)	6
95th Queue (ft)	40
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 29: 11th St

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 78: SB I-5 Ramps & NB I-5 Ramps

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary
Network wide Queuing Penalty: 129

Fuel Used (gal)	0.2	0	0.3	0.1	0.7
Fuel Eff. (mpg)	34.1	85	55.3	30.5	43.9
HC Emissions (g)	11	0	16	8	36
CO Emissions (g)	284	3	353	216	856
NOx Emissions (g)	34	0	41	23	98
Vehicles Entered	39	6	168	40	253
Vehicles Exited	39	6	169	40	254
Hourly Exit Rate	39	6	169	40	254
Input Volume	40	5	165	43	253
% of Volume	98	114	102	94	100
Denied Entry Before	0	0	0	0	0
Denied Entry After	0	0	0	0	0
Density (ft/veh)					1833
Occupancy (veh)	0	0	1	0	1

29: 11th St Performance by movement

Movement
Denied Delay (hr)
Denied Del/Veh (s)
Total Delay (hr)
Total Del/Veh (s)
Stop Delay (hr)
Stop Del/Veh (s)
Total Stops
Stop/Veh
Travel Dist (mi)
Travel Time (hr)
Avg Speed (mph)
Fuel Used (gal)
Fuel Eff. (mpg)
HC Emissions (g)
CO Emissions (g)
NOx Emissions (g)
Vehicles Entered
Vehicles Exited
Hourly Exit Rate
Input Volume
% of Volume
Denied Entry Before
Denied Entry After
Density (ft/veh)
Occupancy (veh)

Total Network Performance

Denied Delay (hr)	66.6
Denied Del/Veh (s)	31.1
Total Delay (hr)	393.7
Total Del/Veh (s)	180.7
Stop Delay (hr)	343.9
Stop Del/Veh (s)	157.8
Total Stops	9604
Stop/Veh	1.22
Travel Dist (mi)	5720.6
Travel Time (hr)	611.8
Avg Speed (mph)	10
Fuel Used (gal)	271.3
Fuel Eff. (mpg)	21.1
HC Emissions (g)	7735
CO Emissions (g)	182555
NOx Emissions (g)	20112
Vehicles Entered	7535
Vehicles Exited	7141
Hourly Exit Rate	7141
Input Volume	18680
% of Volume	38
Denied Entry Before	1
Denied Entry After	159
Density (ft/veh)	135
Occupancy (veh)	545

Fehr & Pee 4/19/2023

Queuing ar Cumulative No Project
Pacific Gati PM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	EB	B29	B29	WB	WB	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB	SB
Directions Served	L	L	T	T	R	T	T	L	L	T	T	R	L	T	T	R	L	L	T	T	R
Maximum Queue (ft)	246	300	734	743	400	244	53	260	526	565	535	596	369	340	1346	1417	370	340	1264	382	386
Average Queue (ft)	138	245	541	555	124	53	59	345	367	155	169	239	185	773	830	342	321	751	106	108	40
95th Queue (ft)	231	372	810	822	392	231	239	599	627	523	437	406	384	1454	1541	453	384	1343	318	323	87
Link Distance (ft)			632	632		3192	3192			5224	5224				5207	5207			3793	3793	3793
Upstream Blk Time (%)			13	16																	
Queuing Penalty (veh)			0	0																	
Storage Bay Dist (ft)	200	200			320			640	640				260	250			250	250			250
Storage Blk Time (%)	2	7	51	41	0			1	5	0			10	2	53	52	30	38	60		0
Queuing Penalty (veh)	8	30	143	33	0			1	6	1			13	9	48	262	109	109	171		0

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	R	LT	R	UL	L
Maximum Queue (ft)	52	58	1258	86	19	73
Average Queue (ft)	11	23	908	24	1	8
95th Queue (ft)	40	52	1602	84	9	43
Link Distance (ft)	896		1280			
Upstream Blk Time (%)			28			
Queuing Penalty (veh)			0			
Storage Bay Dist (ft)		25		25	200	230
Storage Blk Time (%)	3	10	86	1		
Queuing Penalty (veh)	1	1	9	4		

Intersection: 11: Ahern Rd & SB I-5 Ramps

Movement	WB	WB	SB
----------	----	----	----

Directions Served	L	R	L	
Maximum Queue (ft)		19	51	47
Average Queue (ft)		2	4	4
95th Queue (ft)		12	26	25
Link Distance (ft)	1028			
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			25	180
Storage Blk Time (%)		0	0	
Queuing Penalty (veh)		0	0	

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)		108	112	153
Average Queue (ft)		34	34	65
95th Queue (ft)		77	81	122
Link Distance (ft)		919	783	1068
Upstream Blk Time (%)				85
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB
Directions Served	LT	R	LT
Maximum Queue (ft)		72	86
Average Queue (ft)		11	20
95th Queue (ft)		40	77
Link Distance (ft)		868	310
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			45
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)		169	10
Average Queue (ft)		67	0
95th Queue (ft)		132	8
Link Distance (ft)		865	426
Upstream Blk Time (%)			310
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	WB
Directions Served	L
Maximum Queue (ft)	20
Average Queue (ft)	3
95th Queue (ft)	13
Link Distance (ft)	1007
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	75
Average Queue (ft)	8
95th Queue (ft)	42
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 29: 11th St

Movement	EB	EB
Directions Served	T	T
Maximum Queue (ft)	1162	1160
Average Queue (ft)	560	524
95th Queue (ft)	1349	1293
Link Distance (ft)	1494	1494
Upstream Blk Time (%)	4	3
Queuing Penalty (veh)	0	0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 78: SB I-5 Ramps & NB I-5 Ramps

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 1666

Fehr & Pee 4/19/2023

Total Del/Veh (s)	52.9
Stop Delay (hr)	130.1
Stop Del/Veh (s)	39.8
Total Stops	7800
Stop/Veh	0.66
Travel Dist (mi)	6505.9
Travel Time (hr)	1684.5
Avg Speed (mph)	19
Fuel Used (gal)	557.5
Fuel Eff. (mpg)	11.7
HC Emissions (g)	18842
CO Emissions (g)	386564
NOx Emissions (g)	37941
Vehicles Entered	11456
Vehicles Exited	11453
Hourly Exit Rate	11453
Input Volume	36774
% of Volume	31
Denied Entry Before	276
Denied Entry After	2389
Density (ft/veh)	279
Occupancy (veh)	342

Fehr & Peers 12/11/2024

Queuing and Blocking Report Cumulative Plus Project
GoldenState International Logistics Center AM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement						EB	EB	EB	EB	EB
EB	WB	WB	WB	WB	WB	NB	NB	NB	NB	NB
SB	SB	SB	SB	SB	SB					
Directions Served						L	L	T	T	T
R	L	L	T	T	R	L	L	T	T	T
L	L	T	T	T	R					
Maximum Queue (ft)						106	149	318	284	199
166	665	701	700	642	282	225	268	144	107	34
368	408	158	113	36	95					
Average Queue (ft)						23	62	172	148	74
64	445	478	327	258	98	74	125	68	38	4
208	245	71	32	3	41					
95th Queue (ft)						73	114	265	239	165
131	805	842	879	707	206	185	222	119	79	20
356	390	121	77	20	77					
Link Distance (ft)								622	622	622
			1266	1266				1329	1329	
1329		1295	1295	1295	1295					
Upstream Blk Time (%)										

			2	0			
Queuing Penalty (veh)			15	1			
Storage Bay Dist (ft)					300	300	
320	800	800			260	250	250
450					250		
Storage Blk Time (%)							1
0	2	8	0	3	0	0	0
Queuing Penalty (veh)	1						1
0	6	25	1	16	0	0	0
	3						

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement				EB	EB	EB	WB	WB
NB	NB	SB	SB					
Directions Served				L	T	R	L	TR
UL	TR	L	TR					
Maximum Queue (ft)				54	32	36	178	185
37	171	30	120					
Average Queue (ft)				5	4	2	62	72
7	75	4	36					
95th Queue (ft)				28	20	20	131	140
27	137	19	92					
Link Distance (ft)					895			
1279	1037		1159					
Upstream Blk Time (%)								

Queuing Penalty (veh)							
Storage Bay Dist (ft)				300		300	300
200		230					
Storage Blk Time (%)							
0							
Queuing Penalty (veh)							
0							

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	TR	L	T
Maximum Queue (ft)	26	77	53	125	4
Average Queue (ft)	3	12	4	38	0
95th Queue (ft)	16	52	27	90	4
Link Distance (ft)	1028		1368		
1037					
Upstream Blk Time (%)					

Queuing Penalty (veh)			
Storage Bay Dist (ft)		25	180
Storage Blk Time (%)	1	1	0
Queuing Penalty (veh)	0	0	0

Intersection: 12: Chrisman Road & Durham Ferry Road

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	246	77	160	167	82
68 210 190					
Average Queue (ft)	109	16	73	56	25
27 104 74					
95th Queue (ft)	191	49	142	127	62
60 173 146					
Link Distance (ft)		1960	2606	2606	
914 914					
Upstream Blk Time (%)					

Queuing Penalty (veh)

Storage Bay Dist (ft)	250		250
250			
Storage Blk Time (%)	0		
0			
Queuing Penalty (veh)	0		
0			

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	EB	WB	WB	NB
NB SB SB					
Directions Served	L	TR	L	TR	L
TR L TR					
Maximum Queue (ft)	13	113	24	241	17
276 120 91					
Average Queue (ft)	1	23	3	83	2
120 43 18					
95th Queue (ft)	8	73	15	178	10
218 98 60					
Link Distance (ft)	906	906	772	772	
1058 1058 850 850					
Upstream Blk Time (%)					

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 14: Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	939	95	296	502
Average Queue (ft)	924	95	57	446
95th Queue (ft)	961	97	224	678
Link Distance (ft)	868		310	431
Upstream Blk Time (%)	100		5	39
Queuing Penalty (veh)	0		50	0
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	5	64		
Queuing Penalty (veh)	79	7		

Intersection: 15: Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	930	331	354
Average Queue (ft)	878	52	300
95th Queue (ft)	912	257	402
Link Distance (ft)	865	426	310
Upstream Blk Time (%)	100	4	19
Queuing Penalty (veh)	0	16	132
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	276	121	53	88
Average Queue (ft)	34	12	5	6
95th Queue (ft)	295	80	56	40
Link Distance (ft)	1015		457	426
Upstream Blk Time (%)	1			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		70		
Storage Blk Time (%)		3		
Queuing Penalty (veh)		0		

Intersection: 17: Chrisman Road & I-580 EB On Ramp

Movement	SB
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Directions Served	LT
Maximum Queue (ft)	105
Average Queue (ft)	12
95th Queue (ft)	63
Link Distance (ft)	457
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB
SB					
Directions Served	LT	R	T	R	L
T					
Maximum Queue (ft)	27	164	41	62	240
34					
Average Queue (ft)	2	73	3	2	96
1					
95th Queue (ft)	16	138	28	26	198
38					
Link Distance (ft)	444	444	820		
681					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				600	215
Storage Blk Time (%)					0
Queuing Penalty (veh)					0

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB
SB					
Directions Served	L	R	T	L	T
TR					
Maximum Queue (ft)	388	318	249	359	370
700					
Average Queue (ft)	248	113	50	189	50
326					
95th Queue (ft)	397	241	198	347	275
648					
Link Distance (ft)	266	266	200		681
2026					

Upstream Blk Time (%)	12	1	4	0
Queuing Penalty (veh)	0	0	0	0
Storage Bay Dist (ft)				295
Storage Blk Time (%)				7
Queuing Penalty (veh)				2

Intersection: 78: NB I-5 Ramps

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 97: 11th St

Movement	EB	EB	EB	EB	WB
WB					
Directions Served	T	T	T	R	T
T					
Maximum Queue (ft)	173	310	127	2	204
297					
Average Queue (ft)	8	27	15	0	41
41					
95th Queue (ft)	122	187	70	2	294
288					
Link Distance (ft)	1266	1266	1266	1266	628
628					
Upstream Blk Time (%)					2
1					
Queuing Penalty (veh)					0
0					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 122: 11th St

Movement	WB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	2
95th Queue (ft)	59
Link Distance (ft)	622
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 353

Fehr & Peers 12/11/2024

Input Volume	170	170
% of Volume	94	94
Denied Entry Before	0	0
Denied Entry After	0	0
Density (ft/veh)		
Occupancy (veh)	2	2

Total Network Performance

Denied Delay (hr)	28.3
Denied Del/Veh (s)	12.9
Total Delay (hr)	189.0
Total Del/Veh (s)	81.9
Stop Delay (hr)	96.9
Stop Del/Veh (s)	42.0
Total Stops	14064
Stop/Veh	1.69
Travel Dist (mi)	11731.6
Travel Time (hr)	526.3
Avg Speed (mph)	24
Fuel Used (gal)	406.0
Fuel Eff. (mpg)	28.9
HC Emissions (g)	25004
CO Emissions (g)	500235
NOx Emissions (g)	69194
Vehicles Entered	7826
Vehicles Exited	7817
Hourly Exit Rate	7817
Input Volume	52821
% of Volume	15
Denied Entry Before	5
Denied Entry After	44
Density (ft/veh)	380
Occupancy (veh)	498

Fehr & Peers 12/11/2024



Queuing and Blocking Report Existing Plus Project
GoldenState International Logistics Center AM Peak Hour

Intersection: 1: Chrisman Road

Movement	NB	NB	NB
Directions Served	T	T	T
Maximum Queue (ft)	55	99	44
Average Queue (ft)	2	6	2
95th Queue (ft)	29	47	28
Link Distance (ft)	287	287	287

Upstream Blk Time (%)
 Queuing Penalty (veh)
 Storage Bay Dist (ft)
 Storage Blk Time (%)
 Queuing Penalty (veh)

Intersection: 12: S Chrisman Road/Chrisman Road & Durham Ferry Road

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	205	76	164	189	101
52 244 215					
Average Queue (ft)	103	15	61	76	32
14 102 85					
95th Queue (ft)	173	44	133	145	75
41 190 171					
Link Distance (ft)		1960	2578	2578	
914 914					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250				250
150					
Storage Blk Time (%)	0				
1					
Queuing Penalty (veh)	0				
0					

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	WB	WB	NB
NB NB SB SB SB SB					
Directions Served	LT	R	R	R	L
T T T T T R					
Maximum Queue (ft)	58	377	391	317	40
310 319 634 619 556 423					
Average Queue (ft)	9	238	262	192	6
143 165 307 289 155 138					
95th Queue (ft)	38	339	362	295	27
285 305 611 592 408 319					
Link Distance (ft)		9685			
293 293 808 808 808					
Upstream Blk Time (%)					
1 1 0 0 0					
Queuing Penalty (veh)					
4 5 1 1 2					
Storage Bay Dist (ft)	400		1000	1000	100

		400	
Storage Blk Time (%)			0
17	2	0	
Queuing Penalty (veh)			1
2	10	1	

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement		EB	EB	EB	NB	SB
SB SB						
Directions Served		L	L	TR	TR	L
L T						
Maximum Queue (ft)		578	634	136	541	332
339 310						
Average Queue (ft)		320	366	7	272	256
254 121						
95th Queue (ft)		557	608	101	486	370
371 279						
Link Distance (ft)				1615	402	293
293 293						
Upstream Blk Time (%)					4	15
14 2						
Queuing Penalty (veh)					14	42
38 6						
Storage Bay Dist (ft)		1000	1000			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB
Directions Served	L	R	T
Maximum Queue (ft)	65	122	10
Average Queue (ft)	9	13	1
95th Queue (ft)	116	79	7
Link Distance (ft)	1007		466
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		70	
Storage Blk Time (%)		1	
Queuing Penalty (veh)		0	

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	194

Average Queue (ft)	23
95th Queue (ft)	108
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB
SB					
Directions Served	LT	R	T	R	L
T					
Maximum Queue (ft)	27	144	26	56	260
68					
Average Queue (ft)	2	71	1	2	100
2					
95th Queue (ft)	15	136	14	24	208
54					
Link Distance (ft)	444	444	820		
681					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				600	215
Storage Blk Time (%)					1
Queuing Penalty (veh)					1

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB
SB					
Directions Served	L	R	T	L	T
TR					
Maximum Queue (ft)	395	316	576	357	272
531					
Average Queue (ft)	266	117	84	179	34
284					
95th Queue (ft)	416	251	370	330	180
494					
Link Distance (ft)	270	270	2302		681
620					
Upstream Blk Time (%)	15	1			0
0					

Queuing Penalty (veh)	0	0	0
0			
Storage Bay Dist (ft)			295
Storage Blk Time (%)			4
Queuing Penalty (veh)			1

Intersection: 22: S Bird Rd & C St/W Vernalis Rd

Movement	EB	NB	SB
Directions Served	LTR	L	LTR
Maximum Queue (ft)	190	140	6
Average Queue (ft)	92	26	0
95th Queue (ft)	153	93	3
Link Distance (ft)	410		362
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		150	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 30: Chrisman Road & University Dwy

Movement	EB	NB	NB	SB	SB
Directions Served	R	L	T	T	R
Maximum Queue (ft)	52	120	7	2	26
Average Queue (ft)	20	51	0	0	3
95th Queue (ft)	45	100	6	2	15
Link Distance (ft)	2336		499	2578	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		250			250
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 31: Chrisman Road & University Main Driveway

Movement	EB	EB	NB	NB	NB
SB SB SB					
Directions Served	L	R	L	T	T
T T R					
Maximum Queue (ft)	95	92	283	128	139
341 359 181					
Average Queue (ft)	37	36	144	23	37
167 180 41					
95th Queue (ft)	75	73	239	81	103
280 308 109					
Link Distance (ft)		2231		883	883

499 499
Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)	250	400
250		
Storage Blk Time (%)		0
2		
Queuing Penalty (veh)		0
3		

Intersection: 32: Chrisman Road & PG Central Dwy

Movement	EB	WB	SB	SB
Directions Served	R	R	T	T
Maximum Queue (ft)	120	22	2	3
Average Queue (ft)	36	3	0	0
95th Queue (ft)	99	16	2	4
Link Distance (ft)	1980	1878	883	883
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 33: Chrisman Road & A St

Movement						EB	EB	EB	EB	WB
WB	WB	NB	NB	NB	NB	NB	SB	SB	SB	SB
SB										
Directions Served						L	L	T	R	L
T	R	L	L	T	T	R	L	L	T	T
R										
Maximum Queue (ft)						144	169	80	268	171
82	115	246	295	330	318	110	104	174	327	334
190										
Average Queue (ft)						36	59	10	96	59
10	32	114	139	134	134	33	38	67	166	172
57										
95th Queue (ft)						96	131	48	203	136
47	84	207	237	260	269	85	84	121	289	301
131										
Link Distance (ft)								2010		
1928				359	359				1077	
1077										
Upstream Blk Time (%)			0	0	0					

Queuing Penalty (veh)

		0	1	1					
Storage Bay Dist (ft)					250	250		250	250
250	250	250			250	250	250		
Storage Blk Time (%)					0	0		1	
0	0	1	1				2	2	
Queuing Penalty (veh)					0	0		0	
0	2	3	1				3	3	

Intersection: 34: Chrisman Road & PG Central Dwy 2

Movement	EB	WB	NB	NB
Directions Served	R	R	T	T
Maximum Queue (ft)	44	41	31	2
Average Queue (ft)	12	12	1	0
95th Queue (ft)	38	33	19	2
Link Distance (ft)	2126	1836	633	633
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Chrisman Road & East Area Industrial Dwy

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	215	96	454	402	227
177 228 235					
Average Queue (ft)	68	29	184	149	41
75 58 80					
95th Queue (ft)	160	75	374	313	141
149 165 183					
Link Distance (ft)	1690	1690	534	534	
633 633					
Upstream Blk Time (%)			0	0	
Queuing Penalty (veh)			1	0	
Storage Bay Dist (ft)					150
250					
Storage Blk Time (%)				5	
0 0					
Queuing Penalty (veh)				6	
1 0					

Intersection: 36: Chrisman Road & PG East Dwy

Movement	WB	NB	NB	SB	SB
Directions Served	R	T	T	T	T
Maximum Queue (ft)	66	28	68	28	20
Average Queue (ft)	13	1	3	1	1
95th Queue (ft)	41	19	38	17	11
Link Distance (ft)	1729	458	458	534	534
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 37: Chrisman Road & B St

Movement	EB	EB	EB	WB	WB
WB NB NB NB NB NB	SB	SB	SB	SB	SB
Directions Served	L	T	R	L	T
R L L T T R	L	L	T	T	R
Maximum Queue (ft)	224	120	459	237	167
99 400 437 526 542 442	106	258	473	492	326
Average Queue (ft)	85	15	188	95	17
27 205 200 219 215 83	33	60	238	261	64
95th Queue (ft)	180	71	361	202	90
73 350 344 419 420 254	78	163	410	426	214
Link Distance (ft)		2238	2238		
1906	1044	1044	1044	458	458
Upstream Blk Time (%)			0	1	
Queuing Penalty (veh)			3	4	
Storage Bay Dist (ft)	300			150	
150 750 750	250	250			250
Storage Blk Time (%)	0		7	7	0
0			7	10	
Queuing Penalty (veh)	0			3	0
0			6	8	

Intersection: 38: Chrisman Road & Gateway Center Dwy

Movement	WB	WB	WB	NB	NB
NB NB SB SB SB SB	SB				
Directions Served	L	L	R	T	T
T R L L T T	T				
Maximum Queue (ft)	351	390	369	337	332
318 243 211 228 258 251	274				
Average Queue (ft)	119	194	153	276	262

220	107	109	114	94	85	125				
95th Queue (ft)						267	330	288	331	346
321	238	195	189	216	202	256				
Link Distance (ft)							1730	1730	243	243
243				287	287	287				
Upstream Blk Time (%)									16	10
3	0		0	0	0	0				
Queuing Penalty (veh)									113	74
24	0		0	0	0	0				
Storage Bay Dist (ft)						350				
	150	300	300							
Storage Blk Time (%)						0	1			
11	1		0	0						
Queuing Penalty (veh)						0	1			
25	4		0	0						

Intersection: 39: Gateway Center Dwy 2 & Chrisman Road

Movement		WB	NB	NB	NB	SB
SB SB						
Directions Served		R	T	T	T	T
T T						
Maximum Queue (ft)		130	341	320	221	9
4 23						
Average Queue (ft)		43	106	68	30	0
0 1						
95th Queue (ft)		117	263	207	127	10
5 24						
Link Distance (ft)		1764	808	808	808	243
243 243						
Upstream Blk Time (%)			0			
0						
Queuing Penalty (veh)			0			
0						
Storage Bay Dist (ft)						
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Network Summary

Network wide Queuing Penalty: 421

Total Del/Veh (s)	64.4
Stop Delay (hr)	183.6
Stop Del/Veh (s)	48.2
Total Stops	9898
Stop/Veh	0.72
Travel Dist (mi)	7610.2
Travel Time (hr)	1547.1
Avg Speed (mph)	17
Fuel Used (gal)	553.0
Fuel Eff. (mpg)	13.8
HC Emissions (g)	13377
CO Emissions (g)	320050
NOx Emissions (g)	28823
Vehicles Entered	13335
Vehicles Exited	13287
Hourly Exit Rate	13287
Input Volume	41190
% of Volume	32
Denied Entry Before	208
Denied Entry After	2006
Density (ft/veh)	218
Occupancy (veh)	438

Fehr & Peers 12/11/2024



Queuing and Blocking Report Cumulative Plus Project
Golden State International Logistics Center PM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	EB	EB	EB	EB	EB	EB
	NB	NB	NB	NB	NB	NB	NB	NB	NB	NB
Directions Served	L	L	T	T	T	L	L	T	T	T
Maximum Queue (ft)	247	400	643	650	586	241	294	324	273	231
355	400	430	283	267	318	514	710	394	325	67
Average Queue (ft)	118	298	508	479	423	172	239	276	130	113
340	413	143	101	7	28	95th Queue (ft)	200	505	738	719
446	360	392	230	217	261	175	228	286	258	221
532	783	466	407	36	52	Link Distance (ft)	622	622	622	
			1266	1266			1329	1329		
1329	1295	1295	1295	1295	1295	Upstream Blk Time (%)	14	9	6	

1	1	0						
Queuing Penalty (veh)						61	39	24
0	0	0						
Storage Bay Dist (ft)				300	300			
320	800	800	260	250	250			
450			250					
Storage Blk Time (%)				0	0	51		32
0		0	1	0	1	3		0
6	12							
Queuing Penalty (veh)				0	0	143		45
0		1	1	0	2	2		0
17	34							

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement				EB	EB	EB	WB	WB
NB	NB	SB	SB					
Directions Served				L	T	R	L	TR
UL	TR	L	TR					
Maximum Queue (ft)				33	34	120	296	171
33	154	107	327					
Average Queue (ft)				5	6	44	147	50
5	50	24	143					
95th Queue (ft)				24	25	96	258	120
21	112	74	261					
Link Distance (ft)					895			
1279		1037	1159					
Upstream Blk Time (%)								

Queuing Penalty (veh)

Storage Bay Dist (ft)			300		300	300
200		230				
Storage Blk Time (%)					1	
0		2				
Queuing Penalty (veh)					1	
0		0				

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB
Directions Served	L	R	TR	L
Maximum Queue (ft)	30	52	44	127
Average Queue (ft)	4	8	3	44
95th Queue (ft)	20	34	22	94
Link Distance (ft)	1028		1368	
Upstream Blk Time (%)				
Queuing Penalty (veh)				

Storage Bay Dist (ft)		25	180
Storage Blk Time (%)	3	1	0
Queuing Penalty (veh)	0	0	0

Intersection: 12: Chrisman Road & Durham Ferry Road

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	162	50	237	224	108
127 158 111					
Average Queue (ft)	70	10	102	93	48
56 59 30					
95th Queue (ft)	129	31	187	181	87
102 120 77					
Link Distance (ft)		1960	2606	2606	
914 914					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250				250
250					
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	EB	WB	WB	NB
NB SB SB					
Directions Served	L	TR	L	TR	L
TR L TR					
Maximum Queue (ft)	17	186	88	143	11
153 94 351					
Average Queue (ft)	1	64	15	42	1
55 26 141					
95th Queue (ft)	9	141	52	104	6
122 68 277					
Link Distance (ft)	906	906	772	772	
1058 1058 850 850					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					

Queuing Penalty (veh)

Intersection: 14: Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	939	95	320	502
Average Queue (ft)	917	71	194	184
95th Queue (ft)	967	139	424	559
Link Distance (ft)	868		310	431
Upstream Blk Time (%)	100		40	16
Queuing Penalty (veh)	0		274	0
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	36	41		
Queuing Penalty (veh)	342	6		

Intersection: 15: Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	918	568	325
Average Queue (ft)	881	261	170
95th Queue (ft)	921	683	381
Link Distance (ft)	865	426	310
Upstream Blk Time (%)	100	40	8
Queuing Penalty (veh)	0	100	106
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	1034	179	292	49
Average Queue (ft)	369	56	80	3
95th Queue (ft)	1120	177	302	23
Link Distance (ft)	1015		457	426
Upstream Blk Time (%)	20		5	
Queuing Penalty (veh)	0		2	
Storage Bay Dist (ft)		70		
Storage Blk Time (%)		9		
Queuing Penalty (veh)		0		

Intersection: 17: Chrisman Road & I-580 EB On Ramp

Movement	NB	SB
Directions Served	TR	LT

Maximum Queue (ft)	48	56
Average Queue (ft)	12	5
95th Queue (ft)	119	26
Link Distance (ft)	1051	457
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	SB	SB
Directions Served	LT	R	T	L	T
Maximum Queue (ft)	111	100	2	247	30
Average Queue (ft)	41	33	0	73	1
95th Queue (ft)	85	98	2	183	33
Link Distance (ft)	444	444	820		681
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				215	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB
SB					
Directions Served	L	R	T	L	T
TR					
Maximum Queue (ft)	375	28	152	165	78
592					
Average Queue (ft)	215	2	13	46	10
232					
95th Queue (ft)	367	15	85	128	49
461					
Link Distance (ft)	266	266	200		681
2026					
Upstream Blk Time (%)	8		0		
Queuing Penalty (veh)	0		0		
Storage Bay Dist (ft)				295	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 78: NB I-5 Ramps

Movement

Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 97: 11th St

Movement	EB	EB	EB	EB
Directions Served	T	T	T	R
Maximum Queue (ft)	461	857	893	38
Average Queue (ft)	126	212	214	2
95th Queue (ft)	331	511	512	21
Link Distance (ft)	1266	1266	1266	1266
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 122: 11th St

Movement	EB	EB	EB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	384	326	178	10
Average Queue (ft)	105	75	32	0
95th Queue (ft)	364	300	162	8
Link Distance (ft)	857	857	857	622
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1203



Queuing and Blocking Report Existing Plus Project
Golden State International Logistics Center PM Peak Hour

Intersection: 1: Chrisman Road

Movement	NB	NB	SB
Directions Served	T	T	T
Maximum Queue (ft)	7	9	17
Average Queue (ft)	0	0	1
95th Queue (ft)	6	8	13
Link Distance (ft)	287	287	1044
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 12: S Chrisman Road/Chrisman Road & Durham Ferry Road

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	216	86	272	263	120
161 184 141					
Average Queue (ft)	103	16	111	117	45
71 62 35					
95th Queue (ft)	180	51	220	215	92
135 145 99					
Link Distance (ft)		1960	2578	2578	
914 914					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	250				250
150					
Storage Blk Time (%)	0	0		0	
1 0					
Queuing Penalty (veh)	0	0		1	
5 0					

Intersection: 14: S Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	WB	WB	NB
NB NB SB SB SB SB					
Directions Served	LT	R	R	R	L
T T T T T R					
Maximum Queue (ft)	68	244	274	238	112

328	334	508	514	329	260					
Average Queue (ft)						10	130	150	93	11
164	185	238	250	110	94					
95th Queue (ft)						40	208	242	180	59
321	336	438	449	248	192					
Link Distance (ft)							9685			
293	293	808	808	808						
Upstream Blk Time (%)										
3	2									
Queuing Penalty (veh)										
9	7									
Storage Bay Dist (ft)						400		1000	1000	100
					400					
Storage Blk Time (%)										0
24				0						
Queuing Penalty (veh)										0
2				1						

Intersection: 15: S Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	EB	NB	SB
SB SB					
Directions Served	L	L	TR	TR	L
L T					
Maximum Queue (ft)	503	548	166	371	312
324 263					
Average Queue (ft)	230	266	18	164	159
169 55					
95th Queue (ft)	470	511	154	294	295
309 169					
Link Distance (ft)			1615	402	293
293 293					
Upstream Blk Time (%)				0	2
2 0					
Queuing Penalty (veh)				0	7
9 1					
Storage Bay Dist (ft)	1000	1000			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Intersection: 16: S Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB
Directions Served	L	R
Maximum Queue (ft)	18	9
Average Queue (ft)	1	0
95th Queue (ft)	7	7

Link Distance (ft)	1007
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	70
Storage Blk Time (%)	0
Queuing Penalty (veh)	0

Intersection: 17: S Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	120
Average Queue (ft)	14
95th Queue (ft)	67
Link Distance (ft)	466
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB
SB					
Directions Served	LT	R	T	R	L
T					
Maximum Queue (ft)	123	93	17	16	280
208					
Average Queue (ft)	40	33	1	1	107
9					
95th Queue (ft)	92	97	11	11	251
102					
Link Distance (ft)	444	444	820		
681					
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				600	215
Storage Blk Time (%)					1
Queuing Penalty (veh)					0

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB
SB					

Directions Served	L	R	T	L	T
TR					
Maximum Queue (ft)	378	28	169	157	71
387					
Average Queue (ft)	222	2	17	48	9
243					
95th Queue (ft)	373	13	101	129	44
358					
Link Distance (ft)	270	270	2302		681
620					
Upstream Blk Time (%)	9				
Queuing Penalty (veh)	0				
Storage Bay Dist (ft)				295	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 22: S Bird Rd & C St/W Vernalis Rd

Movement	EB	NB	SB
Directions Served	LTR	L	LTR
Maximum Queue (ft)	481	92	3
Average Queue (ft)	374	8	0
95th Queue (ft)	591	45	3
Link Distance (ft)	410		362
Upstream Blk Time (%)	49		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)		150	
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 30: Chrisman Road & University Dwy

Movement	EB	NB	SB	SB
Directions Served	R	L	T	R
Maximum Queue (ft)	84	63	2	8
Average Queue (ft)	38	22	0	0
95th Queue (ft)	70	53	2	5
Link Distance (ft)	2336		2578	
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		250		250
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 31: Chrisman Road & University Main Driveway

Movement	EB	EB	NB	NB	NB
SB SB SB					
Directions Served	L	R	L	T	T
T T R					
Maximum Queue (ft)	160	173	115	219	249
288 302 56					
Average Queue (ft)	82	82	59	85	109
129 139 21					
95th Queue (ft)	136	145	105	175	199
225 242 50					
Link Distance (ft)		2231		883	883
499 499					
Upstream Blk Time (%)					
0					
Queuing Penalty (veh)					
0					
Storage Bay Dist (ft)	250		400		
250					
Storage Blk Time (%)					
1					
Queuing Penalty (veh)					
1					

Intersection: 32: Chrisman Road & PG Central Dwy

Movement	EB	WB
Directions Served	R	R
Maximum Queue (ft)	29	30
Average Queue (ft)	6	7
95th Queue (ft)	23	25
Link Distance (ft)	1980	1878
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 33: Chrisman Road & A St

Movement	EB	EB	EB	EB	WB
WB WB NB NB NB NB	NB	SB	SB	SB	SB
SB					
Directions Served	L	L	T	R	L
T R L L T T	R	L	L	T	T
R					
Maximum Queue (ft)	148	175	264	301	171
70 118 236 259 278 280	122	101	152	312	332
134					
Average Queue (ft)	62	76	19	131	65

9	47	102	130	127	129	29	25	58	164	181
39										
95th Queue (ft)						121	136	145	257	137
44	95	199	225	241	236	88	69	117	275	293
108										
Link Distance (ft)								2010		
1928				359	359				1077	
1077										
Upstream Blk Time (%)			0	0	0	0				
Queuing Penalty (veh)			0	1	0	0				
Storage Bay Dist (ft)						250	250		250	250
250	250	250	250			250	250	250		
Storage Blk Time (%)							0		2	
	0	0	1	0					1	2
Queuing Penalty (veh)							0		4	
	0	2	2	0					1	2

Intersection: 34: Chrisman Road & PG Central Dwy 2

Movement	EB	WB	SB	SB
Directions Served	R	R	T	TR
Maximum Queue (ft)	73	67	19	10
Average Queue (ft)	34	22	1	0
95th Queue (ft)	62	49	21	7
Link Distance (ft)	2126	1836	359	359
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 35: Chrisman Road & East Area Industrial Dwy

Movement	WB	WB	NB	NB	NB
SB SB SB					
Directions Served	L	R	T	T	R
L T T					
Maximum Queue (ft)	162	108	299	287	172
113 212 232					
Average Queue (ft)	55	28	124	111	25
46 63 91					
95th Queue (ft)	125	76	254	225	94
89 154 186					

Queuing Penalty (veh)	0	0	7
0		6	8

Intersection: 38: Chrisman Road & Gateway Center Dwy

Movement						WB	WB	WB	NB	NB
NB	NB	SB	SB	SB	SB	SB				
Directions Served						L	L	R	T	T
T	R	L	L	T	T	T				
Maximum Queue (ft)						133	188	138	319	296
261	172	140	149	217	242	281				
Average Queue (ft)						33	91	56	202	176
136	52	59	77	84	97	142				
95th Queue (ft)						87	152	109	312	271
242	119	115	124	173	192	254				
Link Distance (ft)							1730	1730	243	243
243				287	287	287				
Upstream Blk Time (%)									4	1
0	0			0	0				20	6
Queuing Penalty (veh)										
1	0			0	1					
Storage Bay Dist (ft)						350				
	150	300	300							
Storage Blk Time (%)										
3	0									
Queuing Penalty (veh)										
4	0									

Intersection: 39: Gateway Center Dwy 2 & Chrisman Road

Movement		WB	NB	NB	NB	SB
SB						
Directions Served		R	T	T	T	T
T						
Maximum Queue (ft)		110	109	71	26	3
4						
Average Queue (ft)		35	13	4	1	0
0						
95th Queue (ft)		78	63	34	16	4
5						
Link Distance (ft)		1764	808	808	808	243
243						
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)						
Storage Blk Time (%)						

Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 126

Fehr & Peers 12/03/2024

Appendix D: “With Improvements” Vehicle Queueing Calculations

Fehr & Pe 11/11/2024



Queuing at Existing Plus Project

GoldenSta AM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	
Directions Served	L	T	T	R	L	T	T	R	
Maximum Queue (ft)		145	288	255	193	700	855	445	103
Average Queue (ft)		43	145	113	76	699	809	176	12
95th Queue (ft)		102	240	207	152	699	837	356	59
Link Distance (ft)			670	670			792	792	
Upstream Blk Time (%)							64	0	
Queuing Penalty (veh)							467	0	
Storage Bay Dist (ft)		170			320	640			260
Storage Blk Time (%)		0	4	0	0	88	0	1	
Queuing Penalty (veh)		0	2	0	0	388	1	0	

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB	
Directions Served	LT	R	LT	R	UL	
Maximum Queue (ft)		67	86	194	86	14
Average Queue (ft)		5	34	88	57	1
95th Queue (ft)		31	66	161	101	9
Link Distance (ft)		896		1280		
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			25		25	200
Storage Blk Time (%)		0	6	26	9	
Queuing Penalty (veh)		0	0	25	20	

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB	
Directions Served	L	R	TR	L	
Maximum Queue (ft)		14	85	14	101
Average Queue (ft)		1	12	1	21
95th Queue (ft)		7	54	7	65
Link Distance (ft)		1028		1368	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			25		180
Storage Blk Time (%)		0	1		0
Queuing Penalty (veh)		0	0		0

Intersection: 12: Chrisman Road & Durham Ferry Road

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	2052	6	198
Average Queue (ft)	1915	0	22
95th Queue (ft)	2334	8	101
Link Distance (ft)	1990	2607	926
Upstream Blk Time (%)	82		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	101	177	145	166
Average Queue (ft)	27	64	62	60
95th Queue (ft)	73	134	122	123
Link Distance (ft)	919	783	1068	860
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	939	95	302	502
Average Queue (ft)	929	95	41	453
95th Queue (ft)	962	99	177	669
Link Distance (ft)	868		310	431
Upstream Blk Time (%)	100		1	34
Queuing Penalty (veh)	0		8	0
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	7	63		
Queuing Penalty (veh)	116	4		

Intersection: 15: Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	936	176	335

Average Queue (ft)	886	28	301
95th Queue (ft)	925	156	377
Link Distance (ft)	865	426	310
Upstream Blk Time (%)	100	1	15
Queuing Penalty (veh)	0	4	98
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	176	69	26	94
Average Queue (ft)	16	5	2	6
95th Queue (ft)	224	49	34	44
Link Distance (ft)	1015		457	426
Upstream Blk Time (%)	1			
Queuing Penalty (veh)	0			
Storage Bay Dist (ft)		70		
Storage Blk Time (%)		1		
Queuing Penalty (veh)		0		

Intersection: 17: Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	51
Average Queue (ft)	2
95th Queue (ft)	28
Link Distance (ft)	457
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	32	151	21	48	229	62
Average Queue (ft)	3	70	1	3	78	2
95th Queue (ft)	19	135	12	27	171	50
Link Distance (ft)	444	444	820			681
Upstream Blk Time (%)						
Queuing Penalty (veh)						

Storage Bay Dist (ft)	600	215	
Storage Blk Time (%)		0	0
Queuing Penalty (veh)		0	0

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB	SB
Directions Served	L	R	T	L	T	TR
Maximum Queue (ft)	390	313	271	308	81	73
Average Queue (ft)	372	112	267	100	3	8
95th Queue (ft)	409	245	286	218	64	40
Link Distance (ft)	266	266	200		681	1136
Upstream Blk Time (%)	93	1	88			
Queuing Penalty (veh)	0	0	0			
Storage Bay Dist (ft)				295		
Storage Blk Time (%)				1	0	
Queuing Penalty (veh)				0	0	

Intersection: 78: NB I-5 Ramps

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 97: 11th St

Movement	EB	EB	EB	WB	WB
Directions Served	T	T	R	T	T
Maximum Queue (ft)	148	367	66	699	639
Average Queue (ft)	5	20	2	675	476
95th Queue (ft)	104	200	74	763	827
Link Distance (ft)	792	792	792	628	628
Upstream Blk Time (%)		0		91	0
Queuing Penalty (veh)		0		0	0
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 122: 11th St

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 1448

Fehr & Peç 11/11/2024

Fehr & Pe 11/11/2024



Queuing at Existing Plus Project

Golden Sta PM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	WB	WB	WB	WB	
Directions Served	UL	T	T	R	L	T	T	R	
Maximum Queue (ft)		233	372	325	190	700	845	691	42
Average Queue (ft)		63	221	193	75	697	794	150	6
95th Queue (ft)		148	331	296	148	729	915	420	29
Link Distance (ft)			670	670			792	792	
Upstream Blk Time (%)							65	0	
Queuing Penalty (veh)							346	0	
Storage Bay Dist (ft)		170			320	640			260
Storage Blk Time (%)		0	16	0		91	0	0	
Queuing Penalty (veh)		0	10	1		261	1	0	

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB	SB	
Directions Served	LT	R	LT	R	UL	L	
Maximum Queue (ft)		74	71	310	86	15	60
Average Queue (ft)		6	45	120	49	1	3
95th Queue (ft)		38	69	239	97	8	25
Link Distance (ft)		896		1280			
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)			25		25	200	230
Storage Blk Time (%)		0	26	42	5		
Queuing Penalty (veh)		0	0	26	10		

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB	
Directions Served	L	R	TR	UL	
Maximum Queue (ft)		24	47	12	99
Average Queue (ft)		3	6	0	29
95th Queue (ft)		15	29	8	69
Link Distance (ft)		1028		1368	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			25		180
Storage Blk Time (%)		1	0		
Queuing Penalty (veh)		0	0		

Intersection: 12: Chrisman Road & Durham Ferry Road

Movement	WB	NB	SB
Directions Served	LR	TR	LT
Maximum Queue (ft)	2000	56	997
Average Queue (ft)	1846	8	942
95th Queue (ft)	2354	32	1122
Link Distance (ft)	1990	2607	926
Upstream Blk Time (%)	70		78
Queuing Penalty (veh)	0		0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	179	136	130	751
Average Queue (ft)	68	54	53	392
95th Queue (ft)	146	112	106	865
Link Distance (ft)	919	783	1068	860
Upstream Blk Time (%)				11
Queuing Penalty (veh)				0
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 14: Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	934	87	320	414
Average Queue (ft)	910	60	196	136
95th Queue (ft)	960	135	432	478
Link Distance (ft)	868		310	431
Upstream Blk Time (%)	100		51	8
Queuing Penalty (veh)	0		315	0
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	43	36		
Queuing Penalty (veh)	405	4		

Intersection: 15: Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	923	497	292

Average Queue (ft)	881	282	132
95th Queue (ft)	914	688	333
Link Distance (ft)	865	426	310
Upstream Blk Time (%)	100	50	4
Queuing Penalty (veh)	0	96	48
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	905	148	288	27
Average Queue (ft)	441	71	126	2
95th Queue (ft)	1231	192	405	18
Link Distance (ft)	1015		457	426
Upstream Blk Time (%)	33		11	
Queuing Penalty (veh)	0		3	
Storage Bay Dist (ft)		70		
Storage Blk Time (%)		12		
Queuing Penalty (veh)		0		

Intersection: 17: Chrisman Road & I-580 EB On Ramp

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	82	74
Average Queue (ft)	27	6
95th Queue (ft)	191	39
Link Distance (ft)	1051	457
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	142	91	21	6	231	132
Average Queue (ft)	47	30	1	0	64	7
95th Queue (ft)	111	93	12	6	160	89
Link Distance (ft)	444	444	820			681
Upstream Blk Time (%)						
Queuing Penalty (veh)						

Storage Bay Dist (ft)	600	215
Storage Blk Time (%)		0
Queuing Penalty (veh)		0

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	SB	
Directions Served	L	R	T	L	TR	
Maximum Queue (ft)	390	30	271	127	106	
Average Queue (ft)	375	3	244	34	30	
95th Queue (ft)	430	19	344	103	82	
Link Distance (ft)	266	266	200		1136	
Upstream Blk Time (%)	96		87			
Queuing Penalty (veh)	0		0			
Storage Bay Dist (ft)				295		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 78: NB I-5 Ramps

Movement	
Directions Served	
Maximum Queue (ft)	
Average Queue (ft)	
95th Queue (ft)	
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 97: 11th St

Movement	EB	EB	EB	WB	WB	
Directions Served	T	T	R	T	T	
Maximum Queue (ft)	795	818	615	699	636	
Average Queue (ft)	96	160	25	629	373	
95th Queue (ft)	499	642	253	851	809	
Link Distance (ft)	792	792	792	628	628	
Upstream Blk Time (%)	0	0	0	85	0	
Queuing Penalty (veh)	0	1	1	0	0	
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 122: 11th St

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Network Summary

Network wide Queuing Penalty: 1978

Fehr & Peç 11/11/2024

Denied Delay (hr)	1343
Denied Del/Veh (s)	349.2
Total Delay (hr)	172.9
Total Del/Veh (s)	52.9
Stop Delay (hr)	130.1
Stop Del/Veh (s)	39.8
Total Stops	7800
Stop/Veh	0.66
Travel Dist (mi)	6505.9
Travel Time (hr)	1684.5
Avg Speed (mph)	19
Fuel Used (gal)	557.5
Fuel Eff. (mpg)	11.7
HC Emissions (g)	18842
CO Emissions (g)	386564
NOx Emissions (g)	37941
Vehicles Entered	11456
Vehicles Exited	11453
Hourly Exit Rate	11453
Input Volume	36774
% of Volume	31
Denied Entry Before	276
Denied Entry After	2389
Density (ft/veh)	279
Occupancy (veh)	342

Fehr & Pee 12/11/2024



Queuing at Cumulative Plus Project
GoldenSta: AM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	EB	EB	WB	WB	
Directions Served	L	L	T	T	T	R	L	L	
Maximum Queue (ft)		116	148	323	294	217	202	392	439
Average Queue (ft)		25	65	194	170	93	71	211	251
95th Queue (ft)		78	119	290	265	195	147	343	385
Link Distance (ft)				616	616	616			
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		300	300				320	800	800
Storage Blk Time (%)				1		0	0		
Queuing Penalty (veh)				1		0	0		

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB	NB	SB	SB	
Directions Served	LT	R	L	TR	UL	TR	L	TR	
Maximum Queue (ft)		70	84	142	196	37	209	34	126
Average Queue (ft)		11	36	52	79	7	81	4	43
95th Queue (ft)		44	64	111	147	27	154	20	99
Link Distance (ft)		896			1279		1028		1159
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			300	300		200		230	
Storage Blk Time (%)							0		
Queuing Penalty (veh)							0		

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB	
Directions Served	L	R	TR	L	
Maximum Queue (ft)		26	86	39	130
Average Queue (ft)		4	13	3	41
95th Queue (ft)		17	53	19	95
Link Distance (ft)		1028		1368	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			25		180
Storage Blk Time (%)		1	1		0
Queuing Penalty (veh)		0	0		0

Intersection: 12: Chrisman Road & Durham Ferry Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	T	T	R	L	T	T	
Maximum Queue (ft)		246	77	160	167	82	68	210	190
Average Queue (ft)		109	16	73	56	25	27	104	74
95th Queue (ft)		191	49	142	127	62	60	173	146
Link Distance (ft)			1960	2606	2606			914	914
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		250				250	250		
Storage Blk Time (%)		0						0	
Queuing Penalty (veh)		0						0	

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB	
Directions Served	L	TR	L	TR	L	TR	L	TR	

Maximum Queue (ft)	34	156	59	287	62	430	154	154
Average Queue (ft)	2	41	3	117	6	188	63	35
95th Queue (ft)	20	110	33	232	37	364	129	108
Link Distance (ft)		907		772		1058		850
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	50		100		50		150	
Storage Blk Time (%)	0	9		14	0	42	1	0
Queuing Penalty (veh)	0	0		1	1	4	1	0

Intersection: 14: Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	939	95	296	502
Average Queue (ft)	924	95	57	446
95th Queue (ft)	961	97	224	678
Link Distance (ft)	868		310	431
Upstream Blk Time (%)	100		5	39
Queuing Penalty (veh)	0		50	0
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	5	64		
Queuing Penalty (veh)	79	7		

Intersection: 15: Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	930	331	354
Average Queue (ft)	878	52	300
95th Queue (ft)	912	257	402
Link Distance (ft)	865	426	310
Upstream Blk Time (%)	100	4	19
Queuing Penalty (veh)	0	16	132
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	276	121	53	88
Average Queue (ft)	34	12	5	6
95th Queue (ft)	295	80	56	40
Link Distance (ft)	1015		457	426
Upstream Blk Time (%)	1			

Queuing Penalty (veh)	0
Storage Bay Dist (ft)	70
Storage Blk Time (%)	3
Queuing Penalty (veh)	0

Intersection: 17: Chrisman Road & I-580 EB On Ramp

Movement	SB
Directions Served	LT
Maximum Queue (ft)	105
Average Queue (ft)	12
95th Queue (ft)	63
Link Distance (ft)	457
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	NB	SB	SB
Directions Served	LT	R	T	R	L	T
Maximum Queue (ft)	27	164	41	62	240	34
Average Queue (ft)	2	73	3	2	96	1
95th Queue (ft)	16	138	28	26	198	38
Link Distance (ft)	444	444	820			681
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				600	215	
Storage Blk Time (%)					0	
Queuing Penalty (veh)					0	

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB	SB
Directions Served	L	R	T	L	T	TR
Maximum Queue (ft)	388	318	249	359	370	700
Average Queue (ft)	248	113	50	189	50	326
95th Queue (ft)	397	241	198	347	275	648
Link Distance (ft)	266	266	200		681	2026
Upstream Blk Time (%)	12	1	4		0	
Queuing Penalty (veh)	0	0	0		0	
Storage Bay Dist (ft)				295		
Storage Blk Time (%)				7		
Queuing Penalty (veh)				2		

Intersection: 78: NB I-5 Ramps

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 97: 11th St

Movement	EB	EB	EB	EB	WB	WB
Directions Served	T	T	T	R	T	T
Maximum Queue (ft)	173	310	127	2	204	297
Average Queue (ft)	8	27	15	0	41	41
95th Queue (ft)	122	187	70	2	294	288
Link Distance (ft)	1266	1266	1266	1266	628	628
Upstream Blk Time (%)					2	1
Queuing Penalty (veh)					0	0
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 122: 11th St

Movement	WB
Directions Served	T
Maximum Queue (ft)	66
Average Queue (ft)	2
95th Queue (ft)	59
Link Distance (ft)	622
Upstream Blk Time (%)	0
Queuing Penalty (veh)	0
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 353

Denied Delay (hr)	1109
Denied Del/Veh (s)	260.2
Total Delay (hr)	245.4
Total Del/Veh (s)	64.4
Stop Delay (hr)	183.6
Stop Del/Veh (s)	48.2
Total Stops	9898
Stop/Veh	0.72
Travel Dist (mi)	7610.2
Travel Time (hr)	1547.1
Avg Speed (mph)	17
Fuel Used (gal)	553
Fuel Eff. (mpg)	13.8
HC Emissions (g)	13377
CO Emissions (g)	320050
NOx Emissions (g)	28823
Vehicles Entered	13335
Vehicles Exited	13287
Hourly Exit Rate	13287
Input Volume	41190
% of Volume	32
Denied Entry Before	208
Denied Entry After	2006
Density (ft/veh)	218
Occupancy (veh)	438

Fehr & Pe€ 12/11/2024



Queuing at Cumulative Plus Project
Golden Sta PM Peak Hour

Intersection: 1: Chrisman Rd & 11th St

Movement	EB	EB	EB	EB	EB	EB	WB	WB	
Directions Served	L	L	T	T	T	R	L	L	
Maximum Queue (ft)		221	400	602	574	479	289	357	390
Average Queue (ft)		105	215	389	360	289	89	217	251
95th Queue (ft)		183	423	615	581	507	273	322	360
Link Distance (ft)				616	616	616			
Upstream Blk Time (%)				4	3	3			
Queuing Penalty (veh)				18	12	13			
Storage Bay Dist (ft)		300	300				320	800	800
Storage Blk Time (%)			0	28		9	0		
Queuing Penalty (veh)			0	79		13	0		

Intersection: 10: Ahern Rd & Lehman Rd/SB I-5 Ramps

Movement	EB	EB	WB	WB	NB	NB	SB	SB	
Directions Served	LT	R	L	TR	UL	TR	L	TR	
Maximum Queue (ft)		47	141	311	372	32	140	175	406
Average Queue (ft)		8	65	166	74	4	53	32	186
95th Queue (ft)		33	116	281	220	19	110	112	341
Link Distance (ft)		896			1279		1028		1159
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)			300	300		200		230	
Storage Blk Time (%)				2	0		0	0	5
Queuing Penalty (veh)				2	0		0	0	1

Intersection: 11: Ahern Rd & NB I-5 Ramps

Movement	WB	WB	NB	SB	
Directions Served	L	R	TR	L	
Maximum Queue (ft)		25	49	39	137
Average Queue (ft)		4	9	4	47
95th Queue (ft)		17	36	23	100
Link Distance (ft)		1028		1368	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			25		180
Storage Blk Time (%)		2	1		0
Queuing Penalty (veh)		0	0		0

Intersection: 12: Chrisman Road & Durham Ferry Road

Movement	WB	WB	NB	NB	NB	SB	SB	SB	
Directions Served	L	R	T	T	R	L	T	T	
Maximum Queue (ft)		162	50	237	224	108	127	158	111
Average Queue (ft)		70	10	102	93	48	56	59	30
95th Queue (ft)		129	31	187	181	87	102	120	77
Link Distance (ft)			1960	2606	2606			914	914
Upstream Blk Time (%)									
Queuing Penalty (veh)									
Storage Bay Dist (ft)		250				250	250		
Storage Blk Time (%)					0				
Queuing Penalty (veh)					0				

Intersection: 13: Ahern Rd & Durham Ferry Rd

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	L	TR

Maximum Queue (ft)	25	245	78	180	35	168	240	846
Average Queue (ft)	2	96	12	69	2	64	77	342
95th Queue (ft)	16	191	43	143	21	136	215	727
Link Distance (ft)		907		772		1058		850
Upstream Blk Time (%)								3
Queuing Penalty (veh)								0
Storage Bay Dist (ft)	50		100		50		150	
Storage Blk Time (%)		24	0	4		14	0	28
Queuing Penalty (veh)		1	0	1		1	0	23

Intersection: 14: Chrisman Road & SR 132 WB On Ramp/SR 132 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	LT	R	LT	TR
Maximum Queue (ft)	939	95	320	502
Average Queue (ft)	917	71	194	184
95th Queue (ft)	967	139	424	559
Link Distance (ft)	868		310	431
Upstream Blk Time (%)	100		40	16
Queuing Penalty (veh)	0		274	0
Storage Bay Dist (ft)		45		
Storage Blk Time (%)	36	41		
Queuing Penalty (veh)	342	6		

Intersection: 15: Chrisman Road & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	NB	SB
Directions Served	LTR	TR	LT
Maximum Queue (ft)	918	568	325
Average Queue (ft)	881	261	170
95th Queue (ft)	921	683	381
Link Distance (ft)	865	426	310
Upstream Blk Time (%)	100	40	8
Queuing Penalty (veh)	0	100	106
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 16: Chrisman Road & I-580 WB Off Ramp

Movement	WB	WB	NB	SB
Directions Served	L	R	T	LT
Maximum Queue (ft)	1034	179	292	49
Average Queue (ft)	369	56	80	3
95th Queue (ft)	1120	177	302	23
Link Distance (ft)	1015		457	426
Upstream Blk Time (%)	20		5	

Queuing Penalty (veh)	0	2
Storage Bay Dist (ft)	70	
Storage Blk Time (%)	9	
Queuing Penalty (veh)	0	

Intersection: 17: Chrisman Road & I-580 EB On Ramp

Movement	NB	SB
Directions Served	TR	LT
Maximum Queue (ft)	48	56
Average Queue (ft)	12	5
95th Queue (ft)	119	26
Link Distance (ft)	1051	457
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 18: S Bird Rd & SR 132 EB Off Ramp/SR 132 EB On Ramp

Movement	EB	EB	NB	SB	SB
Directions Served	LT	R	T	L	T
Maximum Queue (ft)	111	100	2	247	30
Average Queue (ft)	41	33	0	73	1
95th Queue (ft)	85	98	2	183	33
Link Distance (ft)	444	444	820		681
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)				215	
Storage Blk Time (%)				0	
Queuing Penalty (veh)				0	

Intersection: 19: S Bird Rd & SR 132 WB Off On Ramps

Movement	EB	EB	B120	NB	NB	SB
Directions Served	L	R	T	L	T	TR
Maximum Queue (ft)	375	28	152	165	78	592
Average Queue (ft)	215	2	13	46	10	232
95th Queue (ft)	367	15	85	128	49	461
Link Distance (ft)	266	266	200		681	2026
Upstream Blk Time (%)	8		0			
Queuing Penalty (veh)	0		0			
Storage Bay Dist (ft)				295		
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 78: NB I-5 Ramps

Movement

Directions Served

Maximum Queue (ft)

Average Queue (ft)

95th Queue (ft)

Link Distance (ft)

Upstream Blk Time (%)

Queuing Penalty (veh)

Storage Bay Dist (ft)

Storage Blk Time (%)

Queuing Penalty (veh)

Intersection: 97: 11th St

Movement	EB	EB	EB	EB
Directions Served	T	T	T	R
Maximum Queue (ft)	461	857	893	38
Average Queue (ft)	126	212	214	2
95th Queue (ft)	331	511	512	21
Link Distance (ft)	1266	1266	1266	1266
Upstream Blk Time (%)	0	0	0	
Queuing Penalty (veh)	0	0	0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 122: 11th St

Movement	EB	EB	EB	WB
Directions Served	T	T	T	T
Maximum Queue (ft)	384	326	178	10
Average Queue (ft)	105	75	32	0
95th Queue (ft)	364	300	162	8
Link Distance (ft)	857	857	857	622
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 1203

