DRAFT REPORT

Transportation Impact Analysis of the:

SDSU Mission Valley Campus Project

in San Diego, California

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1.0 EXECUTIVE SUMMARY

This transportation impact analysis report presents the results of the study conducted by Fehr & Peers for the proposed San Diego State University (SDSU) Mission Valley Campus Master Plan Project, which would be located at the current San Diego County Credit Union (SDCCU) Stadium site in the Mission Valley community of the City of San Diego. The purpose of this analysis is to identify the impacts of the proposed project on the surrounding transportation system. Impacts to all modes of travel were evaluated including automobile, transit, biking and walking.

The project area includes a total of 169 acres bound by Friars Road to the north, Interstate 8 (I-8) to the south, Stadium Way (Street A) to the west, and Interstate 15 (I-15) to the east. The proposed site will transition to a 15,000-student university campus with a focus on research and post-graduate studies. Initially, the site will be developed with a mix of uses to facilitate building construction and funding of campus facilities. To that end, this analysis focuses on the potential impacts from the initial land uses proposed for the site. These include:

- Approximately 84 acres of conserved or new open space,
- 4,600 residential units,
- 1.466 million square feet of campus office and lab space,
- 100,000 square feet of medical office space,
- 95,000 square feet of retail/restaurant space (including a 12,000-sf grocery store),
- a 35,000-capacity stadium,
- 400 hotel rooms, and
- 13,192 total parking spaces in structured, underground and surface parking areas.

The site is currently occupied by 70,561-seat SDCCU Stadium, which will be replaced by the new development. Vehicle site access will be provided via existing connections at Stadium Way (Street A) & Friars Rd, Mission Village Drive & Friars Road, San Diego Mission Road, and Rancho Mission Road. A new roadway connection to the southern terminus of Fenton Parkway is also proposed from the southwest corner of the site.

In accordance with California State University (CSU) *Transportation Impact Study Manual (TISM)* and the City of San Diego *Traffic Impact Study Manual*, vehicle trip generation rates from the San Diego Land Development Code were used to estimate the number of vehicle trips associated with the SDSU Mission Valley Campus project. Appropriate reductions to trip totals were made to account for pass-by trips, trip internalization, and non-automobile modes of transportation. To further reduce the number of vehicle trips, the project would also implement a comprehensive transportation demand management (TDM) program for all uses within the site. The TDM Program will include elements such as bicycle racks and secure bicycle

parking for all residents, visitors and employees, showers and lockers for employees, a transportation coordinator, website, and kiosks, coordination with the SANDAG iCommute program, guaranteed rides home, unbundled residential parking, metered and time-limited on-street parking, etc. This program would reduce projected traffic volumes and project-generated vehicle miles of travel (VMT) by an estimated 14.4%. After including the appropriate reductions, the project is expected to generate approximately 45,174 net new daily weekday trips, 3,716 net new AM peak hour trips, and 4,628 net new PM peak hour trips without a stadium event. On a Saturday, the project is expected to generate nearly 26% fewer trips than on a weekday. As such, the weekday peak hours are the time periods with the most traffic (i.e., from project and non-project uses) on the adjacent study area roadways and are the focus of this impact analysis. When a stadium event occurs on a weekday, the project will generate an additional 19,099 net new daily weekday trips and 2,178 net new PM peak hour trips. A stadium event is expected to add only a negligible number of AM peak hour trips given a typical event starting time of 7pm or later.

The study analyzed the potential project-related traffic impacts under typical weekday AM and PM peak hour traffic conditions under Existing 2018 Conditions, as well as under Horizon Year (2037) Conditions when the project is scheduled to be fully built out and occupied. The transportation analysis evaluated weekday operations without a stadium event at 40 existing intersections, three (3) new on-site intersections, 34 roadway segments, 23 bi-directional freeway segments, four (4) freeway on-ramp meters, and eight (8) freeway off-ramps for these two study scenarios.

Implementation of the project under these scenarios is expected to result in significant transportation impacts as follows under Horizon Year (2037) Plus Project Conditions:

SUMMARY OF SIGNIFICANT IMPACTS

Facility Type	Horizon Year Plus Project Without Event	Horizon Year Plus Project With Event
Intersections	13	17
Freeway Segments	12	17
Metered On-Ramps	4	4

Source: *Fehr & Peers, 2019.*

With implementation of proposed mitigation measures to enhance capacity and optimize operations, six (6) intersections, 12 freeway segments, and four (4) metered on-ramps will remain significantly impacted under the Horizon Year Plus Project Without Event scenario. When an event occurs, 12 intersections, 17 freeway segments, and four (4) metered on-ramps will be significantly impacted. Stadium event traffic will be further mitigated with a series of additional transportation and parking management strategies as described later in this section.

The proposed parking supply is intended to appropriately address weekday and weekend demand for the proposed residential, retail, and campus office uses, while also encouraging the use of non-automobile modes. The presence of a trolley station within an approximate 1,500-foot radius of nearly all of these uses, coupled with a robust bicycle and pedestrian network in a campus environment and a parking supply managed using time limits and charging for parking, will help to minimize overall vehicle and parking demand. The parking supplies for the proposed residential buildings and hotel rooms will be dedicated to those uses, while the parking for the campus office and supporting neighborhood retail uses will be shared and available for public use.

For every stadium event on weekend days and weekdays, measures from a comprehensive transportation and parking management plan (TPMP) will be implemented to expedite traffic flows, minimize delays, maximize parking and circulation efficiencies, and enhance safety. This includes the use of manual traffic control, digital and static wayfinding, electronic communication to attendees and campus users, off-site parking, etc., and measures will be tailored to the anticipated event attendance as appropriate. The parking demand for the campus office uses will be very low on weekends, and the shared supply will be available for stadium patrons when most events with the highest attendance are expected to occur. When stadium events occur on a weekday, the parking demand for campus office uses will substantially reduce the shared supply available for stadium patrons. However, for events with attendance levels exceeding 25,000 persons or more, off-site parking supplies near trolley stations will be provided to minimize the potential for stadium patrons to park in adjacent neighborhoods. Conditions will be exacerbated on a weekday, when some level of parking demand from non-stadium uses will occupy spaces in the parking garage and reduce the available event supply. For the limited number of high attendance weekday events, off-site lots plus communication with campus office users will help to maximize the available supply (similar to what occurs for baseball games at Petco Park). Even with a successful TDM program and TPMP measures in place, parking supply will be inadequate for some major and all high attendance events, and impacts are expected to be significant and unavoidable.

The project does not conflict with any planned pedestrian or bicycle facilities, and the robust pedestrian and bicycle network across the site will enhance multimodal connectivity and link neighborhoods that have previously had limited walk and bike access. For example, the proposed connection to Fenton Parkway will provide an attractive bicycle and pedestrian connection between the shops and restaurants at Fenton Marketplace and neighborhoods east of I-15. In addition, the proposed site connections will provide an alternative for bicyclists to using Friars Road, which has high vehicle volumes and speeds adjacent to its bike lanes.

The existing Green Line Stadium trolley station within the site presently serves a relatively low number of passengers, such that the addition of as many as 4,000 daily weekday boardings and alightings (or fewer

than 60 riders per train during each peak hour) can be readily absorbed by the existing system. Increased frequency and reduced headways (time between trolley arrivals) planned as part of the Regional Transportation Plan (RTP) will further expand capacity to accommodate this increase in ridership. While additional ridership would be substantially higher before and after a stadium event: 1) special train service is anticipated consistent with current SDCCU Stadium events, and 2) the maximum capacity of the proposed stadium is roughly 50 percent of the existing stadium. Accordingly, a higher percentage of stadium attendees at a sold-out event could be accommodated by the trolley, and the total trolley demand would be lower than for a sold-out event at the existing stadium.

For information purposes only, a project-level and cumulative VMT assessment consistent with recently revised CEQA Guidelines and the CSU TISM was performed. This evaluation showed that with implementation of the Project's TDM Program, the proposed project would result in a less-than-significant project-level impact. The project's overall effect on VMT from a cumulative perspective would be less than significant because the forecasted future regional VMT per service population would decrease with buildout of the SDSU Mission Valley Campus Master Plan development.

For information purposes only, an assessment of Horizon Year Conditions without and with the project was performed with an extension of Fenton Parkway in place, including a new bridge over the San Diego River. Both a 2-lane and 4-lane facility was considered. The effect of adding the proposed project's-generated traffic to this new network configuration, both 2-lane and 4-lane, was evaluated for all study facilities (plus several additional locations that would otherwise not be affected by project traffic). Overall, the inclusion of the Fenton Parkway extension would not substantially change the impacts and proposed mitigation for the SDSU Mission Valley Campus Master Plan project. This conclusion supports the initial analysis approach that the extension is not required to reduce project impacts, and that the project impacts can be reasonably mitigated with physical improvements without the bridge in place.

2.0 INTRODUCTION

This report documents the transportation impact analysis (TIA) conducted for the proposed San Diego State University (SDSU) Mission Valley Campus Master Plan Project (or "project"). The project comprises approximately 169 acres of land northwest of the Interstate 15 (I-15) and I-8 interchange at the current SDCCU Stadium site at 9449 Friars Road in San Diego, California. The project is a proposed mixed-use community that will include conserved and new open space, multi-family and townhouse residential units, campus office and lab space, supporting retail uses, a 35,000-capacity stadium to replace the existing SDCCU Stadium, and two hotels. The site will include an improved river park with a network of hiking and biking trails connecting all uses within the site and to adjacent areas. The implementation of the project is anticipated to occur between 2020 and 2037 with the new stadium expected to be the first component developed by 2022. Ultimately, the project will transition to a university campus and serve as an expansion of the existing SDSU College Area campus at 5500 Campanile Drive. Detailed information on the project development timeline is discussed in **Section 2.1**: Project Description.

The purpose of this TIA is to identify the potential significant impacts of the proposed project on the surrounding transportation system. Impacts to all modes of travel were evaluated including automobile, transit, biking and walking. This report includes a description of the assumptions and methods used to conduct the study, as well as a discussion of the results. This transportation impact analysis was conducted in compliance with the current *California State University (CSU) Transportation Impact Study Manual (TISM)*. The analysis will be included in an environmental document prepared consistent with *California Environmental Quality Act (CEQA)* guidelines and the analyses have been conducted accordingly. To the greatest extent possible, the study also presents analysis consistent with guidelines included in the City of San Diego *Traffic Impact Study Manual (San Diego TISM)*, the City of San Diego's *California Environmental Quality Act Significance Determination Thresholds (San Diego CEQA Thresholds)*, the Caltrans *Guide for the Preparation of Traffic Impact Studies,* and the regionally accepted traffic study guidelines published by the San Diego Regional Traffic Engineers (SANTEC)/Institute of Transportation Engineers (ITE).

In addition, while not yet required, the transportation impact analysis presented in this report includes analysis of the proposed project's impacts consistent with Senate Bill (SB) 743 and recently revised CEQA Guidelines and the CSU TISM relating to vehicle miles traveled (VMT). The primary purpose of SB 743 is to facilitate the development of land uses and mobility infrastructure that reduce greenhouse gas emissions, encourage the use of active transportation and transit, and foster a more sustainable environment. While the revised CEQA Guidelines became effective as of December 2018, lead agencies have until January 1, 2020 to comply with SB 743 requirements. Accordingly, this TIA includes both the typical capacity-based

LOS operations analysis for purposes of identifying project impacts and mitigation for CEQA compliance, and a VMT-focused analysis for information purposes only.

2.1 PROJECT DESCRIPTION

2.1.1 PROJECT LAND USES

The project area includes a total of approximately 169 acres bound by Friars Road to the north, Interstate 8 (I-8) to the south, Stadium Way (Street A) to the west, and Interstate 15 (I-15) to the east. The proposed uses within the project area consist of:

- Approximately 84 acres of conserved or new open space,
- 4,600 multi-family and townhouse residential units,
- 1.466 million square feet (s.f.) of expanded campus office and lab space,
- 100,000 s.f. of medical office space,
- 95,000 s.f. of retail/restaurant space (including a 12,000-sf grocery store),
- a 35,000-capacity stadium, and
- 400 hotel rooms.

The site is currently occupied by the SDCCU Stadium, which will be demolished and replaced by the new development. A total of 13,192 parking spaces will be provided on-site. This includes 1,980 surface lot and on-street spaces and 11,212 spaces included in various individual parking structures and those integrated with buildings.

Site access will be provided via existing driveways and/or street connections located at Stadium Way (Street A) & Friars Road, Mission Village Drive/Street D & Friars Road Eastbound Ramps, San Diego Mission Road, and Rancho Mission Road. The San Diego Mission Road & Mission Village Drive connection will be reconfigured to provide more standard four-legged intersections with increased intersection spacing. In addition, a new roadway in the southwest corner of the site will connect to the existing southern terminus of Fenton Parkway at the San Diego trolley tracks. Mission Village Drive will be extended through the site and is referred to as Street D in this report. Additional street connections to Rancho Mission Road and realigned San Diego Mission Road are labeled as Street I/Street 6 and Street F, respectively, for identification purposes.

Figure 1 illustrates the project site and study area locations of the project, while **Figure 2** illustrates the proposed site plan.

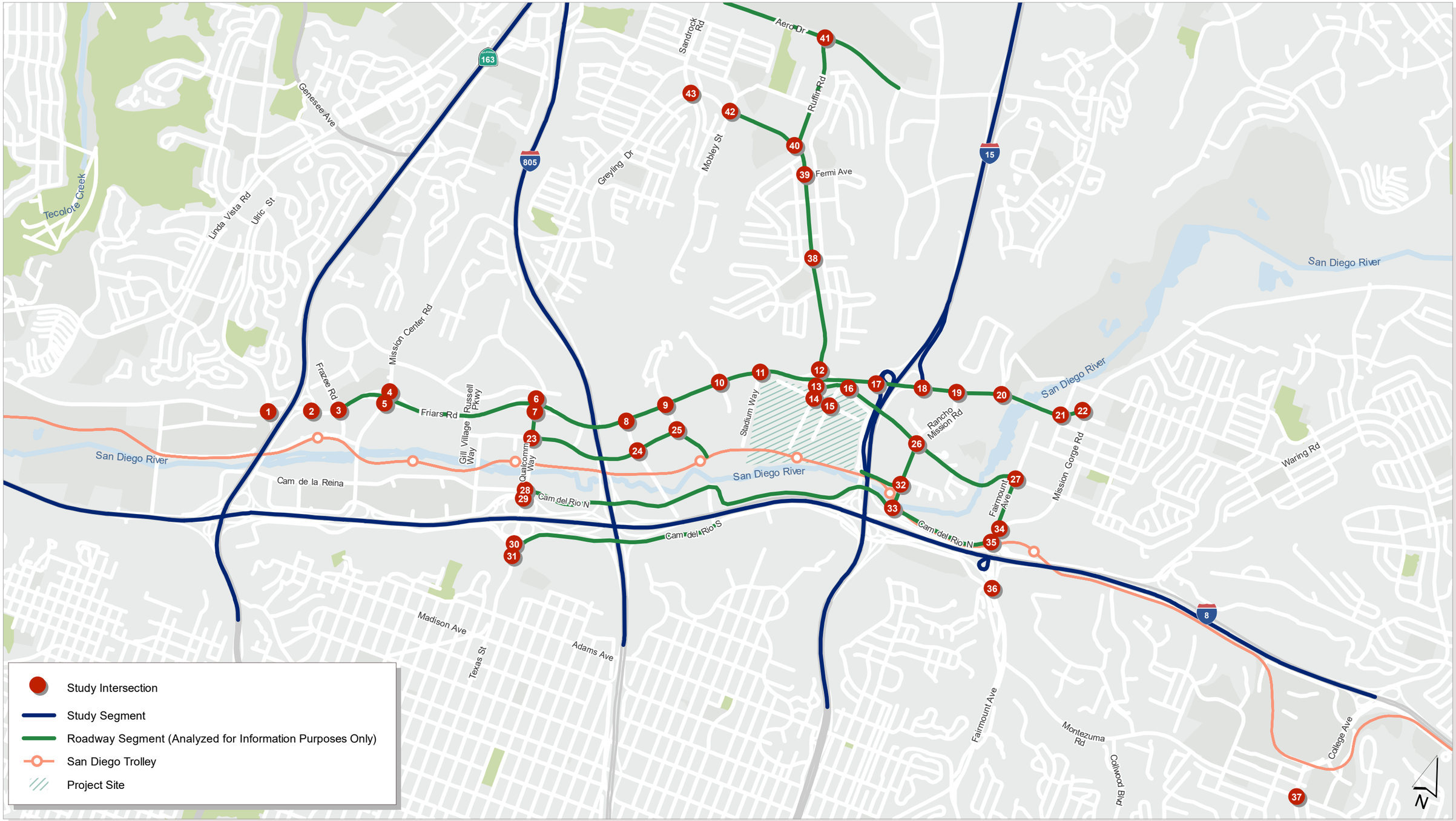


Figure 1

Study Intersections and Segments

SAN DIEGO STATE UNIVERSITY

Figure 2

Proposed Site Plan

As noted above, the implementation of the project is anticipated to occur between 2020 and 2037 with the new stadium expected to be the first component developed by 2022. Developments of this type are constructed as demand increases which typically is in a linear fashion. Accordingly, this study analyzes development that will occur in a generally linear pattern over time.

2.1.2 PROPOSED TRANSPORTATION DEMAND MANAGEMENT (TDM) PROGRAM

The CSU system, including SDSU, has a focus on sustainability goals in many resource areas, including transportation, energy, social responsibility, and water. For the new Mission Valley campus, SDSU intends to continue this practice of sustainable planning and operations. To minimize the number of project-generated vehicle trips on the surrounding roadway network, the SDSU Mission Valley Campus Project will include a comprehensive Transportation Demand Management (TDM) program. This program will serve to reduce the significant unavoidable impacts to selected freeway, ramp, intersection and roadway segments and will minimize congestion during the peak travel periods and, to a lesser degree, during off-peak times.

Two separate TDM programs are proposed as part of the project: one to address the campus office, residential and retail uses that will generate traffic daily, and a second program designed to reduce vehicle trips to the proposed stadium, which will occur intermittently during the year. This section identifies the specific elements of the proposed programs and describes the effects on the project trips.

2.1.2.1 Non-Stadium TDM Program

TDM strategies have been used for over 30 years to reduce single-occupant vehicle (SOV) trips. The SDSU Mission Valley Campus TDM Program will work to reduce the project's impacts on the surrounding roadway network through four (4) strategies: land use diversity, neighborhood site enhancement, commute/travel services, and parking policies and pricing. All these TDM elements will create an environment that promotes non-automobile mode choice.

A detailed description of the TDM Program and its effectiveness are presented in subsequent sections below, but the program will include the following specific strategies:

- Non-Stadium TDM 1 – Land Use Diversity
- Non-Stadium TDM 2 – Neighborhood Site Enhancements
    - New bicycle facilities
    - Dedicated land for bicycle/multi-use trails
    - Bicycle parking
    - Showers and lockers in employment areas
    - Increased intersection density

  - Traffic calming
  - Car share service accommodations
  - Enhanced pedestrian network
- Non-Stadium TDM 3 – Parking Policy and Pricing
  - Unbundled residential parking
  - Metered on-street parking
  - Reduced parking supply
- Non-Stadium TDM 4 – Commute Trip Reduction Services
  - TDM Program coordinator and marketing
  - Electric bike-share accommodations
  - Ridesharing support
  - School pool
  - Hotel shuttle services
  - Transit Pass Programs

2.1.2.1.1 Non-stadium TDM Program Elements

The proposed Project would include a TDM Program that will reduce SDSU Mission Valley Campus impacts on the surrounding street network while striving to achieve countywide air quality/greenhouse gas reduction goals. The TDM Program is organized into four main types of strategies as follows:

Non-Stadium TDM 1 – Land Use Diversity

These strategies include land use diversity (mixed-use) and proximity that encourage residents/employees to walk, bike, or take transit within the project area:

- Provide a mix of land uses, including residential, commercial, educational, and parks, so that residents of the project have access to basic shopping, employment, and recreation opportunities without having to travel outside of the Project site. This would lower vehicle miles traveled because residents can use non-automobile transportation modes to reach the various uses available within the site, and if they do need to drive, the trip is very short. The VMT and trip reduction benefit of this strategy (i.e., trip internalization) is accounted for in the trip generation estimate for the project (see **Section 4.1**).

Non-Stadium TDM 2 – Neighborhood Site Enhancements

These strategies support the ability of project residents, employees, customers and visitors to be able to walk, bike/scooter, or access transit within the project area without having to drive, and support the ability of residents (and potentially some employees) to not own a car:

- New bicycle facilities – A network of bicycle lanes on key north-south streets and connections to existing offsite facilities (e.g., Murphy Canyon Trail) is part of the proposed campus site plan. A total of nearly one lane-mile of on-street bike lanes within the site is proposed.
- Dedicated land for bicycle/multi-use trails – The site plan also includes a network of multi-use trails through the River Park, dedicated lanes the office plaza area, plus a campus loop multi-use path that encircles the site. Multi-use trails and paths comprise a total of nearly two miles within the site.
- Bicycle parking – Residential units will include secure bicycle parking per City of San Diego standards (up to 0.6 spaces per dwelling unit anticipated based on units containing up to three bedrooms) unless otherwise noted; similarly, short-term (racks) and long-term spaces (rooms, enclosures or lockers) will also be provided for non-residential uses per City of San Diego standards (0.1 short-term spaces per one (1) thousand square feet (ksf) and 5% of non-residential automobile parking provided in long-term spaces) unless otherwise noted.
- Showers and lockers – Changing facilities will be provided in at least one of the following locations to support bicycling and walking as commute modes for employees: the campus office, research, or retail building areas.
- Increased intersection density – On-site roadway network includes a relatively high intersection density of more than 69 spaces per square mile, which results in short block lengths and travel distances between complementary land uses. This intersection density strongly encourages walking, bicycling or other micromobility modes to travel within the site and to adjacent neighborhoods.
- Traffic calming – Nearly all on-site intersections will include curb extensions and bulbouts, several on-site roadways will include raised crosswalks, and two roundabouts will help to manage travel speeds and enhance pedestrian safety.
- Car share service accommodations – Dedicated parking spaces for car sharing companies will be established in on-street spaces and/or within the campus and/or office parking structures.
- Enhanced pedestrian network – All streets within the project site will include sidewalks on both sides of the street or will include a multi-use path on one side of the street with enhanced pedestrian crossings. Separate pedestrian phases at signalized intersections to enhance safety and raise driver awareness will also be included. As noted above, the campus loop and other paths will provide in excess of two miles of pedestrian paths in addition to sidewalks.

Non-Stadium TDM 3 – Parking Policy/Pricing

Managing parking is a key element in discouraging use of SOVs and provides flexibility for residents to choose a car-free lifestyle, especially those residing in transit priority areas with high quality transit and extensive active transportation options and connections. The proposed parking management strategies for the SDSU Mission Valley Campus include:

- Unbundled parking – Parking in all residential buildings will be "unbundled" from units such that residents will have to request a parking space separate from their apartment/condominium unit and pay for that parking space separately. This approach is consistent with the recently adopted City of San Diego ordinance that requires all multi-family residential parking in Transit Priority Areas (TPAs) to be unbundled from units.
- Meter On-Street Parking – All on-street spaces within the campus core will be metered and require payment of an hourly charge during typical daytime hours (e.g., between 8am and 6pm). The parking spaces on the southwest and southeast edges of the site nearest the park/recreation facilities may also be metered, but at a minimum will include time limits to ensure parking turnover and prevent extended storage of resident vehicles.
- Limit parking supply – The project will provide a maximum parking supply of 1.23 spaces per dwelling unit. The parking rate is lower in comparison to the parking provided at similar developments in the Mission Valley region.[1] It should be noted that although the parking is lower in comparison to surrounding developments, the proposed parking supply does not qualify for VMT reductions per the CAPCOA Report. The recently adopted City of San Diego ordinance referencing unbundled parking above also allows for no parking to be provided for multi-family residential units in TPAs. Should residential buildings be built with lower parking ratios that reduce the overall parking supply, additional trip reductions and TDM benefits are expected.

Non-Stadium TDM 4 – Commute/Travel Services

These strategies would provide residents with travel options other than private auto for trips to destinations inside and outside of the project area:

- TDM Program Coordinator and marketing - To ensure the TDM Program strategies are implemented and effective, a Campus TDM Program Coordinator will be identified to monitor the Program. As part of overall campus management, a staff member or outside consultant will be designated to serve as the on-site Coordinator for employees and residents. Coordinators are responsible for developing, marketing, implementing, and evaluating TDM Programs, where dedicated personnel in this role make TDM Programs more robust, consistent and effective. Additionally, residents and employees would have a designated point of contact for questions about the various TDM measures, which would allow them to easily stay informed of various TDM functions and eligibility.

  The TDM Program Coordinator's duties would include, but not be limited to, the following:

[1] City of San Diego Parking Policy, Appendix D (2018).

  - Conduct transportation/mobility options orientation for new employees and new residents.
  - Assist with rideshare matching for employees commuting to the project and residents commuting from their homes.
  - Provide information on transit, bicycling, and walking to and from the project.
  - Act as a source of information regarding the TDM Program, including compliance with regulatory requirements and new potential TDM benefits
  - Coordinate TDM Program monitoring (administer surveys and coordinate data collection)
  - Promote available websites providing transportation options for residents, employees, customers and guests
  - Create and distribute a "new resident" and "new employee" information packet addressing non-automobile modes of transportation.
  - Promote a transportation options app for use on mobile devices (tech enabled mobility app).
  - Assist employees and residents in accessing existing or establishing future TDM programs, such as transit discount or vanpool programs through existing programs such as MTS Ecopass or SANDAG's iCommute.
- Electric bike-share accommodations – Private vendors currently supply electric bicycles (e-bikes) for short-term rental in the San Diego area. To facilitate the use of e-bikes within the site, the SDSU Mission Valley Campus site plan will provide areas for the temporary storage of e-bikes available for rental and identify specific locations for bike drop off.
- Ridesharing support – As noted under the TDM Program Coordinator element above, rideshare support will be provided as part of this program. This includes making connections with the SANDAG iCommute program for carpool, vanpool, and rideshare programs that are specific to the project's residents and employees.
- School pool – As lower-level school facilities are not provided on the site, students will either need to be bused or driven by parents to offsite schools. Administered by the TDM Program Coordinator, a school pool program would pair students traveling to the same school or area to limit the amount of small group school trips made from the project site.
- Hotel Shuttle Service – Shuttle service will be provided to and from the hotel on site. This shuttle service will be available to hotel guests and will service the airport and various other tourist locations.
- Transit Pass Programs – At the Mission Valley campus, CSU will maintain the existing transit pass program for students in place at the College Area campus (passes are discounted by the Metropolitan Transit System (MTS) and subsidized by CSU/SDSU), and enable purchases by credit card. In addition, CSU/SDSU will establish a pre-tax payroll deduction program for faculty and staff purchase of MTS transit passes, vanpooling, and pooled on-demand rideshare services (e.g.,

UberPOOL and Lyft Line), provided SDSU meets the state/CSU required minimum participation level. Relatedly, CSU/SDSU will provide reduced cost transit passes for faculty and staff, provided SDSU meets the MTS required minimum participation level. The cost reduction will be between 10% and 25%, depending on participation level. Additionally, employers at the Mission Valley campus with a minimum of 20 employees will be required to provide up to five percent (5%) of their employees with a 100% MTS transit pass subsidy. Please note that the additional reductions to project-generated vehicle trips and VMT that would occur with the transit pass program were not included in the traffic analysis here; therefore all project trips, traffic operations and project impacts are slightly overstated.

2.1.2.1.2 Effectiveness of Non-Stadium TDM Program

Fehr & Peers worked with the California Air Pollution Control Office Association (CAPCOA) to develop the transportation section of the report *Quantifying Greenhouse Gas Mitigation Measures* (August 2010). Hereinafter, referred to as the CAPCOA Report, this report is now used as a set of guidelines for quantifying the environmental benefits of TDM related strategies. The CAPCOA guidelines were developed by conducting a comprehensive literature review of studies documenting the effects of TDM strategies on reducing VMT and consequently vehicle trips. The CAPCOA Report includes the most comprehensive and up-to-date set of calculations for calculating TDM effectiveness.

To determine the amount of VMT and trip reduction that would be attributable to the SDSU Mission Valley Campus TDM Program, the proposed program elements were compared to CAPCOA standards. For those measures not addressed by the CAPCOA standards, Fehr & Peers utilized case studies to estimate vehicle trip and VMT reduction.

The detailed calculations for each TDM strategy are described in **Appendix G**. For each strategy that is based on the CAPCOA Report, the related CAPCOA strategy code (for example, CAPCOA TRT-6 or SDT-3) is provided. In calculating the resulting VMT and trip reductions, the individual reductions are not simply additive; that is, the reductions for each TDM category are not added one to the other. Combinations of strategies in the major categories are multiplicative such that there is a dampening effect based on a variety of studies.

The summary of the non-stadium TDM vehicle trip reductions are included in **Table 1**.

2.1.2.2 Stadium TDM Program

2.1.2.2.1 Stadium TDM Program Elements

The TDM program proposed for the stadium component of the project consists of six (6) measures to reduce the number of vehicle trips and air emissions generated during events. Many of these measures are similar to those proposed for the other project land uses, however the measures discussed below will be specifically directed towards the attendees and employees present during stadium events.

TABLE 1 – PROPOSED NON-STADIUM TRANSPORTATION DEMAND MANAGEMENT (TDM) TRIP REDUCTIONS

CAPCOA Category	TDM Measure	Individual Reduction	Combined Reduction
Neighborhood Site Enhancements	Improve Site Design including: New bicycle facilities Dedicated Land for Bicycle/Multi-use Trails Bicycle Parking Increased Intersection Density	11.08%	
	Traffic Calming	0.25%	
	Car Share	0.37%	
	Pedestrian Network	2.00%	
			5.00%
Parking Policy/ Pricing	Unbundle Parking	0.95%	
	Meter On-Street Parking	3.15%	
			4.07%
Commute Trip Reduction	TDM Marketing with Transportation Coordinator including: Shower and Locker Facilities	2.21%	
	Carpool Matching/Guaranteed Ride Home	2.80%	
	Bicycle Share	0.50%	
	School Pool	0.70%	
	Hotel Shuttle Service	0.04%	
			6.09%
		Combined Total Reduction	**14.41%***

*Note: * = Per the text in Section 2.1.2.1.1, the addition of the campus employer Transit Pass Program is estimated to result in an additional 0.29% for a total reduction of 14.70%. This additional reduction is not included in any of the operational analyses.*
Source: Quantifying Greenhouse Gas Emissions (August 2010, CAPCOA) and Fehr & Peers, 2019.

- Stadium TDM 1 – Encourage Alternative Modes of Transportation
- Stadium TDM 2 – Encourage Carpools and Zero-Emission Vehicles
- Stadium TDM 3 – Encourage Active Transportation
- Stadium TDM 4 – Encourage Off-Site Parking at College Area Campus
- Stadium TDM 5 – Provide Mobility and Parking Information Services
- Stadium TDM 6 – Online Parking Reservation System

Stadium TDM 1 – Encourage Alternative Modes of Transportation (Light Rail and Vanpool)

The use of the trolley or bus/shuttle transit to and from stadium events would be encouraged through the following suite of incentives:

- Discounted or free use of MTS transit services for attendees on the event date with proof of purchase of an event ticket
- Tchotchkes/giveaways for transit users (goods for attendees, free MTS tickets as raffle prizes for employees, etc.)
- Rewards/gamification opportunities for attendees and/or employees to compete for prizes or points based on their transportation choices
- Vanpool subsidy and administration: Provide pre-tax commuter benefits for employees and provide administration assistance with the coordination of third-party vanpool programs.
- Marketing and outreach campaign for transit

Stadium TDM 2 – Encourage Carpools and Zero-Emission Vehicles (ZEVs)

The use of carpools and zero-emission vehicles by event attendees would be encouraged by implementing the following measures:

- Provide preferential parking for carpools and ZEVs
- Provide variable parking price based on car occupancy (e.g., charge lower rates for vehicles with four or more occupants)
- Provide vehicle charging spaces in stadium parking in excess of the typical requirement
- Charge reduced parking rates for ZEVs

Stadium TDM 3 – Encourage Active Transportation

Bicycling and walking would be encouraged by implementing the following measures:

- Provide free access to secure bicycle parking spaces (these could be the same supply provided to campus office/retail/restaurant employees, ideally located in buildings immediately adjacent to the stadium)

- Provide a bike valet to assist with bicycle drop-off and retrieval before and after events
- Provide showers and lockers for employees on the site (primarily for employees but available to attendees)
- Provide a bicycle fix-it station near the stadium bicycle parking
- Coordinate bicycle and walk pools for employees
- Capitalize upon the multi-use trails and connections proposed on the site with clear wayfinding to the stadium entrance and bicycle parking

Stadium TDM 4 – Encourage Off-Site Parking at College Area Campus

The greatest parking demand at the site will occur during high-attendance events (e.g., greater than 25,000), many of which are expected to occur on a weekend day. Conditions will be exacerbated on a weekday, when some level of parking demand from non-stadium uses will occupy spaces in the parking garage and reduce the available event supply. For larger weekday events and for high-attendance weekend events, parking at the main SDSU College Area campus would be encouraged through a marketing program, reduced rates for event attendees and employees (compared to stadium garage parking rates), and possibly free MTS fare with proof of event ticket/parking payment or employee badge. This would allow all stadium patrons to access the stadium site via the trolley resulting in reduced parking and traffic demand near the site.

Stadium TDM 5 – Provide Mobility and Parking Information Services

Providing a number of information services at the site would help to educate event attendees about TDM activities and travel/parking options at the stadium. These services would include:

- Multi-modal signage and wayfinding to the trolley station, bicycle parking, and passenger drop-off and pick up areas
- Real-time travel/parking availability information, variable message signs (VMS) at key site entrances (e.g., Stadium Way (Street A) and Street D), and social media posts
- Welcome packets and on-going marketing for new employees
- External marketing campaign including advertisements on television, website, social media, radio, email blasts to season ticket holders, etc.
- Information kiosks or bulletin boards/TV monitors at multiple locations providing information about the TDM program and transit options for stadium employee

Stadium TDM 6 – Online Parking Reservation System

Provision of an online parking reservation system will allow event attendees to choose and reserve parking spaces prior to the event. This system would allow attendees to make a decision on their preferred parking

location – on-site or on the SDSU College Area campus as appropriate – and could provide varying parking costs for on-site and off-site parking locations. Attendees that choose to park at the SDSU College Area campus parking would be able to utilize transit to travel to and from the stadium site. This would help to reduce trips at the site and encourage the use of transit.

2.1.2.2.2 Effectiveness of Stadium TDM Program

Unlike the measures for non-stadium uses described in **Sections 2.1.2.1**, very little information is available regarding the effectiveness of individual or combined stadium TDM measures. Many event venues implement TDM to reduce vehicle trips and parking demand that reduces congestion and helps to improve the visitor experience and enhances project sustainability. However, operators of these facilities, jurisdictions, or other third parties do not conduct surveys or collect data to reasonably quantify the actual reduction in trips. In addition, the effectiveness of TDM measures (individually or in combination) can vary depending on the site context, including the presence of parking in the surrounding area, transit quality and service frequency, congestion on adjacent freeways/surface streets, etc.

With implementation of a formalized Stadium TDM program, the anticipated reduction in vehicle trips is estimated to be an additional 5% to 10% beyond the stadium trip generation calculations used in this analysis (see **Section 4.1.3**). This estimate is based on engineering judgement and the site context, which does not include substantial public parking areas in close proximity to the site, does include the presence of a high-quality transit stop (i.e., the trolley) within a five-minute walk of the stadium, and includes a limited parking supply for sold-out events. Accordingly, in light of the limited information available, no trip reduction for Stadium TDM was applied to any of the "With Event" scenarios presented in this report, and, as a result, the impacts likely are overstated. All significant impacts identified under these scenarios are considered to be significant and unavoidable even with the TDM program in place.

2.1.3 PROPOSED CONSTRUCTION TRAFFIC MANAGEMENT PLAN

As the proposed project builds out over time, there will be temporary construction related traffic on the study roadway network that may result in potential temporary impacts. To minimize these temporary impacts, the project applicant will prepare a Construction Traffic Management Plan in consultation with the City of San Diego and Caltrans and affected adjacent property owners as appropriate prior to initiating any construction activities. The Construction Traffic Management Plan will specifically address project construction traffic and parking, and will address, at minimum, truck haul routes, truck turning movements at the project driveways, traffic control signage, accommodation of bicycle and pedestrian traffic, restriction of hauling activities to specific time periods, on-site circulation and staging areas, traffic control plans indicating temporary lane closures, and monitoring of traffic control to implement revisions, if necessary.

Necessary encroachment and transportation permits will be obtained by the project applicant and/or a representative of the applicant prior to construction.

Beyond site development and construction of the proposed stadium, the timing of vertical construction of the residential, campus office/retail, and hotel buildings is not known at this time. Buildings may be constructed individually or in multiples and will involve varying levels of construction traffic. Accordingly, specific Construction Traffic Management Plans will be developed for each specific phase of construction as site and building development progress based on the proposed construction activities and then-current traffic conditions and transportation network.

2.2 PROJECT STUDY AREA

This TIA analyzed the potential project-related transportation impacts during typical weekday AM and PM peak hour traffic conditions under Existing 2018 Conditions and Horizon Year 2037 Conditions when the project is scheduled to be fully built and occupied. The study area for the project was determined in a manner to identify all potential significantly impacted locations including intersections, roadway segments, freeway segments and ramps. Specifically, this transportation analysis evaluated the operations at 40 existing intersections, three (3) new on-site intersections, 34 roadway segments, 23 freeway segments, four (4) metered freeway on-ramps, and eight (8) signalized freeway off-ramps. The analyzed facilities are listed below and are shown on **Figure 1**:

Intersections

1. State Route 163 (SR-163) Southbound (SB) Ramp/Ulric St & Friars Rd
2. SR-163 Northbound (NB) Ramp & Friars Rd
3. Frazee Rd & Friars Rd
4. Mission Center Rd & Friars Rd Eastbound (EB) Ramps
5. Mission Center Rd & Friars Rd Westbound (WB) Ramps
6. Qualcomm Way & Friars Rd WB Ramps
7. Qualcomm Way & Friars Rd EB Ramps
8. River Run Dr & Friars Rd
9. Fenton Pkwy & Friars Rd
10. Northside Dr & Friars Rd
11. Stadium Way (Street A) & Friars Rd (only used during stadium events under existing conditions)
12. Mission Village Dr & Friars Rd WB Ramps
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd
14. Street D & Street 4 (future intersection)

15. Street F & Street 4 (future intersection)
16. Street F/San Diego Mission Road & Street 6 (future intersection)
17. I-15 SB Ramps & Friars Rd
18. I-15 NB Ramps & Friars Rd
19. Rancho Mission Rd & Friars Rd
20. Santo Rd & Friars Rd
21. Riverdale St & Friars Rd
22. Mission Gorge Rd & Friars Rd
23. Qualcomm Way & Rio San Diego Dr
24. River Run Dr & Rio San Diego Dr
25. Fenton Pkwy & Rio San Diego Dr/Fenton Marketplace Dwy
26. Rancho Mission Rd & San Diego Mission Rd
27. Fairmount Ave & San Diego Mission Rd/Twain Ave
28. Qualcomm Way & Camino del Rio North (N)/Camino de la Reina
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N
30. Qualcomm Way/Texas St & I-8 EB Off-ramp
31. Texas St & Camino del Rio South (S)
32. Ward Rd & Rancho Mission Rd
33. Ward Rd & Camino del Rio N
34. Fairmount Ave/Mission Gorge Rd & Fairmount Ave
35. Fairmount Ave & Camino del Rio N
36. I-8 EB Off-ramp & Fairmount Avenue
37. Montezuma Rd & Collwood Blvd
38. Mission Village Dr & Shawn Ave
39. Mission Village Dr & Fermi Ave
40. Ruffin Rd & Mission Village Dr/Gramercy Dr
41. Ruffin Rd & Aero Dr
42. Gramercy Dr & Mobley St
43. Greyling Dr/Gramercy Dr & Sandrock Rd

Roadway Segments

1. Friars Rd between Frazee Rd and Mission Center Rd
2. Friars Rd between Mission Center Rd and Qualcomm Way
3. Friars Rd between Qualcomm Way and River Run Dr
4. Friars Rd between River Run Dr and Fenton Pkwy
5. Friars Rd between Fenton Pkwy and Northside Dr

6. Friars Rd between Northside Dr and Stadium Way (Street A)
7. Friars Rd between Stadium Way (Street A) and Mission Village Dr
8. Friars Rd between Mission Village Dr and I-15 Ramps
9. Friars Rd between I-15 Ramps and Rancho Mission Rd
10. Friars Rd between Rancho Mission Rd and Santo Rd
11. Friars Rd between Santo Rd and Riverdale St
12. Friars Rd between Riverdale St and Mission Gorge Rd
13. Qualcomm Way between Friars Rd and Rio San Diego Dr
14. Rio San Diego Dr between Qualcomm Way and River Run Dr
15. Rio San Diego Dr between River Run Dr and Fenton Pkwy
16. Fenton Pkwy between Rio San Diego Dr/Fenton Marketplace Dwy and Northside Dr
17. San Diego Mission Rd between Mission Village Dr and Rancho Mission Rd
18. San Diego Mission Rd between Rancho Mission Rd and Fairmount Ave
19. Rancho Mission Rd between Friars Rd and San Diego Mission Rd
20. Rancho Mission Rd between San Diego Mission Rd and Ward Rd
21. Rancho Mission Rd west of Ward Rd
22. Ward Rd between Rancho Mission Rd and Camino del Rio N
23. Fairmount Ave between San Diego Mission Rd/Twain Ave and Mission Gorge Rd
24. Mission Village Dr between Ruffin Rd and Shawn Ave
25. Mission Village Dr between Shawn Ave and Ronda Ave
26. Mission Village Dr between Ronda Ave and Friars Rd
27. Ruffin Rd between Aero Dr and Mission Village Dr
28. Gramercy Dr between Mobley St and Ruffin Rd
29. Aero Dr between Sandrock Rd and Ruffin Rd
30. Aero Dr between Ruffin Rd and Daley Center Dr
31. Camino del Rio North between Qualcomm Way and Mission City Parkway
32. Camino del Rio North between Mission City Parkway and Ward Road
33. Camino del Rio North between Ward Road and Fairmount Avenue
34. Camino del Rio South between Texas Street and Mission City Parkway

Freeway Segments

1. SR-163 between 6th Ave and I-8
2. SR-163 between I-8 and Friars Rd
3. SR-163 between Friars Rd and Mesa College Dr (no data was available between Genesee Ave and Mesa College Dr; this segment is assumed to be equivalent to the segment from Friars Rd to Genesee Ave)

4. SR-163 between Mesa College Dr and I-805
5. I-805 between Madison Ave and I-8
6. I-805 between I-8 and Murray Ridge Rd/Phyllis Pl
7. I-805 between Murray Ridge Rd/Phyllis Pl and Mesa College Dr/Kearny Villa Rd
8. I-805 between Mesa College Dr/Kearny Villa Rd and SR-163 – for the northbound direction, only the auxiliary lanes to the northbound off-ramp to Friars Road was studied as project traffic will not travel along the mainline of this segment in the northbound direction
9. I-805 between SR-163 and Balboa Ave
10. I-15 between Adams Avenue and I-8
11. I-15 between I-8 and Friars Rd – only the auxiliary lanes to the northbound off-ramp to Friars Road, the southbound auxiliary lanes from the Friars Rd on-ramp to I-8, and the southbound auxiliary lane from the Friars Rd direct on-ramp to I-15 southbound were studied as project traffic will not travel along the mainline of this segment
12. I-15 between Friars Rd and Aero Dr
13. I-15 between Aero Dr and Balboa Ave/Tierrasanta Blvd
14. I-8 between Morena Blvd and Taylor St
15. I-8 between Taylor St and Hotel Cir
16. I-8 between Hotel Cir and SR-163
17. I-8 between SR-163 and Mission Center Rd
18. I-8 between Mission Center Rd and Texas St
19. I-8 between Texas St and I-805
20. I-8 between I-805 and I-15
21. I-8 between I-15 and Fairmount Ave
22. I-8 between Fairmount Ave and Waring Rd
23. I-8 between Waring Rd and College Ave

Ramp Meters

1. I-15 NB on-ramp at Friars Rd
2. I-15 SB loop on-ramp at Friars Rd (with access to I-8)
3. I-15 SB direct on-ramp at Friars Rd
4. I-8 EB loop on-ramp at Fairmount Ave SB

Off-Ramps (numbered to correlate with study intersection)

1. SR-163 SB off-ramp at Friars Rd/Ulric St
2. SR-163 NB off-ramp at Friars Rd
17. I-15 SB off-ramp at Friars Rd
18. I-15 NB off-ramp at Friars Rd

29. I-8 WB off-ramp at Qualcomm Way & Camino del Rio N
30. I-8 EB off-ramp at Qualcomm Way/Texas Street
35. I-8 WB off-ramp at Fairmount Ave & Alvarado Canyon Rd/Camino del Rio N
36. I-8 EB off-ramp at Fairmount Ave

2.3 ANALYSIS SCENARIOS

The operations of the study area intersections were evaluated during the weekday morning (AM) and evening (PM) peak hours for the following scenarios:

- **Existing (2018) Conditions** – The analysis of existing traffic conditions was based on 2018 vehicle counts collected for the analyzed peak hours. The existing conditions analysis includes a description of streets and roadways within the study area, transit services, active transportation facilities, and an analysis of traffic volumes and intersection operating conditions.
- **Existing (2018) Plus Project Without Event Conditions** – This traffic scenario provides forecasts of traffic volumes and an assessment of operating conditions under existing baseline conditions with the addition of project-generated traffic, as though the project were immediately built out. This hypothetical scenario isolates the potential impacts of the project and the analysis eliminates the impacts of both ambient growth and other proposed projects, thereby potentially overstating impacts. Additionally, the analysis does not account for future roadway improvements that would provide additional capacity and, in this regard, the analysis potentially overstates impacts. As such, the results of the analysis can be misleading, especially in the case of a project like this with a long-term build out. For these reasons, the Existing Plus Project Conditions analysis presented here is for information purposes only, project impacts are assessed against the Horizon Year (2037) Plus Project Conditions, which considers the effects of future traffic growth, planned infrastructure improvements, and changing land uses.
- **Existing (2018) Plus Project with Saturday and Weekday Event Conditions** – The proposed stadium is expected to host a variety of events including college football games, concerts, minor league sports competitions, graduation ceremonies, major league soccer games, etc. Most of these events are expected to be held on weekend afternoons and evenings, and, therefore, an analysis of this scenario is provided. However, Stadium events will occasionally be held on a weekday evening with a start time outside the typical PM peak commute hour. These weekday evening events are expected to add some traffic during the PM peak hour and this scenario analyzes that traffic added to the Existing Plus Project volumes.

- **Existing (2018) Plus Event Only Conditions** – Because the Stadium component of the proposed project will be built in the near-term (i.e. 2022), an Existing Plus Stadium analysis would provide the decision maker and the public with accurate information relative to impacts and mitigation. For this reason, an Existing Plus Stadium analysis is presented against which significant impacts, if any, will be identified and, as necessary, mitigation measures recommended.
- **Horizon Year (2037) Conditions Without the Project**– Future traffic forecasts without the project area were developed for a 2037 horizon year using forecasts from the SANDAG Series 13 travel demand model. This is the cumulative baseline against which long-term project impacts are assessed.
- **Horizon Year (2037) Plus Project Without Event Conditions** – This traffic scenario provides projected traffic volumes and an assessment of operating conditions under 2037 conditions with the addition of the project-generated traffic. The long-term impacts of the project on future traffic conditions were identified under this scenario and subsequently used to determine when significant impacts may occur.
- **Horizon Year (2037) Plus Project with Saturday and Weekday Event Conditions** – The proposed stadium is expected to host a variety of events including college football games, concerts, minor league sports competitions, graduation ceremonies, major league soccer games, etc. Most of these events are expected to be held on weekend afternoons and evenings, and, therefore, an analysis of this scenario is provided. However, Stadium events will occasionally be held on a weekday evening with a start time outside the typical PM peak commute hour. These weekday evening events are expected to add some traffic during the PM peak hour, and therefore this scenario analyzes that traffic added to the Horizon Year Plus Project volumes.

2.4 TRAFFIC ANALYSIS METHODS

The operations of roadway facilities are described with the term level of service (LOS). LOS is a qualitative description of traffic flow based on such factors as speed, travel time, delay, and freedom to maneuver. Six levels are defined from LOS A, with the least congested operating conditions, to LOS F, with the most congested operating conditions. LOS E represents "at-capacity" operations. Operations are designated as LOS F when volumes exceed capacity, resulting in stop-and-go conditions.

2.4.1 INTERSECTIONS

The analysis of intersection operations performed for this study is based on procedures presented in the *Highway Capacity Manual 6th Edition* (HCM 6), published by the Transportation Research Board. The HCM 6 has limitations that prevent its application for analyzing signals with unique timing programs, such as phase

numbering that does not follow the National Electrical Manufacturers Association (NEMA) convention, including providing a protected pedestrian crossing. In those cases where the HCM 6 could not evaluate intersection operations, HCM 2000 methodology was applied.

2.4.1.1 Signalized Intersections

The method described in the HCM 6 was used to prepare the LOS calculations for the signalized study area intersections. This LOS method analyzes a signalized intersection's operation based on average control delay per vehicle. Control delay includes the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The average control delay for signalized intersections is calculated using Synchro 10.0 analysis software and is correlated to a LOS designation as shown in **Table 2**. As previously noted, in select cases, the HCM 2000 methodology was used because the HCM 6 method was not capable of analyzing non-standard signal phasing.

2.4.1.2 All-Way Stop Controlled Intersections

The HCM 6 method for analyzing all-way stop-controlled intersections is based on conflicting traffic for motor vehicles stopped at an intersection. Average control delay is calculated using a weighted average of the delays by volume distributed across all motor vehicles entering the intersection.

TABLE 2 – SIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Delay (seconds/vehicle)
A	Operations with very low delay occurring with favorable progression and/or short cycle lengths.	<10
B	Operations with low delay occurring with good progression and/or short cycle lengths.	>10– 20
C	Operations with average delays resulting from fair progression and/or longer cycle lengths. Individual cycle failures begin to appear.	>20 – 35
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, and high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	>35– 55
E	Operations with high delay values indicating poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	>55 – 80
F	Operations with delays unacceptable to most drivers occurring due to over-saturation, poor progression, or very long cycle lengths.	>80

Source: *Highway Capacity Manual 6th Edition*, Transportation Research Board, 2018.

2.4.1.3 Minor-Street or Side-Street Stop Controlled Intersections

The HCM 6 method for analyzing minor-street stop-controlled intersections is based on the concept of gap acceptance and the presence of conflicting traffic for motor vehicles stopped on the minor street approaches. Control delay and LOS for the "worst" movements are reported, as opposed to average intersection LOS and delay.

The average movement delay for all unsignalized intersections is calculated using Synchro 10.0 analysis software and is correlated to a LOS designation as shown in **Table 3**.

TABLE 3 – UNSIGNALIZED INTERSECTION LOS CRITERIA

Level of Service	Description	Delay (seconds/vehicle)
A	Little or no delay.	<10
B	Short traffic delay.	>10– 15
C	Average traffic delays.	>15 – 25
D	Long traffic delays.	>25– 35
E	Longer traffic delays.	>35 – 50
F	Longest traffic delays with intersection capacity exceeded.	>50

Source: *Highway Capacity Manual 6th Edition*, Transportation Research Board, 2018.

2.4.2 ROADWAY SEGMENTS

The project's significant impacts and corresponding mitigation are based on the CSU TISM, which does not recommend a roadway segment capacity analysis for locations with adjacent (i.e., endpoint) intersections on the same roadway to avoid potentially conflicting results. Instead, impacts are recommended to be based on intersection analysis. This methodology is the standard of practice throughout the industry as intersection operations are a more accurate indicator of roadway operations than segment operations. However, an analysis of segment operations was conducted for information purposes only to provide segment capacity evaluation consistent with City of San Diego impact guidelines.

The roadway segment capacity analysis identifies the LOS scores for each roadway segment in the project corridor. It does so by comparing the design capacity of each roadway in vehicles per day (VPD) or average daily traffic (ADT) as identified in the City of San Diego impact guidelines with the existing or future traffic volumes that occur or are expected to occur on that roadway segment. This volume-to-capacity (V/C) analysis then uses the volume criteria to determine the LOS score for each roadway segment based on the comparison of volume to capacity.

2.4.3 FREEWAY SEGMENTS

Freeway segment LOS and performance is based upon procedures developed by Caltrans District 11, which are derived from the HCM 2000 per the SANTEC regional impact analysis guidelines. The CSU TISM does not identify a specific procedure for analyzing freeway segment impacts, and as such, the SANTEC guidelines were used for this analysis. The procedure for determining freeway LOS involves calculating a peak hour volume-to-capacity (V/C) ratio. Peak hour volumes were obtained from the Caltrans Performance Measurement System (PeMS) count data from the week of April 30, 2018 to May 4, 2018, consistent with the days that intersection and roadway segment counts were obtained. Reported volumes were calculated by averaging the peak hour volumes from mid-week (Tuesday, Wednesday, and Thursday). The analysis uses a capacity of 1,800 vehicles per hour per lane (v/hr/ln) for freeway mainlines and 1,200 v/hr/ln for auxiliary lanes per the SANTEC guidelines. This reduced freeway mainline capacity (in lieu of the standard 2,200 v/hr/ln cited in the CSU TISM) was used to better reflect local freeway operations and provides more conservative results. The resulting V/C is then compared to the ranges of V/C values corresponding to the various Levels of Service for each facility classification, as shown in **Table 4**.

2.4.4 RAMP METERING

The CSU TISM does not include any guidance on analysis of ramp meters, but analysis of metered ramps for development projects is a standard practice in the San Diego region. Accordingly, ramp metering analyses to calculate delays at the study area freeway on-ramps were conducted based upon procedures outlined in the SANTEC TISM, as recommended by Caltrans. Ramp meter delays were calculated by dividing the Excess Ramp Demand (Ramp Demand – Ramp Meter Rate) by the most restrictive meter rate provided by Caltrans, and multiplying the result by 60 minutes/hour (Delay = Excess Demand/Ramp Meter Rate x 60 minutes/hour). Ramp queue lengths were calculated by multiplying the Excess Ramp Demand by a conservative average car length of 29 feet, where many jurisdictions use an average car length of 25 feet.

2.4.5 FREEWAY OFF-RAMPS

The CSU TISM, SANTEC, and City of San Diego impact guidelines do not include any guidance on analysis of off-ramp queueing. This analysis is performed in this report in order to determine queue length and if the project will result in operational issues on a freeway mainline.

TABLE 4 – FREEWAY SEGMENT LOS CRITERIA

LOS	V/C	Congestion/Delay	Traffic Description
"A"	<0.41	None	Free Flow.
"B"	0.42-0.62	None	Free to stable flow, light to moderate volumes.
"C"	0.63-0.79	None to Minimal	Stable flow, moderate volumes, freedom to maneuver noticeably restricted.
"D"	0.80-0.92	Minimal to Substantial	Approaches unstable flow, heavy volumes, very limited freedom to maneuver.
"E"	0.93-1.00	Significant	Extremely unstable flow, maneuverability and psychological comfort extremely poor.
"F(0)"	1.01-1.25	Considerable 0-1 hour delay	Forced flow, heavy congestion, long queues form behind breakdown points, stop and go.
"F(1)"	1.26-1.35	Severe 1-2 hour delay	Very heavy congestion, very long queues.
"F(2)"	1.36-1.45	Very Severe 2-3 hour delay	Extremely heavy congestion, longer queues, more numerous breakdown points, longer stop periods.
"F(3)"	>1.46	Extremely Severe 3+ hours of delay	Gridlock.

Source: *SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region*, 2002

2.4.6 SIGNIFICANT IMPACT CRITERIA

Both direct and cumulative impacts are assessed in this report. Direct impacts are those resulting from the project alone, relative to the baseline condition; the baseline condition may be existing conditions or a future condition if the reason(s) for the use of a future condition as baseline are supported by substantial evidence. Cumulative impacts are those that result from the project along with other past, present and reasonably foreseeable development projects. Cumulative impacts result if the project's effect is "cumulatively considerable," that is, the incremental effects of the project are considerable when viewed in connection with the effects of the other past, present, and reasonably foreseeable projects.

2.4.6.1 Intersections

2.4.6.1.1 Signalized Intersections

Per the CSU TISM, the minimum acceptable operating standards for all roadways and intersections is LOS D. The standard for signalized intersection operations is *not* met if implementation of the proposed project causes one of the following criteria:

1. An intersection operating at LOS D or better under existing or future conditions without the project worsens to LOS E or F with the proposed project, or
2. At an intersection operating at LOS E or F without the proposed project, the project adds at least 10 peak hour trips and causes the delay to increase by more than five seconds, or
3. At an intersection operating at very poor LOS F (delay of 120 seconds or more) without the proposed project, the project causes an increase in V/C ratio of 0.02 or more.

The City of San Diego's *CEQA Significance Determination Thresholds* were also reviewed for local context and are referred to later in this report. These guidelines differ from the CSU TISM such that criteria 2 and 3 above would instead be consolidated to read as follows: At an intersection operating at LOS E or F without the proposed project, the project causes the delay to increase by more than two (2.0) and one (1.0) seconds for those operating levels, respectively. The analyses of impacts based on the City's significance thresholds are presented for information purposes only; significance determinations and recommended mitigation are based on CSU TISM thresholds.

2.4.6.1.2 Unsignalized Intersections

Per the CSU TISM, the standard for unsignalized intersection operations is *not* met if implementation of the proposed project causes one of the following criteria:

1. An intersection operating at LOS D or better under existing or future conditions without the project worsens to LOS E or F with the proposed project, or
2. At an intersection operating at LOS E or F without the proposed project, the project adds at least 10 peak hour trips and causes the delay to increase by more than five seconds, or
3. At an intersection operating at very poor LOS F (delay of 120 seconds or more) without the proposed project, the project causes an increase in V/C ratio of 0.02 or more.

Based on these criteria, the project is determined to have a significant project-specific impact if the addition of project traffic causes an unsignalized intersection to degrade from LOS D or better to LOS E or F and if the location satisfies the peak hour signal warrant described in the *California Manual on Uniform Traffic Control Devices (MUTCD)*. The peak hour warrant is one of several key indications as to whether a traffic signal may be needed at a given location. An impact is considered a cumulative impact when it adds traffic

to a study area location that includes a controlled approach that operates at an unacceptable level (i.e., LOS E or F) and if the peak hour signal warrant is satisfied.

The City of San Diego's *CEQA Significance Determination Thresholds* were also reviewed for local context and are referred to later in this report. These guidelines differ from the CSU TISM such that criteria 2 and 3 above would instead be consolidated to read as follows: At an intersection operating at LOS E or F without the proposed project, the project causes the delay to increase by more than two (2.0) and one (1.0) seconds for those operating levels, respectively. The analyses of impacts based on the City's significance thresholds are presented for information purposes only; significance determinations and recommended mitigation are based on CSU TISM thresholds.

2.4.6.2 Roadway Segments

As previously explained, the analysis of roadway segments is included in this study for information purposes only to provide segment capacity evaluation consistent with City of San Diego impact guidelines. The following two-part analysis is performed to determine whether the proposed project meets City of San Diego criteria for traffic conditions on roadway segments.

2.4.6.2.1 Roadway Segment Analysis: Part 1

First, the V/C analysis is performed to determine whether the proposed project will result in either of the following:

- Traffic conditions on any roadway segment to worsen from LOS D or better without the proposed project to LOS E or LOS F with the proposed project.
- A V/C ratio increase of more than 0.02 for LOS E roadway segments or 0.01 for LOS F roadway segments.

If a proposed project does not result in one of the above scenarios, then traffic conditions on that roadway meet the City of San Diego standards, and no further analysis is required. If, however, a proposed project results in one of the scenarios described in Part 1, then a secondary analysis should be performed.

2.4.6.2.2 Roadway Segment Analysis: Part 2

The analysis considers the following three additional factors to determine if the roadway segment will meet the City of San Diego standards:

- if the intersections at either end of the segment will operate acceptably with the project (using the intersection criteria described above);

- if an arterial analysis of the segment shows that it will operate at LOS D or better based on travel speed during both peak hours OR speeds decrease by less than 1 mph on roadway segments that operate at LOS E or less than 0.5 mph on roadway segments which operate at LOS F without the proposed project; and
- if the proposed street classification is consistent with the adopted Community Plan for the area.

If the project fails to meet one of the three criteria above, then traffic conditions along the roadway segment do not meet the City of San Diego standards. Although this analysis is presented for information purposes only, a discussion of improvements that would be needed to avoid exceedance of the threshold is also included.

2.4.6.3 Freeway Segments

Per the CSU TISM, the local Caltrans district's preferred method should be used for freeway facility analysis. Based on the *SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region,* LOS D or better is used in this study as the threshold for acceptable freeway operations. A significant impact to freeway mainline lanes is identified when the project causes:

1. a segment operating at LOS D or better (under baseline conditions without the proposed project) to degrade to LOS E or F, or
2. an increase in per lane V/C ratio greater than 0.01 (1%) for segments already operating at LOS E or F

The City of San Diego's *CEQA Significance Determination Thresholds* differ from the SANTEC guidelines such that for segments already operating at LOS F, the threshold is more restrictive at an increase in per lane V/C ratio greater than 0.005 (0.5%). The analysis of impacts based on the City's significance thresholds is presented for information purposes only.

2.4.6.4 Metered Ramps

Per the CSU TISM, the local Caltrans district's preferred method should be used for freeway facility analysis. In the San Diego region, the preferred method is the *SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region*, in which ramp meter delays greater than 15 minutes are considered undesirable when the ramp is accessing a freeway segment operating at LOS E or F. If a ramp meter is operating unacceptably (i.e. delay is 15 minutes or greater) and the project adds traffic to the on-ramp, causing the delay to increase by more than two (2) minutes, then this would be characterized as a significant impact.

The City of San Diego's *CEQA Significance Determination Thresholds* are further restrictive in the case of LOS F conditions; analysis based on the City's significance thresholds is presented for information purposes

only. **Table 5** summarizes the impact thresholds as identified by the SANTEC and City of San Diego guidelines relative to freeways, segments, intersections, and ramp meters.

TABLE 5 – MEASURE OF SIGNIFICANT TRAFFIC IMPACTS

Level of Service (LOS) with the Project[1]	Allowable Change Due to Project Impact[2]					
	Freeways		Roadway Segments		Intersections	Ramp Meters
	V/C	Speed (mph)	V/C	Speed[3] (mph)	Delay (sec)	Delay (min)
LOS D, E, or F (or ramp meter delays above 15 min)	0.01	1.0	0.02	1.0	2.0	2.0
LOS F (per City of San Diego)	0.005	0.5	0.01	0.5	1.0	1.0

Source: *SANTEC/ITE Guidelines for Traffic Impact Studies in the San Diego Region,* 2002*; CEQA Significance Determination Thresholds,* City of San Diego 2016

Notes:

[1] All level of service (LOS) measurements are based upon HCM procedures for peak-hour conditions. However, vehicle to capacity (V/C) ratios for Roadway Segments may be estimated on an ADT/24-hour traffic volume basis. The acceptable LOS for freeways, roadways, and intersections is generally "D" ("C" for undeveloped or not densely developed locations per jurisdiction definitions). For metered freeway ramps, LOS does not apply. However, ramp meter delays above 15 minutes are considered excessive.

[2] If the project's traffic causes the values shown in the table to be exceeded, the impacts are determined to be significant. These impact changes may be measured from appropriate computer programs or expanded manual spreadsheets. The project developer shall then identify feasible mitigation (within the Traffic Impact Study report) that will maintain the traffic facility at an acceptable LOS. If the LOS with the project becomes LOS E or F (see above * note), or if the project adds a significant number of peak-hour trips to cause any traffic queues to exceed on- or off-ramp storage capacities, the project developer shall be responsible for significantly reducing significant impact changes.

[3] Speed-based LOS is only analyzed if an arterial analysis is required (Part 2 of the Roadway Segment Analysis).

2.4.6.5 Freeway Off-Ramps

Analysis of freeway off-ramps is not required by the CSU TISM, SANTEC, or City of San Diego impact guidelines. However, Caltrans typically requires that potential safety impacts on their system be identified as part of transportation impact analyses for land development projects, especially those that are projected to add a substantial amount of traffic to roadways under their jurisdiction. Accordingly, this report includes a queueing evaluation at freeway off-ramps to determine if projected vehicle queues will extend back onto the freeway mainline so as to result in in potential safety impacts. If the queue is projected to exceed the available ramp storage (i.e., the distance to the upstream mainline gore point) with the project in place, it will be considered a significant impact.

2.4.6.6 Bicycle Facilities

Per the CSU TISM, a significant impact to bicycle facilities would occur where a project significantly disrupts existing or planned bicycle facilities or significantly conflicts with applicable non-automotive transportation plans, guidelines, policies, or standards.

The assessments of planned facilities outlined in planning documents, such as the *San Diego Regional Bicycle Plan*, were used to evaluate future conditions for bicycle facilities. If the project would conflict with existing or planned improvements to bicycle facilities, then the project would have a significant impact.

2.4.6.7 Pedestrian Facilities

Similarly, under the CSU TISM, a significant impact to pedestrian facilities would occur if a project fails to provide safe pedestrian connections between campus buildings and adjacent streets and transit facilities, or if a project significantly disrupts existing or planned pedestrian facilities or significantly conflicts with applicable non-automotive transportation plans, guidelines, policies, or standards.

2.4.6.8 Transit

Under the CSU TISM, a significant impact to transit facilities would occur where the project significantly disrupts existing or planned transit facilities and services or significantly conflicts with applicable transit plans, guidelines, policies, or standards.

2.5 REPORT ORGANIZATION

The remainder of this report is divided into 13 chapters. The existing transportation system serving the project site and the current operating conditions of the area intersections and roadways are described in **Chapter 3** – Existing Conditions. **Chapter 4** describes the project's trip generation, distribution, and assignment used in the transportation impact analysis, as well as the project's internal transportation network. **Chapter 5** presents the analysis of the Existing Plus Project scenarios. **Chapter 6** presents the analysis of the Horizon Year 2037 Without the Project scenario. **Chapter 7** presents the analysis of the Horizon Year 2037 Plus Project scenarios, including the scenarios with a Saturday and a weekday stadium event. **Chapter 8** evaluates the effect of a Fenton Parkway Extension on the project impacts. **Chapter 9** identifies any potential traffic impacts at intersections, roadways, freeway segments, ramp meters, and off-ramps in the surrounding area and identifies mitigation measures to address those project impacts. **Chapter 10** contains an assessment of parking and **Chapter 11** contains an assessment of the potential effect of the project on pedestrian, bicycle, and transit facilities and services. **Chapter 12** provides analysis of the potential temporary impacts associated with project construction, and **Chapter 13** provides the mitigation measure implementation plan. **Chapter 14** discusses project vehicle miles traveled (VMT) in the context of SB 743, which requires that impacts be assessed relative to VMT, rather than level of service (LOS; i.e., the previously applicable metric).

3.0 EXISTING (2018) CONDITIONS

This chapter describes the existing roadway network and includes a discussion of the bicycle, pedestrian, and transit facilities located in the project study area. This chapter also includes a discussion of the existing intersection LOS results.

3.1 EXISTING TRANSPORTATION FACILIITIES

A comprehensive data collection effort was undertaken to identify existing transportation conditions in the vicinity of the proposed project. The assessment of existing conditions relevant to this study includes an inventory of the street system, traffic volumes on these facilities, and operating conditions at area intersections. Existing public transit service and bicycle and pedestrian facilities are also described.

3.1.1 EXISTING STREET SYSTEM

Figure 1 illustrates the proposed project location and the surrounding roadway system. The primary roadways providing access to the site within the study area are described below. These facilities are studied as part of the intersection, roadway segment, or freeway segment analysis.

3.1.1.1 Primary East/West Study Area Roadways

Interstate 8 is an east-west freeway that extends from a western terminus at Seaworld Drive and continues east into Imperial County. Near the project study area, I-8 has an interchange with SR-163, on- and off-ramps at Mission Center Road and Qualcomm Way/Texas Street, an interchange with I-805 and I-15, and on- and off-ramps at Fairmount Avenue. Near the project, I-8 has four to six mainline lanes in each direction, and the posted speed limit is 65 miles per hour (mph).

Friars Road is an east-west roadway that extends from Sea World Drive to Mission Gorge Road and is fronted by a combination of retail, commercial office, and residential uses. Within the study area, Friars Road is classified as a six-lane primary arterial between Ulric Street and Frazee Road; a six- to eight- lane expressway between Frazee Road and Rio Bonito Way; a six-lane primary arterial between Rio Bonito Way and Stadium Way (Street A); a six-lane expressway between Stadium Way (Street A) and the I-15 SB Ramps; a 7-lane primary arterial between the I-15 SB Ramps and Santo Road; and a 6-lane primary arterial between Santo Road and Mission Gorge Road. The posted speed limit is 45 to 50 mph.

Rio San Diego Drive is an east-west roadway that extends from Gill Village Way to Fenton Parkway. It functions as a four-lane major arterial from Gill Village Way to River Run Drive, and as four-lane collector from River Run Drive to Fenton Parkway with some short segments with a raised median. Rio San Diego Drive is fronted by a combination of retail, hotel and residential uses. The posted speed limit ranges from 25 to 35 mph.

Camino de la Reina is an east-west roadway that extends from Hotel Circle to Qualcomm Way. It functions as a two-lane collector with a center left-turn lane between Hotel Circle and Camino de La Siesta, and as four-lane major arterial from Camino de La Siesta to Qualcomm Way. Camino de la Reina is fronted by a combination of commercial and residential uses. The posted speed limit ranges from 25 to 30 mph.

Camino del Rio North is an east-west roadway that extends from Camino de La Siesta to Fairmount Avenue where it connects with Alvarado Canyon Road. It functions as a two-lane collector with a center left-turn lane between Camino de La Siesta and Mission Center Road, as a three-lane major arterial (two lanes in the westbound direction and one in the eastbound direction) from Mission Center Road to Camino del Este, as a four-lane major arterial from Camino del Este to Mission City Parkway, as a two-lane collector with a center left-turn lane from Mission City Parkway to Ward Road, and as four-lane collector from Ward Road to Fairmount Avenue. Camino del Rio North is fronted by a combination of retail, hotel and residential uses. The posted speed limit ranges from 35 to 45 mph.

Camino del Rio South is an east-west roadway that extends from a cul-de-sac terminus adjacent to State Route 163 to Fairmount Avenue. It functions as a two-lane collector with a center left-turn lane between its western terminus and Mission Center Road, as a two-lane collector without a center left-turn lane between Mission Center Road and Mission City Parkway, as a three-lane collector (one lane in the westbound direction and two in the eastbound direction) with a center left-turn lane from Mission City Parkway to the I-15 Southbound ramps, as a four-lane collector from the I-15 Southbound ramps to the I-15 northbound ramps, and as two-lane collector with a center left-turn lane from the I-15 Northbound ramps to Fairmount Avenue. Camino del Rio South is fronted by a combination of commercial and residential uses. The posted speed limit ranges from 25 to 45 mph.

Montezuma Road is an east-west roadway that extends from Fairmount Avenue to El Cajon Boulevard. It functions as a four-lane major arterial from Fairmount Avenue to East Campus Drive, as a four-lane collector without a center left-turn lane from East Campus Drive to La Dorna Street, and as a four-lane collector from La Dorna Street to El Cajon Boulevard. Montezuma Road is fronted by primarily residential properties as well as the College Area campus of San Diego State University. The posted speed limit ranges from 35 to 50 mph.

San Diego Mission Road is an east-west roadway that extends from Mission Village Drive to Fairmount Avenue. It functions as a four-lane collector without a center left-turn lane between Mission Village Drive and Rancho Mission Road, and as a two-lane collector with a center left-turn lane between Rancho Mission Road and west of Fairmount Avenue, where it widens to four lanes. East of Fairmount Avenue, this street is designated as Twain Avenue. San Diego Mission Road is fronted primarily by residential properties along its central section, but also by some commercial uses. The western section provides access to the existing Kinder Morgan tank farm, and its eastern segment is fronted by office and light industrial uses. The posted speed limit is 40 mph.

Gramercy Drive is an east-west roadway that functions as a four-lane collector and extends between Sandrock Road and Ruffin Road, where it connects with Mission Village Drive. It is fronted by primarily residential property and has a posted speed limit of 35 mph.

Aero Drive is an east-west roadway that functions as a four- to six- lane major arterial and extends from Convoy Street/Linda Vista Road to Santo Road. Within the study area, Aero Drive is a four-lane major arterial. Aero Drive is bounded primarily by commercial uses, and provides access to the Montgomery-Gibbs Airport to the north. The posted speed limit is 45 mph.

3.1.1.2 Primary North/South Study Area Roadways

State Route 163 is a north-south freeway that extends from a southern terminus at I-5 in downtown San Diego to a northern terminus at I-15 to the north of Kearny Mesa. Near the project study area, SR-163 has on- and off-ramps at Friars Road, an on-ramp from Ulric Street, and an interchange with I-8. There is also an interchange that allows northbound traffic on either SR-163 or I-805 to continue north on either freeway, and allows southbound traffic to continue south on either freeway. Near the project, SR-163 has three to five mainline lanes in each direction and the posted speed limit is 55 miles per hour (mph).

Interstate 805 is a north-south freeway that extends from a southern terminus at I-5 just north at the international border with Mexico and continues north to its terminus at I-5 to the north of Sorrento Valley. Near the project study area, I-805 has on- and off-ramps at Friars Road, on- and off-ramps at Aero Drive, and an interchange with I-8. Near the project, I-805 has four to six mainline lanes in each direction and the posted speed limit is 65 miles per hour (mph).

Interstate 15 is a north-south freeway that extends from a southern terminus at I-5 in Barrio Logan to a northern terminus at I-5 to the north into Riverside County. Near the project study area, I-805 has an interchange with I-8 and a limited interchange with SR-163 as described above. Near the project, I-15 has three to five mainline lanes in each direction and the posted speed limit is 65 miles per hour (mph).

Ulric Street is a north-south roadway that extends from Friars Road to Ulric Court. It functions as a three-lane collector with a striped median from Friars Road to Lindbrook Drive, as a two-lane collector with a striped median from Lindbrook Drive to Tait Street, as a two-lane collector with a center left-turn lane from Tait Street to Linda Vista Road, and as a two-lane collector from Linda Vista Road to Ulric Court. Ulric Street generally has no fronting uses south of Tait Street, and is bounded by residential properties north of Tait Street. The posted speed limit is 25 to 40 mph

Frazee Road is a north-south roadway that extends from Hazard Center Drive to a terminus north of Murray Canyon Road. It functions as a four-lane major arterial and is fronted by commercial uses. There is no posted speed limit.

Mission Center Road is a north-south roadway that extends from I-8 to Murray Ridge Road. It functions as a five-lane major arterial from I-8 to Mission Valley Road/Civita Boulevard, as a four-lane major arterial from Mission Valley Road/Civita Boulevard to Sevan Court, as a three-lane collector without a center left-turn lane from Sevan Court to Murray Ridge Road. Mission Center Road is fronted by a mixture of commercial and residential uses. The posted speed limit is 40 to 45 mph.

Qualcomm Way is a north-south roadway that extends from I-8, where it connects with Texas Street, to Civita Boulevard. It functions as a six-lane major arterial from I-8 to Friars Road and as a four-lane major arterial from Friars Road to Civita Boulevard. It is bounded by a mixture of commercial and residential uses. There is no posted speed limit.

Texas Street is a north-south roadway that extends from a terminus south of Upas Street to I-8, where it connects with Qualcomm Way. It functions as a two-lane collector from its southern terminus to Lincoln Avenue, as a two-lane collector with a center left-turn lane from Lincoln Avenue to the alley north of Howard Avenue, a three-lane collector (one in the northbound direction and two in the southbound direction) without a center left-turn lane from the alley to Meade Avenue, and as a four-lane major arterial from Madison Avenue to I-8. It is primarily bounded by residential uses. The posted speed limit is 25 to 40 mph.

River Run Drive is a north-south roadway that extends from Rio San Diego Drive to Friars Road. It functions as a two-lane collector and is bounded by residential uses. There is no posted speed limit.

Fenton Parkway is a north-south roadway that extends from the trolley line to a cul-de-sac with driveways to the Portofino and Escala residential complexes. It functions as a four-lane major arterial and is bounded by a combination of residential and commercial uses. There is no posted speed limit.

Northside Drive is a north-south roadway that extends from Fenton Marketplace to a cul-de-sac with a driveway to the Escala residential complex. It functions as a four-lane major arterial and is bounded by a combination of residential and commercial uses. There is no posted speed limit.

Mission Village Drive is a north-south roadway that extends from San Diego Mission Road to Ruffin Road where it connects with Gramercy Drive. It functions as a four-lane major arterial from San Diego Mission Road to Ronda Avenue, and a four-lane collector without a center left-turn lane from Ronda Avenue to Ruffin Road. It is primarily bounded by residential uses. The posted speed limit is 40 to 45 mph.

Sandrock Road is a generally north-south roadway that functions as a two-lane collector with a center left-turn lane and extends between a cul-de-sac south of Greyling Drive/Gramercy Drive and Aero Drive, where it connects with John J Montgomery Drive. It has a raised median from Greyling Drive/Gramercy Drive to Hammond Drive and from Haveteur Way to Aero Drive. It is fronted by primarily residential property, but also by some commercial uses. The posted speed limit is 35 mph.

River Run Drive is a north-south roadway that extends from Rio San Diego Drive to Friars Road. It functions as a two-lane collector and is bounded by residential uses. There is no posted speed limit.

Rancho Mission Road is a north-south roadway that extends from the eastern stadium driveway to Friars Road. It functions as a two-lane collector from the driveway to Ward Road, as a four-lane collector without a center left-turn lane from Ward Road to San Diego Mission Road, and as a three-lane collector with a center left-turn lane from San Diego Mission Road to Friars Road. Rancho Mission Road is bounded primarily by residential properties, but also by some commercial uses. The posted speed limit is 30 to 35 mph.

Santo Road is a north-south roadway that extends from Friars Road to Ambrosia Drive. It functions as a two-lane collector and has no fronting uses. The posted speed limit is 35 mph.

Riverdale Street is a north-south roadway that extends from Vandever Avenue to Zion Avenue. It functions as a two-lane collector and is bounded primarily by commercial uses. There is no posted speed limit.

Fairmount Avenue is a north-south roadway that extends from Chollas Parkway, where it connects with 47th Street, to Vandever Avenue. It functions as a four-lane collector from Chollas Parkway to Home Avenue, as a four-lane collector with a raised median and no center left-turn lane from Home Avenue to Quince Street, as a four-lane collector from Quince Street to Myrtle Avenue, as a three-lane collector with a center left-turn lane from Myrtle Avenue to El Cajon Boulevard, as a northbound one-way two-lane collector from El Cajon Boulevard to Meade Avenue (where southbound Fairmount connects with 43rd Street), as a four-lane expressway from Meade Avenue to Camino del Rio North/Alvarado Canyon Road, as a four-lane major

arterial from Camino del Rio North/Alvarado Canyon Road to Mission Gorge Road, as a two-lane collector with a center left-turn lane from Mission Gorge Road to San Diego Mission Road/Twain Avenue, and as a two-lane collector from San Diego Mission Road/Twain Avenue to Vandever Avenue. Near the study area, it is fronted by commercial uses. It has a posted speed limit of 25 to 55 mph.

Mission Gorge Road is a north-south roadway between Fairmount Avenue and Friars Road, where it continues as a northeast-southwest roadway and extends to Magnolia Avenue in Santee. It functions as a four-lane collector from Fairmount Avenue to Friars Road, as a six-lane major arterial from Friars Road to Old Cliffs Road, as a four-lane major arterial from Old Cliffs Road to Katelyn Court, as a five-lane major arterial from Katelyn Court to Conestoga Way, as a six-lane major arterial from Conestoga Way to Golfcrest Drive, as a five-lane major arterial from Golfcrest Drive to Father Junipero Serra Trail, as a four-lane major arterial from Father Junipero Serra Trail to the SR-52 Ramps, and as a six-lane major arterial from the SR_52 Ramps to Magnolia Avenue. Near the study area, it is fronted by commercial uses. It has a posted speed limit of 25 to 55 mph.

Collwood Boulevard is a north-south roadway that extends from 54th Street to Montezuma Road. It functions as a two-lane collector with a center left-turn lane and is bounded primarily by residential property. It has a posted speed limit of 40 mph.

3.1.2 EXISTING TRANSIT SERVICES

Existing transit service near the project site includes light rail/trolley and bus services provided by the Metropolitan Transit System (MTS). These services are described below, and the routes are shown on **Figure 3**. Only bus routes that serve roadways along the project site frontage or trolley service near the site are included in this section.

MTS provides bus and trolley service within the Mission Valley community, including an existing Green Line trolley stop at the south edge of the project site. The trolley's Green Line provides service along the San Diego River corridor, and several MTS bus routes provide service within the study area. Detailed descriptions of each service are presented below.

> *The Green Line* provides daily service from Santee to Downtown San Diego, extending along the San Diego River through the southern area of the project site. This route includes the Stadium station at the south end of the project site, as well as stations in the vicinity of the study area at Hazard Center near Friars Road & Frazee Road, Rio Vista near Qualcomm Way & Rio San Diego Drive, Fenton Parkway near Fenton Parkway & Rio San Diego Drive, Mission San Diego near Ward Road & Rancho Mission Road, and Grantville near Fairmount Avenue & Camino del Rio N/Alvarado

Figure 3

Existing and Planned Transit Facilities

Canyon Road. During weekdays, this line operates from 4:50 AM to 1:10 AM in the westbound direction, and 3:50 AM to 12:15 AM in the eastbound direction. According to SANDAG January-June 2018 ridership data, the Stadium Station currently serves an average daily total of 391 boardings and alightings combined, with a directional distribution as follows: eastbound (71 average boardings/122 average alightings) and westbound (133 average boardings/65 average alightings). Observations at this station during the peak periods indicate numerous available seats on trains with few, if any, passengers standing.

Bus Route 11 provides daily service from SDSU to downtown San Diego. In the study area, this route travels along Fairmount Avenue south of I-8, along I-8 from Fairmount Avenue to I-15, and along I-15 south of I-8. This route has no stops in the study area. During weekdays, although the route operates from 4:40 AM to 11:00 PM in the southbound direction and from 5:10 AM to 11:10 PM in the northbound direction, the route only traces the route described previously during service after 9:50 PM.

Bus Route 14 provides weekday service from the Grantville Trolley Station to Baltimore Drive & Lake Murray Boulevard in La Mesa. In the study area, this route travels along Camino del Rio N, Ward Road, Rancho Mission Road, Friars Road, and Mission Gorge Road. In the study area, the route stops at Rancho Mission Road & Ward Road (approximately 1,300 feet from the project site boundary) and at Rancho Mission Road & San Diego Mission Road (approximately 1,650 feet from the project site boundary). According to SANDAG January-June 2018 ridership data, at Rancho Mission Road & Ward Road, there are typically seven (7) boardings and no alightings in the northbound direction, and one (1) boarding and nine (9) alightings in the southbound direction. At Rancho Mission Road & San Diego Mission Road, there are typically two (2) boardings and one (1) alighting in the northbound direction, and one (1) boarding and one (1) alighting in the southbound direction. This route operates from 5:45 AM to 7:30 PM in the eastbound direction and 6:30 AM to 6:30 PM in the westbound direction.

Bus Route 18 provides weekday service from the Grantville Trolley Station to Qualcomm Way/Texas Street. In the study area, this route travels along Camino del Rio N and Qualcomm Way and includes a stop at Camino del Rio N & Ward Road in the westbound direction (approximately 1,900 feet from the project site boundary). According to SANDAG January-June 2018 ridership data, this bus stop typically serves four (4) boardings and one (1) alighting. This route operates from 7:00 AM to 5:30 PM in a loop beginning and ending at the Grantville Trolley Station.

Bus Route 60 provides weekday service from the Euclid Transit Center to City Heights, Kearny Mesa, and the UTC Transit Center. In the study area, this route travels along I-15, but does not stop in the

study area. This route operates from 5:00 AM to 8:00 AM in the northbound direction and from 3:30 PM to 7:00 PM in the southbound direction.

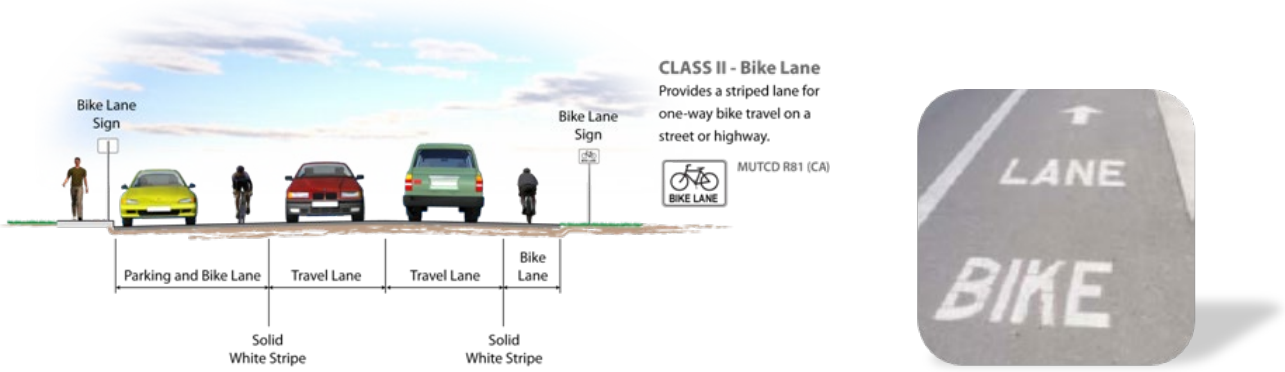
Bus Route 235 provides daily service from Escondido to Downtown San Diego. In the study area, this route travels along I-15, but does not stop in the study area. During weekdays, this route operates from 5:00 AM to 11:50 PM in the southbound direction and from 4:40 AM to 11:50 PM in the northbound direction.

3.1.3 EXISTING AND PLANNED BICYCLE CIRCULATION

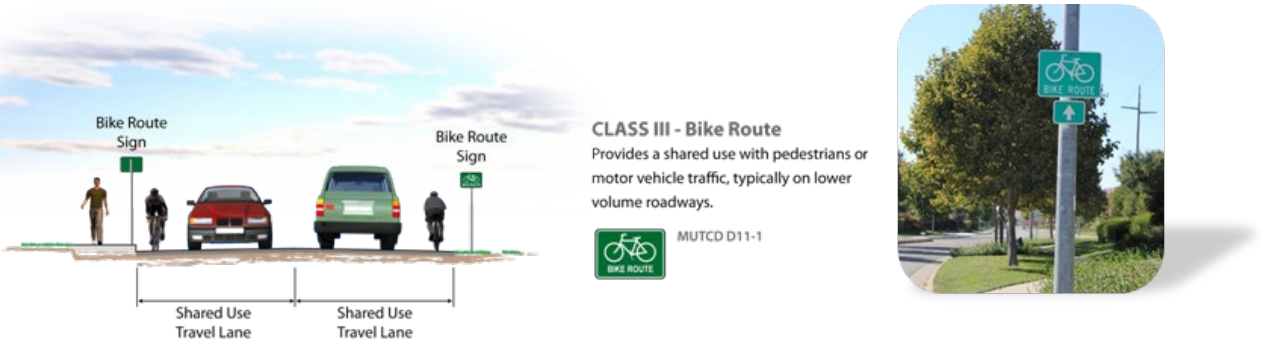
Bicycle facilities generally consist of four types of facilities, which are outlined below:

- *Bike or Multi-Use Paths (Class I)* provide a separate right-of-way and are designated for the exclusive use of bicycles and pedestrians (or exclusively bicycles) with vehicle and pedestrian cross-flow minimized. Generally, the recommended pavement width for a two-directional bike or multi-use path is ten (10) feet.

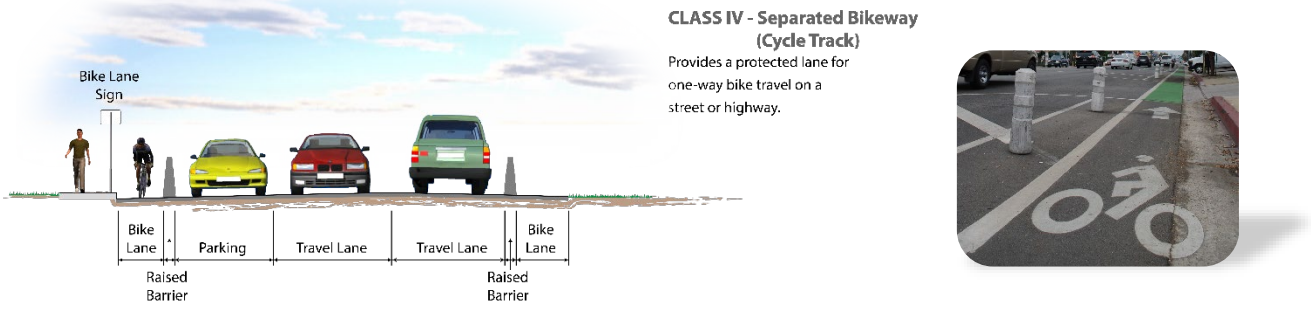
- *Bike Lanes (Class II)* provide a restricted right-of-way and are designated for the use of bicycles with a striped lane on a street or highway. Bicycle lanes are generally five (5) feet wide. Adjacent vehicle parking and vehicle/pedestrian cross-flow are permitted.



- *Bike Route or Signed Shared Roadways (Class III)* provide for a right-of-way designated by signs or shared lane pavement markings, or "sharrows," for shared use with pedestrians or motor vehicles.



- *Separated Bikeways or Cycle Tracks (Class IV)* provide a restricted right-of-way with physical separation and are designated for the use of bicycles with a raised barrier such as curbs or bollards. Separated bikeways are generally five (5) feet wide with a three (3) foot minimum horizontal and vertical separation area. Adjacent vehicle parking is permitted, and vehicle/pedestrian cross-flow is restricted to selected locations (e.g., driveways) indicated by breaks in the barrier and buffer.



The study area includes several bicycle facilities. A multi-use path (the San Diego River Trail) is provided along the San Diego River between Fashion Valley Road and Qualcomm Way, as well as along the eastern edge of the project site, parallel to I-15, between Rancho Mission Road and Murphy Canyon Road. Bike lanes currently exist on Friars Road within most of the study area, often enhanced by a striped buffer and green conflict paint; however, this facility is typically used only by the most experienced cyclists given the speed of adjacent traffic and the multiple conflicts/crossing points of vehicle traffic at ramps serving intersecting roadways. Bike lanes are also provided on:

- Mission Center Road, Qualcomm Way (between Camino del Rio N and Friars Road)
- Fenton Parkway
- Mission Village Drive (between San Diego Mission Road and Shawn Avenue)
- San Diego Mission Road (between Rancho Mission Road and Fairmount Avenue), and

- Camino del Rio N, Gramercy Drive, and Aero Drive.

Finally, bike routes are designated on Ruffin Road, as well as Mission Village Drive (between Shawn Avenue and Ruffin Road/Gramercy Drive).

The existing bicycle facilities are shown on **Figure 4**.

3.1.4 EXISTING PEDESTRIAN CIRCULATION

Pedestrian facilities are available in the project study area and comprise sidewalks, crosswalks, pedestrian push buttons and indications at signalized intersections, and paths. The existing pedestrian facilities are shown on **Figure 5**. Sidewalks are present along both sides of all street segments within the study area, except for:

- the westbound segment of Friars Road between Ulric Street/SR-163 SB Ramps and SR-163 NB Ramps (note that this is currently under construction as part of the Friars Road/SR-163 interchange improvements),
- the eastbound segment of Friars Road between approximately 250 feet east of Frazee Road and Mission Center Road,
- the westbound segment of Friars Road between Russell Parkway and the private road west of River Run Drive,
- the eastbound segment of Friars Road between Mission Village Drive and approximately 360 feet west of Rancho Mission Road,
- the westbound segment of Friars Road between Mission Village Drive and approximately 90 feet east of the I-15 NB Ramps,
- the segment of Qualcomm Way in both directions between Friars Road EB and Friars Road WB,
- the segment of Qualcomm Way in both directions between Camino del Rio N/I-8 WB Ramps and Camino de la Reina/Camino del Rio N,
- the northbound segment of Qualcomm Way/Texas Street to the south of Camino del Rio N/I-8 WB Ramps (except for short lengths immediately north and south of Camino del Rio S),
- the driveway access at Stadium Way (Street A),
- the westbound segment of San Diego Mission Road between approximately 480 feet east of Mission Village Drive and the eastern driveway to Mission Terrace Apartments,
- the westbound segment of San Diego Mission Road between Nazareth Drive and the private road just west of the San Diego River Bridge,
- the eastbound segment of San Diego Mission Road between the San Diego River Bridge and Fairmount Avenue,
- the northbound segment of Riverdale Street between the alley to the south of Rainier Avenue and Friars Road,
- the eastbound segment of Twain Avenue on the east leg of the San Diego Mission Road/Twain Avenue & Fairmount Avenue intersection,

Figure 4

Existing and Planned Bicycle Facilities

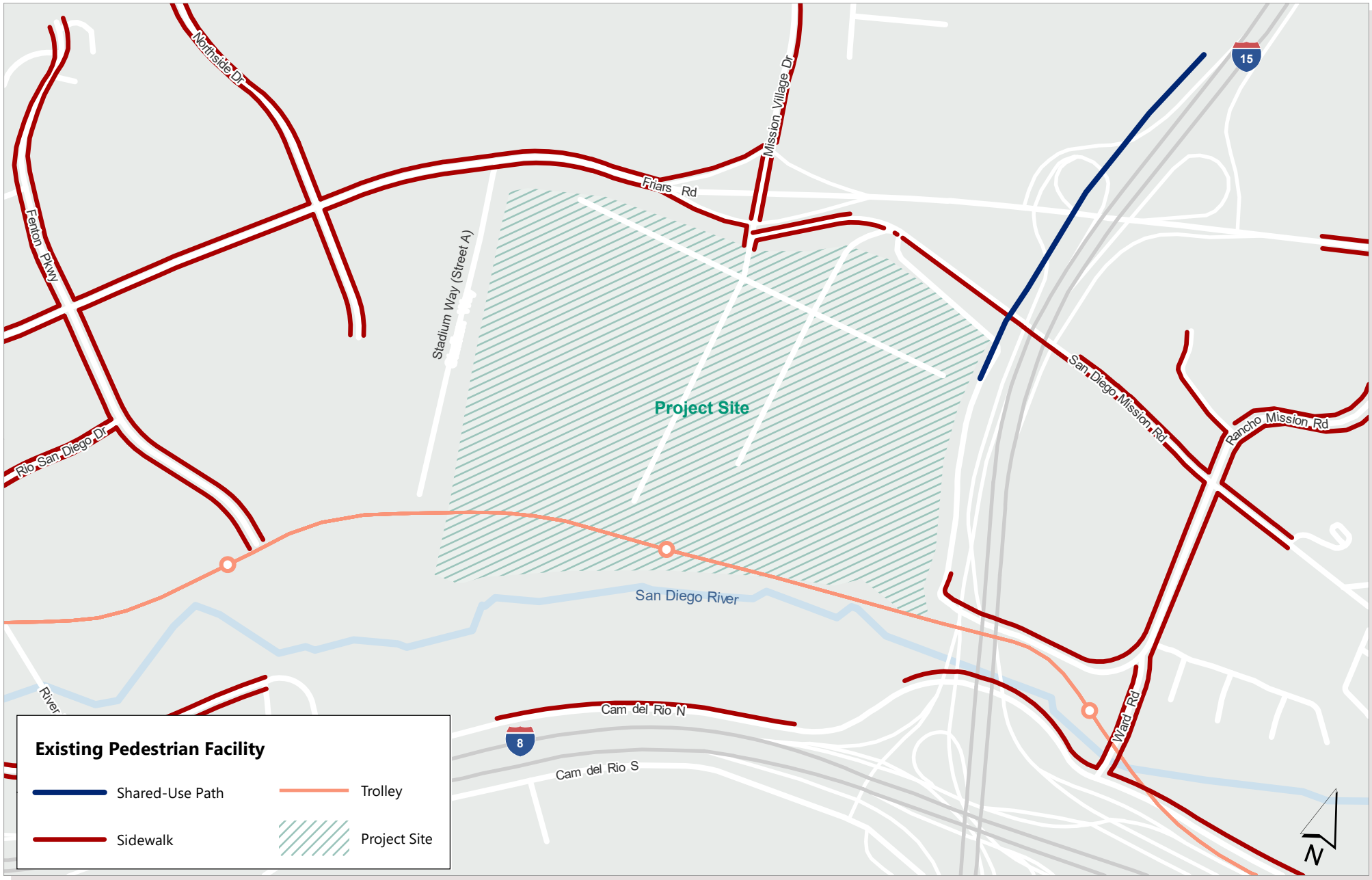


Figure 5

Existing Pedestrian Facilities

- the eastbound segment of Camino del Rio N from the west leg of the Camino del Rio N & Ward Road intersection to Fairmount Avenue,
- the eastbound segment of Alvarado Canyon Road on the east leg of the Camino del Rio N/ Alvarado Canyon Road & Fairmount Avenue intersection,
- the southbound segment of Fairmount Avenue on the south leg of the Camino del Rio N/ Alvarado Canyon Road & Fairmount Avenue intersection,
- the westbound segment of Montezuma Road on the west leg of Montezuma Road & Collwood Boulevard,
- the northbound segment of Sandrock Road south of a point approximately 60 feet south of Gramercy Drive/Greyling Drive,
- the westbound segment of Aero Drive on the west leg of the Aero Drive & Ruffin Road intersection,
- and the westbound segment of Aero Drive to the east of the Aero Drive & Ruffin Road bus stop.

Each of the signalized study area intersections also provide pedestrian push buttons, except at intersections on Friars Road at SR-163 NB Ramps, Stadium Way (Street A), I-15 SB Ramps, I-15 NB Ramps, and Mission Gorge Drive, where no pedestrian crossing is allowed. Additionally, at Friars Road & Stadium Way (Street A), an eastbound channelized right turn requires pedestrians to cross at an unmarked, uncontrolled location where vehicles are moving at unsafe speeds.

Dual right-turns exist without a posted No Right-Turn-On-Red indication and pedestrians do not have a protected movement on at least one approach at the following locations:

3. Frazee Rd & Friars Rd
19. Rancho Mission Rd & Friars Rd
28. Qualcomm Way & Camino de la Reina/Camino del Rio N
30. Qualcomm Way/Texas Street & I-8 EB Ramps

Without a separate pedestrian phase and/or prohibition of right-turns on red, a multiple threat condition exists where visibility of a pedestrian may be blocked by a stopped vehicle and the driver of the vehicle in the adjacent right-turn lane may proceed without stopping. While providing a separate pedestrian phase or restricting right turns on red has traffic delay implications, this existing condition raises potential safety concerns that should not be duplicated at any other locations where dual right-turn lanes are proposed.

Within the existing proposed project site, no separate or designated pedestrian connection from the Stadium trolley station to the surrounding roadways is currently provided. Transit patrons accessing the existing station simply walk through the SDCCU Stadium parking lot.

3.2 EXISTING NETWORK AND INTERSECTION VOLUMES

The operations of 39 of the 40 existing study area intersections were evaluated during weekday morning (7:00 to 9:00 AM) and weekday evening (4:00 to 6:00 PM) peak period conditions. The remaining intersection, Friars Road & Stadium Way (Street A), is only used during special events at SDDCCU stadium and, otherwise, does not serve any side street traffic. Therefore, it was not necessary to evaluate typical weekday AM and PM peak hour operations at this intersection.

Intersection turning movement volumes were obtained in 2018 and 2019. Existing lane configurations and signal controls were obtained through field observations. **Figure 6** presents the study area's existing AM and PM peak-hour turning movement volumes, corresponding lane configurations, and traffic control devices. The unadjusted or raw traffic count data sheets are provided in **Appendix A**.

3.3 INTERSECTION ANALYSIS

Existing peak-hour volumes and lane configurations were used to calculate levels of service for each of the study area intersections. The results of the existing LOS analysis are presented in **Table 6** and the corresponding LOS calculation sheets are included in **Appendix B**.

The analysis results indicate that 33 existing study area intersections regularly in use operate at LOS D or better under Existing Conditions. The remaining six (6) study area intersections operate at LOS E during one or both peak hours:

1. SR-163 SB Ramps/Ulric Street & Friars Road – LOS E (PM peak hour)
2. SR-163 NB Ramps & Friars Road – LOS E (PM peak hour)
13. Mission Village Drive/Street D & Friars Road Eastbound Ramps/San Diego Mission Road – LOS E (AM peak hour)
28. Qualcomm Way & Camino del Rio N/Camino de la Reina – LOS E (PM peak hour)
31. Texas Street & Camino del Rio S – LOS E (PM peak hour)
35. Fairmount Avenue & Camino del Rio N – LOS E (PM peak hour)

Generally, the calculated LOS corresponds to observations made in the field. The one exception is near the I-15 on-ramps where ramp metering during the peak hours results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation. Operations are assumed to be LOS D or E as indicated in the table.

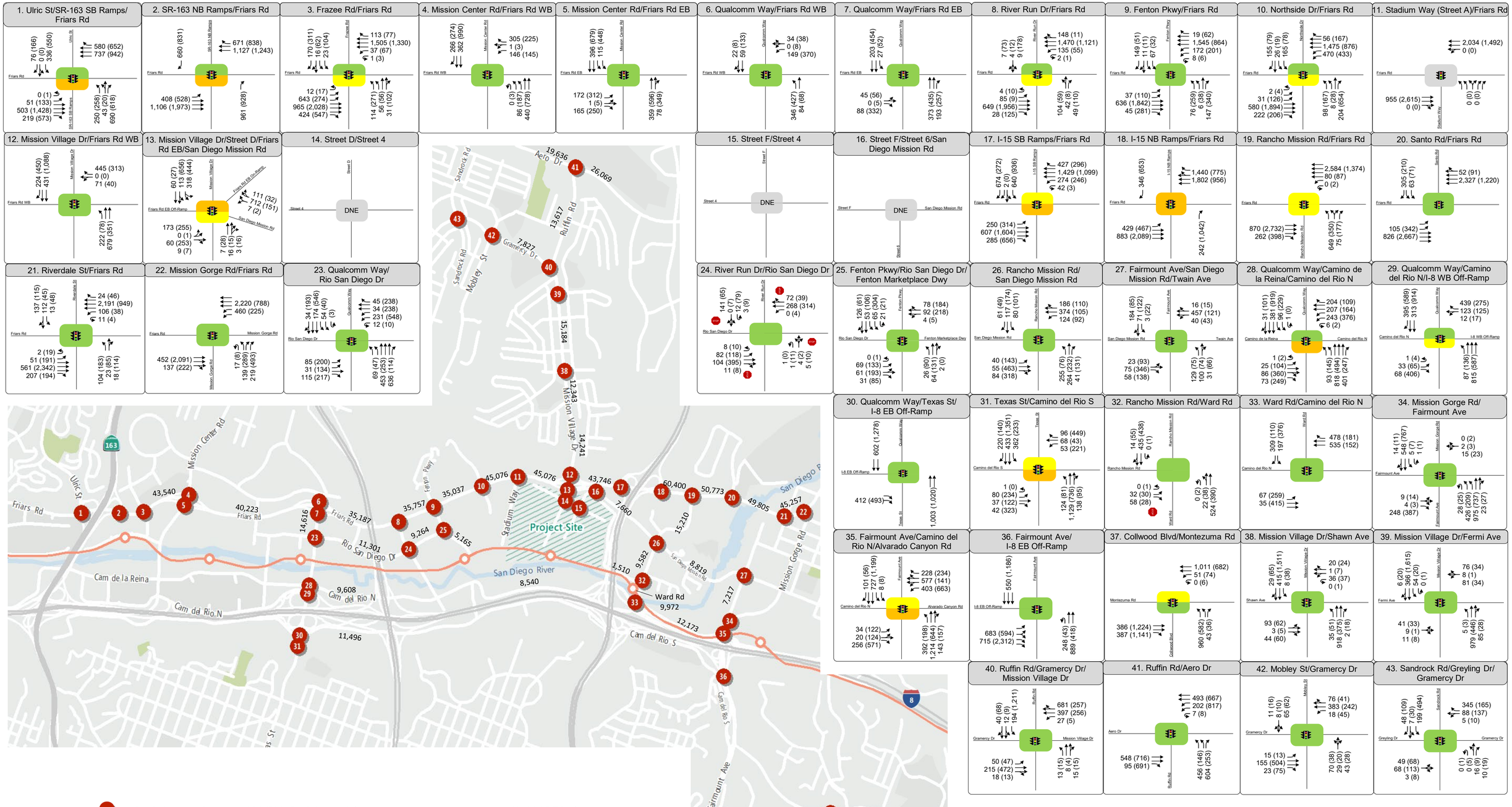


Figure 6

Existing (2018) Conditions

Traffic Volumes, Lane Configurations, and LOS

TABLE 6 – EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Delay (sec/veh)[1]	LOS[2,3]
1. SR-163 SB Ramps/Ulric St & Friars Rd	Signalized	AM	22.5	C
		PM	**57.9**	**E**
2. SR-163 NB Ramps & Friars Rd	Signalized	AM	11.2	B
		PM	**60.9**	**E**
3. Frazee Rd & Friars Rd	Signalized	AM	26.9	C
		PM	51.0	D
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	10.5	B
		PM	11.1	B
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	15.9	B
		PM	25.1	C
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	17.4	B
		PM	22.1	C
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	5.9	A
		PM	9.6	A
8. River Run Dr & Friars Rd	Signalized	AM	17.7	B
		PM	37.1	D
9. Fenton Pkwy & Friars Rd	Signalized	AM	25.3	C
		PM	30.2	C
10. Northside Dr & Friars Rd	Signalized	AM	28.0	C
		PM	39.9	D
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A
		PM	-	N/A
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	18.5	B
		PM	32.6	C
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd*	Signalized	AM	**59.9**	**E**
		PM	54.2	D
14. Street D & Street 4	Signalized	AM	DNE	N/A
		PM		N/A
15. Street F & Street 4	Signalized	AM	DNE	N/A
		PM		N/A
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A
		PM		N/A
17. I-15 SB Ramps & Friars Rd	Signalized	AM	38.0	D
		PM	49.3	D** (E)
18. I-15 NB Ramps & Friars Rd	Signalized	AM	34.2	C** (E)
		PM	47.8	D** (E)
19. Rancho Mission Rd & Friars Rd	Signalized	AM	23.1	C** (D)
		PM	17.7	B** (D)
20. Santo Rd & Friars Rd	Signalized	AM	25.4	C
		PM	13.3	B
21. Riverdale St & Friars Rd	Signalized	AM	21.1	C
		PM	20.7	C
22. Mission Gorge Rd & Friars Rd	Signalized	AM	33.4	C
		PM	32.2	C
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	14.6	B
		PM	23.0	C
24. Rio San Diego Dr & River Run Dr	AWSC	AM	9.5	A
		PM	12.1	B
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	15.2	B
		PM	21.7	C
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	21.5	C
		PM	22.1	C
27. Fairmount Ave & San Diego Mission Rd/ Twain Ave	Signalized	AM	13.7	B
		PM	13.0	B
28. Qualcomm Way & Camino del Rio N/ Camino de la Reina	Signalized	AM	18.2	B
		PM	**61.2**	**E**
29. Qualcomm Way & I-8 WB Off-Ramp/ Camino del Rio N	Signalized	AM	10.7	B
		PM	42.8	D
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.1	A
		PM	4.0	A
31. Texas St & Camino del Rio S	Signalized	AM	39.0	D
		PM	**55.6**	**E**
32. Ward Rd & Rancho Mission Rd	SSSC	AM	19.9	C
		PM	19.7	C
33. Camino del Rio N & Ward Ave	Signalized	AM	11.9	B
		PM	13.8	B
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	20.7	C
		PM	25.3	C
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	53.8	D

TABLE 6 – EXISTING CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Delay (sec/veh)[1]	LOS[2,3]
		PM	**61.0**	**E**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	12.7	B
		PM	21.3	C
37. Montezuma Rd & Collwood Blvd	Signalized	AM	39.4	D
		PM	25.1	C
38. Mission Village Dr & Shawn Ave	Signalized	AM	5.1	A
		PM	6.6	A
39. Mission Village Dr & Fermi Ave	Signalized	AM	11.1	B
		PM	7.5	A
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	14.2	B
		PM	16.0	B
41. Ruffin Rd & Aero Dr	Signalized	AM	30.8	C
		PM	31.3	C
42. Gramercy Dr & Mobley St	Signalized	AM	6.3	A
		PM	5.3	A
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	8.9	A
		PM	10.4	B

Source: Fehr & Peers, 2019.

Notes:

[1] Whole intersection weighted average stopped delay reported for signalized and the all-way stop control (AWSC) intersection. Worst movement delay reported for the side-street stop-control (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual 6th Edition (HCM 6)* method.

[3] LOS E or F operations highlighted in **bold.**

[4] Under Existing Conditions, the Stadium Way (Street A) & Friars Road intersection is only used during stadium events.

* Due to limitations of the *HCM 6* method, LOS calculations performed using the *HCM 2000* method.

** Ramp metering during the peak hours results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation. This additional delay is estimated to result in operations as shown in parentheses.

3.4 ROADWAY SEGMENT ANALYSIS

Roadway segment LOS analysis is presented for information purposes only using the City of San Diego impact thresholds. Where available, roadway segment volumes were obtained from the City of San Diego database dated April 2018. Volumes obtained from the database were counted between 2016 and 2017, except for the segment of Friars Road from Riverdale Street to Mission Gorge Road. On this segment, the 2015 roadway count was substantially higher than the 2016 count, and therefore the 2015 count was used to provide a more conservative analysis. Where database volumes were not available or segments were not recently counted, new counts were obtained in 2018. For the volumes obtained prior to 2018, an annual growth factor of approximately one percent[2] was applied to increase volumes to Year 2018 levels.

Table 7 displays the LOS analysis for the project study area roadway segments under Existing Conditions. As shown in the table, all roadway segments currently operate acceptably at LOS D or better except for Camino del Rio South from Texas Street to Mission City Parkway, which operates at LOS F. While it is not possible to make observations of operations at a daily level, most roadways generally operate acceptably, consistent with the calculated LOS.

3.5 FREEWAY SEGMENT ANALYSIS

Table 8 displays the freeway mainline LOS analysis under Existing Conditions. The freeway segment analysis was performed using the methodology presented in **Chapter 2**. As shown, all freeway segments operate at undesirable levels (LOS E or F) in one or both directions and during one or both peak hours under Existing Conditions except the following segments:

2. SR-163 From I-8 to Friars Road
4. SR-163 from Mesa College Drive to I-805
8. I-805 from Mesa College Drive/Kearny Villa Road to SR-163
9. I-805 from SR-163 to Balboa Avenue
14. I-8 from Morena Boulevard to Taylor Street
16. I-8 from Hotel Circle to SR-163
19. I-8 from Texas Street to I-805

[2] Annual growth factors were the same as those used to forecast Horizon Year volumes as described in **Section 6.2**. Annual average growth rates were calculated using volume forecasts from the SANDAG Series 13 Model comparing Year 2035 to Year 2012 volumes for each roadway segment.

TABLE 7 – EXISTING CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment			Roadway Classification (# of Lanes)[1]	Capacity	ADT	V/C[2]	LOS[3,4]
ID	Extent (from/to)						
Friars Rd							
1	Frazee Rd	Mission Center Rd	7E	93,330	43,540	0.47	B
2	Mission Center Rd	Qualcomm Way	6E	80,000	40,223	0.43	B
3	Qualcomm Way	River Run Dr	6E	80,000	35,187	0.44	B
4	River Run Dr	Fenton Pkwy	6P	60,000	35,757	0.60	C
5	Fenton Pkwy	Northside Dr	6P	60,000	35,037	0.58	C
6	Northside Dr	Stadium Way (Street A)	6E	80,000	45,076	0.56	C
7	Stadium Way (Street A)	Mission Village Dr	6E	80,000	45,076	0.56	C
8	Mission Village Dr	I-15 Ramps	6E	80,000	43,746	0.55	C
9	I-15 Ramps	Rancho Mission Rd	7P	70,000	60,400	0.86	D
10	Rancho Mission Rd	Santo Rd	7P	70,000	50,773	0.73	C
11	Santo Rd	Riverdale St	6P	60,000	49,805	0.83	C
12	Riverdale St	Mission Gorge Rd	6P	60,000	45,257	0.75	C
Qualcomm Way							
13	Friars Rd	Rio San Diego Dr	6M	50,000	14,616	0.29	A
Rio San Diego Dr							
14	Qualcomm Way	River Run Dr	4M	40,000	11,301	0.28	A
15	River Run Dr	Fenton Pkwy	4C/M	30,000	9,264	0.31	A
Fenton Pkwy							
16	Rio San Diego Dr/Fenton Marketplace Dwy	Northside Dr	4M	40,000	5,165	0.13	A
San Diego Mission Rd							
17	Mission Village Dr/Street F	Rancho Mission Rd	4C w/o CLTL	15,000	7,660	0.51	C
18	Rancho Mission Rd	Fairmount Ave	2C w/CLTL	15,000	8,819	0.59	C
Rancho Mission Rd							
19	Friars Rd	San Diego Mission Rd	3C w/CLTL	22,500	15,210	0.68	D
20	San Diego Mission Rd	Ward Rd	4C w/o CLTL	15,000	9,582	0.64	C
21	West of Ward Rd		2C	10,000	1,510	0.15	A
Ward Rd							
22	Rancho Mission Rd	Camino del Rio N	4C w/o CLTL	15,000	9,972	0.66	C
Fairmount Ave							
23	San Diego Mission Rd/Twain Ave	Mission Gorge Rd	4C w/o CLTL	15,000	7,217	0.24	A
Mission Village Dr							
24	Ruffin Rd	Shawn Ave	4C	30,000	15,184	0.51	C
25	Shawn Ave	Ronda Ave	4C	30,000	12,343	0.41	B
26	Ronda Ave	Friars Rd	4M	40,000	14,241	0.36	A
Ruffin Rd							
27	Aero Dr	Mission Village Dr	4C	30,000	13,617	0.45	B
Gramercy Dr							
28	Mobley St	Ruffin Rd	4M	40,000	7,827	0.20	A
Aero Dr							
29	Sandrock Rd	Ruffin Rd	4M	40,000	19,636	0.49	B
30	Ruffin Rd	Daley Center Dr	4M	40,000	26,069	0.65	C
Camino del Rio N							
31	Qualcomm Way	Mission City Pkwy	4C	30,000	9,608	0.32	A
32	Mission City Pkwy	Ward Rd	2C w/CLTL	15,000	8,540	0.57	C
33	Ward Rd	Fairmount Ave	4C	30,000	12,173	0.41	B
Camino del Rio S							
34	Texas St	Mission City Pkwy	2C	10,000	11,496	**1.15**	**F**

Source: Fehr & Peers, 2019

Notes:

1 2C = 2-lane collector
2C w/CLTL = 2-lane collector with center left-turn lane
3C w/CLTL = 3-lane collector (2 lanes in one direction and 1 in opposing direction) with center left-turn lane
4C w/o CLTL = 4-lane collector without center left-turn lane
4C = 4-lane collector
4M = 4-lane major arterial
6M = 6-lane major arterial
6P = 6-lane primary arterial
7P = 7-lane primary arterial (4 lanes in one direction and 3 in opposing direction); the additional lane is assumed to add a capacity of 5,000 for LOS A, 7,500 for LOS B, and 10,000 for LOS C, D, and E per the Mission Valley Community Plan Update
6E = 6-lane expressway
7E = 7-lane expressway (4 lanes in one direction and 3 in opposing direction); capacity is assumed to be 117% of 6E capacity

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)* and *Mission Valley Community Plan Update (2019)*

4 Unacceptable ADT volumes per segment and LOS highlighted in **bold**.

TABLE 8 – EXISTING CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

	Freeway Segment	Direction	Number of Lanes	Capacity[1]	Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]	
					AM	PM	AM	PM	AM	PM
State Route 163										
1	6th Ave to I-8	NB	3M+1A	6,600	5,256	5,705	0.80	0.86	C	D
		SB	3M+2A	7,800	8,966	8,021	**1.15**	**1.03**	**F(0)**	**F(0)**
2	I-8 to Friars Rd	NB	2A	9,000	1,621	1,759	0.68	0.73	C	C
		SB	4M+2A	7,200	8,201	7,490	0.85	0.78	D	C* (F)
3	Friars Rd to Mesa College Dr[5]	NB	5M	6,600	9,222	7,427	**1.02**	0.83	**F(0)**	D
		SB	4M	7,800	6,163	6,384	0.86	0.89	D	D* (F)
4	Mesa College Dr to I-805	NB	4M+2A	9,000	7,774	7,216	0.81	0.75	D	C
		SB	4M+1A	7,200	7,078	6,184	0.84	0.74	D	C* (F)
Interstate 805										
5	Madison Ave to I-8	NB	4M+1A	8,400	8,389	4,895	**1.00**	0.58	**E**	B
		SB	6M	10,800	4,512	9,475	0.42	0.88	B	D* (F)
6	I-8 to Murray Ridge Rd/Phyllis Pl	NB	5M	9,000	9,830	5,699	**1.09**	0.63	**F(0)**	C
		SB	4M+2A	9,600	5,145	9,204	0.54	**0.96**	B	**E**
7	Murray Ridge Rd/Phyllis Pl to Mesa College Dr/Kearny Villa Rd	NB	5M	9,000	9,821	5,673	**1.09**	0.63	**F(0)**	C
		SB	5M	9,000	4,946	8,982	0.55	**1.00**	B	**E**
8	Mesa College Dr/Kearny Villa Rd to SR-163	NB	5M	9,000	8,191	4,826	0.91	0.54	D* (F)	B
		SB	4M	7,200	3,551	5,547	0.49	0.77	B	C* (F)
9	SR-163 to Balboa Ave	NB	4M+1A	8,400	5,281	4,442	0.63	0.53	C* (F)	B
		SB	4M+2A	9,600	5,319	7,206	0.55	0.75	B	C * (F)
Interstate 15										
10	Adams Ave to I-8	NB	3M+2A	7,800	6,229	6,920	0.80	0.89	C	D
		SB	5M	9,000	5,030	8,403	0.56	**0.93**	B	**E**
11	NB Off-Ramp to Friars Rd	NB	2A	2,400	1,143	1,771	0.48	0.74	B	C
	Friars Rd Auxiliary Lanes to I-8	SB	3A	3,600	3,515	4,641	**0.98**	**1.29**	**E**	**F(1)**
	Friars Rd Direct Ramp to I-15	SB	1A	1,200	622	914	0.52	0.76	B	C
12	Friars Rd to Aero Dr	NB	4M+1A	8,400	8,022	5,889	**0.96**	0.70	**E**	C
		SB	5M+1A	10,200	6,825	9,390	0.67	**0.92**	C	**E**
13	Aero Dr to Balboa Ave/ Tierrasanta Blvd	NB	4M+1A	8,400	9,007	6,792	**1.07**	0.81	**F(0)**	D
		SB	4M+1A	8,400	6,991	8,417	0.83	**1.00**	D	**F(0)**
Interstate 8										
14	Morena Blvd to Taylor St	EB	4M+1A	8,400	6,023	7,523	0.72	0.90	C	D
		WB	5M	9,000	7,089	6,193	0.79	0.69	C	C
15	Taylor St to Hotel Cir	EB	4M	7,200	5,901	7,890	0.82	**1.10**	D	**F(0)**
		WB	4M+1A	8,400	8,171	6,978	**0.97**	0.83	**E**	D
16	Hotel Cir to SR-163	EB	4M+2A	9,600	7,039	8,736	0.73	0.91	C	D
		WB	5M	9,000	8,173	6,719	0.91	0.75	D	C
17	SR-163 to Mission Center Rd	EB	4M	7,200	3,017	5,669	0.42	0.79	B	C* (F)
		WB	3M+2A	7,800	8,579	7,900	**1.10**	**1.01**	**F(0)**	**F(0)**
18	Mission Center Rd to Texas St	EB	4M+1A	8,400	5,025	9,463	0.60	**1.13**	B	**F(0)**
		WB	4M+1A	8,400	8,928	8,273	**1.06**	**0.98**	**F(0)**	**E**
19	Texas St to I-805	EB	4M	7,200	3,185	6,214	0.44	0.86	B	D* (F)
		WB	4M	7,200	6,253	4,963	0.87	0.69	D* (F)	C
20	I-805 to I-15	EB	4M+2A	9,600	6,104	10,315	0.64	**1.07**	C	**F(0)**
		WB	4M+2A	9,600	10,466	8,476	**1.09**	0.88	**F(0)**	D
21	I-15 to Fairmount Ave	EB	4M+2A	9,600	5,965	9,335	0.62	**0.97**	C	**E**
		WB	4M+2A	9,600	7,413	5,467	0.77	0.57	C* (F)	B
22	Fairmount Ave to Waring Rd	EB	5M	9,000	6,483	10,335	0.72	**1.15**	C	**F(0)**
		WB	6M	10,800	10,029	7,923	**0.93**	0.73	**E**	C
23	Waring Rd to College Ave	EB	5M	9,000	6,392	9,979	0.71	**1.11**	C	**F(0)**
		WB	5M	9,000	9,359	7,492	**1.04**	0.83	**F(0)**	D

Source: Fehr & Peers, 2019

Notes:

1 Capacity calculated at 1,800 vehicles/hour per mainline lane and 1,200 vehicles/hour per auxiliary lane
M = mainline lane
A = auxiliary lane

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable V/C and LOS highlighted in **bold**.

5 No data available from Genesee Ave to Mesa College Dr - assumed equivalent to the segment from Friars Rd to Genesee Ave

* Traffic data indicate operations are worse than calculated. Peak hour volumes likely do not represent actual demand due to heavy congestion. Estimated operations are shown in parentheses.

LOS	V/C	LOS	V/C
A	<0.41	F(0)	1.25
B	0.62	F(1)	1.35
C	0.80	F(2)	1.45
D	0.92	F(3)	>1.46
E	1.00		

Based on typical traffic conditions obtained from Google Maps, the calculated LOS generally corresponds to traffic data except for:

2-4. SR-163 from I-8 to I-805 – traffic data indicates heavy southbound congestion in the PM peak hour. Peak hour volumes likely do not represent actual demand such that operations on these segments are worse than the calculated LOS C and D. Operations are estimated to be LOS F.
5. I-805 from Madison Avenue to I-8 – data indicates heavy southbound congestion in the PM peak hour. Peak hour volumes likely do not represent actual demand such that operations are worse than the calculated LOS D. Operations are estimated to be LOS F.
8-9. I-805 from Mesa College Drive/Kearny Villa Road to Balboa Avenue – traffic data indicates heavy northbound congestion in the AM peak hour and extremely heavy southbound congestion in the PM peak hour. Peak hour volumes likely do not represent actual demand such that operations are worse than the calculated LOS C and D. Operations are estimated to be LOS F.
17. I-8 from SR-163 to Mission Center Road – traffic data observations indicates heavy eastbound congestion in the PM peak hour. Peak hour volumes likely do not represent actual demand such that operations are worse than the calculated LOS C. Operations are estimated to be LOS F.
19. I-8 from Texas Street to I-805 – traffic data observations indicates heavy eastbound congestion in the PM peak hour and heavy westbound congestion in the AM peak hour. Peak hour volumes likely do not represent actual demand such that operations are worse than the calculated LOS D. Operations are estimated to be LOS F.
21. I-8 from I-15 to Fairmount Avenue – traffic data observations indicates heavy westbound congestion in the AM peak hour. Peak hour volumes likely do not represent actual demand such that operations are worse than the calculated LOS C. Operations are estimated to be LOS F.

3.6 FREEWAY RAMP METERING ANALYSIS

Table 9 displays the ramp metering analysis conducted at the metered freeway on-ramps in the study area under Existing Conditions. By design, the following ramp meters are not operating during one of the two peak hours due to lower freeway mainline volumes:

- I-15 SB/I-8 Loop On-ramp from Friars Road – AM peak hour
- I-15 SB Direct On-ramp from Friars Road – AM peak hour
- I-8 EB On-ramp from southbound Fairmount Avenue – AM peak hour

As shown in **Table 9**, the I-8 EB On-ramp from southbound Fairmount Avenue operates with unacceptable delays during the PM peak hour. Additionally, at the two I-15 on-ramps from Friars Road, on-ramp capacity is not sufficient to accommodate the peak hour demand; thus, ramp queues spill back onto the arterial street; this was validated through field observations. Although the analysis indicates that the same spill-

TABLE 9 – EXISTING CONDITIONS RAMP METERING ANALYSIS

Location	Peak Hour	Total # of Mixed Flow Lanes	Meter Rate[1] (veh/hr)	Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)
				Mixed Flow & HOV	Mixed Flow only			
I-15 NB - Friars Rd On-Ramp	AM	2	1,450	1,941	1,641	191	7.9	2,775
	PM	2	888	1,244	1,096	208	14.1	3,025
I-15 SB / I-8 - Friars Rd Loop On-Ramp	AM	1	N/A	732	732	N/A	N/A	N/A
	PM	1	660	744	744	84	7.6	2,425
I-15 SB - Friars Rd Direct On-Ramp	AM	1	N/A	622	622	N/A	N/A	N/A
	PM	1	996	914	914	0	0.0	0
I-8 EB - SB Fairmount Ave	AM	1	N/A	250	250	N/A	N/A	N/A
	PM	1	492	550	550	58	7.1	1,675*

Source: Fehr & Peers, 2019. Analysis based on Caltrans District 11 Ramp Meter methodology

Notes:

[1] Meter Rate is the peak hour capacity for the ramp meter. This value was obtained from Caltrans. The most restrictive meter rate was assumed.

[2] Demand is the peak hour demand projected to use the on-ramp.

[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.

[4] Delay = (Excess Demand / Meter Rate) x 60 min/hr. Undesirable delay in excess of 15 minutes is highlighted in **bold**.

[5] Queue = (Excess Demand / # of Lanes) x 29 ft/veh, rounded to the nearest multiple of 25 ft.

* Field observations indicate operations are better than calculated.

back occurs at the I-8 EB On-ramp, no spill back was observed onto Fairmount Avenue during field observations. This discrepancy is likely due to the application of the most restrictive meter rate of a comparatively large range from 492 to 996 vehicles per hour.

3.7 FREEWAY OFF-RAMP QUEUEING ANALYSIS

Table 10 displays the off-ramp queueing analysis conducted at the SR-163 and I-15 off-ramps at Friars Road and the I-8 off-ramps at Qualcomm Way/Texas Street and Fairmount Avenue. As shown, all off-ramp queues can be accommodated by existing ramp storage capacity under Existing Conditions.

3.8 STADIUM OPERATIONS

The existing SDCCU Stadium hosts approximately 11 high-attendance events (over 20,000 guests) each year.[3] For high attendance events, manual traffic control is employed at each of the stadium entrances and exits. Transportation Network Companies (TNCs) are instructed to use a designated drop-off zone in the eastern part of the stadium, accessed via Rancho Mission Road, whereas attendees who are driving and parking enter via Stadium Way (Street A), Mission Village Drive/Street D, and San Diego Mission Road. Before high-attendance events, advance notice is provided to the area via dynamic signage and radio announcements.

Attendee mode split and average vehicle occupancy (AVO) data was collected at the November 24, 2018 SDSU-University of Hawaii game. Of the attendees who arrived by car and parked, the observed AVO was 2.29. Of the attendees who arrived by TNC, the observed AVO was 2.47 (counting attendees only and not including the driver of the TNC). Based on the 2016 and 2017 SDSU Aztec football seasons, it is conservatively estimated that 68% of the announced attendance for the 2018 game (28,014 based on ticket sales) was physically present (19,050 resulting attendees). Additionally, based on data collected at the stadium driveways for the 2018 game, 65% of attendees arrived by car and parked, and 2% of attendees arrived by TNC. The remaining 33% of attendees arrived by transit, biking, or walking.

[3] Events based on the 2018 calendar available at https://www.sandiego.gov/stadium. Canceled events are not included.

TABLE 10 – EXISTING CONDITIONS OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)
				Existing Conditions
1. SR-163 SB off-ramp at Friars Rd/Ulric St	AM	NBL	1,200	204
		NBT		207
		NBR		0
	PM	NBL	1,200	201
		NBT		198
		NBR		0
2. SR-163 NB off-ramp at Friars Rd	AM	NBR	900	0
		SBR	700	0
	PM	NBR	900	0
		SBR	700	0
17. I-15 SB off-ramp at Friars Rd	AM	SBL	1,200	331
		SBT		333
		SBR		201
	PM	SBL	1,200	647
		SBT		648
		SBR		65
18. I-15 NB off-ramp at Friars Rd	AM	NBR	1,500	0
		SBR	1,300	0
	PM	NBR	1,500	0
		SBR	1,300	0
29. I-8 WB off-ramp at Qualcomm Way/ Camino del Rio N	AM	WBL	3,200	0
		WBT		125
		WBR		191
	PM	WBL	3,200	0
		WBT		277
		WBR		102
30. I-8 EB off-ramp at Qualcomm Way/Texas St	AM	EBR	900	44
	PM	EBR	900	147
35. I-8 WB off-ramp at Fairmount Ave/Alvarado Canyon Rd/Camino del Rio N	AM	WBL	1,000	486
		WBT		464
		WBR		216
	PM	WBL	1,000	556
		WBT		336
		WBR		243
36. I-8 EB off-ramp at Fairmount Ave	AM	EBL	4,100	276
		EBR		283
	PM	EBL	4,100	714
		EBR		1,229

Source: Fehr & Peers, 2019.

This chapter describes the anticipated number of vehicle trips and directionality of those trips that would result from implementation of the proposed project. Future traffic added to the roadway system by the project is estimated using a three-step process: (1) trip generation, (2) trip distribution, and (3) trip assignment. The first step estimates the amount of site-generated traffic that will be added to the roadway network. The second step estimates the direction of travel to and from the site. The third step assigns new trips to specific street segments and intersection turning movements. This three-step process is described in more detail in the following sections.

4.1 PROJECT TRIP GENERATION

4.1.1 WITHOUT STADIUM EVENT

In accordance with the City of San Diego and SANTEC/ITE Guidelines for Traffic Impact Studies, trip generation rates were obtained from the City of San Diego Trip Generation Manual (2003) (part of the Land Development Code under the Municipal Code). These rates were used to estimate the number of vehicle trips associated with the SDSU Mission Valley Campus project. As discussed in **Chapter 2**, the project proposes to develop approximately 84 acres of conserved or new open space, 4,600 residential units, 1.466 million square feet of expanded campus office and lab space, 100,000 square feet of medical office space, 95,000 square feet of retail space, a 35,000-capacity stadium, and 400 hotel rooms. The corresponding weekday daily, AM, and PM peak hour trip rates were applied to each use under the Without Stadium Event scenario, and a total number of gross vehicle trips for each time period was estimated (see **Table 11**). However, the City and SANTEC trip rates do not account for certain factors that are applicable here. For the analysis presented here, standard vehicle trip rates for market uses (e.g., commercial office buildings) were used. However, standard trip rates assume that nearly all uses will generally operate independently without having any formal connection to one another, which is not the case in a mixed-use development as proposed here. Specifically, the number of trips added to the study area roadways is expected to be lower than the gross number due to several factors including: 1) the presence of significant traffic volumes already traveling on roads near the site that would patronize the planned commercial uses, 2) trip internalization within the site due to the mix of complementary land uses, 3) the propensity for people traveling to and from the site to use transit, bicycling, or walking as their primary travel mode, and 4) implementation of the Transportation Demand Management (TDM) Program. Each of these is described below.

TABLE 11 – PROJECT-GENERATED WEEKDAY TRIP GENERATION (WITHOUT STADIUM EVENT)

Land Use	Quantity	Units	Daily Trip Rates	Break-down by Trip Type	Daily Trips	AM Peak Hour % of Daily	AM Trips			PM Peak Hour % of Daily	PM Trips		
							In	Out	Total		In	Out	Total
Supermarket	12	ksf	150		1,800	4%	50	22	72	10%	90	90	180
Cumulative				*60%*	*1,080*		*30*	*13*	*43*		*54*	*54*	*108*
Pass-By				*40%*	*720*		*20*	*9*	*29*		*36*	*36*	*72*
Driveway				*100%*	*1,800*		*50*	*22*	*72*		*90*	*90*	*180*
Neighborhood Retail	83	ksf	120		9,960	4%	239	160	399	11%	548	548	1,096
Cumulative				*60%*	*5,976*		*143*	*96*	*239*		*329*	*329*	*658*
Pass-By				*40%*	*3,984*		*96*	*64*	*160*		*219*	*219*	*438*
Driveway				*100%*	*9,960*		*239*	*160*	*399*		*548*	*548*	*1,096*
Apartments	4,300	du	6		25,800	8%	413	1,651	2,064	9%	1,625	697	2,322
Cumulative/Driveway				*100%*	*25,800*		*413*	*1,651*	*2,064*		*1,625*	*697*	*2,322*
Student Focused Housing	300	du	4.4		1,320	5%	59	7	66	7%	28	65	93
Cumulative/Driveway				*100%*	*1,320*		*59*	*7*	*66*		*28*	*65*	*93*
Commercial Office	1,165	ksf	[a]		19,981	13%	2,338	260	2,598	14%	559	2,238	2,797
Cumulative/Driveway				*100%*	*19,981*		*2,338*	*260*	*2,598*		*559*	*2,238*	*2,797*
Medical Office	100	ksf	50		5,000	6%	270	30	300	10%	50	450	500
Cumulative				*32%*	*1,600*		*86*	*10*	*96*		*16*	*144*	*160*
Pass-By				*68%*	*3,400*		*184*	*20*	*204*		*34*	*306*	*340*
Driveway				*100%*	*5,000*		*270*	*30*	*300*		*50*	*450*	*500*
Scientific Research	301	ksf	8		2,408	16%	347	39	386	14%	34	303	337
Cumulative/Driveway				*100%*	*2,408*		*347*	*39*	*386*		*34*	*303*	*337*
Hotel	400	room	10		4,500	6%	162	108	270	8%	216	144	360
Cumulative/Driveway				*100%*	*4,500*		*162*	*108*	*270*		*216*	*144*	*360*
Racquetball/Tennis/ Health Club	25	ksf	40		1,000	4%	24	16	40	9%	54	36	90
Cumulative/Driveway				*100%*	*1,000*		*24*	*16*	*40*		*54*	*36*	*90*
Community Park/ River Park	6	acre	5		30	4%	1	0	1	8%	1	1	2
Cumulative/Driveway				*100%*	*30*		*1*	*0*	*1*		*1*	*1*	*2*
Active Parks	50	acre	50		2,500	4%	60	40	100	8%	120	80	200
Cumulative/Driveway				*100%*	*2,500*		*60*	*40*	*100*		*120*	*80*	*200*
Landscaped Areas, Paseos, Trails, etc.	27.6	acre	-		-	-	-	-	-	-	-	-	-
Cumulative/Driveway				*100%*	-		-	-	-		-	-	-
Gross Subtotal				Cumulative	65,694		3,645	2,228	5,873		3,012	4,075	7,087
				Pass-By	8,104		300	93	393		289	561	850
				Driveway	73,798		3,945	2,321	6,266		3,301	4,636	7,937
Trip Reductions				Mixed-Use (Internal) Trips (11% Daily/15% AM/13% PM)	(7,226)		(547)	(334)	(881)		(392)	(530)	(921)
				Transit/Bike/Walk Trips (7% Daily/10% AM/10% PM)	(4,599)		(364)	(223)	(587)		(301)	(407)	(709)
Adjusted Gross Subtotal				Cumulative	53,869		2,734	1,671	4,405		2,319	3,138	5,457
				Pass-By	8,104		300	93	393		289	561	850
				Driveway	61,973		3,034	1,764	4,798		2,608	3,699	6,307
Existing													
Stadium					(1,089)		(62)	(2)	(64)		(17)	(33)	(50)
Cumulative/Driveway				*100%*	*(1,089)*		*(62)*	*(2)*	*(64)*		*(17)*	*(33)*	*(50)*
Net Trip Generation Subtotal													
Net Project Subtotal (Proposed - Existing)				Cumulative	52,780		2,672	1,669	4,341		2,302	3,105	5,407
				Pass-By	8,104		300	93	393		289	561	850
				Driveway	60,884		2,972	1,762	4,734		2,591	3,666	6,257
TDM Program													
14.41% Reduction					(7,606)		(385)	(241)	(625)		(332)	(447)	(779)
Cumulative/Driveway				*100%*	*(7,606)*		*(385)*	*(241)*	*(625)*		*(332)*	*(447)*	*(779)*
Net Trip Generation Total													
Net Project Total (Proposed - Existing)				Cumulative	45,174		2,287	1,429	3,716		1,970	2,658	4,628
				Pass-By	8,104		300	93	393		289	561	850
				Driveway	53,278		2,587	1,522	4,109		2,259	3,219	5,478

Source: Fehr & Peers, 2019
Notes:
[a] Commercial Office Formula: Ln(T) = 0.756 Ln(ksf) + 3.95
Calculated separately by building

Relative to item 1, trip reductions were applied to account for pass-by and diverted trips. Pass-by trips are those vehicles already passing on Mission Village Drive/Street D that will pass directly in front of the neighborhood supporting retail/restaurant uses and decide to patronize the fronting use. Diverted trips, in comparison, are those that are already passing by the site on adjacent Friars Road and drivers decide to turn into the site to patronize the retail uses. In both cases, these are not new trips to the overall roadway network but are, instead, existing trips that simply visit the retail uses. The amount of pass-by/diverted trip reductions was calculated based on the City of San Diego *Trip Generation Manual*.

Relative to item 2, a second reduction to the gross trip totals was made to account for the effect of trip internalization. For developments as these that include several different types of land use within a reasonable distance of one another, visitors will often access multiple uses within one trip to a given site. This is the case with the residents and employees within the site who will both visit the retail/restaurant services on site, as well as residents who will work within the project site, etc. This trip internalization will reduce the overall number of vehicle trips to the site compared to the trips generated by each of the uses in an isolated situation. Trip internalization rates were calculated using the Fehr & Peers MainStreet web application, which uses the Mixed-Use (MXD+) Trip Generation Model. The MXD model was developed by Fehr & Peers and the Environmental Protection Agency (EPA) and is based on statistically superior data compared to the methodology used by ITE. The MXD model recognizes that traffic generation by mixed-use developments and other forms of sustainable development relate closely to the density, diversity, design, destination accessibility, travel proximity, and scale of development. The model estimates the percentage of daily and peak hour trips that remain within the project site, as well as external transit, walk and vehicle mode splits. The resulting trip reductions calculated by the MXD model were 11%, 15%, and 13% for the daily, AM, and PM peak hours, respectively.

Relative to item 3, a third reduction to trips was made to account for multi-modal facilities such as the on-site trolley station, and the network of bicycle and walking paths that are proposed as part of the campus project. The *Green Line* light rail provides fast and frequent service to the business centers lying between Old Town San Diego and Santee, as well as to Downtown San Diego. Due to the convenience provided by this option, it can reasonably be expected that a large number of trips to and from the site will be made via the trolley. Additionally, the new pedestrian and bicycle facilities will greatly enhance connectivity of the site to nearby complementary land uses. The MXD model estimates the proportion of external trips that will be made by transit, walking, and biking and, based on the calculations, corresponding multi-modal trip reductions of 7%, 10%, and 10% for the daily, AM and PM peak hours, respectively.

Finally, relative to item 4, the 14.41% TDM reduction as described and calculated in **Section 2.1.2.1** is applied. To be conservative, this reduction is taken after the above items; that is, the reduction is applied to the *net* trip generation number rather than the gross number, thereby resulting in a smaller reduction.

The gross and net vehicle trip generation estimates for the project under a Without Stadium Event scenario are presented in **Table 11**. This calculation takes a credit for existing trips into the site that were counted at the Mission Village Drive entrance. Trips are separated into "pass-by" trips, which are trips to a stop-over site such as retail and medical offices that are diversions from existing trips on the adjacent roadways, and "cumulative" trips, which encompass all other trips to the project site. The City of San Diego *Trip Generation Manual* uses the term "cumulative" to refer to all new regional trips. The sum of these two types of trips are the "driveway" trips, representing all the activity into and out of the site. As shown in **Table 11**, the project is expected to generate a total of 45,174 net new "cumulative" daily weekday trips, 3,716 net new "cumulative" AM peak hour trips, and 4,628 net new "cumulative" PM peak hour trips. These are new trips to the study area and as such would be added to the greater roadway network to calculate off-site project impacts. In addition to the "cumulative" trips, the project is expected to generate 8,104 daily pass-by trips, 393 AM peak hour pass-by trips, and 850 PM peak hour pass-by trips, which are trips from traffic that already exists on Friars Road, Mission Village Drive, and San Diego Mission Road. Since this pass-by traffic is already on the greater roadway network, the pass-by trips into and out of the site only affect the intersections adjacent to the site.

On weekends, the proposed uses would generate less total traffic, especially the campus office and research facilities, when few employees would be working. Because the City of San Diego does not provide Saturday or Sunday vehicle trip rates, Saturday daily trip rates were estimated using the relationship between weekday and Saturday trip rates published in the *Trip Generation Manual* (10th September 2017) by the Institute of Transportation Engineers (ITE). After adjusting City of San Diego trip rates using ITE data, the proposed project land uses (excluding the stadium) are estimated to generate 33,533 daily "cumulative" trips after trip reductions are applied (see table in **Appendix C** showing estimated Saturday trip generation). As this is nearly 26% less than the weekday trip generation, the weekday peak periods are the scenarios with the highest volumes and least available capacity and, therefore, were selected as the focus of this impact analysis in order to present a conservative analysis that potentially overstates impacts.

4.1.2 CAMPUS EFFECT ON TRIP GENERATION

As previously explained, standard vehicle trip rates for market uses (e.g., commercial office buildings) were used for this analysis. However, standard trip rates assume that nearly all uses will generally operate independently without having any formal connection to one another. As noted in **Chapter 2**, many of the uses on the site are expected to integrate with university uses and eventually transition to SDSU facility uses, resulting in a cohesive university campus. This would result in all the campus office and research space being used for university uses, as well as all the residential buildings being occupied by students, faculty, staff and their dependents similar to the existing SDSU campus in the College Area. SDSU estimates that the campus would ultimately serve a full-time equivalent (FTE) student population of 15,000.

To estimate the change in project trip generation with conversion of the entire project site to university uses, the City of San Diego trip rate for a university of 2.5 daily trips per student (and the associated peak hour ratios) were applied to a 15,000-student campus. The resulting trip generation is 41,622 net new daily trips (see **Appendix C**), a nearly 8% reduction from the market uses analyzed in this report. Thus, this TIA represents a conservative estimate of vehicle trip generation for purposes of identifying potentially long-term significant transportation impacts and mitigation measures.

4.1.3 STADIUM EVENT TRIP GENERATION

The proposed stadium is expected to be operational by 2022 and is anticipated to host a variety of events with a range of attendance levels. The highest attendance-level, regularly scheduled events are expected to be SDSU Aztec football games and possibly professional soccer games that are primarily held on Saturday afternoons or evenings or possibly on Sundays; analysis of weekday events in presented in **Section 4.1.3.1**. Estimated daily vehicle trip generation for a stadium event is presented in **Table 12**.

TABLE 12 – STADIUM DAILY VEHICLE TRIP GENERATION

Mode	Mode Share[1]	Attendees	Vehicles	Vehicle Trips
		35,000 (100% of Capacity)		
Transit	22%	7,700	0	0
TNC[2]/Taxi	8%	2,800	1,018	4,073[3]
Shuttle/Private Bus	1%	350	23	93[4]
Walk/Bike	2%	700	0	0
Private Auto	67%	23,450	8,527	17,055[5]
Total	100%	35,000	9,568	21,221
			Mixed-Use Reduction (10%)	(2,122)
			Total Net New Stadium Vehicle Trips	**19,099**

Source: Fehr & Peers, 2019.
Notes:
[1] Percent of attendees driving and using TNC/Taxi for general major events is estimated to be higher than observed for an SDSU Aztec football game (**Section 3.8**) given fewer students traveling by trolley to the stadium. Other mode share is based on engineering judgement.
[2] TNC = Transportation Network Company (e.g., Uber, Lyft)
[2] Estimated to be 4 trips per vehicle and 2.75 persons per vehicle
[4] Estimated to be 4 trips per vehicle and 15 persons per vehicle
[5] Estimated to be 2 trips per vehicle and 2.75 persons per vehicle

This estimate uses an average vehicle occupancy (AVO) of 2.75 persons per vehicle[5], and a greater focus on transit use given the proposed parking supply and anticipated emphasis on parking and transportation demand management plans (see **Chapters 9 and 10**, respectively). Using mode share estimates based on data collected (see **Section 3.8**) and engineering judgment, the trip generation estimate without any reduction for stadium attendees patronizing the supporting retail and restaurant uses is 21,221 daily trips. Based on this traffic engineer's experience and professional judgment, it is estimated that at least 10% of attendees at a capacity event or 3,500 people would patronize the supporting retail uses. Those attendees have therefore been captured by the project's retail uses trip generation, and a stadium event is calculated to result in a net vehicle trip generation of 19,099 new vehicle trips (21,221 x 90%).

4.1.3.1 Stadium Event Peak Hour Trip Generation

The majority of high attendance stadium events with more than 20,000 occupied seats are anticipated to occur on Saturday and Sunday days and evenings. According to SDSU, a total of 38 stadium events are planned that could exceed 20,000 attendees each, with 27 events held on weekend days and 11 of those held on a weekday evening. The most frequent occurrences on weekdays (Monday through Friday) with the highest attendance levels would be a professional or international soccer match, or a concert. For comparison purposes, only one SDSU Aztec football game per season is expected to occur on a weekday and that usually occurs on a Friday night. All of these weekday events are expected to have a start time of 7pm or later, with some attendees arriving during the typical PM commute period of 4pm to 6pm and some attendees arriving after the peak period between 6pm and 7pm.

To estimate the number of stadium event trips that would occur during the PM peak hour, traffic count data for the Sacramento Republic US League (USL) soccer team was used and supplemented with data from the Golden 1 Center in Sacramento, as well as from Levi's Stadium in Santa Clara. The distribution of attendee arrival time is estimated to be:

- 5pm to 6pm: 22.8%
- 6pm to 6:30pm: 38.0%
- 6:30pm to 7pm: 32.0%
- After 7pm: 7.2%

Based on this information, 22.8% or 4,355 attendees are expected to arrive during this last hour of the peak period. Using the daily trip generation rates from **Table 12**, a total of 1,964 PM peak hour vehicle trips from a full capacity stadium event are projected to be generated as shown in **Table 13**. Only a negligible number

[5]AVO is expected to be higher than existing (2.29 per **Section 3.8**) due to a decrease in parking availability and increased friction at event departure. TNC AVO is conservatively estimated to be equal to that of private autos.

of stadium trips would be generated during the AM peak hour. These morning trips are expected to include maintenance and security personnel and are estimated to be less than 50 total.

TABLE 13 – STADIUM PEAK HOUR VEHICLE TRIP GENERATION

Mode	Daily Vehicle Trips After Mixed-Use Reduction	Vehicle Trips Occurring Before Event (50% of Daily)	Percent Traveling During Weekday PM Peak Hour	Stadium Event PM Peak Hour Vehicle Trips: Total (In / Out)
TNC[1]/Taxi	3,666[2]	1,833	22.8%	418 (209 / 209)
Shuttle/Private Bus	84[3]	42	22.8%	10 (5 / 5)
Private Auto	15,349[4]	7,675	22.8%	1,750 (1,750 / 0)
Total				**2,178 (1,964 / 214)**

Source: Fehr & Peers, 2019.
Notes:
[1] TNC = Transportation Network Company (e.g., Uber, Lyft,
[2] Estimated to be 4 trips per vehicle and 2.75 persons per vehicle with a 10% reduction for mixed-use
[3] Estimated to be 4 trips per vehicle and 15 persons per vehicle with a 10% reduction for mixed-use
[4] Estimated to be 2 trips per vehicle and 2.75 persons per vehicle with a 10% reduction for mixed-use

4.2 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

This section describes how the project-generated vehicle trips were distributed to the roadway network and the specific assignment of those trips to the study area intersections, roadway segments, freeway segments and ramps. The distribution for both campus (i.e., non-stadium) and stadium trips are described in this section.

4.2.1 PROJECT TRIP DISTRIBUTION

For a project of this scope, the most appropriate planning tool to forecast trip distribution is the regional travel demand model maintained by SANDAG. A trip distribution estimate was prepared based on a "select zone" analysis of the SANDAG Series 13 Year 2035 travel demand model, where the proposed non-stadium land uses were coded into the model, and the model roadway network was modified to exclude the Fenton Parkway bridge.[6] The select zone process identifies the number of trips on each roadway segment that would be generated by the single traffic analysis zone (TAZ) representing the project site. **Figure 7** illustrates the vehicle trip distribution pattern for the non-stadium project uses.

[6] While the Fenton Parkway bridge is planned as part of the future network in Mission Valley and it would improve area connectivity, the timing of its implementation is not defined due to required environmental studies and funding sources that have not been identified. Accordingly, it was excluded from the model for purposes of distributing project traffic, and this analysis provides more conservative results without the proposed new bridge.

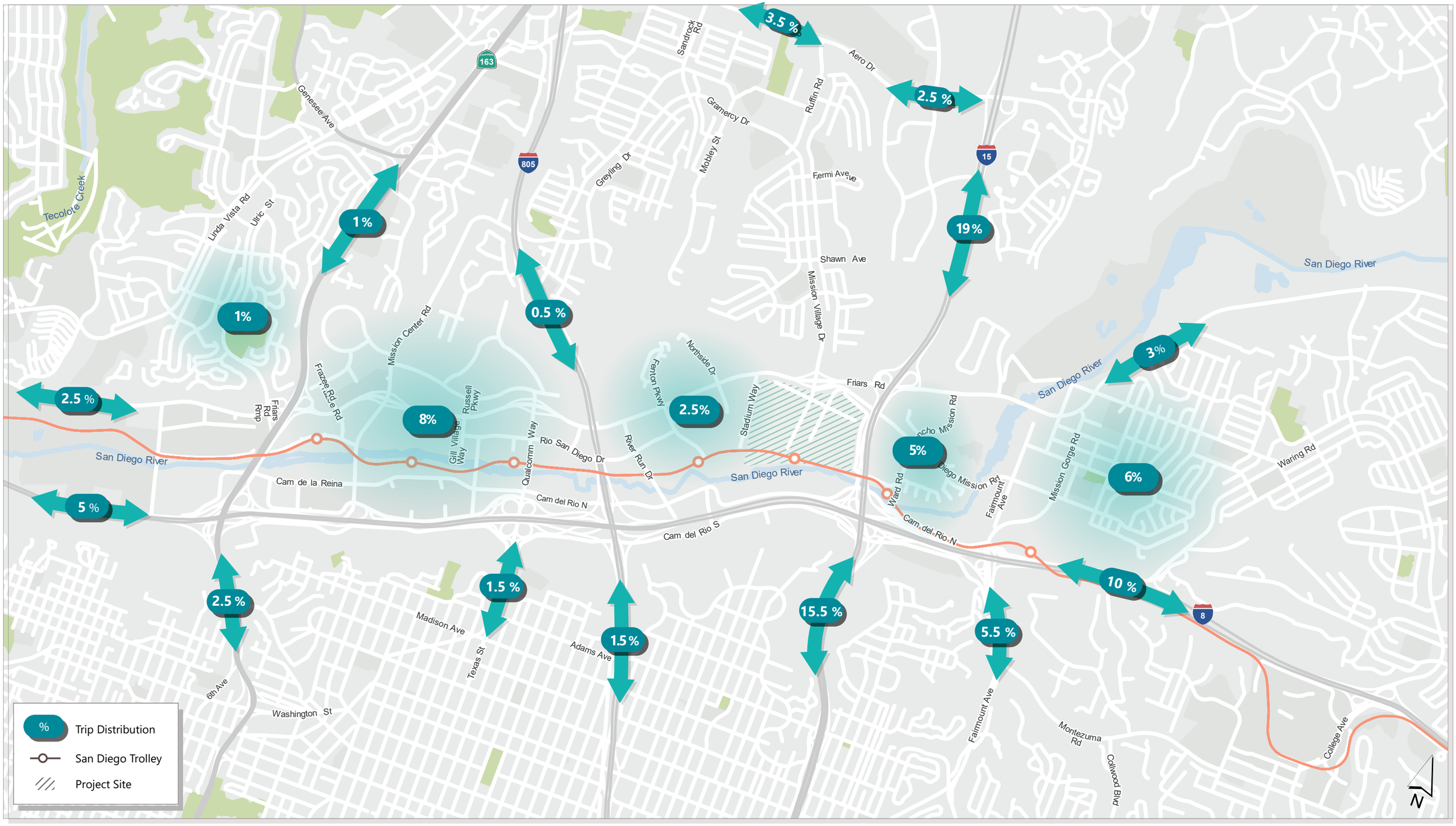


Figure 7

Project Trip Distribution

Project trips for *stadium* events will have a distinct project distribution from the typical residential and office/retail land uses within the project site. Stadium trip distribution was estimated using the zip codes of existing 2018 SDSU football season ticket holders and the most likely paths of travel to and from the stadium site. This distribution was applied to both weekday and weekend stadium events. **Figure 8** illustrates the vehicle trip distribution pattern for stadium events.

4.2.2 PROJECT TRIP ASSIGNMENT

Project trips were assigned to the study area intersections based on the characteristics of the streets within the study area, anticipated congestion, and directness of route. **Figure 9** shows the assignment of trips that would be generated on a typical weekday by the proposed project non-stadium uses at each intersection.

Figure 10 shows the assignment of PM peak hour trips that would be generated by a stadium event at each intersection.

4.2.3 CAMPUS EFFECT ON TRIP DISTRIBUTION

Because students have substantially different trip-making patterns from the typical population, the trip distribution for university uses was examined. A trip distribution estimate was prepared based on a "select zone" analysis of the SANDAG Series 13 Year 2035 travel demand model similar to the process for the market project, with the project land uses serving a 15,000-student university campus. The trip distribution was generally found to be the same as for the market project. Minor differences were noted along I-8 to the west of the study area and along Aero Drive to the west of Ruffin Road, both of which had an assignment of approximately 0.5% less than that for the market project. Similarly, the trip assignment along I-8 to the east of the study area and along Montezuma Road were both approximately 0.5% greater than that for the market project. Per the discussion in **Section 4.1.2**, the total trip generation is nearly 8% less under a university campus scenario as compared to the market project scenario, and therefore the impacts of the university campus scenario would generally be less than the market project with generally the same geographic distribution.

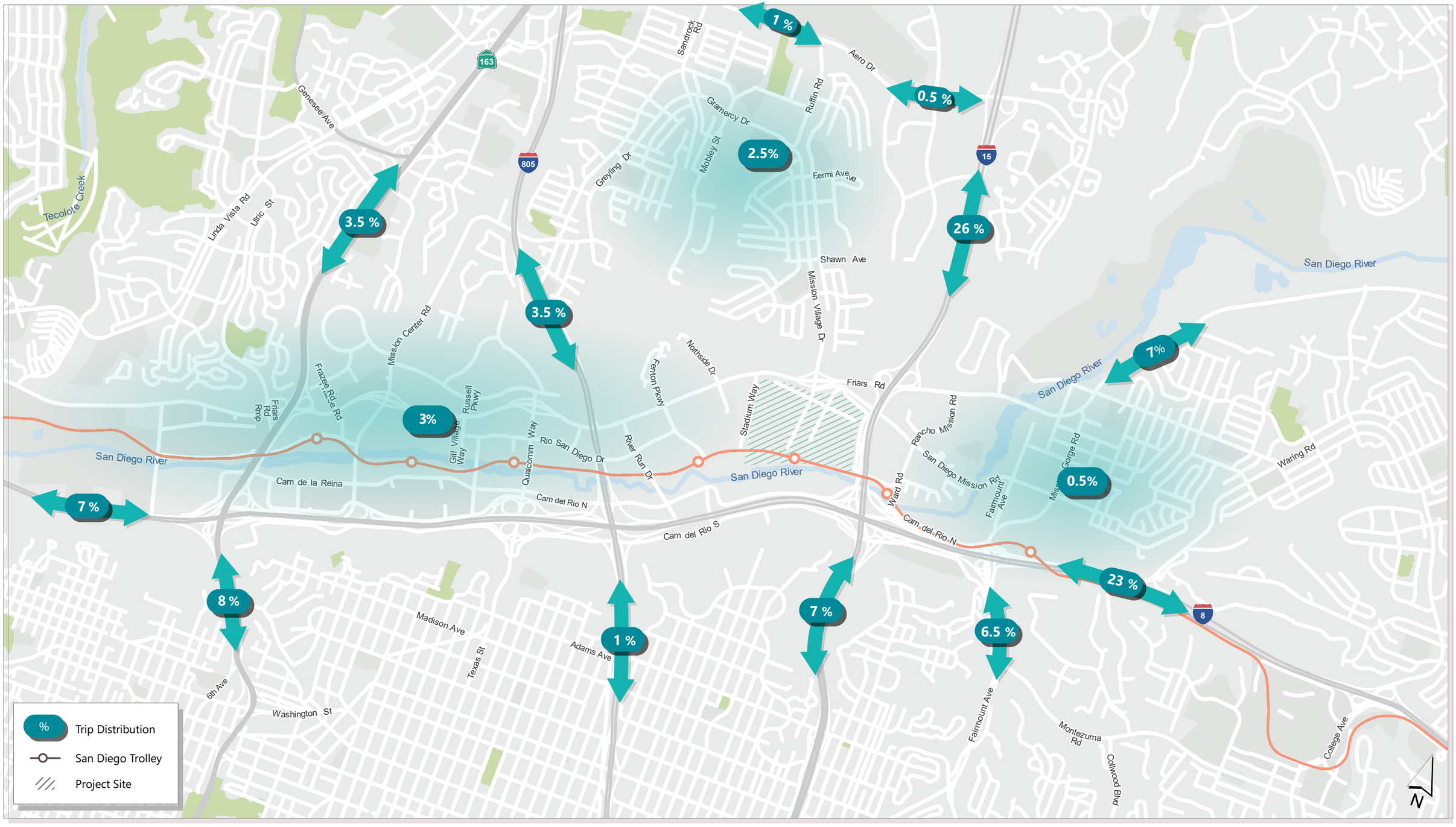
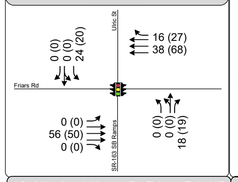


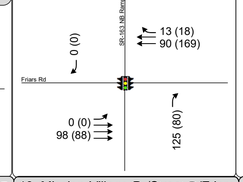
Figure 8

Stadium Event Trip Distribution

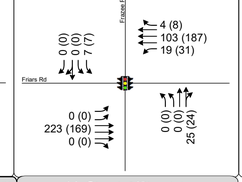
1. Ulric St/SR-163 SB Ramps/ Friars Rd



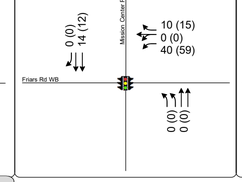
2. SR-163 NB Ramps/Friars Rd



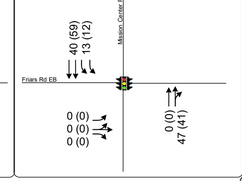
3. Frazee Rd/Friars Rd



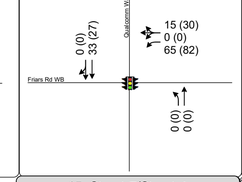
4. Mission Center Rd/Friars Rd WB



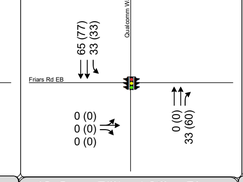
5. Mission Center Rd/Friars Rd EB



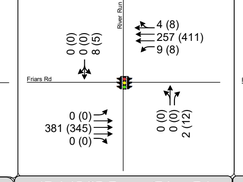
6. Qualcomm Way/Friars Rd WB



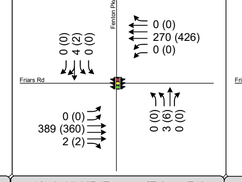
7. Qualcomm Way/Friars Rd EB



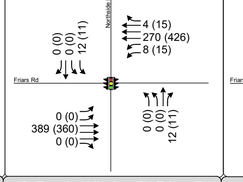
8. River Run Dr/Friars Rd



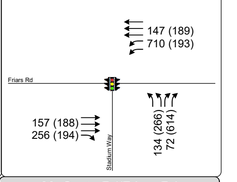
9. Fenton Pkwy/Friars Rd



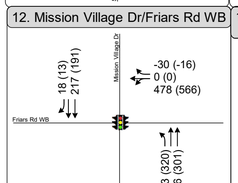
10. Northside Dr/Friars Rd



11. Stadium Way (Street A)/Friars Rd

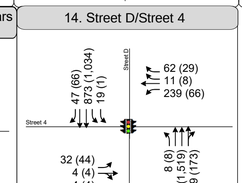


12. Mission Village Dr/Friars Rd WB

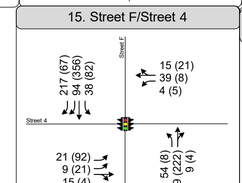


13. Mission Village Dr/Street D/Friars Rd EB/San Diego Mission Rd

14. Street D/Street 4

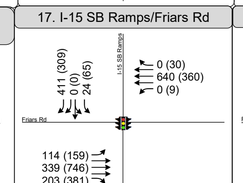


15. Street F/Street 4

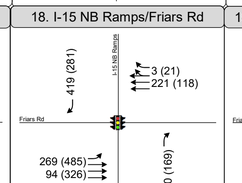


16. Street F/Street 6/San Diego Mission Rd

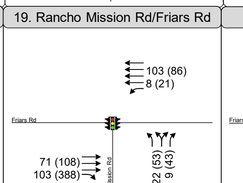
17. I-15 SB Ramps/Friars Rd



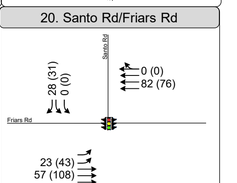
18. I-15 NB Ramps/Friars Rd



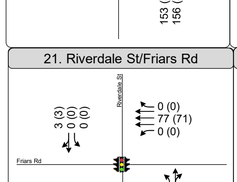
19. Rancho Mission Rd/Friars Rd



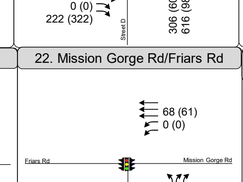
20. Santo Rd/Friars Rd



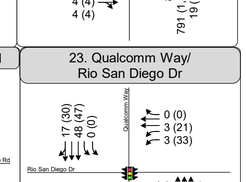
21. Riverdale St/Friars Rd



22. Mission Gorge Rd/Friars Rd



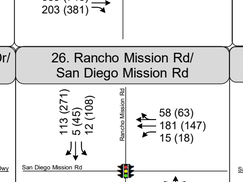
23. Qualcomm Way/ Rio San Diego Dr



24. River Run Dr/Rio San Diego Dr

25. Fenton Pkwy/Rio San Diego Dr/ Fenton Marketplace Dwy

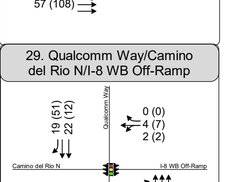
26. Rancho Mission Rd/ San Diego Mission Rd



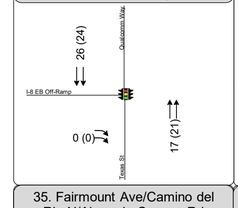
27. Fairmount Ave/San Diego Mission Rd/Twain Ave

28. Qualcomm Way/Camino de la Reina/Camino del Rio N

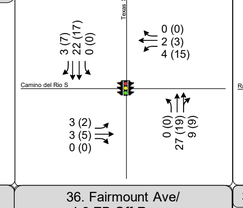
29. Qualcomm Way/Camino del Rio N/I-8 WB Off-Ramp



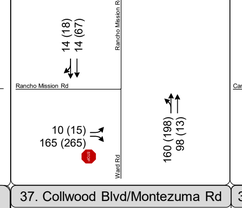
30. Qualcomm Way/Texas St/ I-8 EB Off-Ramp



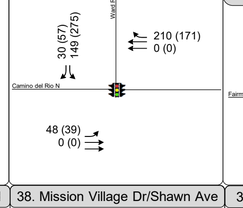
31. Texas St/Camino del Rio S



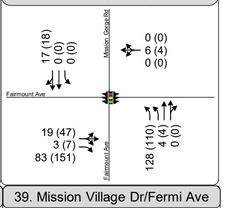
32. Rancho Mission Rd/Ward Rd



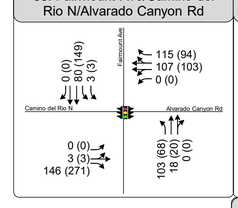
33. Ward Rd/Camino del Rio N



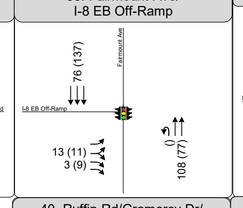
34. Mission Gorge Rd/ Fairmount Ave



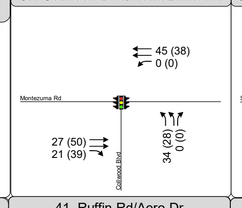
35. Fairmount Ave/Camino del Rio N/Alvarado Canyon Rd



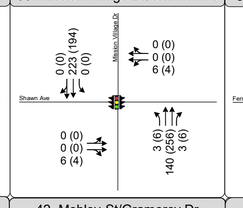
36. Fairmount Ave/ I-8 EB Off-Ramp



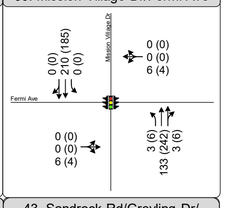
37. Collwood Blvd/Montezuma Rd



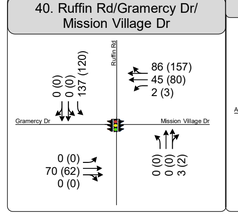
38. Mission Village Dr/Shawn Ave



39. Mission Village Dr/Fermi Ave



40. Ruffin Rd/Gramercy Dr/ Mission Village Dr



41. Ruffin Rd/Aero Dr

42. Mobley St/Gramercy Dr

43. Sandrock Rd/Greyling Dr/ Gramercy Dr

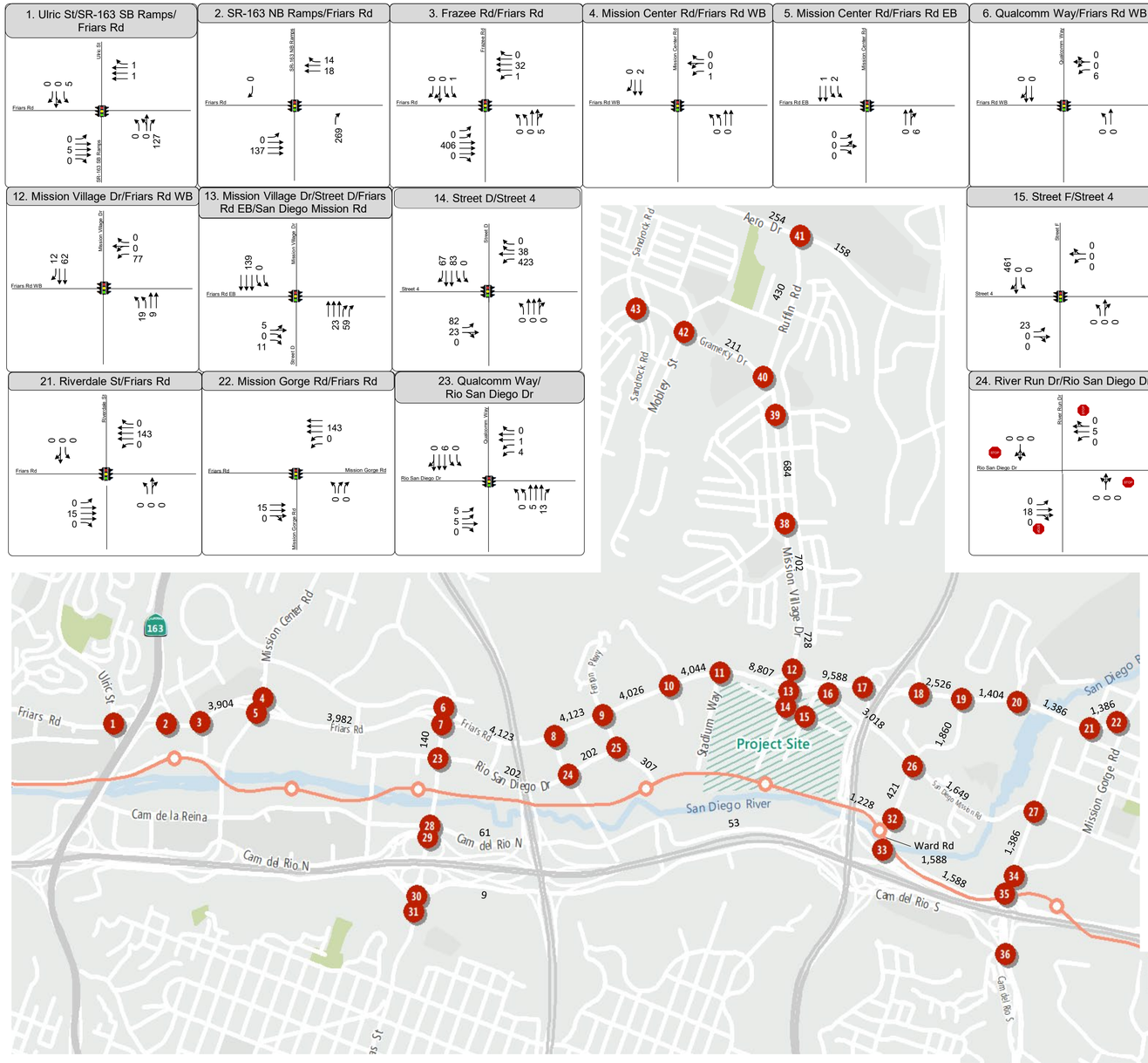
Study Intersection — AM (PM) Peak Hour Volumes

San Diego Trolley — X,XXX ADT Volumes

Project Site

Figure 9

Project Trip Assignment



1. Ulric St/SR-163 SB Ramps/ Friars Rd

2. SR-163 NB Ramps/Friars Rd

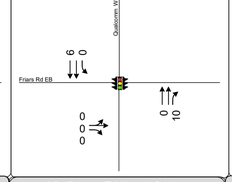
3. Frazee Rd/Friars Rd

4. Mission Center Rd/Friars Rd WB

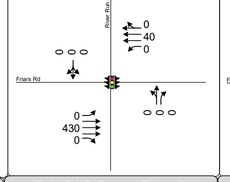
5. Mission Center Rd/Friars Rd EB

6. Qualcomm Way/Friars Rd WB

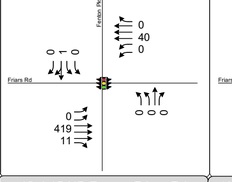
7. Qualcomm Way/Friars Rd EB



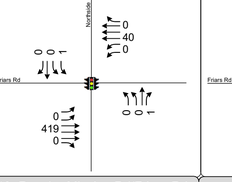
8. River Run Dr/Friars Rd



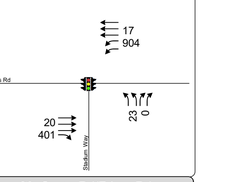
9. Fenton Pkwy/Friars Rd



10. Northside Dr/Friars Rd



11. Stadium Way (Street A)/Friars Rd



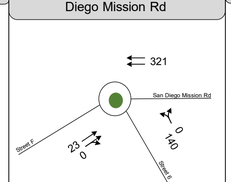
12. Mission Village Dr/Friars Rd WB

13. Mission Village Dr/Street D/Friars Rd EB/San Diego Mission Rd

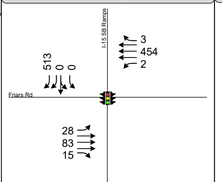
14. Street D/Street 4

15. Street F/Street 4

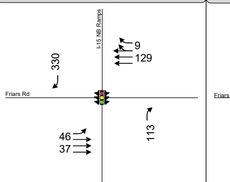
16. Street F/Street 6/San Diego Mission Rd



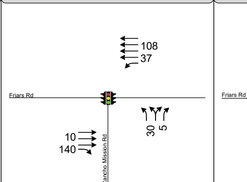
17. I-15 SB Ramps/Friars Rd



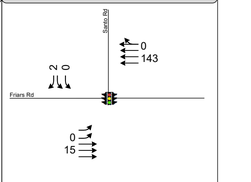
18. I-15 NB Ramps/Friars Rd



19. Rancho Mission Rd/Friars Rd



20. Santo Rd/Friars Rd



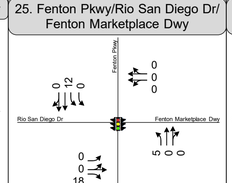
21. Riverdale St/Friars Rd

22. Mission Gorge Rd/Friars Rd

23. Qualcomm Way/ Rio San Diego Dr

24. River Run Dr/Rio San Diego Dr

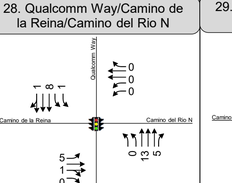
25. Fenton Pkwy/Rio San Diego Dr/ Fenton Marketplace Dwy



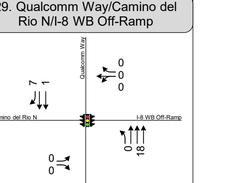
26. Rancho Mission Rd/ San Diego Mission Rd

27. Fairmount Ave/San Diego Mission Rd/Twain Ave

28. Qualcomm Way/Camino de la Reina/Camino del Rio N

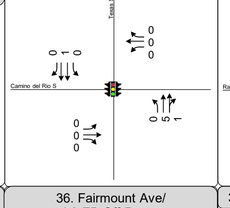


29. Qualcomm Way/Camino del Rio N/I-8 WB Off-Ramp

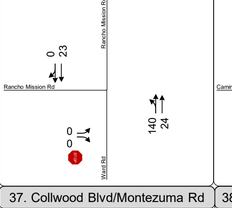


30. Qualcomm Way/Texas St/ I-8 EB Off-Ramp

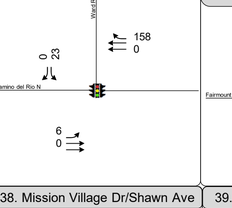
31. Texas St/Camino del Rio S



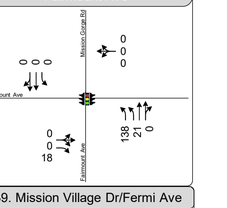
32. Rancho Mission Rd/Ward Rd



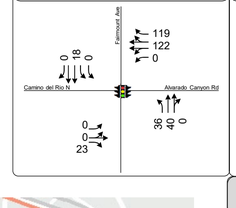
33. Ward Rd/Camino del Rio N



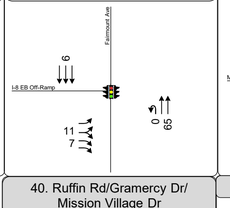
34. Mission Gorge Rd/ Fairmount Ave



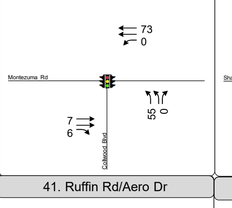
35. Fairmount Ave/Camino del Rio N/Alvarado Canyon Rd



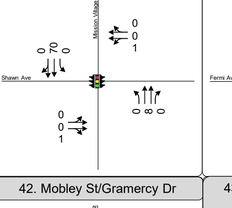
36. Fairmount Ave/ I-8 EB Off-Ramp



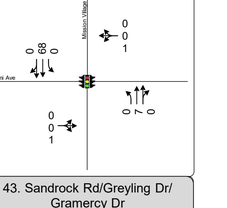
37. Collwood Blvd/Montezuma Rd



38. Mission Village Dr/Shawn Ave



39. Mission Village Dr/Fermi Ave



40. Ruffin Rd/Gramercy Dr/ Mission Village Dr

41. Ruffin Rd/Aero Dr

42. Mobley St/Gramercy Dr

43. Sandrock Rd/Greyling Dr/ Gramercy Dr

Figure 10

Stadium Event Trip Assignment

4.3 SITE ACCESS, INTERNAL VEHICLE CIRCULATION, AND PROJECT ROADWAY IMPROVEMENTS

The proposed project will take vehicle access from existing connections on Mission Village Drive/Street D immediately south of the Friars Road eastbound ramps, Stadium Way (Street A), San Diego Mission Road, and Rancho Mission Road. In addition, a new street will be constructed to connect to Fenton Parkway at the trolley rail crossing to the southwest portion of the site.

At Friars Road & Stadium Way (Street A), the intersection will be re-constructed to appropriately size the roadway for the project and to enhance safety for bicyclists and pedestrians. A new full-time traffic signal will be installed to control traffic on all approaches with regular cycle lengths and protected turning movements. This signal will replace the existing part-time signal that is used for stadium events only. The Friars Road approaches will be modified to include one (1) separate eastbound right-turn lane and two (2) separate westbound left-turn lanes. Due to the proximity of this intersection to the fire station, the median break and "KEEP CLEAR" striping in front of the fire station access should be maintained. The northbound (i.e., Stadium Way (Street A)) approach will include two (2) left-turn lanes and two (2) right-turn lanes. Stadium Way (Street A) will be constructed and striped with two northbound lanes and two southbound lanes plus a 24-foot wide striped median to allow contraflow operation to manage peak inbound and outbound traffic flows on game days when manual traffic control will be employed.

To improve safety and operations, the project will realign San Diego Mission Road east of Mission Village Drive to connect within the project site and to convert the Mission Village Drive & Friars Road Eastbound Ramps intersection to a standard four-legged configuration. The new San Diego Mission Road alignment will intersect with a new internal site road (Street F) that is east of and parallel to Mission Village Road at a new two-lane roundabout (Intersection #16). This new road will in turn connect with another internal site road (Street 4) that is aligned south of and parallel to Friars Road and provides a connection to Mission Village Drive/Street D at a new intersection south of the Friars Road Eastbound Ramps (Intersection #14).

Additionally, the segment of Rancho Mission Road that is aligned east-west and extends west of Ward Road will be extended as Street I which will be aligned parallel to and west of I-15 before curving to align east-west as Street 6 and intersecting with San Diego Mission Road and Street F at the new two-lane roundabout at Intersection #16. This intersection will have a build-out configuration of a two-lane roundabout to accommodate proposed project traffic plus existing volumes that currently use San Diego Mission Road to travel between Mission Village Drive and Rancho Mission Road (east of I-15).

Finally, the project will improve the intersections of Mission Village Drive at both of the Friars Road ramps to accommodate project traffic by widening the Mission Village Drive bridge over Friars Road to

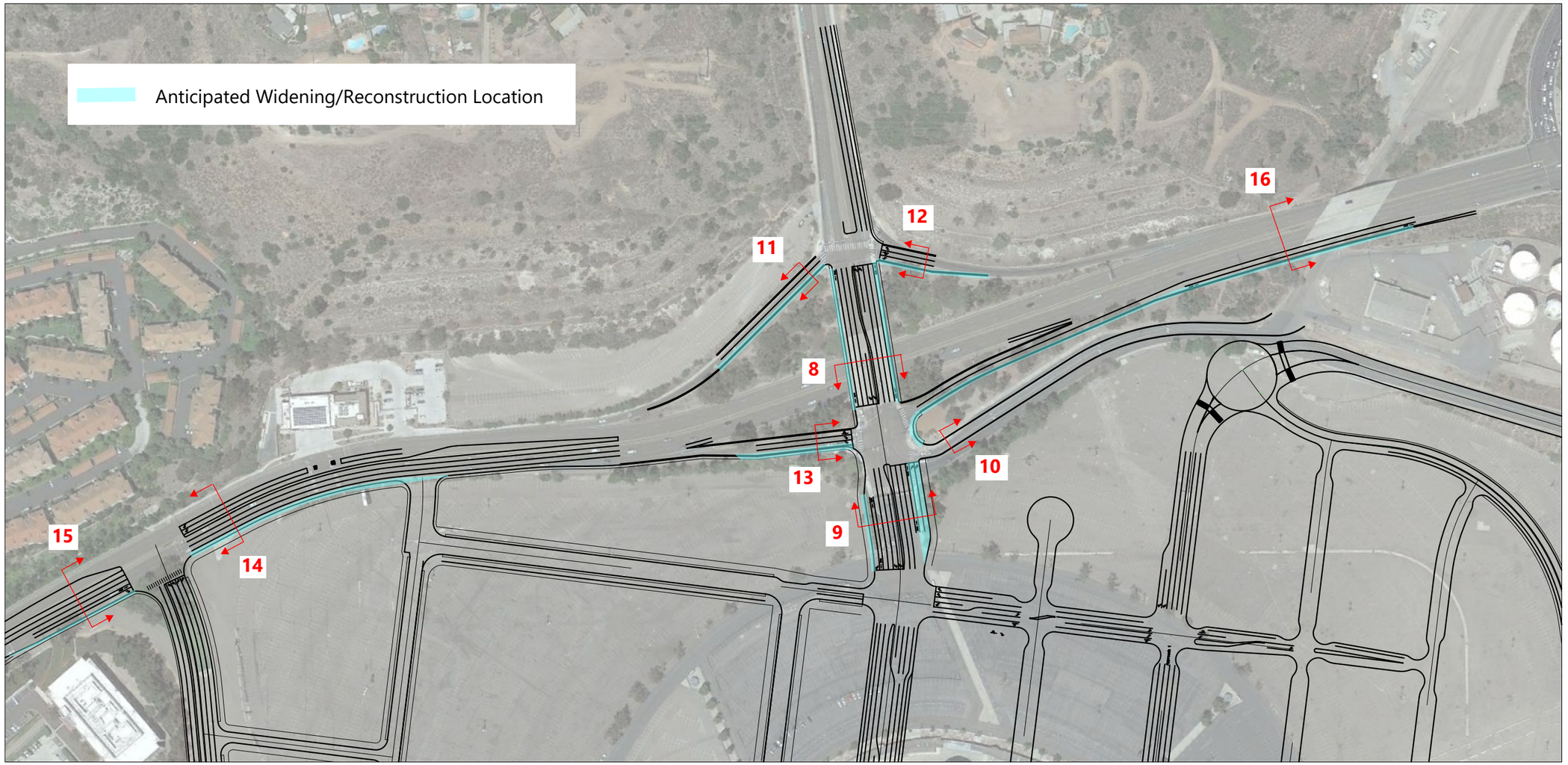
accommodate another lane in each direction plus maintaining bike lanes and sidewalks in each direction between the two ramp intersections. This will ultimately provide two through lanes and two left-turn lanes on Mission Village Drive at each Friars Road ramp. The provision of dual left turn lanes will provide additional storage to accommodate vehicle queues and will increase overall capacity at these locations. At the westbound on-ramp, it is recommended that the two lanes merge prior to the merge onto Friars Road, while at the eastbound on-ramp, it is recommended that the second on-ramp lane become a new auxiliary lane on Friars Road to the I-15 SB on-ramp. This will require widening the Friars Road bridge over the utility terminal driveway. Also, the westbound ramp from Friars Road to Mission Village Drive will be widened to accommodate a second westbound left-turn lane, and a second eastbound right-turn lane will be added to the Friars Road Eastbound ramp. All adjacent road improvements to be constructed as part of the project are shown on **Figure 11**.

As shown on **Figure 2**, vehicular circulation within the project site will be provided by a grid system of 11 streets. Residential uses will be located on the east side of the site and will be accessed primarily by Mission Village Drive, San Diego Mission Road, and Rancho Mission Road. The campus office and research uses will be located on the west side of the site south of the stadium site and will be accessed primarily by Mission Village Drive, Stadium Way (Street A), and Fenton Parkway. Retail uses including the grocery store are planned to front Street D. Overall, the site will be completely interconnected to optimize traffic distribution on typical days. The Street D and Stadium Way (Street A) internal roads will be designed as major arterials.

Other internal roads generally will be collectors, except for the segment of Street 4 connecting San Diego Mission Road/Street F to Mission Village Drive/Street D, which is also expected to be designed as a major arterial with a raised median.

Internal intersections will be controlled by traffic signals, stop signs or roundabouts depending on the street classification and anticipated turning movement volumes. Curb extensions, limited driveway cuts, and off-street shared use paths will enhance pedestrian connectivity across the site. **Figure 12** illustrates the internal circulation network.

For all stadium events, a transportation and parking management plan (TPMP) will be implemented as described in **Section 4.3.1**.

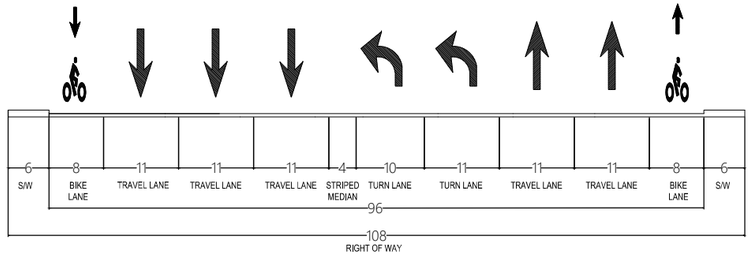


Fenton Parkway Connection

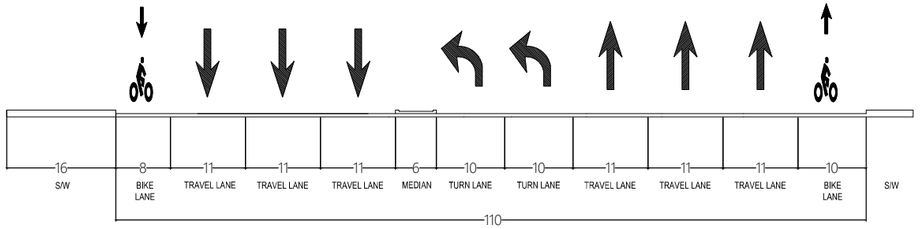
Figure 11

Proposed Adjacent Road Improvements

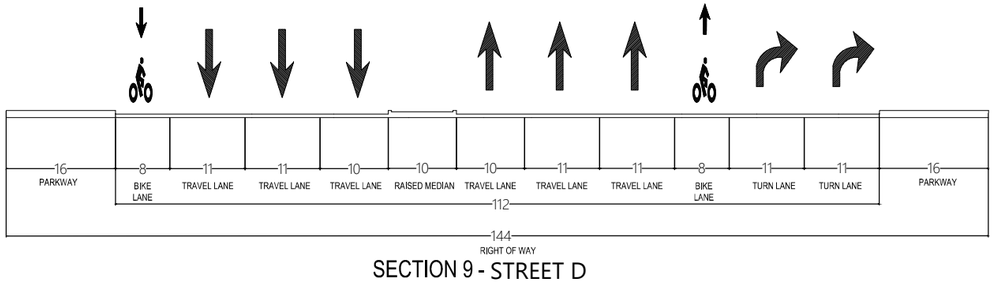
CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.



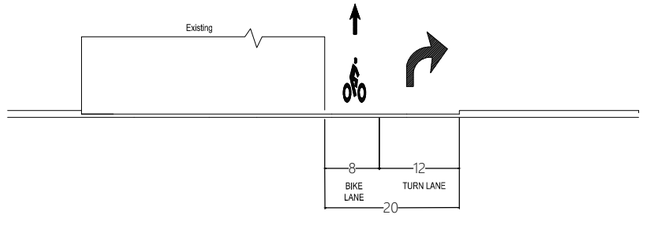
SECTION 8 - MISSION VILLAGE



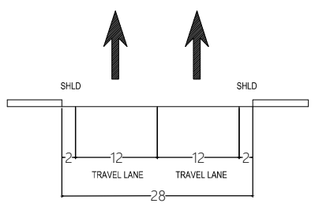
SECTION 14 - FRIARS ROAD (EAST)



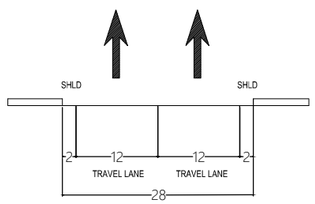
SECTION 9 - STREET D



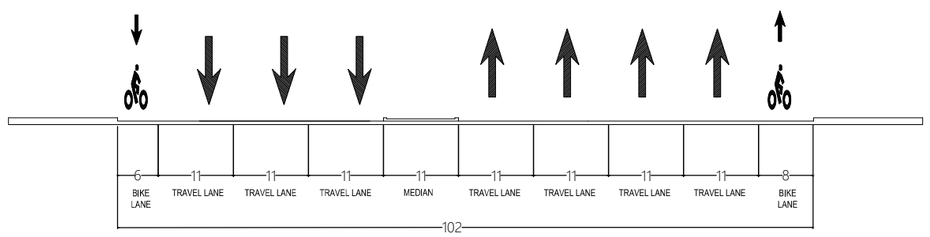
SECTION 15 - FRIARS ROAD (WEST)



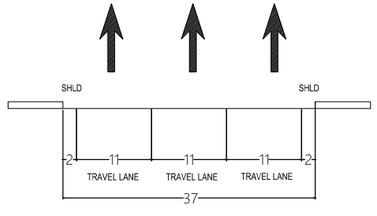
SECTION 10 - EB FRIARS ON-RAMP



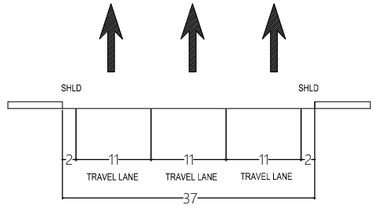
SECTION 11 - WB FRIARS ON-RAMP



SECTION 16 - FRIARS ROAD (EAST OF MISSION VILLAGE)



SECTION 12 - WB FRIARS OFF-RAMP

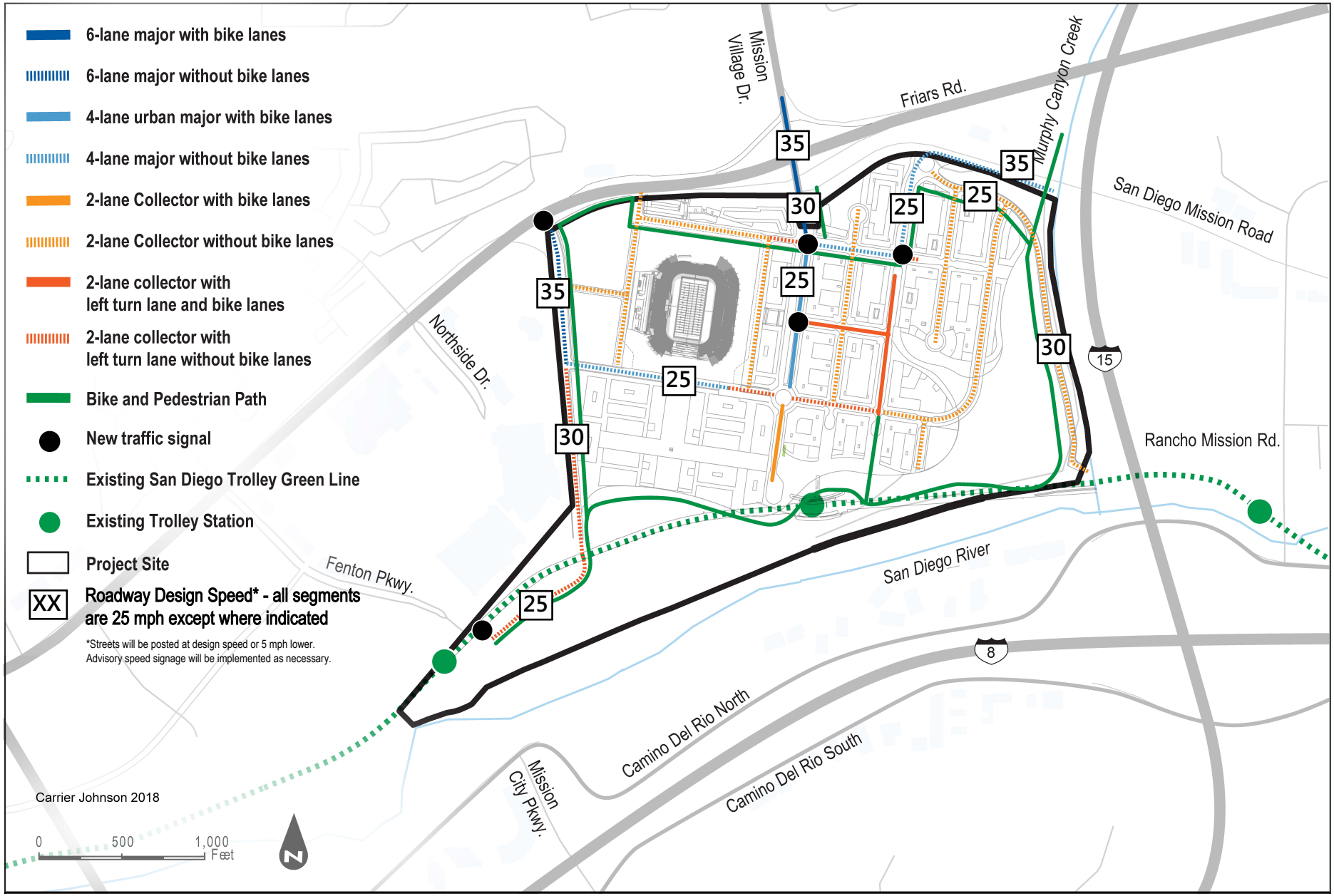


SECTION 13 - EB FRIARS OFF-RAMP

Figure 11

Proposed Adjacent Road Improvements

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.



SAN DIEGO STATE UNIVERSITY

Figure 12

Project Internal Circulation Network

4.3.1 TRANSPORTATION AND PARKING MANAGEMENT PLAN (TPMP)

The proposed stadium will be integrated with the other land uses within the overall project site as development progresses. As such, selected roadways such as Street D will be a "shared" facility where traffic generated by stadium events will occur at the same time as residents and campus office users will travel to and from the site. Other roadways, such as Stadium Way (Street A) will primarily be used by stadium patrons only.

Stadium traffic will typically be concentrated during the one to two hours prior to an event, as well as during the hour immediately following an event. To ensure that traffic capacity is maximized during these periods and potential negative effects to non-stadium uses within the campus and to roadways adjacent to the site are minimized, the project will include a formal transportation and parking management plan (TPMP). The anticipated activity level at the stadium is presented below followed by a description of the TPMP elements and their potential effectiveness relative to the "with stadium event" analyses presented in this document.

4.3.1.1 Anticipated Stadium Activity Level

The existing SDCCU stadium, which has a capacity of up to 70,561 seats, hosts a variety of events over the course of the year with varying attendance levels. For very low attendance events such as a recycling event or regularly scheduled "swap meets", no special traffic management is required or provided. With higher attendance events such as San Diego State University football games and concerts with 20,000 to 40,000 or more attendees, more formalized traffic control is implemented using personnel to manage traffic plus signage to inform drivers of appropriate travel paths. In 2018, the highest attendance events included a concert with nearly 41,000 actual attendees (as opposed to the higher announced-attendance number), and special in season college football game between Navy and Notre Dame with nearly 57,000 actual attendees. Overall, a total of 13 events in 2018 included average attendance levels of 20,000 or more attendees (referred to as high attendance events for purposes of this analysis).

The proposed stadium will include a total of 35,000 seats, which will result in lower maximum attendance levels as compared to the existing stadium. A total of 21 annual high attendance events (i.e., with average patronage estimates of 20,000 or more) are anticipated for stadium uses that are anticipated or currently known. If a professional soccer team is approved for San Diego and uses the proposed stadium, then an additional 17 high attendance events could occur, for a total of 38 high attendance events.

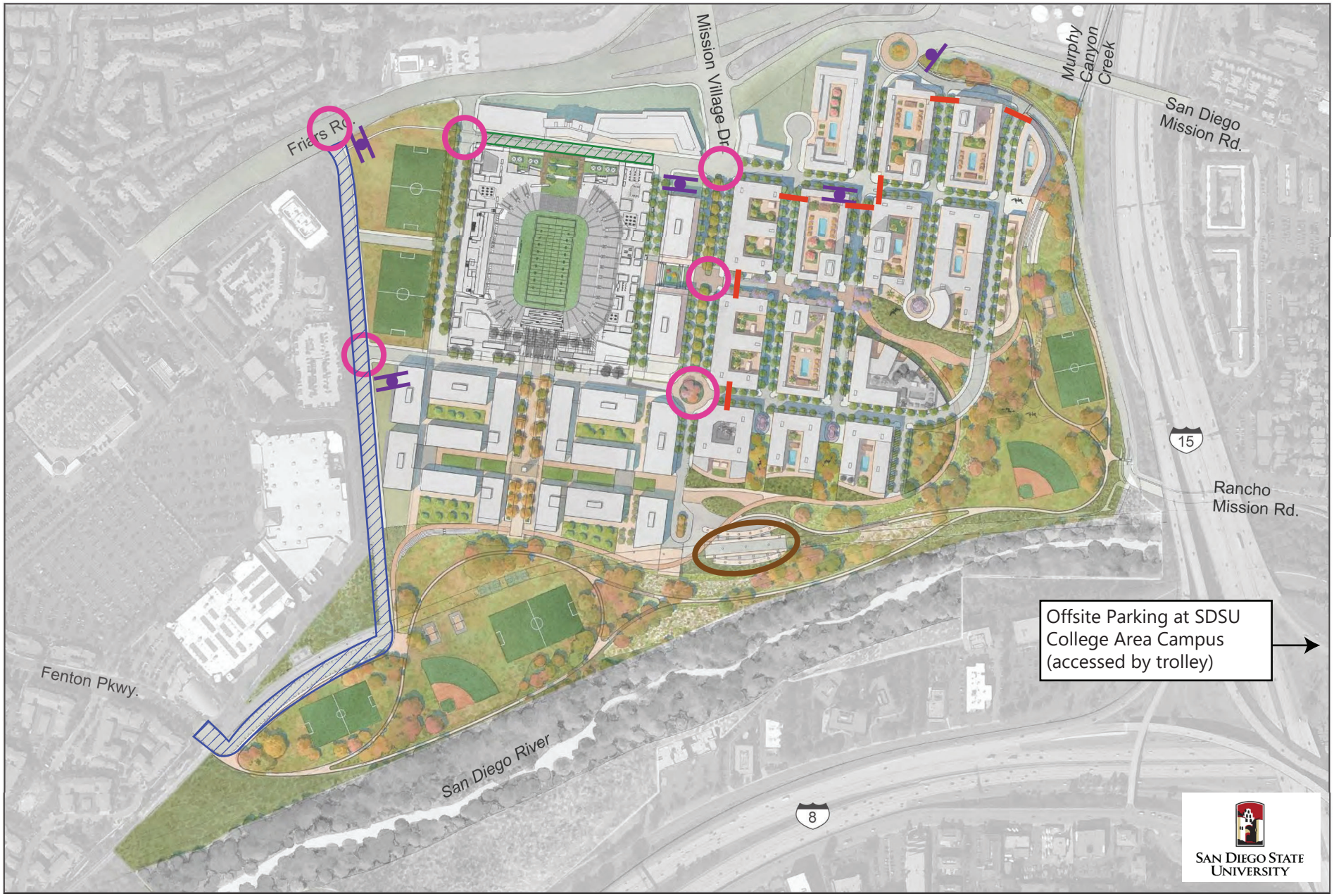
4.3.1.2 TPMP Elements

The purpose of the TPMP is to identify strategies to provide safe, convenient, and efficient access for all modes of travel to and from the proposed stadium. The identified strategies are intended to minimize

conflicts between vehicles, pedestrians, bicycles, and transit before, during, and after events. While the strategies in this report are recommended for implementation by opening day of the stadium, the TPMP is a flexible strategy that may be modified by SDSU as conditions change, and based on experience and input from additional parties, including the City of San Diego, local transit agencies, public safety officials, and the public.

The proposed TPMP will include numerous elements related to managing vehicle traffic into and out of the stadium area, minimizing vehicle demand, accommodating bicycle and pedestrian modes, and enhancing safety for all users during events. General descriptions of each program element and likely application locations are as follows:

- Variable TPMP Levels – Preliminary plans for various attendance levels will be prepared and modified based on actual event experience. Plans will address various attendance levels, time of day, and day of week.
- Roles and Responsibilities – The TPMP will delineate the roles and responsibilities for various public agencies.
- Traffic Control Personnel – Key intersections will be controlled by trained traffic control personnel to delineate right-of-way as needed to expedite the flow of vehicles. Control may involve overriding traffic signal operations temporarily and/or instructing drivers to disregard stop sign control. These activities will help to reduce congestion, minimizing driver frustration, and enhancing safety overall. Locations where traffic control is likely to be implemented are illustrated on **Figure 13** and are subject to change as conditions warrant.
- Dynamic Message Signs – Signs will be located on major approaches to the stadium site to communicate with vehicle drivers in real time on issues related to congestion, parking availability, optimal travel paths, upcoming events, etc. Signs will be both permanent and temporary. Preliminary sign locations are illustrated on **Figure 13** and are subject to change as conditions warrant.
- Transportation and Parking Wayfinding – Signs and other visual cue treatments will be installed to direct patrons to stadium parking, passenger loading areas, and the trolley station (currently named Qualcomm). Signs will include directions for standard parking, VIP lots, bus/shuttle parking, and designated passenger loading areas (for private vehicles and transportation network companies (TNCs) such as Uber and Lyft). Initially, the passenger loading area is expected to occupy one or both sides of Promenade 2, which will still allow for access to the proposed hotel property on the north side of the street. The TPMP will also include identification of appropriate pedestrian paths to and from the trolley station plus bicycle paths leading to on-site bike parking areas.



Note: Measures and Locations are subject to change.

- Manual Traffic Control
- Neighborhood Protection Locations
- Key Directional Signs
- Passenger Loading Area
- Managed Parking Access Corridors
- Special Trolley Service

Figure 13

Proposed Key Transportation and Parking Management Plan (TPMP) Measures

- Neighborhood Intrusion Prevention – For moderate to high attendance events (and possibly for lower attendance events dependent upon actual conditions), measures will be implemented to minimize traffic and parking intrusion into the residential areas of the project site. Selected streets will be closed to through traffic and proof of residency may be required depending on compliance with signage and traffic control personnel. Preliminary locations for street closures are shown in **Figure 13** and subject to change as conditions warrant.
- Designated Loading Zones and Activities – Given the need for event-generated truck trips to use the same roadways as event patrons, the TPMP will identify specific loading areas and times for freight delivery and pick up activities. Smaller-scale activities may use one or both of the streets located along the west and east sides of the stadium as conditions warrant.
- Special Trolley Service – SDSU will coordinate with MTS to determine when special train service will be needed to meet demand for high attendance events.
- Communication and Public Information Strategies – Communication strategies included in the TPMP will encompass internal communication among the stadium management team related to event operations, as well as external communication to disseminate information to event attendees and the general public. SDSU will maintain an on-site Transportation Management Center (TMC) at the stadium to monitor conditions in and around the facility related to transportation and parking and will coordinate with other agency representatives (such as the City of San Diego and Caltrans) and public safety officials as appropriate.

4.3.2 EMERGENCY ACCESS

The proposed project includes a network of streets, promenades, and paved paths that will provide for vehicular access for emergency personnel responding to an incident. In the case of streets, all roadways have been designed or planned based on City of San Diego standards. Consistency with City standards indicates that adequate emergency access is available on these facilities. In addition, the site will include six access points to adjacent public streets to facilitate emergency response and evacuation as needed. Since the final design for all campus buildings has not yet been completed, an assessment of each building cannot be completed at this time. As part of the building construction and occupancy permitting process, emergency access to each building will be reviewed for consistency with and adherence to standards identified in applicable regulatory documents including but not limited to the Uniform Building Code and California Fire Code. In addition, buildings will be inspected by emergency responder entities including the City of San Diego Fire Department, which has a station located on the north side of Friars Road just east of the Stadium Way (Street A) intersection.

5.0 EXISTING PLUS PROJECT CONDITIONS

This chapter presents the results of the operations analysis under the hypothetical Existing Plus Project scenarios, both without and with a Stadium Event, which is modeled as a sold-out event.

5.1 EXISTING PLUS PROJECT WITHOUT EVENT CONDITIONS

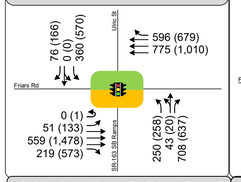
Under Existing Plus Project Conditions, project-generated traffic volumes that assume immediate buildout of the entire site are added to existing study area intersection and roadway segment traffic volumes and the resulting impacts assessed. Therefore, in the case of projects like this with a long-term 10-20 year buildout scenario, such analysis is hypothetical because the project will not be immediately built out. As a result, the Existing Plus Project scenario tends to *understate* impacts in that it does not consider expected future traffic growth from other, or cumulative, projects and, therefore, the analysis overstates capacity available to the project. Relatedly, the Existing Plus Project scenario can *overstate* impacts in that it does not account for planned future road improvements that would provide additional capacity. Because the Existing Plus Project scenario is hypothetical in nature and potentially both understates and overstates significant impacts, the results of the Existing Plus Project analysis can be misleading to both the decision-maker and the public. For this reason, the Existing Plus Project analysis presented here in **Section 5.1** and the accompanying **Section 5.2** is provided for information purposes only; the proposed project's significant impact determinations and recommended mitigation measures will be identified based on the Horizon Year (2037) Plus Project analysis presented in **Section 7.1** and the accompanying **Section 7.2**, which accurately reflects future cumulative traffic conditions, as well as future road improvements, forecast to be in place at the time the project reaches full buildout. Relatedly, because the Stadium component of the project will, unlike the remainder of the proposed project, be built in the near-term, year 2022, the analysis of potential impacts associated with the Stadium are accurately assessed under an Existing Plus Event scenario. Therefore, significant impacts and mitigation are identified under this scenario, which is presented in **Section 5.3**.

5.1.1 INTERSECTION ANALYSIS

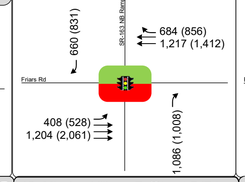
Turning movement traffic volumes and intersection lane configurations for the Existing Plus Project Conditions are shown on **Figure 14**. This information was used to calculate operations under this scenario.

Table 14 presents a summary of the intersection operating conditions and traffic changes under the Existing Plus Project conditions, comparing the projected levels of service at each study area intersection under the

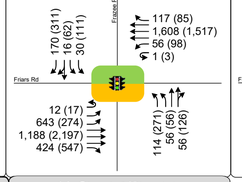
1. Ulric St/SR-163 SB Ramps/ Friars Rd



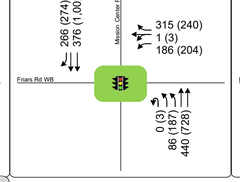
2. SR-163 NB Ramps/Friars Rd



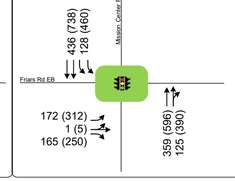
3. Frazee Rd/Friars Rd



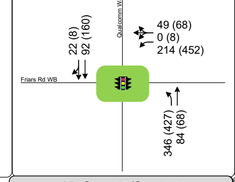
4. Mission Center Rd/Friars Rd WB



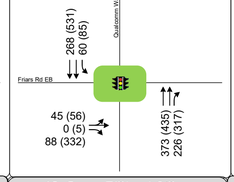
5. Mission Center Rd/Friars Rd EB



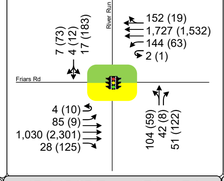
6. Qualcomm Way/Friars Rd WB



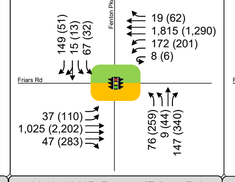
7. Qualcomm Way/Friars Rd EB



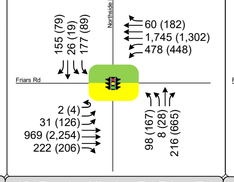
8. River Run Dr/Friars Rd



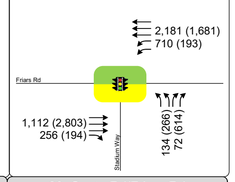
9. Fenton Pkwy/Friars Rd



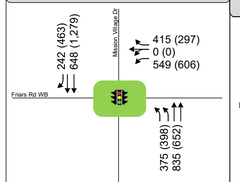
10. Northside Dr/Friars Rd



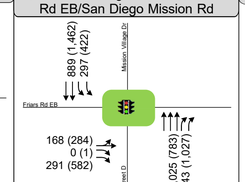
11. Stadium Way (Street A)/Friars Rd



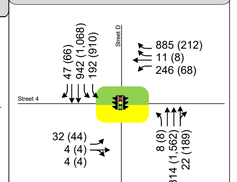
12. Mission Village Dr/Friars Rd WB



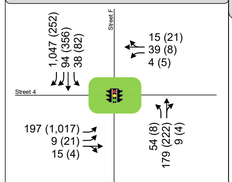
13. Mission Village Dr/Street D/Friars Rd EB/San Diego Mission Rd



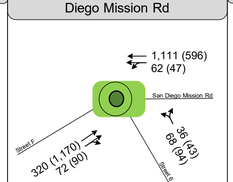
14. Street D/Street 4



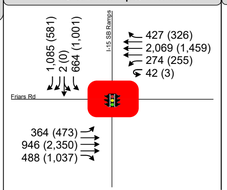
15. Street F/Street 4



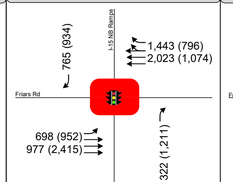
16. Street F/Street 6/San Diego Mission Rd



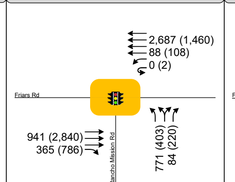
17. I-15 SB Ramps/Friars Rd



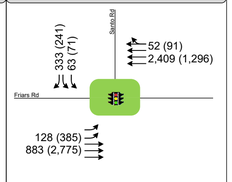
18. I-15 NB Ramps/Friars Rd



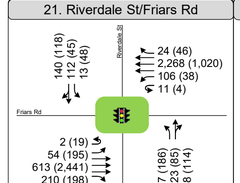
19. Rancho Mission Rd/Friars Rd



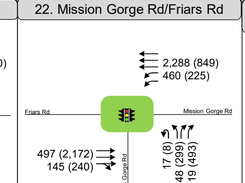
20. Santo Rd/Friars Rd



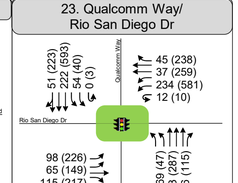
21. Riverdale St/Friars Rd



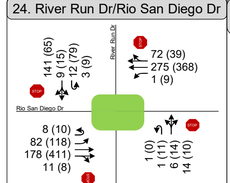
22. Mission Gorge Rd/Friars Rd



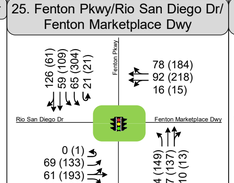
23. Qualcomm Way/ Rio San Diego Dr



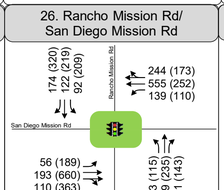
24. River Run Dr/Rio San Diego Dr



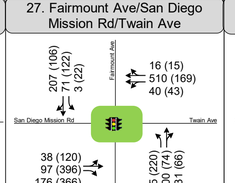
25. Fenton Pkwy/Rio San Diego Dr/ Fenton Marketplace Dwy



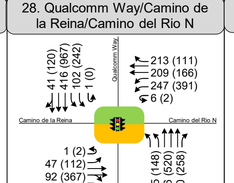
26. Rancho Mission Rd/ San Diego Mission Rd



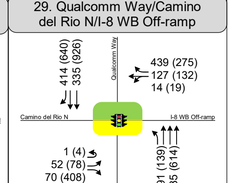
27. Fairmount Ave/San Diego Mission Rd/Twain Ave



28. Qualcomm Way/Camino de la Reina/Camino del Rio N

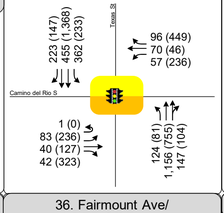


29. Qualcomm Way/Camino del Rio N/I-8 WB Off-ramp

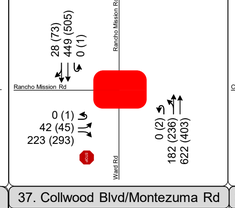


30. Qualcomm Way/Texas St/ I-8 EB Off-Ramp

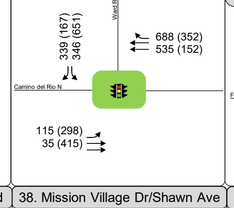
31. Texas St/Camino del Rio S



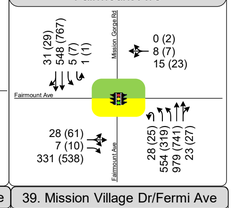
32. Rancho Mission Rd/Ward Rd



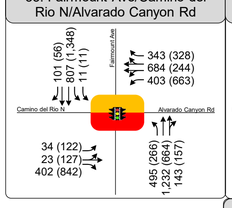
33. Ward Rd/Camino del Rio N



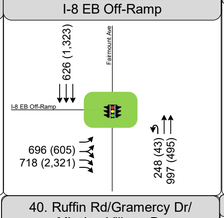
34. Mission Gorge Rd/ Fairmount Ave



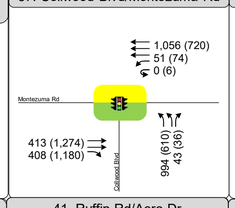
35. Fairmount Ave/Camino del Rio N/Alvarado Canyon Rd



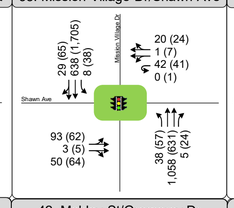
36. Fairmount Ave/ I-8 EB Off-Ramp



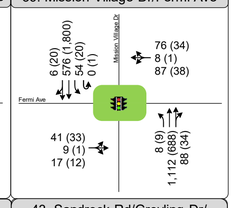
37. Collwood Blvd/Montezuma Rd



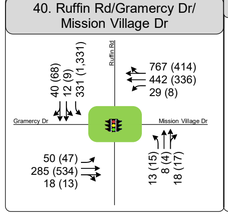
38. Mission Village Dr/Shawn Ave



39. Mission Village Dr/Fermi Ave



40. Ruffin Rd/Gramercy Dr/ Mission Village Dr



41. Ruffin Rd/Aero Dr

42. Mobley St/Gramercy Dr

43. Sandrock Rd/Greyling Dr/ Gramercy Dr

Figure 14

Existing Plus Project Without Event Conditions
Traffic Volumes, Lane Configurations, and LOS

TABLE 14 – EXISTING PLUS PROJECT CONDITIONS WITHOUT EVENT INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Existing Without the Project Conditions		Existing Plus Project Conditions		Delay Delta	Exceeds TISM Threshold?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
1. SR-163 SB Ramps/Ulric St & Friars Rd	Signalized	AM	22.5	C	23.1	C	0.6	NO
		PM	**57.9**	**E**	**64.0**	**E**	**6.1**	**YES**
2. SR-163 NB Ramps & Friars Rd	Signalized	AM	11.2	B	11.7	B	0.5	NO
		PM	**60.9**	**E**	**103.7**	**F**	**42.8**	**YES**
3. Frazee Rd & Friars Rd	Signalized	AM	26.9	C	27.9	C	1.0	NO
		PM	51.0	D	**78.0**	**E**	**27.0**	**YES**
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	10.5	B	11.5	B	1.0	NO
		PM	11.1	B	12.5	B	1.4	NO
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	15.9	B	15.8	B	-0.1	NO
		PM	25.1	C	25.6	C	0.5	NO
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	17.4	B	19.2	B	1.8	NO
		PM	22.1	C	22.4	C	0.3	NO
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	5.9	A	7.0	A	1.1	NO
		PM	9.6	A	11.1	B	1.5	NO
8. River Run Dr & Friars Rd	Signalized	AM	17.7	B	18.2	B	0.5	NO
		PM	37.1	D	53.3	D	16.2	NO
9. Fenton Pkwy & Friars Rd	Signalized	AM	25.3	C	25.2	C	-0.1	NO
		PM	30.2	C	**63.9**	**E**	**33.7**	**YES**
10. Northside Dr & Friars Rd	Signalized	AM	28.0	C	22.4	C	-5.6	NO
		PM	39.9	D	39.4	D	-0.5	NO
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A	11.2	B	N/A	NO
		PM	-	N/A	35.4	D	N/A	NO
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	18.5	B	28.6	C	10.1	NO
		PM	32.6	C	30.1	C	-2.5	NO
13. Mission Village Dr/Street D & Friars Rd EB Ramps*	Signalized	AM	**59.9**	**E**	14.7	B	-45.2	NO
		PM	54.2	D	26.1	C	-28.1	NO
14. Street D & Street 4	Signalized	AM	DNE	N/A	21.6	C	N/A	NO
		PM		N/A	35.7	D	N/A	NO
15. Street F & Street 4	Signalized	AM	DNE	N/A	26.0	C	N/A	NO
		PM		N/A	34.3	C	N/A	NO
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A	7.0	A	N/A	NO
		PM		N/A	7.8	A	N/A	NO
17. I-15 SB Ramps & Friars Rd	Signalized	AM	38.0	D	**84.2**	**F**	**46.2**	**YES**
		PM	49.3	D** (E)	**83.8**	**F** (F)	**34.5**	**YES**
18. I-15 NB Ramps & Friars Rd	Signalized	AM	34.2	C** (E)	**78.0**	**E** (F)	**43.8**	**YES**
		PM	47.8	D** (E)	**193.8*** **	**F** (F)	**146.0**	**YES**
19. Rancho Mission Rd & Friars Rd	Signalized	AM	23.1	C** (D)	27.7	C (E)	4.6	**YES**** **
		PM	17.7	B** (D)	33.6	C (E)	15.9	**YES**** **
20. Santo Rd & Friars Rd	Signalized	AM	25.4	C	28.0	C	2.6	NO
		PM	13.3	B	14.8	B	1.5	NO
21. Riverdale St & Friars Rd	Signalized	AM	21.1	C	21.9	C	0.8	NO
		PM	20.7	C	20.9	C	0.2	NO
22. Mission Gorge Rd & Friars Rd	Signalized	AM	33.4	C	33.5	C	0.1	NO
		PM	32.2	C	33.1	C	0.9	NO
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	14.6	B	15.6	B	1.0	NO
		PM	23.0	C	24.8	C	1.8	NO
24. Rio San Diego Dr & River Run Dr	AWSC	AM	9.5	A	9.8	A	0.3	NO
		PM	12.1	B	13.1	B	1.0	NO
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	15.2	B	15.3	B	0.1	NO
		PM	21.7	C	22.4	C	0.7	NO
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	21.5	C	27.6	C	6.1	NO
		PM	22.1	C	32.0	C	9.9	NO
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	13.7	B	18.4	B	4.7	NO
		PM	13.0	B	16.9	B	3.9	NO

TABLE 14 – EXISTING PLUS PROJECT CONDITIONS WITHOUT EVENT INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Existing Without the Project Conditions		Existing Plus Project Conditions		Delay Delta	Exceeds TISM Threshold?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	18.2	B	18.7	B	0.5	NO
		PM	**61.2**	**E**	**60.7**	**E**	-0.5	NO
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N	Signalized	AM	10.7	B	11.5	B	0.8	NO
		PM	42.8	D	43.4	D	0.6	NO
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.1	A	1.0	A	-0.1	NO
		PM	4.0	A	4.1	A	0.1	NO
31. Texas St & Camino del Rio S	Signalized	AM	39.0	D	41.9	D	2.9	NO
		PM	**55.6**	**E**	**63.3**	**E**	**7.7**	**YES**
32. Ward Rd & Rancho Mission Rd	SSSC	AM	20.0	C	**59.4**	**F**	**39.4**	**YES**
		PM	18.7	C	**85.9**	**F**	**67.2**	**YES**
33. Camino del Rio N & Ward Ave	Signalized	AM	11.9	B	17.8	B	5.9	NO
		PM	13.8	B	21.5	C	7.7	NO
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	20.7	C	24.8	C	4.1	NO
		PM	25.3	C	45.7	D	20.4	NO
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	53.8	D	**74.9**	**E**	**21.1**	**YES**
		PM	**61.0**	**E**	**116.6**	**F**	**55.6**	**YES**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	12.7	B	14.0	B	1.3	NO
		PM	21.3	C	24.8	C	3.5	NO
37. Montezuma Rd & Collwood Blvd	Signalized	AM	39.4	D	37.6	D	-1.8	NO
		PM	25.1	C	26.7	C	1.6	NO
38. Mission Village Dr & Shawn Ave	Signalized	AM	5.1	A	5.2	A	0.1	NO
		PM	6.6	A	7.7	A	1.1	NO
39. Mission Village Dr & Fermi Ave	Signalized	AM	11.1	B	11.5	B	0.4	NO
		PM	7.5	A	8.5	A	1.0	NO
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	14.2	B	19.5	B	5.3	NO
		PM	16.0	B	20.0	B	4.0	NO
41. Ruffin Rd & Aero Dr	Signalized	AM	30.8	C	32.9	C	2.1	NO
		PM	31.3	C	38.1	D	6.8	NO
42. Gramercy Dr & Mobley St	Signalized	AM	6.3	A	6.4	A	0.1	NO
		PM	5.3	A	5.4	A	0.1	NO
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	8.9	A	9.1	A	0.2	NO
		PM	10.4	B	10.4	B	0.0	NO

Source: Fehr & Peers, 2019

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections, the all-way-stop-controlled (AWSC) intersection, and the roundabout intersection. Worst movement delay reported for the side-street-stop-controlled (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual (HCM)* method.

[3] Below-standard seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Under Existing Conditions, the Stadium Way (Street A) & Friars Road intersection is only used during stadium events.

* Existing or proposed signal phasing prevents the use of *HCM 6* at this intersection. The *HCM 2000* method was applied instead.

** Ramp metering during the peak hours results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation. This additional delay is estimated to result in operations as shown in parentheses.

*** Calculated delays above 150 seconds may not be accurate and should be used with caution.

****Because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would exceed the TISM threshold.

proposed project with Existing Conditions. The corresponding LOS calculation sheets are included in **Appendix B**.

As indicated in **Table 14**, after applying the applicable CSU TISM significant impact criteria for intersections, the proposed project is projected to exceed the thresholds at 10 locations:

1. SR-163 SB Ramps/Ulric St & Friars Road (PM peak hour)
2. SR-163 NB Ramps & Friars Road (PM peak hour)
3. Frazee Road & Friars Road (PM peak hour)
9. Fenton Parkway & Friars Road (PM peak hour)
17. I-15 SB Ramps & Friars Road (AM and PM peak hours)
18. I-15 NB Ramps & Friars Road (AM and PM peak hours)
19. Rancho Mission Road & Friars Road (because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would exceed the TISM threshold)
31. Texas St & Camino del Rio S (PM peak hour)
32. Ward Road & Rancho Mission Road (AM and PM peak hours)
35. Fairmount Avenue & Camino del Rio North (AM peak hour; PM peak hour)

For stop-sign controlled Intersection #32 (Ward Road & Rancho Mission Road), the peak hour signal warrant is satisfied. Warrant calculations are included in **Appendix B**. That finding, coupled with the LOS F operations results in unacceptable conditions at this location.

It is noted that the same intersections would exceed the thresholds of the City of San Diego impact criteria; that is, no additional deficiencies would be identified based on application of the City's criteria.

All of the locations identified under this scenario are also identified as significant impacts, with mitigation recommended, under the Horizon Year scenario with the exception of Intersections #2 and #3 where planned future improvements will substantially improve conditions thereby resulting in the elimination of these impacts (see **Section 6.1**).

5.1.2 ROADWAY SEGMENT OPERATIONS

Roadway segment LOS analysis is presented for information purposes only using the City of San Diego impact thresholds. Project traffic traversing the study area roadway segments was added to existing peak hour roadway volumes. **Table 15** displays the LOS analysis for the study area roadway segments under Existing Plus Project Conditions and compares the projected levels of service on each segment under the proposed project with the Existing Conditions LOS. As shown in the table, all study area roadway segments are projected to operate acceptably at LOS D or better except for the following segments:

TABLE 15 – EXISTING PLUS PROJECT CONDITIONS WITHOUT EVENT ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment			Roadway Classification (# of Lanes)[1]	Capacity	Existing Without the Project Conditions			Existing Plus Project Conditions			V/C Delta	Requires Additional Analysis?
ID	Extent (from/to)				ADT	V/C[2]	LOS[3,4]	ADT	V/C[2]	LOS[3,4]		
Friars Rd												
1	Frazee Rd	Mission Center Rd	7E	93,330	43,540	0.47	B	47,779	0.51	B	0.04	NO
2	Mission Center Rd	Qualcomm Way	6E	80,000	40,223	0.50	B	45,710	0.57	C	0.07	NO
3	Qualcomm Way	River Run Dr	6E	80,000	35,187	0.44	B	42,521	0.53	C	0.09	NO
4	River Run Dr	Fenton Pkwy	6P	60,000	35,757	0.60	C	43,379	0.72	C	0.12	NO
5	Fenton Pkwy	Northside Dr	6P	60,000	35,037	0.58	C	42,641	0.71	C	0.13	NO
6	Northside Dr	Stadium Way (Street A)	6E – 6P with project	80,000 – 60,000	45,076	0.56	C	53,139	0.89	D	0.33	NO
7	Stadium Way (Street A)	Mission Village Dr	6E	80,000	45,076	0.56	C	57,022	0.71	C	0.15	NO
8	Mission Village Dr	I-15 Ramps	6E	80,000	43,746	0.55	C	63,021	0.79	D	0.24	NO
9	I-15 Ramps	Rancho Mission Rd	7P	70,000	60,400	0.86	D	65,837	**0.94**	**E**	**0.08**	**YES**
10	Rancho Mission Rd	Santo Rd	7P	70,000	50,773	0.73	C	53,133	0.76	C	0.03	NO
11	Santo Rd	Riverdale St	6P	60,000	49,805	0.83	C	51,508	0.86	D	0.03	NO
12	Riverdale St	Mission Gorge Rd	6P	60,000	45,257	0.75	C	46,834	0.78	C	0.03	NO
Qualcomm Way												
13	Friars Rd	Rio San Diego Dr	6M	50,000	14,616	0.29	A	15,850	0.32	A	0.03	NO
Rio San Diego Dr												
14	Qualcomm Way	River Run Dr	4M	40,000	11,301	0.28	A	12,098	0.30	A	0.02	NO
15	River Run Dr	Fenton Pkwy	4C/M	30,000	9,264	0.31	A	10,138	0.34	B	0.03	NO
Fenton Pkwy												
16	Rio San Diego Dr/ Fenton Marketplace Dwy	Northside Dr	4M	40,000	5,165	0.13	A	6,359	0.16	A	0.03	NO
San Diego Mission Rd												
17	Mission Village Dr/ Street F	Rancho Mission Rd	4C w/o CLTL	15,000	7,660	0.51	C	14,331	**0.96**	**E**	**0.45**	**YES**
18	Rancho Mission Rd	Fairmount Ave	2C w/CLTL	15,000	8,819	0.59	C	13,873	**0.92**	**E**	**0.33**	**YES**
Rancho Mission Rd												
19	Friars Rd	San Diego Mission Rd	3C w/CLTL	22,500	15,210	0.68	D	19,512	**0.87**	**E**	**0.19**	**YES**
20	San Diego Mission Rd	Ward Rd	4C w/o CLTL	15,000	9,582	0.64	C	11,307	0.75	D	0.11	NO
21	West of Ward Rd		2C	10,000	1,510	0.15	A	5,961	0.60	C	0.45	NO
Ward Rd												
22	Rancho Mission Rd	Camino del Rio N	4C w/o CLTL	15,000	9,972	0.66	C	14,666	**0.98**	**E**	**0.32**	**YES**
Fairmount Ave												
23	San Diego Mission Rd/Twain Ave	Mission Gorge Rd	4C w/o CLTL	15,000	7,217	0.24	A	10,672	0.36	B	0.12	NO
Mission Village Dr												
24	Ruffin Rd	Shawn Ave	4C	30,000	15,184	0.51	C	19,463	0.65	C	0.14	NO
25	Shawn Ave	Ronda Ave	4C	30,000	12,343	0.41	B	16,830	0.56	C	0.15	NO
26	Ronda Ave	Friars Rd	4M	40,000	14,241	0.36	A	18,746	0.47	B	0.11	NO
Ruffin Rd												
27	Aero Dr	Mission Village Dr	4C	30,000	13,617	0.45	B	16,252	0.54	C	0.09	NO
Gramercy Dr												
28	Mobley St	Ruffin Rd	4M	40,000	7,827	0.20	A	9,183	0.23	A	0.03	NO
Aero Dr												
29	Sandrock Rd	Ruffin Rd	4M	40,000	19,636	0.49	B	20,974	0.52	B	0.03	NO
30	Ruffin Rd	Daley Center Dr	4M	40,000	26,069	0.65	C	27,200	0.68	C	0.03	NO
Camino del Rio N												
31	Qualcomm Way	Mission City Pkwy	4C	30,000	9,608	0.32	A	10,063	0.34	B	0.02	NO
32	Mission City Pkwy	Ward Rd	2C w/CLTL	15,000	8,540	0.57	C	9,459	0.63	C	0.06	NO
33	Ward Rd	Fairmount Ave	4C	30,000	12,173	0.41	B	16,407	0.55	C	0.14	NO
Camino del Rio S												
34	Texas St	Mission City Pkwy	2C	10,000	11,496	**1.15**	**F**	11,717	**1.17**	**F**	**0.02**	**YES**

Source: Fehr & Peers, 2019

Notes:

1 2C w/CLTL = 2-lane collector with center left-turn lane
3C w/CLTL = 3-lane collector (2 lanes in one direction and 1 in opposing direction) with center left-turn lane;
4C w/o CLTL = 4-lane collector without center left-turn lane
4C = 4-lane collector
4M = 4-lane major arterial
6M = 6-lane major arterial
6P = 6-lane primary arterial
7P = 7-lane primary arterial (4 lanes in one direction and 3 in opposing direction); the additional lane is assumed to add 5,000 ADT for LOS A, 7,500 ADT for LOS B, and 10,000 ADT for LOS C, D, and E per the Mission Valley Community Plan Update
6E = 6-lane expressway
7E = 7-lane expressway (4 lanes in one direction and 3 in opposing direction); capacity is assumed to be 117% of 6E capacity

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)* and the *Mission Valley Community Plan Update (2019)*

4 Unacceptable ADT volumes per segment and LOS highlighted in **bold**.

9. Friars Road from the I-15 Ramps to Rancho Mission Road (LOS E)
17. San Diego Mission Road from Mission Village Drive/Street F to Rancho Mission Road (LOS F)
18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue (LOS E)
19. Rancho Mission Road from Friars Road to San Diego Mission Road (LOS E)
22. Ward Road from Rancho Mission Road to Camino del Rio North (LOS F)
34. Camino del Rio South from Texas Street to Mission City Parkway (LOS F)

To determine which of these segments meet the City of San Diego impact thresholds, the second part of the roadway analysis must be performed, which reviews intersection operations at both ends of each segment, the arterial speed-based LOS on the segment, and the buildout community plan street classification. This analysis will be reviewed in **Section 9.1.2** and will account for intersection improvements.

All of the locations identified under this scenario as operating below acceptable levels of service also are identified under the Horizon Year scenario as operating similarly.

5.1.3 FREEWAY SEGMENT LEVELS OF SERVICE

Table 16 displays freeway operation under Existing Plus Project Conditions. The addition of project trips at all locations would exacerbate operations. Based on the applicable significant impact criteria, the proposed project would exceed the thresholds on the following freeway segments:

10. I-15 from Adams Avenue to I-8 (NB, PM peak hour; SB, PM peak hour)
11. I-15 from I-8 to Friars Road (NB auxiliary lanes, PM peak hour; SB auxiliary lanes to I-8, AM and PM peak hours; SB auxiliary lane to I-15 SB, PM peak hour)
12-13. I-15 from Friars Rd to Balboa Avenue/Tierrasanta Boulevard (NB, AM peak hour; SB, PM peak hour)
15-16. I-8 from Taylor Street to SR-163 (EB, PM peak hour)
17-18. I-8 from SR-163 to Texas Street (WB, PM peak hour)
20. I-8 from I-805 to I-15 (EB, PM peak hour; WB, AM peak hour)
22-23. I-8 from Fairmount Avenue to College Avenue (EB, PM peak hour; WB, AM peak hour)

It is noted that the intersections that would exceed the thresholds of the City of San Diego impact criteria include those noted above as well as the following three additional locations:

1. SR-163 from 6th Avenue to I-8 (SB, PM peak hour)
17. I-8 from SR-163 to Mission Center Road (WB, AM peak hour)
18. I-8 from Mission Center Road to Texas Street (EB, PM peak hour; WB, AM peak hour)

All of the locations identified as operating at less than acceptable levels of service under this scenario are also identified under the Horizon Year scenario as operating similarly.

TABLE 16 – EXISTING PLUS PROJECT WITHOUT EVENT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

Freeway Segment		Direction	Number of Lanes	Capacity[1]	Existing Without the Project Conditions						Existing Plus Project Conditions						V/C Delta		Exceeds TISM Threshold?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
State Route 163																				
1	6th Ave to I-8	NB	3M+1A	6,600	5,256	5,705	0.80	0.86	C	D	5,323	5,763	0.81	0.87	D	D	0.01	0.01	NO	NO
		SB	3M+2A	7,800	8,966	8,021	**1.15**	**1.03**	**F(0)**	**F(0)**	9,008	8,099	**1.15**	**1.04**	**F(0)**	**F(0)**	0.01	0.01	NO	NO**
2	I-8 to Friars Rd	NB	2A	2,400	1,621	1,759	0.68	0.73	C	C	1,767	1,853	0.74	0.77	C	C	0.06	0.04	NO	NO
		SB	4M+2A	9,600	8,201	7,490	0.85	0.78	D	C* (F)	8,243	7,576	0.86	0.79	D	C (F)	0.00	0.01	NO	NO
3	Friars Rd to Mesa College Dr[5]	NB	5M	9,000	9,222	7,427	**1.02**	0.83	**F(0)**	D	9,237	7,465	**1.03**	0.83	**F(0)**	D	0.00	0.00	NO	NO
		SB	4M	7,200	6,163	6,384	0.86	0.89	D	D* (F)	6,184	6,406	0.86	0.89	D	D (F)	0.00	0.00	NO	NO
4	Mesa College Dr to I-805	NB	4M+2A	9,600	7,774	7,216	0.81	0.75	D	C	7,788	7,250	0.81	0.76	D	C	0.00	0.00	NO	NO
		SB	4M+1A	8,400	7,078	6,184	0.84	0.74	D	C* (F)	7,097	6,204	0.84	0.74	D	C (F)	0.00	0.00	NO	NO
Interstate 805																				
5	Madison Ave to I-8	NB	4M+1A	8,400	8,389	4,895	**1.00**	0.58	**E**	B	8,429	4,930	**1.00**	0.59	**F(0)**	B	0.00	0.00	NO	NO
		SB	6M	10,800	4,512	9,475	0.42	0.88	B	D* (F)	4,537	9,522	0.42	0.88	B	D (F)	0.00	0.00	NO	NO
6	I-8 to Murray Ridge Rd/ Phyllis Pl	NB	5M	9,000	9,830	5,699	**1.09**	0.63	**F(0)**	C	9,842	5,725	**1.09**	0.64	**F(0)**	C	0.00	0.00	NO	NO
		SB	4M+2A	9,600	5,145	9,204	0.54	**0.96**	B	**E**	5,164	9,217	0.54	**0.96**	B	**E**	0.00	0.00	NO	NO
7	Murray Ridge Rd/Phyllis Pl to Mesa College Dr/ Kearny Villa Rd	NB	5M	9,000	9,821	5,673	**1.09**	0.63	**F(0)**	C	9,833	5,699	**1.09**	0.63	**F(0)**	C	0.00	0.00	NO	NO
		SB	5M	9,000	4,946	8,982	0.55	**1.00**	B	**E**	4,965	8,995	0.55	**1.00**	B	**E**	0.00	0.00	NO	NO
8	Mesa College Dr/Kearny Villa Rd to SR-163	NB	5M	9,000	8,191	4,826	0.91	0.54	D* (F)	B	8,202	4,850	0.91	0.54	D (F)	B	0.00	0.00	NO	NO
		SB	4M	7,200	3,551	5,547	0.49	0.77	B	C* (F)	3,569	5,559	0.50	0.77	B	C (F)	0.00	0.00	NO	NO
9	SR-163 to Balboa Ave	NB	4M+1A	8,400	5,281	4,442	0.63	0.53	C* (F)	B	5,306	4,500	0.63	0.54	C (F)	B	0.00	0.01	NO	NO
		SB	4M+2A	9,600	5,319	7,206	0.55	0.75	B	C* (F)	5,356	7,238	0.56	0.75	B	C (F)	0.00	0.00	NO	NO
Interstate 15																				
10	Adams Ave to I-8	NB	3M+2A	7,800	6,229	6,920	0.80	0.89	C	D	6,643	7,277	0.85	**0.93**	D	**E**	0.05	**0.05**	NO	**YES**
		SB	5M	9,000	5,030	8,403	0.56	**0.93**	B	**E**	5,289	8,884	0.59	**0.99**	B	**E**	0.03	**0.05**	NO	**YES**
11	NB Off-Ramp to Friars Rd	NB	2A	2,400	1,143	1,771	0.48	0.74	B	C	1,726	2,297	0.72	**0.96**	C	**E**	0.24	**0.22**	NO	**YES**
	Friars Rd Auxiliary Lanes to I-8	SB	3A	3,600	3,515	4,641	**0.98**	**1.29**	**E**	**F(1)**	3,648	4,862	**1.01**	**1.35**	**F(0)**	**F(2)**	**0.04**	**0.06**	**YES**	**YES**
	Friars Rd Direct Ramp to I-15 SB	SB	1A	1,200	622	914	0.52	0.76	B	C	859	1,369	0.72	**1.14**	C	**F(0)**	0.20	**0.38**	NO	**YES**
12	Friars Rd to Aero Dr	NB	4M+1A	8,400	8,022	5,889	**0.96**	0.70	**E**	C	8,340	6,479	**0.99**	0.77	**E**	C	**0.04**	0.07	**YES**	NO
		SB	5M+1A	10,200	6,825	9,390	0.67	**0.92**	C	**E**	7,333	9,827	0.72	**0.96**	C	**E**	0.05	**0.04**	NO	**YES**
13	Aero Dr to Balboa Ave/ Tierrasanta Blvd	NB	4M+1A	8,400	9,007	6,792	**1.07**	0.81	**F(0)**	D	9,292	7,320	**1.11**	0.87	**F(0)**	D	**0.03**	0.06	**YES**	NO
		SB	4M+1A	8,400	6,991	8,417	0.83	**1.00**	D	**F(0)**	7,446	8,808	0.89	**1.05**	D	**F(0)**	0.05	**0.05**	NO	**YES**
Interstate 8																				
14	Morena Blvd to Taylor St	EB	4M+1A	8,400	6,023	7,523	0.72	0.90	C	D	6,146	7,629	0.73	0.91	C	D	0.01	0.01	NO	NO
		WB	5M	9,000	7,089	6,193	0.79	0.69	C	C	7,165	6,336	0.80	0.70	C	C	0.01	0.02	NO	NO
15	Taylor St to Hotel Cir	EB	4M	7,200	5,901	7,890	0.82	**1.10**	D	**F(0)**	6,034	8,004	0.84	**1.11**	D	**F(0)**	0.02	**0.02**	NO	**YES**
		WB	4M+1A	8,400	8,171	6,978	**0.97**	0.83	**E**	D	8,253	7,131	**0.98**	0.85	**E**	D	0.01	0.02	NO	NO

TABLE 16 – EXISTING PLUS PROJECT WITHOUT EVENT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

	Freeway Segment	Direction	Number of Lanes	Capacity[1]	Existing Without the Project Conditions						Existing Plus Project Conditions						V/C Delta		Exceeds TISM Threshold?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Interstate 8																				
16	Hotel Cir to SR-163	EB	4M+2A	9,600	7,039	8,736	0.73	0.91	C	D	7,173	8,851	0.75	**0.92**	C	**E**	0.01	**0.01**	NO	**YES**
		WB	5M	9,000	8,173	6,719	0.91	0.75	D	C	8,256	6,874	0.92	0.76	D	C	0.01	0.02	NO	NO
17	SR-163 to Mission Center Rd	EB	4M	7,200	3,017	5,669	0.42	0.79	B	C* (F)	3,092	5,752	0.43	0.80	B	C (F)	0.01	0.01	NO	NO
		WB	3M+2A	7,800	8,579	7,900	**1.10**	**1.01**	**F(0)**	**F(0)**	8,662	8,046	**1.11**	**1.03**	**F(0)**	**F(0)**	0.01	**0.02**	NO**	**YES**
18	Mission Center Rd to Texas St	EB	4M+1A	8,400	5,025	9,463	0.60	**1.13**	B	**F(0)**	5,100	9,546	0.61	**1.14**	B	**F(0)**	0.01	**0.01**	NO	NO**
		WB	4M+1A	8,400	8,928	8,273	**1.06**	**0.98**	**F(0)**	**E**	9,011	8,420	**1.07**	**1.00**	**F(0)**	**F(0)**	0.01	**0.02**	NO**	**YES**
19	Texas St to I-805	EB	4M	7,200	3,185	6,214	0.44	0.86	B	D* (F)	3,260	6,297	0.45	0.87	B	D (F)	0.01	0.01	NO	NO
		WB	4M	7,200	6,253	4,963	0.87	0.69	D* (F)	C	6,336	5,110	0.88	0.71	D (F)	C	0.01	0.02	NO	NO
20	I-805 to I-15	EB	4M+2A	9,600	6,104	10,315	0.64	**1.07**	C	**F(0)**	6,238	10,446	0.65	**1.09**	C	**F(0)**	0.01	**0.01**	NO	**YES**
		WB	4M+2A	9,600	10,466	8,476	**1.09**	0.88	**F(0)**	D	10,581	8,674	**1.10**	0.90	**F(0)**	D	**0.01**	0.02	**YES**	NO
21	I-15 to Fairmount Ave	EB	4M+2A	9,600	5,965	9,335	0.62	**0.97**	C	**E**	5,998	9,393	0.62	**0.98**	C	**E**	0.00	0.01	NO	NO
		WB	4M+2A	9,600	7,413	5,467	0.77	0.57	C* (F)	B	7,485	5,574	0.78	0.58	C (F)	B	0.01	0.01	NO	NO
22	Fairmount Ave to Waring Rd	EB	5M	9,000	6,483	10,335	0.72	**1.15**	C	**F(0)**	6,650	10,645	0.74	**1.18**	C	**F(0)**	0.02	**0.03**	NO	**YES**
		WB	6M	10,800	10,029	7,923	**0.93**	0.73	**E**	C	10,296	8,153	**0.95**	0.75	**E**	C	**0.02**	0.02	**YES**	NO
23	Waring Rd to College Ave	EB	5M	9,000	6,392	9,979	0.71	**1.11**	C	**F(0)**	6,557	10,286	0.73	**1.14**	C	**F(0)**	0.02	**0.03**	NO	**YES**
		WB	5M	9,000	9,359	7,492	**1.04**	0.83	**F(0)**	D	9,623	7,720	**1.07**	0.86	**F(0)**	D	**0.03**	0.03	**YES**	NO

Source: Fehr & Peers, 2019

Notes:

1 Capacity calculated at 1,800 vehicles/hour per mainline lane and 1,200 vehicles/hour per auxiliary lane
M = mainline lane
A = auxiliary lane

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable V/C and LOS highlighted in **bold**.

5 No data available from Genesee Ave to Mesa College Dr - assumed equivalent to the segment from Friars Rd to Genesee Ave

* Traffic data indicate operations are worse than calculated. Peak hour volumes likely do not represent actual demand due to heavy congestion. Estimated operations are shown in parentheses.

** Freeway segment would exceed the City of San Diego impact threshold.

LOS	V/C	LOS	V/C
A	<0.41	F(0)	1.25
B	0.62	F(1)	1.35
C	0.80	F(2)	1.45
D	0.92	F(3)	>1.46
E	1.00		

5.1.4 FREEWAY RAMP METERING ANALYSIS

Table 17 displays the ramp metering analysis conducted at the metered freeway on-ramps in the study area under Existing Year Plus Project Conditions.

As shown in **Table 17,** all ramps are expected to operate with unacceptable delays during one or both peak hours. Additionally, at all ramps on-ramp capacity is not sufficient to accommodate the peak hour demand during metered peak periods; thus, ramp queues are expected to spill back onto the arterial street.

The proposed project would increase delay by more than two minutes compared to Existing Conditions for on-ramps operating with delays above 15 minutes and, therefore, would exceed the threshold at the following four ramp locations:

- I-15 NB On-ramp from Friars Road – operates at 14.1 minutes of delay in the PM peak hour without the project. The addition of project traffic would further exacerbate operations and increase delay by 30.1 minutes to a total delay of 44.2 minutes, resulting in an exceedance of the threshold. In the AM peak hour, the upstream freeway operates acceptably at LOS D and therefore the ramp meter rate will be higher than calculated, and the threshold is not exceeded.
- I-15 SB/I-8 Loop On-ramp from Friars Road – operates at 7.6 minutes of delay in the PM peak hour without the project. The addition of project traffic would further exacerbate operations and increase delay by 17.2 minutes to a total delay of 24.8 minutes, resulting in an exceedance of the threshold.
- I-15 SB Direct On-ramp from Friars Road – operates at 0.0 minutes of delay in the PM peak hour without the project. The addition of project traffic would further exacerbate operations and increase delay by 18.5 minutes to a total delay of 18.5 minutes, resulting in an exceedance of the threshold.
- I-8 EB On-ramp from southbound Fairmount Avenue – operates at 7.1 minutes of delay in the PM peak hour without the project. The addition of project traffic would further exacerbate operations and increase delay by 28.7 minutes to a total delay of 35.8 minutes, resulting in an exceedance of the threshold.

It is noted that the same ramps would exceed the thresholds of the City of San Diego impact criteria.

All of the locations identified under this scenario as operating at unacceptable levels of service are also identified under the Horizon Year scenario as operating similarly.

TABLE 17 – EXISTING PLUS PROJECT WITHOUT EVENT RAMP METERING ANALYSIS

Location	Peak Hour	Total # of Mixed Flow Lanes	Meter Rate[1] (veh/hr)	Existing Without the Project Conditions					Existing Plus Project Conditions					Delay Delta	Exceeds TISM Threshold?
				Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)		
				Mixed Flow & HOV	Mixed Flow only				Mixed Flow & HOV	Mixed Flow only					
I-15 NB - Friars Rd On-Ramp	AM	2	1,450	1,941	1,641	191	7.9	2,775	2,213	1,871	421	**17.4**	6,100	9.5	NO*
	PM	2	888	1,244	1,096	208	14.1	3,025	1,751	1,542	654	**44.2**	9,500	30.1	**YES**
I-15 SB / I-8 - Friars Rd Loop On-Ramp	AM	1	N/A	732	732	N/A	N/A	N/A	846	846	N/A	N/A	N/A	N/A	NO
	PM	1	660	744	744	84	7.6	2,425	933	933	273	**24.8**	7,925	17.2	**YES**
I-15 SB - Friars Rd Direct On-Ramp	AM	1	N/A	622	622	N/A	N/A	N/A	825	825	N/A	N/A	N/A	N/A	NO
	PM	1	996	914	914	0	0.0	0	1,303	1,303	307	**18.5**	8,925	18.5	**YES**
I-8 EB - SB Fairmount Ave	AM	1	N/A	250	250	N/A	N/A	N/A	380	380	N/A	N/A	N/A	N/A	NO
	PM	1	492	550	550	58	7.1	1,675**	785	785	293	**35.8**	8,500	28.7	**YES**

Source: Fehr & Peers, 2019. Analysis based on Caltrans District 11 Ramp Meter methodology

Notes:

[1] Meter Rate is the peak hour capacity for the ramp meter. This value was obtained from Caltrans. The most restrictive meter rate was assumed

[2] Demand is the peak hour demand projected to use the on-ramp.

[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.

[4] Delay = (Excess Demand / Meter Rate) x 60 min/hr. Delays in excess of the desirable 15 minutes are highlighted in **bold**.

[5] Queue = (Excess Demand / # of Lanes) x 29 ft/veh, rounded to the nearest multiple of 25 ft.

* Upstream freeway is operating at LOS D. Per the City of San Diego's significance criteria, ramp meter thresholds do not apply as the meter rate will be higher than the most restrictive rate.

**Field observations indicate operations are better than calculated.

5.1.5 FREEWAY OFF-RAMP QUEUEING ANALYSIS

Table 18 displays the off-ramp queueing analysis conducted at the SR-163 and I-15 off-ramps at Friars Road and the I-8 off-ramps at Qualcomm Way/Texas Street and Fairmount Avenue. As shown, all off-ramp queues can be accommodated by existing storage capacity under Existing Year Plus Project Conditions, and therefore all would operate at acceptable levels of service.

5.2 EXISTING PLUS PROJECT PLUS EVENT CONDITIONS

This chapter presents the results of the operations analysis under the hypothetical Existing Plus Project Plus Event scenario. Under this scenario, stadium event trips were added to the Existing Plus Project Conditions to analyze operations in the scenario where a sold-out event occurs on a typical weekday. As with the Existing Plus Project scenario, this scenario tends to understate impacts in that it does not consider expected future traffic growth from other, or cumulative, projects and, therefore, overstates capacity available to the project. Relatedly, the scenario can overstate impacts in that it does not account for future road improvements planned to be built. The Existing Plus Project Plus Event Scenario is also likely to overstate impacts in that it does not account for changes in travel patterns by local residents and employees due to the advance notice of a large-scale event occurring at the stadium. For example, office employees may be more likely to leave early on a weekday when a large event is occurring, or local residents may choose to adjust their typical commute such that they would not return home until after the event has started in order to avoid peak traffic. Because the Existing Plus Project scenario potentially both understates and overstates significant impacts, the results of the Existing Plus Project analysis can be misleading to both the decision-maker and the public. For this reason, the Existing Plus Project Plus Event analysis presented here is provided for information purposes only; the proposed project's significant impact determinations and corresponding mitigation measures will be identified based on the Horizon Year (2037) Plus Project Plus Event analysis, which accurately reflects future cumulative traffic conditions, as well as future road improvements, forecast to be in place at the time the project reaches full buildout.

TABLE 18 – EXISTING PLUS PROJECT WITHOUT EVENT OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)	
				Existing Without the Project Conditions	Existing Plus Project Conditions
1. SR-163 SB off-ramp at Friars Rd/Ulric St	AM	NBL	1,200	204	204
		NBT		207	207
		NBR		0	0
	PM	NBL	1,200	201	201
		NBT		198	198
		NBR		0	0
2. SR-163 NB off-ramp at Friars Rd	AM	NBR	900	0	0
		SBR	700	0	0
	PM	NBR	900	0	0
		SBR	700	0	0
17. I-15 SB off-ramp at Friars Rd	AM	SBL	1,200	331	346
		SBT		333	347
		SBR		201	405
	PM	SBL	1,200	647	716
		SBT		648	717
		SBR		65	150
18. I-15 NB off-ramp at Friars Rd	AM	NBR	1,500	0	0
		SBR	1,300	0	0
	PM	NBR	1,500	0	0
		SBR	1,300	0	0
29. I-8 WB off-ramp at Qualcomm Way/Camino del Rio N	AM	WBL	3,200	0	0
		WBT		125	135
		WBR		191	230
	PM	WBL	3,200	0	0
		WBT		277	290
		WBR		102	109
30. I-8 EB off-ramp at Qualcomm Way/Texas St	AM	EBR	900	44	56
	PM	EBR	900	147	149
35. I-8 WB off-ramp at Fairmount Ave/Alvarado Canyon Rd/Camino del Rio N	AM	WBL	1,000	486	561
		WBT		464	544
		WBR		216	359
	PM	WBL	1,000	556	556
		WBT		336	475
		WBR		243	329
36. I-8 EB off-ramp at Fairmount Ave	AM	EBL	4,100	276	313
		EBR		283	314
	PM	EBL	4,100	714	754
		EBR		1,229	1,269

Source: Fehr & Peers, 2019.

5.2.1 INTERSECTION ANALYSIS

Turning movement traffic volumes and intersection lane configurations for the Existing Plus Project Plus Event Conditions are shown on **Figure 15**. This information was used to calculate operations under this scenario.

Table 19 presents a summary of the intersection operating conditions and traffic changes under the Existing Plus Project Plus Event Conditions, comparing the projected levels of service at each study area intersection under the proposed project with Existing Conditions. The corresponding LOS calculation sheets are included in **Appendix B**.

As indicated in **Table 19**, in addition to the locations that exceed the significance threshold identified for the Existing Plus Project Without Event Conditions, adding stadium traffic would result in operations that exceed the threshold at four (4) locations:

8. River Run Drive & Friars Road (PM peak hour)
10. Northside Drive & Friars Road (PM peak hour)
11. Stadium Way (Street A) & Friars Road (PM peak hour)
14. Mission Village Drive/Street D & Street 4 (PM peak hour)

5.2.2 ROADWAY SEGMENT OPERATIONS

Roadway segment LOS analysis is presented for information purposes only using the City of San Diego impact thresholds. Project traffic traversing the study area roadway segments was added to existing peak hour roadway volumes. **Table 20** displays the LOS analysis for the study area roadway segments under Existing Plus Project Plus Event Conditions and compares the projected levels of service on each segment under the proposed project with the Existing Conditions LOS. As shown in the table, in addition to those segments that operate unacceptably (LOS E or F) under Existing Plus Project Without Event Conditions, the following segments will operate unacceptably due to the addition of event traffic:

6. Friars Road from Northside Drive to Stadium Way (Street A) (LOS E)
8. Friars Road from Mission Village Drive to the I-15 Ramps (LOS E)

To determine which of these segments is significantly impacted by the project and event traffic, the second part of the roadway analysis must be performed, which reviews intersection operations at both ends of each segment, the arterial speed-based LOS on the segment, and the buildout community plan street classification. However, it is not reasonable to perform roadway widening or signal timing adjustments to accommodate event traffic that will occur infrequently. Therefore, for the purposes of event traffic impact determination, all segments that operate unacceptably are assumed to exceed the City of San Diego impact guideline thresholds.

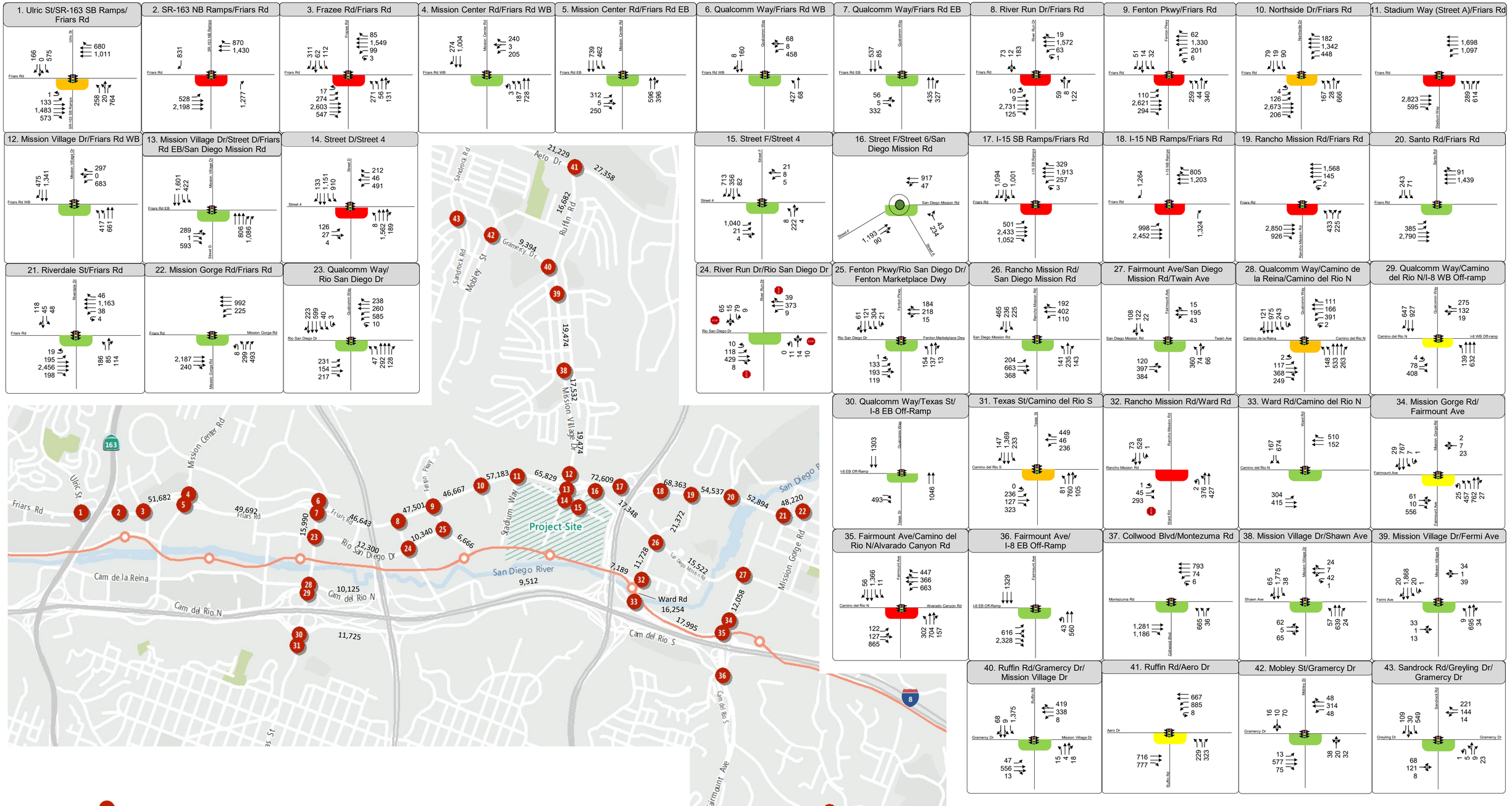


Figure 15

Existing Plus Project Plus Event Conditions

Traffic Volumes, Lane Configurations, and LOS

TABLE 19 – EXISTING PLUS PROJECT PLUS EVENT CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Existing Without the Project Conditions		Existing Plus Project Plus Event Conditions		Delay Delta	Exceeds TISM Threshold?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
1. SR-163 SB Ramps/Ulric St & Friars Rd	Signalized	AM	22.5	C	23.1	C	0.6	NO
		PM	**57.9**	**E**	**64.2**	**E**	**6.3**	**YES**
2. SR-163 NB Ramps & Friars Rd	Signalized	AM	11.2	B	11.7	B	0.5	NO
		PM	**60.9**	**E**	**108.5**	**F**	**47.6**	**YES**
3. Frazee Rd & Friars Rd	Signalized	AM	26.9	C	27.9	C	1.0	NO
		PM	51.0	D	**126.2**	**F**	**75.2**	**YES**
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	10.5	B	11.5	B	1.0	NO
		PM	11.1	B	12.6	B	1.5	NO
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	15.9	B	15.8	B	-0.1	NO
		PM	25.1	C	25.7	C	0.6	NO
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	17.4	B	19.2	B	1.8	NO
		PM	22.1	C	22.4	C	0.3	NO
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	5.9	A	7.0	A	1.1	NO
		PM	9.6	A	11.1	B	1.5	NO
8. River Run Dr & Friars Rd	Signalized	AM	17.7	B	18.2	B	0.5	NO
		PM	37.1	D	**99.7**	**F**	**62.6**	**YES**
9. Fenton Pkwy & Friars Rd	Signalized	AM	25.3	C	25.2	C	-0.1	NO
		PM	30.2	C	**107.5**	**F**	**77.3**	**YES**
10. Northside Dr & Friars Rd	Signalized	AM	28.0	C	22.4	C	-5.6	NO
		PM	39.9	D	**70.4**	**E**	**30.5**	**YES**
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	**-**	N/A	11.2	B	N/A	NO
		PM	**-**	N/A	**144.7**	**F**	N/A	**YES**
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	18.5	B	28.6	C	10.1	NO
		PM	32.6	C	32.1	C	-0.5	NO
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd*	Signalized	AM	**59.9**	**E**	14.7	B	-45.2	NO
		PM	54.2	D	27.1	C	-27.1	NO
14. Street D & Street 4	Signalized	AM	DNE	N/A	21.6	C	N/A	NO
		PM		N/A	**371.5**	**F**	N/A	**YES**
15. Street F & Street 4	Signalized	AM	DNE	N/A	26.0	C	N/A	NO
		PM		N/A	31.0	C	N/A	NO
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A	7.0	A	N/A	NO
		PM		N/A	10.6	B	N/A	NO
17. I-15 SB Ramps & Friars Rd	Signalized	AM	38.0	D	**84.2**	**F**	46.2	**YES**
		PM	49.3	D** (E)	**126.1**	**F** (F)	**76.8**	**YES**
18. I-15 NB Ramps & Friars Rd	Signalized	AM	34.2	C** (E)	**78.0**	**E** (F)	**43.8**	**YES**
		PM	47.8	D** (E)	**203.3**	**F** (F)	**155.5**	**YES**
19. Rancho Mission Rd & Friars Rd	Signalized	AM	23.1	C** (D)	27.7	C (E)	4.6	**YES****
		PM	17.7	B** (D)	41.6	D (E)	23.9	**YES****
20. Santo Rd & Friars Rd	Signalized	AM	25.4	C	28.0	C	2.6	NO
		PM	13.3	B	15.2	B	1.9	NO
21. Riverdale St & Friars Rd	Signalized	AM	21.1	C	21.9	C	0.8	NO
		PM	20.7	C	21.0	C	0.3	NO
22. Mission Gorge Rd & Friars Rd	Signalized	AM	33.4	C	33.5	C	0.1	NO
		PM	32.2	C	33.3	C	1.1	NO
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	14.6	B	15.6	B	1.0	NO
		PM	23.0	C	25.0	C	2.0	NO
24. Rio San Diego Dr & River Run Dr	AWSC	AM	9.5	A	9.8	A	0.3	NO
		PM	12.1	B	13.4	B	1.3	NO
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	15.2	B	15.3	B	0.1	NO
		PM	21.7	C	22.5	C	0.8	NO
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	21.5	C	27.6	C	6.1	NO
		PM	22.1	C	33.5	C	11.4	NO
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	13.7	B	18.4	B	4.7	NO
		PM	13.0	B	26.3	C	13.3	NO

TABLE 19 – EXISTING PLUS PROJECT PLUS EVENT CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Existing Without the Project Conditions		Existing Plus Project Plus Event Conditions		Delay Delta	Exceeds TISM Threshold?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	18.2	B	18.7	B	0.5	NO
		PM	**61.2**	**E**	**60.9**	**E**	-0.3	NO
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N	Signalized	AM	10.7	B	11.5	B	0.8	NO
		PM	42.8	D	43.0	D	0.2	NO
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.1	A	1.0	A	-0.1	NO
		PM	4.0	A	4.1	A	0.1	NO
31. Texas St & Camino del Rio S	Signalized	AM	39.0	D	41.9	D	2.9	NO
		PM	**55.6**	**E**	**63.4**	**E**	**7.8**	**YES**
32. Ward Rd & Rancho Mission Rd	SSSC	AM	20.0	C	**59.4**	**F**	**39.4**	**YES**
		PM	18.7	C	**471.8**	**F**	**453.1**	**YES**
33. Camino del Rio N & Ward Ave	Signalized	AM	11.9	B	17.8	B	5.9	NO
		PM	13.8	B	23.1	C	9.3	NO
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	20.7	C	24.8	C	4.1	NO
		PM	25.3	C	48.0	D	22.7	NO
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	53.8	D	**74.9**	**E**	**21.1**	**YES**
		PM	**61.0**	**E**	**141.7**	**F**	**80.7**	**YES**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	12.7	B	14.0	B	1.3	NO
		PM	21.3	C	25.2	C	3.9	NO
37. Montezuma Rd & Collwood Blvd	Signalized	AM	39.4	D	37.6	D	-1.8	NO
		PM	25.1	C	28.0	C	2.9	NO
38. Mission Village Dr & Shawn Ave	Signalized	AM	5.1	A	5.2	A	0.1	NO
		PM	6.6	A	8.2	A	1.6	NO
39. Mission Village Dr & Fermi Ave	Signalized	AM	11.1	B	11.5	B	0.4	NO
		PM	7.5	A	8.9	A	1.4	NO
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	14.2	B	19.3	B	5.1	NO
		PM	16.0	B	21.3	C	5.3	NO
41. Ruffin Rd & Aero Dr	Signalized	AM	30.8	C	32.9	C	2.1	NO
		PM	31.3	C	40.2	D	8.9	NO
42. Gramercy Dr & Mobley St	Signalized	AM	6.3	A	6.4	A	0.1	NO
		PM	5.3	A	5.4	A	0.1	NO
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	8.9	A	9.1	A	0.2	NO
		PM	10.4	B	10.5	B	0.1	NO

Source: Fehr & Peers, 2019

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections, the all-way-stop-controlled (AWSC) intersection, and the roundabout intersection. Worst movement delay reported for the side-street-stop-controlled (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual (HCM)* method.

[3] Below-standard seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Under Existing Conditions, the Stadium Way (Street A) & Friars Road intersection is only used during stadium events.

* Existing or proposed signal phasing prevents the use of *HCM 6* at this intersection. The *HCM 2000* method was applied instead.

** Ramp metering during the peak hours results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation. This additional delay is estimated to result in operations as shown in parentheses.

*** Calculated delays above 150 seconds may not be accurate and should be used with caution.

****Because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would exceed the TISM threshold.

TABLE 20 – EXISTING PLUS PROJECT PLUS EVENT CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment			Roadway Classification (# of Lanes)[1]	Capacity	Existing Without the Project Conditions			Existing Plus Project Plus Event Conditions			V/C Delta	Requires Additional Analysis?
ID	Extent (from/to)				ADT	V/C[2]	LOS[3,4]	ADT	V/C[2]	LOS[3,4]		
Friars Rd												
1	Frazee Rd	Mission Center Rd	7E	93,330	43,540	0.47	B	51,682	0.55	C	0.08	NO
2	Mission Center Rd	Qualcomm Way	6E	80,000	40,223	0.50	B	49,692	0.62	C	0.12	NO
3	Qualcomm Way	River Run Dr	6E	80,000	35,187	0.44	B	46,643	0.58	C	0.14	NO
4	River Run Dr	Fenton Pkwy	6P	60,000	35,757	0.60	C	47,501	0.79	C	0.19	NO
5	Fenton Pkwy	Northside Dr	6P	60,000	35,037	0.58	C	46,667	0.78	C	0.20	NO
6	Northside Dr	Stadium Way (Street A)	6E – 6P with project	80,000 – 60,000	45,076	0.56	C	57,183	**0.95**	**E**	**0.39**	**YES**
7	Stadium Way (Street A)	Mission Village Dr	6E	80,000	45,076	0.56	C	65,829	0.82	D	0.26	NO
8	Mission Village Dr	I-15 Ramps	6E	80,000	43,746	0.55	C	72,609	**0.91**	**E**	**0.36**	**YES**
9	I-15 Ramps	Rancho Mission Rd	7P	70,000	60,400	0.86	D	68,363	**0.98**	**E**	**0.12**	**YES**
10	Rancho Mission Rd	Santo Rd	7P	70,000	50,773	0.73	C	54,537	0.78	C	0.05	NO
11	Santo Rd	Riverdale St	6P	60,000	49,805	0.83	C	52,894	0.88	D	0.05	NO
12	Riverdale St	Mission Gorge Rd	6P	60,000	45,257	0.75	C	48,220	0.80	C	0.05	NO
Qualcomm Way												
13	Friars Rd	Rio San Diego Dr	6M	50,000	14,616	0.29	A	15,990	0.32	A	0.03	NO
Rio San Diego Dr												
14	Qualcomm Way	River Run Dr	4M	40,000	11,301	0.28	A	12,300	0.31	A	0.03	NO
15	River Run Dr	Fenton Pkwy	4C/M	30,000	9,264	0.31	A	10,340	0.34	B	0.03	NO
Fenton Pkwy												
16	Rio San Diego Dr/ Fenton Marketplace Dwy	Northside Dr	4M	40,000	5,165	0.13	A	6,666	0.17	A	0.04	NO
San Diego Mission Rd												
17	Mission Village Dr/ Street F	Rancho Mission Rd	4C w/o CLTL	15,000	7,660	0.51	C	17,348	**1.16**	**F**	**0.65**	**YES**
18	Rancho Mission Rd	Fairmount Ave	2C w/CLTL	15,000	8,819	0.59	C	15,522	**1.03**	**F**	**0.44**	**YES**
Rancho Mission Rd												
19	Friars Rd	San Diego Mission Rd	3C w/CLTL	22,500	15,210	0.68	D	21,372	**0.95**	**E**	**0.27**	**YES**
20	San Diego Mission Rd	Ward Rd	4C w/o CLTL	15,000	9,582	0.64	C	11,728	0.78	D	0.14	NO
21	West of Ward Rd		2C	10,000	1,510	0.15	A	7,189	0.72	C	0.57	NO
Ward Rd												
22	Rancho Mission Rd	Camino del Rio N	4C w/o CLTL	15,000	9,972	0.66	C	16,254	**1.08**	**F**	**0.42**	**YES**
Fairmount Ave												
23	San Diego Mission Rd/ Twain Ave	Mission Gorge Rd	4C w/o CLTL	15,000	7,217	0.24	A	12,058	0.40	B	0.16	NO
Mission Village Dr												
24	Ruffin Rd	Shawn Ave	4C	30,000	15,184	0.51	C	20,147	0.67	D	0.16	NO
25	Shawn Ave	Ronda Ave	4C	30,000	12,343	0.41	B	17,532	0.58	C	0.17	NO
26	Ronda Ave	Friars Rd	4M	40,000	14,241	0.36	A	19,474	0.49	B	0.13	NO
Ruffin Rd												
27	Aero Dr	Mission Village Dr	4C	30,000	13,617	0.45	B	16,682	0.56	C	0.11	NO
Gramercy Dr												
28	Mobley St	Ruffin Rd	4M	40,000	7,827	0.20	A	9,394	0.23	A	0.03	NO
Aero Dr												
29	Sandrock Rd	Ruffin Rd	4M	40,000	19,636	0.49	B	21,229	0.53	C	0.04	NO
30	Ruffin Rd	Daley Center Dr	4M	40,000	26,069	0.65	C	27,358	0.68	C	0.03	NO
Camino del Rio N												
31	Qualcomm Way	Mission City Pkwy	4C	30,000	9,608	0.32	A	10,125	0.34	B	0.02	NO
32	Mission City Pkwy	Ward Rd	2C w/CLTL	15,000	8,540	0.57	C	9,512	0.63	C	0.06	NO
33	Ward Rd	Fairmount Ave	4C	30,000	12,173	0.41	B	17,995	0.60	C	0.19	NO
Camino del Rio S												
34	Texas St	Mission City Pkwy	2C	10,000	11,496	**1.15**	**F**	11,725	**1.17**	**F**	**0.02**	**YES**

Source: Fehr & Peers, 2019

Notes:

1 2C w/CLTL = 2-lane collector with center left-turn lane
3C w/CLTL = 3-lane collector (2 lanes in one direction and 1 in opposing direction) with center left-turn lane;
4C w/o CLTL = 4-lane collector without center left-turn lane
4C = 4-lane collector
4M = 4-lane major arterial
6M = 6-lane major arterial
6P = 6-lane primary arterial
7P = 7-lane primary arterial (4 lanes in one direction and 3 in opposing direction); the additional lane is assumed to add 5,000 ADT for LOS A, 7,500 ADT for LOS B, and 10,000 ADT for LOS C, D, and E per the Mission Valley Community Plan Update
6E = 6-lane expressway
7E = 7-lane expressway (4 lanes in one direction and 3 in opposing direction); capacity is assumed to be 117% of 6E capacity

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)* and the *Mission Valley Community Plan Update (2019)*

4 Unacceptable ADT volumes per segment and LOS highlighted in **bold**.

5.2.3 FREEWAY SEGMENT LEVELS OF SERVICE

Table 21 displays freeway operation under Existing Plus Project Plus Event Conditions. In addition to those impacts identified under Existing Plus Project Without Event Conditions, the stadium event trips will further exacerbate operations and result in operations that exceed the significance threshold on the following freeway segments:

1. SR-163 from 6th Avenue to I-8 (SB, PM peak hour)
14. I-8 from Morena Boulevard to Taylor Street (EB, PM peak hour)
18. I-8 from Mission Center Road to Texas Street (EB, PM peak hour)

5.2.4 FREEWAY RAMP METERING ANALYSIS

Table 22 displays the ramp metering analysis conducted at the metered freeway on-ramps in the study area under Existing Plus Project Plus Event Conditions.

As shown in **Table 22,** as under Existing Plus Project Without Event Conditions, all ramps are expected to operate with unacceptable delays during one or both peak hours. Additionally, at all ramps on-ramp capacity is not sufficient to accommodate the peak hour demand during metered peak periods; thus, ramp queues are expected to spill back onto the arterial street.

The proposed project would increase delay by more than two minutes compared to Existing Conditions for on-ramps operating with delays above 15 minutes and, therefore, would result in an exceedance of the threshold at the same locations identified under Existing Plus Project Without Event Conditions.

5.2.5 FREEWAY OFF-RAMP QUEUEING ANALYSIS

Table 23 displays the off-ramp queueing analysis conducted at the SR-163 and I-15 off-ramps at Friars Road and the I-8 off-ramps at Qualcomm Way/Texas Street and Fairmount Avenue. As shown, all off-ramp queues can be accommodated by existing storage capacity under Existing Year Plus Project Plus Event Conditions, and therefore all off-ramps fall below the significance threshold.

TABLE 21 – EXISTING PLUS PROJECT PLUS EVENT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

	Freeway Segment	Direction	Number of Lanes	Capacity[1]	Existing Without the Project Conditions						Existing Plus Project Plus Event Conditions						V/C Delta		Exceeds TISM Threshold?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
State Route 163																				
1	6th Ave to I-8	NB	3M+1A	6,600	5,256	5,705	0.80	0.86	C	D	5,313	5,913	0.81	0.90	D	D	0.01	0.03	NO	NO
		SB	3M+2A	7,800	8,966	8,021	**1.15**	**1.03**	**F(0)**	**F(0)**	9,002	8,104	**1.15**	**1.04**	**F(0)**	**F(0)**	0.00	**0.01**	NO	**YES**
2	I-8 to Friars Rd	NB	2A	2,400	1,621	1,759	0.68	0.73	C	C	1,746	2,108	0.73	0.88	C	D	0.05	0.15	NO	NO
		SB	4M+2A	9,600	8,201	7,490	0.85	0.78	D	C** (F)	8,237	7,580	0.86	0.79	D	C (F)	0.00	0.01	NO	NO
3	Friars Rd to Mesa College Dr[5]	NB	5M	9,000	9,222	7,427	**1.02**	0.83	**F(0)**	D	9,235	7,474	**1.03**	0.83	**F(0)**	D	0.00	0.01	NO	NO
		SB	4M	7,200	6,163	6,384	0.86	0.89	D	D** (F)	6,181	6,530	0.86	0.91	D	D (F)	0.00	0.02	NO	NO
4	Mesa College Dr to I-805	NB	4M+2A	9,600	7,774	7,216	0.81	0.75	D	C	7,786	7,258	0.81	0.76	D	C	0.00	0.00	NO	NO
		SB	4M+1A	8,400	7,078	6,184	0.84	0.74	D	C** (F)	7,094	6,315	0.84	0.75	D	C (F)	0.00	0.02	NO	NO
Interstate 805																				
5	Madison Ave to I-8	NB	4M+1A	8,400	8,389	4,895	**1.00**	0.58	**E**	B	8,423	4,945	**1.00**	0.59	**F(0)**	B	0.00	0.01	NO	NO
		SB	6M	10,800	4,512	9,475	0.42	0.88	B	D** (F)	4,533	9,517	0.42	0.88	B	D (F)	0.00	0.00	NO	NO
6	I-8 to Murray Ridge Rd/Phyllis Pl	NB	5M	9,000	9,830	5,699	**1.09**	0.63	**F(0)**	C	9,840	5,722	**1.09**	0.64	**F(0)**	C	0.00	0.00	NO	NO
		SB	4M+2A	9,600	5,145	9,204	0.54	**0.96**	B	**E**	5,161	9,226	0.54	**0.96**	B	**E**	0.00	0.00	NO	NO
7	Murray Ridge Rd/Phyllis Pl to Mesa College Dr/Kearny Villa Rd	NB	5M	9,000	9,821	5,673	**1.09**	0.63	**F(0)**	C	9,831	5,696	**1.09**	0.63	**F(0)**	C	0.00	0.00	NO	NO
		SB	5M	9,000	4,946	8,982	0.55	**1.00**	B	**E**	4,962	9,004	0.55	**1.00**	B	**F(0)**	0.00	0.00	NO	NO
8	Mesa College Dr/Kearny Villa Rd to SR-163	NB	5M	9,000	8,191	4,826	0.91	0.54	D** (F)	B	8,201	4,848	0.91	0.54	D (F)	B	0.00	0.00	NO	NO
		SB	4M	7,200	3,551	5,547	0.49	0.77	B	C** (F)	3,566	5,568	0.50	0.77	B	C (F)	0.00	0.00	NO	NO
9	SR-163 to Balboa Ave	NB	4M+1A	8,400	5,281	4,442	0.63	0.53	C** (F)	B	5,302	4,505	0.63	0.54	C (F)	B	0.00	0.01	NO	NO
		SB	4M+2A	9,600	5,319	7,206	0.55	0.75	B	C** (F)	5,350	7,358	0.56	0.77	B	C (F)	0.00	0.02	NO	NO
Interstate 15																				
10	Adams Ave to I-8	NB	3M+2A	7,800	6,229	6,920	0.80	0.89	C	D	6,583	7,363	0.84	**0.94**	D	**E**	0.05	**0.06**	NO	**YES**
		SB	5M	9,000	5,030	8,403	0.56	**0.93**	B	**E**	5,252	8,831	0.58	**0.98**	B	**E**	0.02	**0.05**	NO	**YES**
11	NB Off-Ramp to Friars Rd	NB	2A	2,400	1,143	1,771	0.48	0.74	B	C	1,642	2,237	0.68	**0.93**	C	**E**	0.21	**0.19**	NO	**YES**
	Friars Rd Auxiliary Lanes to I-8	SB	3A	3,600	3,515	4,641	**0.98**	**1.29**	**E**	**F(1)**	3,629	4,846	**1.01**	**1.35**	**F(0)**	**F(1)**	**0.03**	**0.06**	**YES**	**YES**
	Friars Rd Direct Ramp to I-15 SB	SB	1A	1,200	622	914	0.52	0.76	B	C	825	1,319	0.69	**1.10**	C	**F(0)**	0.17	**0.34**	NO	**YES**
12	Friars Rd to Aero Dr	NB	4M+1A	8,400	8,022	5,889	**0.96**	0.70	**E**	C	8,294	6,449	**0.99**	0.77	**E**	C	**0.03**	0.07	**YES**	NO
		SB	5M+1A	10,200	6,825	9,390	0.67	**0.92**	C	**E**	7,260	10,277	0.71	**1.01**	C	**F(0)**	0.04	**0.09**	NO	**YES**
13	Aero Dr to Balboa Ave/ Tierrasanta Blvd	NB	4M+1A	8,400	9,007	6,792	**1.07**	0.81	**F(0)**	D	9,251	7,293	**1.10**	0.87	**F(0)**	D	**0.03**	0.06	**YES**	NO
		SB	4M+1A	8,400	6,991	8,417	0.83	**1.00**	D	**F(0)**	7,380	9,211	0.88	**1.10**	D	**F(0)**	0.05	**0.09**	NO	**YES**
Interstate 8																				
14	Morena Blvd to Taylor St	EB	4M+1A	8,400	6,023	7,523	0.72	0.90	C	D	6,129	7,745	0.73	**0.92**	C	**E**	0.01	**0.03**	NO	**YES**
		WB	5M	9,000	7,089	6,193	0.79	0.69	C	C	7,154	6,328	0.79	0.70	C	C	0.01	0.02	NO	NO
15	Taylor St to Hotel Cir	EB	4M	7,200	5,901	7,890	0.82	**1.10**	D	**F(0)**	6,015	8,129	0.84	**1.13**	D	**F(0)**	0.02	**0.03**	NO	**YES**
		WB	4M+1A	8,400	8,171	6,978	**0.97**	0.83	**E**	D	8,241	7,123	**0.98**	0.85	**E**	D	0.01	0.02	NO	NO

TABLE 21 – EXISTING PLUS PROJECT PLUS EVENT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

	Freeway Segment	Direction	Number of Lanes	Capacity[1]	Existing Without the Project Conditions						Existing Plus Project Plus Event Conditions						V/C Delta		Exceeds TISM Threshold?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Interstate 8																				
16	Hotel Cir to SR-163	EB	4M+2A	9,600	7,039	8,736	0.73	0.91	C	D	7,154	8,977	0.75	**0.94**	C	**E**	0.01	**0.03**	NO	**YES**
		WB	5M	9,000	8,173	6,719	0.91	0.75	D	C	8,244	6,866	0.92	0.76	D	C	0.01	0.02	NO	NO
17	SR-163 to Mission Center Rd	EB	4M	7,200	3,017	5,669	0.42	0.79	B	C** (F)	3,081	5,772	0.43	0.80	B	D (F)	0.01	0.01	NO	NO
		WB	3M+2A	7,800	8,579	7,900	**1.10**	**1.01**	**F(0)**	**F(0)**	8,650	8,039	**1.11**	**1.03**	**F(0)**	**F(0)**	**0.01**	**0.02**	NO*	**YES**
18	Mission Center Rd to Texas St	EB	4M+1A	8,400	5,025	9,463	0.60	**1.13**	B	**F(0)**	5,089	9,566	0.61	**1.14**	B	**F(0)**	0.01	**0.01**	NO	**YES**
		WB	4M+1A	8,400	8,928	8,273	**1.06**	**0.98**	**F(0)**	**E**	8,999	8,413	**1.07**	**1.00**	**F(0)**	**F(0)**	0.01	**0.02**	NO*	**YES**
19	Texas St to I-805	EB	4M	7,200	3,185	6,214	0.44	0.86	B	D** (F)	3,249	6,317	0.45	0.88	B	D (F)	0.01	0.01	NO	NO
		WB	4M	7,200	6,253	4,963	0.87	0.69	D** (F)	C	6,324	5,103	0.88	0.71	D (F)	C	0.01	0.02	NO	NO
20	I-805 to I-15	EB	4M+2A	9,600	6,104	10,315	0.64	**1.07**	C	**F(0)**	6,219	10,477	0.65	**1.09**	C	**F(0)**	0.01	**0.02**	NO	**YES**
		WB	4M+2A	9,600	10,466	8,476	**1.09**	0.88	**F(0)**	D	10,564	8,656	**1.10**	0.90	**F(0)**	D	**0.01**	0.02	**YES**	NO
21	I-15 to Fairmount Ave	EB	4M+2A	9,600	5,965	9,335	0.62	**0.97**	C	**E**	5,993	9,419	0.62	**0.98**	C	**E**	0.00	0.01	NO	NO
		WB	4M+2A	9,600	7,413	5,467	0.77	0.57	C** (F)	B	7,475	5,828	0.78	0.61	C (F)	B	0.01	0.04	NO	NO
22	Fairmount Ave to Waring Rd	EB	5M	9,000	6,483	10,335	0.72	**1.15**	C	**F(0)**	6,626	10,650	0.74	**1.18**	C	**F(0)**	0.02	**0.04**	NO	**YES**
		WB	6M	10,800	10,029	7,923	**0.93**	0.73	**E**	C	10,258	8,568	**0.95**	0.79	**E**	C	**0.02**	0.06	**YES**	NO
23	Waring Rd to College Ave	EB	5M	9,000	6,392	9,979	0.71	**1.11**	C	**F(0)**	6,534	10,291	0.73	**1.14**	C	**F(0)**	0.02	**0.03**	NO	**YES**
		WB	5M	9,000	9,359	7,492	**1.04**	0.83	**F(0)**	D	9,585	8,130	**1.07**	0.90	**F(0)**	D	**0.03**	0.07	**YES**	NO

Source: Fehr & Peers, 2019

Notes:

1 Capacity calculated at 1,800 vehicles/hour per mainline lane and 1,200 vehicles/hour per auxiliary lane
M = mainline lane
A = auxiliary lane

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable V/C and LOS highlighted in **bold**.

5 No data available from Genesee Ave to Mesa College Dr - assumed equivalent to the segment from Friars Rd to Genesee Ave

* Freeway segment would exceed the City of San Diego impact threshold.

** Traffic data indicate operations are worse than calculated. Peak hour volumes likely do not represent actual demand due to heavy congestion. Estimated operations are shown in parentheses.

LOS	V/C	LOS	V/C
A	<0.41	F(0)	1.25
B	0.62	F(1)	1.35
C	0.80	F(2)	1.45
D	0.92	F(3)	>1.46
E	1.00		

TABLE 22 – EXISTING PLUS PROJECT PLUS EVENT RAMP METERING ANALYSIS

Location	Peak Hour	Total # of Mixed Flow Lanes	Meter Rate[1] (veh/hr)	Existing Without the Project Conditions					Existing Plus Project Plus Event Conditions					Delay Delta	Exceeds TISM Threshold?
				Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)		
				Mixed Flow & HOV	Mixed Flow only				Mixed Flow & HOV	Mixed Flow only					
I-15 NB - Friars Rd On-Ramp	AM	2	1,450	1,941	1,641	191	7.9	2,775	2,213	1,871	421	**17.4**	6,100	9.5	NO*
	PM	2	888	1,244	1,096	208	14.1	3,025	1,806	1,591	703	**47.5**	10,200	33.4	**YES**
I-15 SB / I-8 - Friars Rd Loop On-Ramp	AM	1	N/A	732	732	N/A	N/A	N/A	846	846	N/A	N/A	N/A	N/A	NO
	PM	1	660	744	744	84	7.6	2,425	964	964	304	**27.7**	8,825	20.0	**YES**
I-15 SB - Friars Rd Direct On-Ramp	AM	1	N/A	622	622	N/A	N/A	N/A	825	825	N/A	N/A	N/A	N/A	NO
	PM	1	996	914	914	0	0.0	0	1,320	1,320	324	**19.5**	9,400	19.5	**YES**
I-8 EB - SB Fairmount Ave	AM	1	N/A	250	250	N/A	N/A	N/A	380	380	N/A	N/A	N/A	N/A	NO
	PM	1	492	550	550	58	7.1	1,675**	820	820	328	**40.0**	9,525	33.0	**YES**

Source: Fehr & Peers, 2019. Analysis based on Caltrans District 11 Ramp Meter methodology

Notes:

[1] Meter Rate is the peak hour capacity for the ramp meter. This value was obtained from Caltrans. The most restrictive meter rate was assumed.

[2] Demand is the peak hour demand projected to use the on-ramp.

[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.

[4] Delay = (Excess Demand / Meter Rate) x 60 min/hr. Delays in excess of the desirable 15 minutes are highlighted in **bold**.

[5] Queue = (Excess Demand / # of Lanes) x 29 ft/veh, rounded to the nearest multiple of 25 ft.

* Upstream freeway is operating at LOS D. Per the City of San Diego's significance criteria, ramp meter thresholds do not apply as the meter rate will be higher than the most restrictive rate.

**Field observations indicate operations are better than calculated.

TABLE 23 – EXISTING PLUS PROJECT PLUS EVENT OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)	
				Existing Without the Project Conditions	Existing Plus Project Plus Event Conditions
1. SR-163 SB off-ramp at Friars Rd/Ulric St	AM	NBL	1,200	204	204
		NBT		207	207
		NBR		0	0
	PM	NBL	1,200	201	201
		NBT		198	198
		NBR		0	0
2. SR-163 NB off-ramp at Friars Rd	AM	NBR	900	0	0
		SBR	700	0	0
	PM	NBR	900	0	0
		SBR	700	0	0
17. I-15 SB off-ramp at Friars Rd	AM	SBL	1,200	331	346
		SBT		333	347
		SBR		201	405
	PM	SBL	1,200	647	716
		SBT		648	717
		SBR		65	362
18. I-15 NB off-ramp at Friars Rd	AM	NBR	1,500	0	0
		SBR	1,300	0	0
	PM	NBR	1,500	0	0
		SBR	1,300	0	0
29. I-8 WB off-ramp at Qualcomm Way/Camino del Rio N	AM	WBL	3,200	0	0
		WBT		125	135
		WBR		191	230
	PM	WBL	3,200	0	0
		WBT		277	290
		WBR		102	109
30. I-8 EB off-ramp at Qualcomm Way/Texas St	AM	EBR	900	44	56
	PM	EBR	900	147	149
35. I-8 WB off-ramp at Fairmount Ave/Alvarado Canyon Rd/Camino del Rio N	AM	WBL	1,000	486	561
		WBT		464	544
		WBR		216	359
	PM	WBL	1,000	556	656
		WBT		336	625
		WBR		243	478
36. I-8 EB off-ramp at Fairmount Ave	AM	EBL	4,100	276	313
		EBR		283	314
	PM	EBL	4,100	714	773
		EBR		1,229	1,275

Source: Fehr & Peers, 2019.

5.3 EXISTING PLUS EVENT ONLY CONDITIONS

The proposed new stadium will replace the existing SDCCU stadium and is planned to be operational in the near-term, by year 2022; therefore, an Existing Plus Event Only analysis provides a reasonable assessment of the proposed stadium's potential traffic-related impacts. With the replacement stadium and no additional development on the site, traffic conditions with the new 35,000-capacity facility will be similar to or better than those conditions presently existing with operation of the much greater capacity 70,561-seat stadium. No change in the type of events is proposed, and accordingly no substantive operational change is expected in parking, manual traffic control, or circulation. Moreover, in light of the reduced capacity of the proposed stadium relative to the existing facility, potential traffic-related impacts on a given day would be less. Because current events with attendance levels of more than 35,000 would no longer be feasible, reduced traffic volumes would occur at least twice a year assuming a comparable event schedule in 2022 (as compared to 2018). Traffic operations of the new stadium would generally be equivalent to the existing stadium if 35,561 seats were covered or removed such that only 35,000 seats remained. Existing stadium operations are discussed in more detail in **Section 3.8**.

It is noted that, while a single event at the new stadium will result in traffic operations that are the same or better than existing conditions, the new stadium may hold more total events in a given year with attendance levels of 20,000 patrons or more. Under Existing Conditions, from the 2018 stadium calendar, five high-attendance events (i.e., with over 20,000 attendees) were held on a weekday. One of those events (the Beyonce and Jay-Z concert) had 40,885 attendees, which would have been limited to 35,000 persons with the new facility. The proposed stadium is expected to hold 11 weekday high-attendance events annually, of which approximately four (4) are planned to be professional soccer games, which will not occur unless a professional soccer team is based in San Diego. Thus, two to six additional events with 20,000 or more attendees are expected to occur with the new stadium. While no significance threshold is identified for the number of days in a year that event traffic congestion occurs, the anticipated increase in the number of stadium events would result in a potentially significant impact. Although implementation of the proposed stadium Transportation Demand Management (TDM) and Transportation and Parking Management Plan (TPMP) Programs would help to minimize congestion associated with these additional events, the impact would remain significant and unavoidable.

6.0 HORIZON YEAR (2037) NO PROJECT CONDITIONS

This chapter summarizes and presents the results of the operations analysis under the Horizon Year (2037) scenario without project-generated traffic. This scenario assumes that SDCCU stadium would remain in operation with only a negligible level of traffic generated by the site on a typical weekday. This scenario also includes certain planned roadway improvements, as well as new and/or redeveloped land uses in the study area and the greater region that will affect traffic patterns and volumes over the next 19 years, as the proposed project builds out. This scenario establishes the baseline against which project impacts are compared.

6.1 HORIZON YEAR STREET SYSTEM IMPROVEMENTS

The SANDAG Regional Transportation Plan (RTP) and the currently adopted (1985) Mission Valley Community Plan identify proposed future roadway improvements that are expected to be built by 2037.The following improvements are included in both plans and are part of the 2037 baseline:

- SR-163/Friars Road Interchange – Construction of phase I of the project began after Existing Conditions data and observations were collected. The project will widen Friars Road from Avenida Del Rio to the west of SR-163 to the Friars Road Eastbound Ramp to Mission Center Road. Additionally, intersection improvements will add lanes on Ulric Street, SR-163 Southbound Ramps, SR-163 Northbound Ramps, and Frazee Road. Finally, new sidewalks and bike lanes will be provided along Friars Road. Phase I is fully funded and is expected to be open to traffic in 2019, with the remaining phases of the project to be completed by 2050.
- Qualcomm Way & Friars Road – As part of the Quarry Falls Specific Plan (i.e. the Civita development), the Civita developer will construct improvements at the Qualcomm Way and the Friars Road interchange to add additional lanes to all approaches. These improvements are funded by the Civita developer and are a condition of approval of Phase II of the Quarry Falls Specific Plan.

No other changes to the configuration of the study area intersections, roadway segments, freeway segments, or ramps were assumed for this scenario.

6.2 HORIZON YEAR TRAFFIC FORECASTS

Baseline traffic forecasts for 2037 were developed using projections from the SANDAG Series 13 Year 2035 travel demand model, which is the best available long-range planning tool for traffic volume forecasting in the San Diego region. The SANDAG model reflects the forecasted population and employment from land

uses based on the adopted General Plans of all 18 cities within the county, and the County of San Diego for the unincorporated areas.

Daily traffic volumes generated from the model for Year 2035 were compared to the volumes from the model for Year 2012 to determine an average annual growth rate along each roadway and freeway segment. Calculated growth rates ranged from -0.3% to 2.4%. The existing volumes on all facilities were increased to Year 2037 conditions using either the calculated growth rate or 1.0%, whichever was greater, to provide a conservative analysis of traffic operations. Growth rates on each segment are provided in **Appendix D**. The resulting turning movement traffic volumes and intersection lane configurations for Horizon Year Conditions are shown on **Figure 16.**

6.3 INTERSECTION ANALYSIS

The Horizon Year peak hour turning movement volumes and lane configurations from **Figure 16** were input into the Synchro modeling software, and intersection operations were calculated. **Table 24** presents the anticipated intersection operations under Horizon Year Conditions without the project. The corresponding LOS calculation sheets are included in **Appendix E**.

The analysis results indicate that 28 of the study area intersections are forecasted to operate at LOS D or better under Horizon Year Conditions without the project. The remaining 12 study area intersections (that will exist in baseline conditions) are expected to operate at LOS E or F during at least one peak hour:

1. SR-163 Southbound Ramps/Ulric Street & Friars Road (PM peak hour)
8. River Run Drive & Friars Road – LOS E (PM peak hour)
9. Fenton Parkway & Friars Road – LOS F (PM peak hour)
10. Northside Drive & Friars Road – LOS E (PM peak hour)
13. Mission Village Drive/Street D & Friars Road Eastbound Ramps/San Diego Mission Road – LOS F (AM and PM peak hours)
17. I-15 Southbound Ramps & Friars Road – LOS F (AM and PM peak hours)
18. I-15 Northbound Ramps & Friars Road – LOS F (AM and PM peak hours)
19. Rancho Mission Road & Friars Road –LOS E (AM and PM peak hours)
28. Qualcomm Way & Camino del Rio N/Camino de la Reina – LOS E (PM peak hour)
29. Qualcomm Way & I-8 WB Off-Ramp/Camion del Rio N – LOS E (PM peak hour)
31. Texas St & Camino del Rio S – LOS F (AM and PM peak hours)
35. Fairmount Avenue & Camino del Rio North – LOS F (AM and PM peak hours).

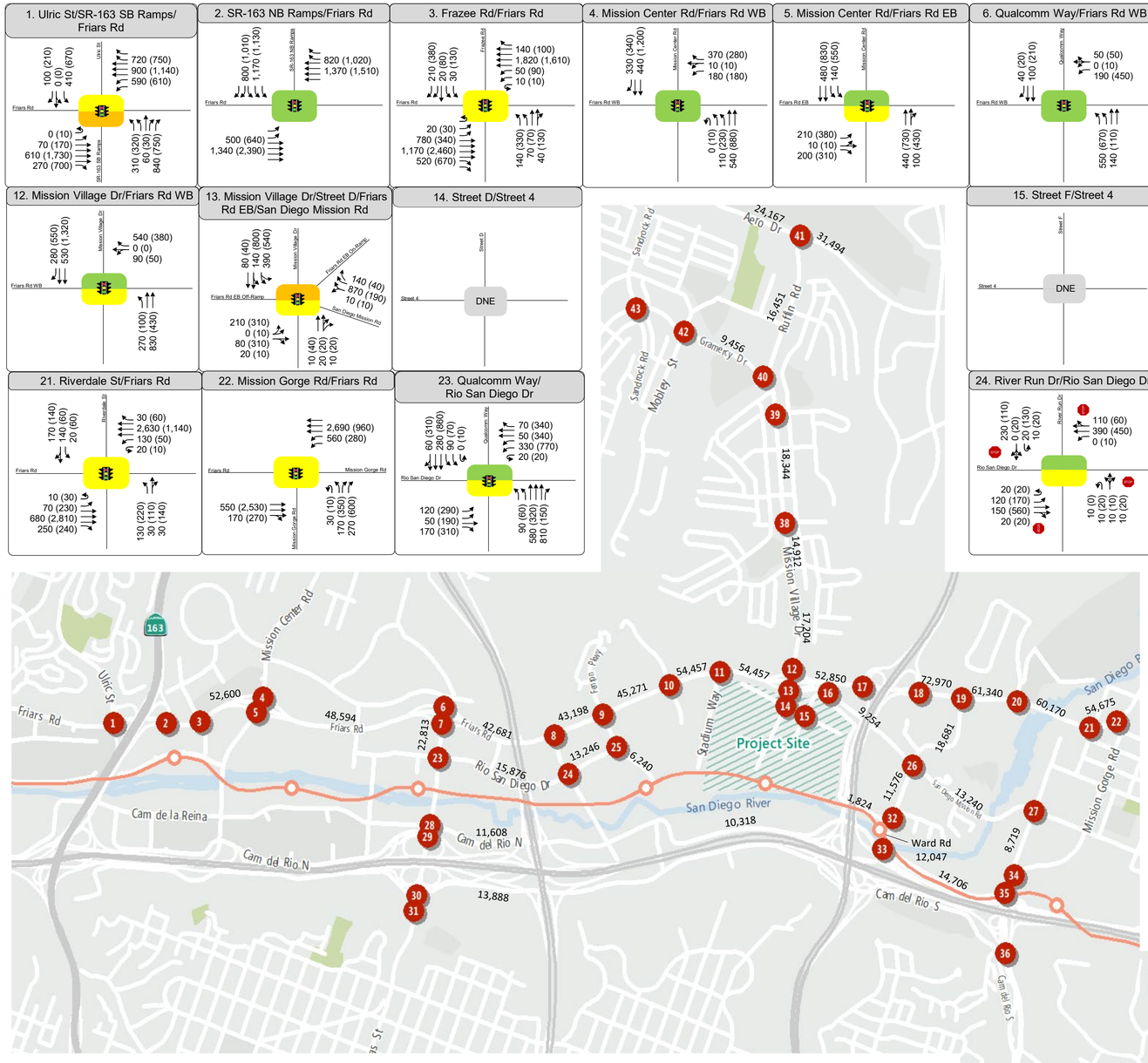


Figure 16

Traffic Volumes and Lane Configurations

Horizon Year (2037) Conditions

TABLE 24 – HORIZON YEAR (2037) NO PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Delay (sec/veh)[1]	LOS[2,3]
1. SR-163 SB Ramps/Ulric St & Friars Rd*	Signalized	AM	43.9	D
		PM	**56.9**	**E**
2. SR-163 NB Ramps & Friars Rd*	Signalized	AM	26.2	C
		PM	33.5	C
3. Frazee Rd & Friars Rd*	Signalized	AM	49.0	D
		PM	43.0	D
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	12.8	B
		PM	14.1	B
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	16.8	B
		PM	36.2	D
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	15.9	B
		PM	24.5	C
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	5.6	A
		PM	12.8	B
8. River Run Dr & Friars Rd	Signalized	AM	23.0	C
		PM	**59.6**	**E**
9. Fenton Pkwy & Friars Rd	Signalized	AM	27.9	C
		PM	**92.8**	**F**
10. Northside Dr & Friars Rd	Signalized	AM	34.3	C
		PM	**76.4**	**E**
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A
		PM	-	N/A
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	30.1	C
		PM	52.0	D
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd*	Signalized	AM	**173.4****	**F**
		PM	**94.0**	**F**
14. Street D & Street 4	Signalized	AM	DNE	N/A
		PM		N/A
15. Street F & Street 4	Signalized	AM	DNE	N/A
		PM		N/A
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A
		PM		N/A
17. I-15 SB Ramps & Friars Rd	Signalized	AM	46.3	D
		PM	**67.3**	**E***** (F)
18. I-15 NB Ramps & Friars Rd	Signalized	AM	**83.5**	**F***** (F)
		PM	**67.3**	**E***** (F)
19. Rancho Mission Rd & Friars Rd	Signalized	AM	30.3	C*** (E)
		PM	**72.4**	**E***** (E)
20. Santo Rd & Friars Rd	Signalized	AM	38.1	D
		PM	16.8	B
21. Riverdale St & Friars Rd	Signalized	AM	37.4	D
		PM	37.4	D
22. Mission Gorge Rd & Friars Rd	Signalized	AM	44.1	D
		PM	44.5	D
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	19.3	B
		PM	44.4	D
24. Rio San Diego Dr & River Run Dr	AWSC	AM	12.9	B
		PM	25.1	D
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	16.7	B
		PM	27.7	C
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	31.0	C
		PM	30.0	C
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	23.5	C
		PM	26.7	C
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	21.3	C
		PM	**71.0**	**E**
29. Qualcomm Way & I-8 WB Off-Ramp/ Camino del Rio N	Signalized	AM	20.5	C
		PM	**73.6**	**E**
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.2	A
		PM	4.9	A
31. Texas St & Camino del Rio S	Signalized	AM	**104.1**	**F**
		PM	**85.0**	**F**
32. Ward Rd & Rancho Mission Rd	SSSC	AM	26.9	D
		PM	29.9	D
33. Camino del Rio N & Ward Ave	Signalized	AM	15.4	B
		PM	15.9	B
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	22.0	C
		PM	28.1	C
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	**94.7**	**F**
		PM	**104.7**	**F**

TABLE 24 – HORIZON YEAR (2037) NO PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Delay (sec/veh)[1]	LOS[2,3]
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	17.7	B
		PM	44.3	D
37. Montezuma Rd & Collwood Blvd	Signalized	AM	46.9	D
		PM	50.0	D
38. Mission Village Dr & Shawn Ave	Signalized	AM	6.2	A
		PM	10.8	B
39. Mission Village Dr & Fermi Ave	Signalized	AM	14.5	B
		PM	11.3	B
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	20.5	C
		PM	24.5	C
41. Ruffin Rd & Aero Dr	Signalized	AM	35.7	D
		PM	52.6	D
42. Gramercy Dr & Mobley St	Signalized	AM	7.1	A
		PM	6.0	A
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	9.1	A
		PM	11.7	B

Source: Fehr & Peers, 2019.

Notes:

[1] Whole intersection weighted average stopped delay reported for the signalized and all-way stop control (AWSC) intersections. Worst movement delay reported for the side-street stop-control (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual 6th Edition (HCM 6)* method.

[3] LOS E or F operations highlighted in **bold**.

[4] Under Existing Conditions, the Stadium Way (Street A) & Friars Road intersection is only used during stadium events.

* Due to limitations of the *HCM 6* method, LOS calculations performed using the *HCM 2000* method.

** Calculated delays above 150 seconds may not be accurate and should be used with caution.

*** Ramp metering during the peak hours under existing conditions results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation. This additional delay is estimated to result in operations as shown in parentheses.

6.4 ROADWAY SEGMENT ANALYSIS

Roadway segment LOS analysis is presented for information purposes only using the City of San Diego impact thresholds. **Table 25** displays the LOS analysis for the project study area roadway segments under Horizon Year No Project Conditions. As shown in the table, all roadway segments are projected to operate acceptably at LOS D or better in 2037 except for:

9. Friars Road from the I-15 Ramps to Rancho Mission Road (LOS F)
11. Friars Road from Santo Road to Riverdale Street (LOS F)
18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue (LOS E)
34. Camino del Rio South from Texas Street to Mission City Parkway (LOS F)

6.5 FREEWAY SEGMENT ANALYSIS

Table 26 displays the freeway LOS analysis under Horizon Year No Project Conditions. As shown, all freeway segments would operate at undesirable levels (LOS E or F) in one or both directions during one or both peak hours under Horizon Year (2037) No Project Conditions.

FREEWAY RAMP METERING ANALYSIS

Table 27 displays the analysis conducted for the metered freeway on-ramps in the study area under Horizon Year Without Project Conditions.

As shown in **Table 27**, the following ramps are expected to operate with unacceptable delays during one or both peak hours:

- I-15 NB On-ramp from Friars Road – AM and PM peak hours
- I-15 SB/I-8 Loop On-ramp from Friars Road – PM peak hour
- I-8 EB On-ramp from southbound Fairmount Avenue – PM peak hour

Additionally, at all ramps, on-ramp capacity is not sufficient to accommodate the peak hour demand during metered periods; thus, ramp queues are expected to spill back onto the adjacent arterial street(s).

TABLE 25 – HORIZON YEAR (2037) NO PROJECT CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment			Roadway Classification (# of Lanes)[1]	Capacity	ADT	V/C[2]	LOS[3,4]
ID	Extent (from/to)						
Friars Rd							
1	Frazee Rd	Mission Center Rd	8P	52,603	52,600	0.66	C
2	Mission Center Rd	Qualcomm Way	6E	106,667	48,594	0.61	C
3	Qualcomm Way	River Run Dr	6E	80,000	42,681	0.53	C
4	River Run Dr	Fenton Pkwy	6P	60,000	43,198	0.72	C
5	Fenton Pkwy	Northside Dr	6P	60,000	45,271	0.75	C
6	Northside Dr	Stadium Way (Street A)	6E	80,000	54,457	0.68	C
7	Stadium Way (Street A)	Mission Village Dr	6E	80,000	54,457	0.68	C
8	Mission Village Dr	I-15 Ramps	6E	80,000	52,850	0.66	C
9	I-15 Ramps	Rancho Mission Rd	7P	70,000	**72,970**	**1.04**	**F**
10	Rancho Mission Rd	Santo Rd	7P	70,000	61,340	0.88	D
11	Santo Rd	Riverdale St	6P	60,000	**60,170**	**1.00**	**F**
12	Riverdale St	Mission Gorge Rd	6P	60,000	54,675	0.91	D
Qualcomm Way							
13	Friars Rd	Rio San Diego Dr	6M	50,000	22,813	0.46	B
Rio San Diego Dr							
14	Qualcomm Way	River Run Dr	4M	40,000	15,876	0.40	B
15	River Run Dr	Fenton Pkwy	4C/M	30,000	13,246	0.44	B
Fenton Pkwy							
16	Rio San Diego Dr/Fenton Marketplace Dwy	Northside Dr	4M	40,000	6,240	0.16	A
San Diego Mission Rd							
17	Mission Village Dr/Street F	Rancho Mission Rd	4C w/o CLTL	15,000	9,254	0.62	C
18	Rancho Mission Rd	Fairmount Ave	2C w/CLTL	15,000	**13,240**	**0.88**	**E**
Rancho Mission Rd							
19	Friars Rd	San Diego Mission Rd	3C w/CLTL	22,500	18,681	0.83	D
20	San Diego Mission Rd	Ward Rd	4C w/o CLTL	15,000	11,576	0.77	D
21	West of Ward Rd		2C	10,000	1,824	0.18	A
Ward Rd							
22	Rancho Mission Rd	Camino del Rio N	4C w/o CLTL	15,000	12,047	0.80	D
Fairmount Ave							
23	San Diego Mission Rd/Twain Ave	Mission Gorge Rd	4C w/o CLTL	15,000	8,719	0.29	A
Mission Village Dr							
24	Ruffin Rd	Shawn Ave	4C	30,000	18,344	0.61	C
25	Shawn Ave	Ronda Ave	4C	30,000	14,912	0.50	C
26	Ronda Ave	Friars Rd	4M	40,000	17,204	0.43	B
Ruffin Rd							
27	Aero Dr	Mission Village Dr	4C	30,000	16,451	0.55	C
Gramercy Dr							
28	Mobley St	Ruffin Rd	4M	40,000	9,456	0.24	A
Aero Dr							
29	Sandrock Rd	Ruffin Rd	4M	40,000	24,167	0.60	C
30	Ruffin Rd	Daley Center Dr	4M	40,000	31,494	0.79	D
Camino del Rio N							
31	Qualcomm Way	Mission City Pkwy	4C	30,000	11,608	0.39	B
32	Mission City Pkwy	Ward Rd	2C w/CLTL	15,000	10,318	0.69	D
33	Ward Rd	Fairmount Ave	4C	30,000	14,706	0.49	C
Camino del Rio S							
34	Texas St	Mission City Pkwy	2C	10,000	13,888	**1.39**	**F**

Source: Fehr & Peers, 2019

Notes:

1 2C = 2-lane collector
2C w/CLTL = 2-lane collector with center left-turn lane
3C w/CLTL = 3-lane collector (2 lanes in one direction and 1 in opposing direction) with center left-turn lane
4C w/o CLTL = 4-lane collector without center left-turn lane
4C = 4-lane collector
4M = 4-lane major arterial
6M = 6-lane major arterial
6P = 6-lane primary arterial
7P = 7-lane primary arterial (4 lanes in one direction and 3 in opposing direction); the additional lane is assumed to add capacity of 5,000 for LOS A, 7,500 for LOS B, and 10,000 for LOS C, D, and E per the Mission Valley Community Plan Update
8P = 8-lane prime arterial
6E = 6-lane expressway

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable ADT volumes per segment and LOS highlighted in **bold**.

TABLE 26 – HORIZON YEAR (2037) NO PROJECT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

Freeway Segment		Direction	Number of Lanes	Capacity[1]	Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]	
					AM	PM	AM	PM	AM	PM
State Route 163										
1	6th Ave to I-8	NB	3M+1A	6,600	6,350	6,892	**0.96**	**1.04**	**E**	**F(0)**
		SB	3M+2A	7,800	10,832	9,690	**1.39**	**1.24**	**F(2)**	**F(0)**
2	I-8 to Friars Rd	NB	2A	2,400	1,958	2,125	0.82	0.89	D	D
		SB	4M+2A	9,600	9,908	9,049	**1.03**	**0.94**	**F(0)**	**E*** (F)
3	Friars Rd to Mesa College Dr[5]	NB	5M	9,000	11,141	8,973	**1.24**	**1.00**	**F(0)**	**E**
		SB	4M	7,200	7,446	7,713	**1.03**	**1.07**	**F(0)**	**F(0)*** (F)
4	Mesa College Dr to I-805	NB	4M+2A	9,600	9,392	8,718	**0.98**	0.91	**E**	D
		SB	4M+1A	8,400	8,551	7,471	**1.02**	0.89	**F(0)**	D*
Interstate 805										
5	Madison Ave to I-8	NB	4M+1A	8,400	10,241	5,976	**1.22**	0.71	**F(0)**	C
		SB	6M	10,800	5,454	11,453	0.50	**1.06**	B	**F(0)*** (F)
6	I-8 to Murray Ridge Rd/Phyllis Pl	NB	5M	9,000	11,876	6,885	**1.32**	0.77	**F(1)**	C
		SB	4M+2A	9,600	6,216	11,119	0.65	**1.16**	C	**F(0)**
7	Murray Ridge Rd/Phyllis Pl to Mesa College Dr/Kearny Villa Rd	NB	5M	9,000	11,865	6,854	**1.32**	0.76	**F(1)**	C
		SB	5M	9,000	5,975	10,851	0.66	**1.21**	C	**F(0)**
8	Mesa College Dr/Kearny Villa Rd to SR-163	NB	5M	9,000	9,896	5,830	**1.10**	0.65	**F(0)*** (F)	C
		SB	4M	7,200	4,290	6,701	0.60	**0.93**	B	**E*** (F)
9	SR-163 to Balboa Ave	NB	4M+1A	8,400	7,077	5,952	0.84	0.71	D* (F)	C
		SB	4M+2A	9,600	6,693	9,068	0.70	**0.94**	C	**E*** (F)
Interstate 15										
10	Adams Ave to I-8	NB	3M+2A	7,800	7,624	8,470	**0.98**	**1.09**	**E**	**F(0)**
		SB	5M	9,000	6,077	10,152	0.68	**1.13**	C	**F(0)**
11	NB Off-Ramp to Friars Rd	NB	2A	2,400	1,381	2,140	0.58	0.89	B	D
	Friars Rd Auxiliary Lanes to I-8	SB	3A	3,600	4,390	5,796	**1.22**	**1.61**	**F(0)**	**F(3)**
	Friars Rd Direct Ramp to I-15 SB	SB	1A	1,200	751	1,104	0.63	**0.92**	C	**E**
12	Friars Rd to Aero Dr	NB	4M+1A	8,400	9,691	7,115	**1.15**	0.85	**F(0)**	D
		SB	5M+1A	10,200	8,245	11,344	0.81	**1.11**	D	**F(0)**
13	Aero Dr to Balboa Ave/Tierrasanta Blvd	NB	4M+1A	8,400	10,881	8,205	**1.30**	**0.98**	**F(1)**	**E**
		SB	4M+1A	8,400	8,446	10,169	**1.01**	**1.21**	**F(0)**	**F(0)**
Interstate 8										
14	Morena Blvd to Taylor St	EB	4M+1A	8,400	7,276	9,089	0.87	**1.08**	D	**F(0)**
		WB	5M	9,000	8,564	7,482	**0.95**	0.83	**E**	D
15	Taylor St to Hotel Cir	EB	4M	7,200	7,129	9,532	**0.99**	**1.32**	**E**	**F(1)**
		WB	4M+1A	8,400	9,871	8,430	**1.18**	**1.00**	**F(0)**	**F(0)**
16	Hotel Cir to SR-163	EB	4M+2A	9,600	8,841	10,972	**0.92**	**1.14**	**E**	**F(0)**
		WB	5M	9,000	10,030	8,245	**1.11**	0.92	**F(0)**	D
17	SR-163 to Mission Center Rd	EB	4M	7,200	3,770	7,084	0.52	**0.98**	B	**E*** (F)
		WB	3M+2A	7,800	10,364	9,544	**1.33**	**1.22**	**F(1)**	**F(0)**
18	Mission Center Rd to Texas St	EB	4M+1A	8,400	6,280	11,826	0.75	**1.41**	C	**F(2)**
		WB	4M+1A	8,400	10,786	9,995	**1.28**	**1.19**	**F(1)**	**F(0)**
19	Texas St to I-805	EB	4M	7,200	3,980	7,765	0.55	**1.08**	B	**F(0)**
		WB	4M	7,200	7,554	5,996	**1.05**	0.83	**F(0)**	D
20	I-805 to I-15	EB	4M+2A	9,600	7,374	12,462	0.77	**1.30**	C	**F(1)**
		WB	4M+2A	9,600	12,644	10,240	**1.32**	**1.07**	**F(1)**	**F(0)**
21	I-15 to Fairmount Ave	EB	4M+2A	9,600	7,378	11,546	0.77	**1.20**	C	**F(0)**
		WB	4M+2A	9,600	8,956	6,605	**0.93**	0.69	**E*** (F)	C
22	Fairmount Ave to Waring Rd	EB	5M	9,000	8,018	12,782	0.89	**1.42**	D	**F(2)**
		WB	6M	10,800	12,116	9,572	**1.12**	0.89	**F(0)**	D
23	Waring Rd to College Ave	EB	5M	9,000	7,722	12,056	0.86	**1.34**	D	**F(1)**
		WB	5M	9,000	11,307	9,051	**1.26**	**1.01**	**F(1)**	**F(0)**

Source: Fehr & Peers, 2019

Notes:

1 Capacity calculated at 1,800 vehicles/hour per mainline lane and 1,200 vehicles/hour per auxiliary lane
M = mainline lane
A = auxiliary lane

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable V/C and LOS highlighted in **bold**.

5 No data available from Genesee Ave to Mesa College Dr – assumed equivalent to the segment from Friars Rd to Genesee Ave

* Traffic data indicate operations are worse than calculated. Peak hour volumes likely do not represent actual demand due to heavy congestion. Estimated operations are shown in parentheses.

LOS	V/C	LOS	V/C
A	<0.41	F(0)	1.25
B	0.62	F(1)	1.35
C	0.80	F(2)	1.45
D	0.92	F(3)	>1.46
E	1.00		

TABLE 27 – HORIZON YEAR (2037) NO PROJECT CONDITIONS RAMP METERING ANALYSIS

Location	Peak Hour	Total # of Mixed Flow Lanes	Meter Rate[1] (veh/hr)	Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)
				Mixed Flow & HOV	Mixed Flow only			
I-15 NB – Friars Rd On-Ramp	AM	2	1,450	2,345	1,983	533	**22.0**	7,725
	PM	2	888	1,503	1,369	481	**32.5**	6,975
I-15 SB / I-8 – Friars Rd Loop On-Ramp	AM	1	N/A	914	914	N/A	N/A	N/A
	PM	1	660	929	929	269	**24.5**	7,800
I-15 SB – Friars Rd Direct On-Ramp	AM	1	N/A	751	751	N/A	N/A	N/A
	PM	1	996	1,104	1,104	108	6.5	3,150
I-8 EB – SB Fairmount Ave	AM	1	N/A	302	302	N/A	N/A	N/A
	PM	1	492	664	664	172	**21.0**	5,000*

Source: Fehr & Peers, 2019. Analysis based on Caltrans District 11 Ramp Meter methodology

Notes:

[1] Meter Rate is the peak hour capacity for the ramp meter. This value was obtained from Caltrans. The most restrictive meter rate was assumed.

[2] Demand is the peak hour demand projected to use the on-ramp.

[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.

[4] Delay = (Excess Demand / Meter Rate) x 60 min/hr. Undesirable delay in excess of 15 minutes is highlighted in **bold**.

[5] Queue = (Excess Demand / # of Lanes) x 29 ft/veh, rounded to the nearest multiple of 25 ft.

* Field observations of existing conditions indicate operations may be better than calculated.

6.7 FREEWAY OFF-RAMP QUEUEING ANALYSIS

Table 28 displays the off-ramp queueing analysis conducted at the SR-163 and I-15 off-ramps at Friars Road and the I-8 off-ramps at Qualcomm Way/Texas Street and Fairmount Avenue. As shown, all off-ramp queues can be accommodated by existing storage capacity under Horizon Year Conditions.

TABLE 28 – HORIZON YEAR CONDITIONS OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft) Horizon Year Conditions
1. SR-163 SB off-ramp at Friars Rd/ Ulric St	AM	NBL	1,200	211
		NBT		104
		NBR		487
	PM	NBL	1,200	263
		NBT		62
		NBR		485
2. SR-163 NB off-ramp at Friars Rd	AM	SBL	700	444
		SBT		0
		SBR		305
	PM	SBL	700	418
		SBT		0
		SBR		447
17. I-15 SB off-ramp at Friars Rd	AM	SBL	1,200	460
		SBT		449
		SBR		257
	PM	SBL	1,200	842
		SBT		845
		SBR		80
18. I-15 NB off-ramp at Friars Rd	AM	NBR	1,500	0
		SBR	1,300	0
	PM	NBR	1,500	0
		SBR	1,300	0
29. I-8 WB off-ramp at Qualcomm Way/Camino del Rio N	AM	WBL	3,200	0
		WBT		221
		WBR		740
	PM	WBL	3,200	0
		WBT		394
		WBR		545
30. I-8 EB off-ramp at Qualcomm Way/Texas St	AM	EBR	900	169
	PM	EBR	900	274
35. I-8 WB off-ramp at Fairmount Ave/Alvarado Canyon Rd/Camino del Rio N	AM	WBL	1,000	627
		WBT		607
		WBR		269
	PM	WBL	1,000	714
		WBT		464
		WBR		308
36. I-8 EB off-ramp at Fairmount Ave	AM	EBL	4,100	484
		EBR		493
	PM	EBL	4,100	1,099
		EBR		1,659

Source: Fehr & Peers, 2019.

7.0 HORIZON YEAR (2037) PLUS PROJECT CONDITIONS

This chapter presents the results of the operations analysis under the Horizon Year (2037) scenario with buildout of the proposed project scenarios, both without and with a Stadium Event, which is modeled as a sold-out event.

7.1 HORIZON YEAR (2037) PLUS PROJECT WITHOUT EVENT CONDITIONS

Under this scenario, project traffic assigned to the study area intersections and roadway segments (illustrated on **Figure 7**) was added to Horizon Year (2037) No Project traffic volumes. The Horizon Year Plus Project Conditions roadway network is the same network assumed under the baseline scenario, except for the addition of the site access points and immediately adjacent project features that are discussed in **Section 4.3**.

7.1.1 INTERSECTION ANALYSIS

Turning movement traffic volumes and intersection lane configurations for the Horizon Year (2037) Plus Project Conditions are shown on **Figure 17**. This data was used to calculate operations under this scenario.

Table 29 presents the intersection operating conditions and traffic impacts under the Horizon Year Plus Project Conditions and compares the projected levels of service at each study area intersection under this scenario to the Horizon Year Without Project Conditions. The corresponding LOS calculation sheets are included in **Appendix E**.

As indicated in **Table 29**, after applying the applicable impact criteria, the proposed project would result in a significant cumulative impact at the following 13 locations:

1. SR-163 Southbound Ramps/Ulric Street & Friars Road (PM peak hour)
8. River Run Drive & Friars Road (PM peak hour)
9. Fenton Pkwy & Friars Road (PM peak hour)
10. Northside Drive & Friars Road (PM peak hour)
17. I-15 SB Ramps & Friars Road (AM and PM peak hours)
18. I-15 NB Ramps & Friars Road (AM and PM peak hours)
19. Rancho Mission Road & Friars Road (AM and PM peak hours)
27. Fairmount Avenue & San Diego Mission Road/Twain Avenue (AM and PM peak hours)
31. Texas Street & Camino del Rio N (AM and PM peak hours)

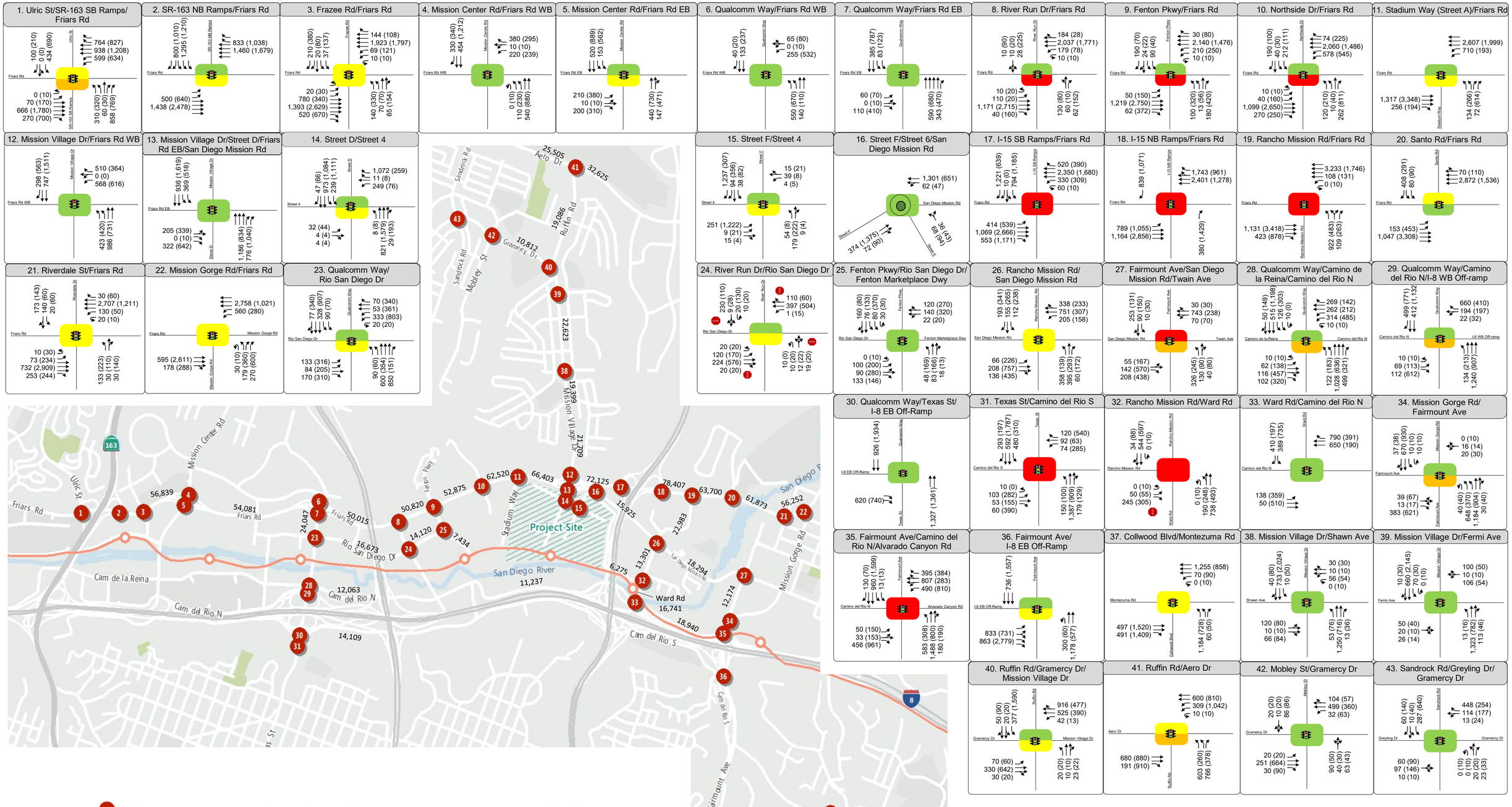


Figure 17

Horizon Year Plus Project Without Event Conditions

Traffic Volumes, Lane Configurations, and LOS

TABLE 29 – HORIZON YEAR (2037) PLUS PROJECT WITHOUT EVENT CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Horizon Year Without the Project Conditions		Horizon Year Plus Project Conditions		Delay Delta	Significant Impact?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
1. SR-163 SB Ramps/Ulric St & Friars Rd*	Signalized	AM	45.2	D	45.3	D	1.4	NO
		PM	54.5	D	**62.1**	**E**	**5.2**	**YES**
2. SR-163 NB Ramps & Friars Rd*	Signalized	AM	19.8	B	29.5	C	3.3	NO
		PM	32.4	C	36.2	D	2.7	NO
3. Frazee Rd & Friars Rd*	Signalized	AM	45.2	D	50.6	D	1.6	NO
		PM	44.8	D	46.9	D	3.9	NO
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	12.8	B	13.3	B	0.5	NO
		PM	14.1	B	15.0	B	0.9	NO
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	16.8	B	16.7	B	-0.1	NO
		PM	36.2	D	38.1	D	1.9	NO
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	15.9	B	17.0	B	1.1	NO
		PM	24.5	C	24.9	C	0.4	NO
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	5.6	A	6.2	A	0.6	NO
		PM	12.8	B	13.3	B	0.5	NO
8. River Run Dr & Friars Rd	Signalized	AM	23.0	C	25.0	C	2.0	NO
		PM	**59.6**	**E**	**94.9**	**F**	**35.3**	**YES**
9. Fenton Pkwy & Friars Rd	Signalized	AM	27.9	C	22.1	C	-5.8	NO
		PM	**92.8**	**F**	**126.6**	**F**	**33.8**	**YES**
10. Northside Dr & Friars Rd	Signalized	AM	34.3	C	26.6	C	-7.7	NO
		PM	**76.4**	**E**	**97.5**	**F**	**21.1**	**YES**
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A	10.4	B	N/A	NO
		PM	-	N/A	22.9	C	N/A	NO
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	30.1	C	28.8	C	-1.3	NO
		PM	52.0	D	33.6	C	-18.4	NO
13. Mission Village Dr/Street D & Friars Rd EB Ramps*	Signalized	AM	**173.4****	**F**	17.0	B	-156.4	NO
		PM	**94.0**	**F**	30.0	C	-64.0	NO
14. Street D & Street 4	Signalized	AM	DNE	N/A	23.7	C	N/A	NO
		PM		N/A	40.9	D	N/A	NO
15. Street F & Street 4	Signalized	AM	DNE	N/A	27.0	C	N/A	NO
		PM		N/A	35.1	D	N/A	NO
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A	8.1	A	N/A	NO
		PM		N/A	9.3	A	N/A	NO
17. I-15 SB Ramps & Friars Rd	Signalized	AM	46.3	D	**124.6**	**F**	**78.3**	**YES**
		PM	**67.3**	**E***** (F)	**100.6**	**F** (F)	**33.3**	**YES**
18. I-15 NB Ramps & Friars Rd	Signalized	AM	**83.5**	**F***** (F)	**137.6**	**F** (F)	**54.1**	**YES**
		PM	**67.3**	**E***** (F)	**208.4****	**F** (F)	**141.1**	**YES**
19. Rancho Mission Rd & Friars Rd	Signalized	AM	30.3	C*** (E)	33.8	C (F)	3.5	**YES*****
		PM	**72.4**	**E***** (E)	**83.2**	**F** (F)	**10.8**	**YES**
20. Santo Rd & Friars Rd	Signalized	AM	38.1	D	47.1	D	9.0	NO
		PM	16.8	B	19.0	B	2.2	NO
21. Riverdale St & Friars Rd	Signalized	AM	37.4	D	43.8	D	6.4	NO
		PM	37.4	D	43.8	D	6.4	NO
22. Mission Gorge Rd & Friars Rd	Signalized	AM	44.1	D	46.5	D	2.4	NO
		PM	44.5	D	54.2	D	9.7	NO
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	19.3	B	22.1	C	2.8	NO
		PM	44.4	D	49.6	D	5.2	NO
24. Rio San Diego Dr & River Run Dr	AWSC	AM	12.9	B	13.6	B	0.7	NO
		PM	25.1	D	30.8	D	5.7	NO
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	16.7	B	17.0	B	0.3	NO
		PM	27.7	C	28.7	C	1.0	NO
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	31.0	C	46.0	D	15.0	NO
		PM	30.0	C	48.4	D	18.4	NO
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	23.5	C	**101.1**	**F**	**77.6**	**YES**
		PM	26.7	C	**73.2**	**E**	**46.5**	**YES**

TABLE 29 – HORIZON YEAR (2037) PLUS PROJECT WITHOUT EVENT CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Horizon Year Without the Project Conditions		Horizon Year Plus Project Conditions		Delay Delta	Significant Impact?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	21.3	C	21.8	C	0.5	NO
		PM	**71.0**	**E**	**71.0**	**E**	0.0	NO
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N	Signalized	AM	20.5	C	21.8	C	1.3	NO
		PM	**73.6**	**E**	**77.2**	**E**	3.6	NO****
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.2	A	1.2	A	0.0	NO
		PM	4.9	A	4.9	A	0.0	NO
31. Texas St & Camino del Rio S	Signalized	AM	**104.1**	**F**	**111.7**	**F**	**7.6**	**YES**
		PM	**85.0**	**F**	**103.3**	**F**	**18.3**	**YES**
32. Ward Rd & Rancho Mission Rd	SSSC	AM	26.9	D	**131.2**	**F**	**104.3**	**YES**
		PM	29.9	D	**321.1****	**F**	**291.2**	**YES**
33. Camino del Rio N & Ward Ave	Signalized	AM	15.4	B	25.3	C	9.9	NO
		PM	15.9	B	29.6	C	13.7	NO
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	22.0	C	27.6	C	5.6	NO
		PM	28.1	C	**62.1**	**E**	**34.0**	**YES**
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	**94.7**	**F**	**122.5**	**F**	**27.8**	**YES**
		PM	**104.7**	**F**	**176.5****	**F**	**71.8**	**YES**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	17.7	B	20.5	C	2.8	NO
		PM	44.3	D	52.7	D	8.4	NO
37. Montezuma Rd & Collwood Blvd	Signalized	AM	46.9	D	49.2	D	2.3	NO
		PM	50.0	D	53.5	D	3.5	NO
38. Mission Village Dr & Shawn Ave	Signalized	AM	6.2	A	6.4	A	0.2	NO
		PM	10.8	B	13.6	B	2.8	NO
39. Mission Village Dr & Fermi Ave	Signalized	AM	14.5	B	15.5	B	1.0	NO
		PM	11.3	B	13.9	B	2.6	NO
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	20.5	C	32.6	C	12.1	NO
		PM	24.5	C	36.4	D	11.9	NO
41. Ruffin Rd & Aero Dr	Signalized	AM	35.7	D	36.8	D	1.1	NO
		PM	52.6	D	**63.2**	**E**	**10.6**	**YES**
42. Gramercy Dr & Mobley St	Signalized	AM	7.1	A	7.2	A	0.1	NO
		PM	6.0	A	6.1	A	0.1	NO
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	9.1	A	9.3	A	0.2	NO
		PM	11.7	B	11.9	B	0.2	NO

Source: Fehr & Peers, 2019

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections, the all-way-stop-controlled (AWSC) intersection, and the roundabout intersection. Worst movement delay reported for the side-street-stop-controlled (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual (HCM)* method.

[3] Below-standard seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Under Existing Conditions, the Stadium Way (Street A) & Friars Road intersection is only used during stadium events.

* Existing or proposed signal phasing prevents the use of *HCM 6* at this intersection. The *HCM 2000* method was applied instead.

** Calculated delays above 150 seconds may not be accurate and should be used with caution.

*** Ramp metering during the peak hours under existing conditions results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation. This additional delay is estimated to result in operations as shown in parentheses.

**** Intersection would exceed the City of San Diego impact threshold.

****Because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would cause a significant impact.

32. Ward Road & Rancho Mission Road (AM and PM peak hours)
34. Fairmount Avenue & Mission Gorge Road (PM peak hour)
35. Fairmount Avenue & Camino del Rio North (AM and PM peak hours)
41. Ruffin Road & Aero Drive (PM peak hour)

The MUTCD peak hour signal warrant would be satisfied during both peak hours at the side-street stop-controlled Ward Road/Rancho Mission Road intersection, which is part of the impact criteria for unsignalized intersections. The warrant evaluation is included in **Appendix E**.

Similar to the results under the Existing Plus Project Conditions, the same intersections would exceed the thresholds of the City of San Diego impact criteria. Additionally at Intersection 29 – Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N the project traffic would exacerbate baseline conditions and increase the delay by more than two (2.0) seconds, exceeding the City of San Diego threshold.

7.1.2 ROADWAY SEGMENT ANALYSIS

The roadway segment LOS analysis was conducted using the City of San Diego impact thresholds and is presented for information purposes. Project traffic traversing the study area roadway segments was added to Horizon Year 2037 Without Project Conditions peak hour volumes. **Table 30** displays the LOS analysis for the study area roadway segments under Horizon Year Plus Project Conditions and compares the projected levels of service at each segment in 2037 to conditions without the project. As shown in the table, the following study area roadway segments are projected to operate at LOS E or F under this scenario:

6. Friars Road from Northside Drive to Stadium Way (Street A) (LOS F)
8. Friars Road from Mission Village Drive to the I-15 Ramps (LOS E)
9. Friars Road from the I-15 Ramps to Rancho Mission Road (LOS F)
11. Friars Road from Santo Road to Riverdale Street (LOS F)
12. Friars Road from Riverdale Street to Mission Gorge Road (LOS E)
17. San Diego Mission Road from Mission Village Drive/Street F to Rancho Mission Road (LOS F)
18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue (LOS F)
19. Rancho Mission Road from Friars Road to San Diego Mission Road (LOS F)
20. Rancho Mission Road from San Diego Mission Road to Friars Road (LOS E)
22. Ward Road from Rancho Mission Road to Camino del Rio North (LOS F)
34. Camino del Rio South from Texas Street to Mission City Parkway (LOS F)

To determine which of these segments exceed the City of San Diego threshold, the second part of the roadway analysis must be performed, which reviews intersection operations at both ends of each segment, the arterial speed-based LOS on the segment, and the buildout community plan street classification. This analysis will be reviewed in **Section 9.3.2** at which point intersection mitigations can be included.

TABLE 30 – HORIZON YEAR PLUS PROJECT WITHOUT EVENT CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment			Roadway Classification (# of Lanes)[1]	Capacity	Horizon Year Without the Project Conditions			Horizon Year Plus Project Conditions			V/C Delta	Requires Additional Analysis?
ID	Extent (from/to)				ADT	V/C[2]	LOS[3,4]	ADT	V/C[2]	LOS[3,4]		
Friars Rd												
1	Frazee Rd	Mission Center Rd	8P	80,000	52,600	0.66	C	56,839	0.71	C	0.05	NO
2	Mission Center Rd	Qualcomm Way	6E	80,000	48,594	0.61	B	54,081	0.68	C	0.07	NO
3	Qualcomm Way	River Run Dr	6E	80,000	42,681	0.53	C	50,015	0.63	C	0.10	NO
4	River Run Dr	Fenton Pkwy	6P	60,000	43,198	0.72	C	50,820	0.85	D	0.13	NO
5	Fenton Pkwy	Northside Dr	6P	60,000	45,271	0.75	C	52,875	0.88	D	0.13	NO
6	Northside Dr	Stadium Way (Street A)	6E – 6P with project	80,000 – 60,000	54,457	0.68	C	62,520	**1.04**	**F**	**0.36**	**YES**
7	Stadium Way (Street A)	Mission Village Dr	6E	80,000	54,457	0.68	C	66,403	0.83	D	0.15	NO
8	Mission Village Dr	I-15 Ramps	6E	80,000	52,850	0.66	C	72,125	**0.90**	**E**	**0.24**	**YES**
9	I-15 Ramps	Rancho Mission Rd	7P	70,000	**72,970**	**1.04**	**F**	78,407	**1.12**	**F**	**0.08**	**YES**
10	Rancho Mission Rd	Santo Rd	7P	70,000	61,340	0.88	D	63,700	0.91	D	0.03	NO
11	Santo Rd	Riverdale St	6P	60,000	**60,170**	**1.00**	**F**	61,873	**1.03**	**F**	**0.03**	**YES**
12	Riverdale St	Mission Gorge Rd	6P	60,000	54,675	0.91	D	56,252	**0.94**	**E**	**0.03**	**YES**
Qualcomm Way												
13	Friars Rd	Rio San Diego Dr	6M	50,000	22,813	0.46	B	24,047	0.48	B	0.02	NO
Rio San Diego Dr												
14	Qualcomm Way	River Run Dr	4M	40,000	15,876	0.40	B	16,673	0.42	B	0.02	NO
15	River Run Dr	Fenton Pkwy	4C/M	30,000	13,246	0.44	B	14,120	0.47	C	0.03	NO
Fenton Pkwy												
16	Rio San Diego Dr/ Fenton Marketplace Dwy	Northside Dr	4M	40,000	6,240	0.16	A	7,434	0.19	A	0.03	NO
San Diego Mission Rd												
17	Mission Village Dr/ Street F	Rancho Mission Rd	4C w/o CLTL	15,000	9,254	0.62	C	15,925	**1.06**	**F**	**0.44**	**YES**
18	Rancho Mission Rd	Fairmount Ave	2C w/CLTL	15,000	**13,240**	**0.88**	**E**	18,294	**1.22**	**F**	**0.34**	**YES**
Rancho Mission Rd												
19	Friars Rd	San Diego Mission Rd	3C w/CLTL	22,500	18,681	0.83	D	22,983	**1.02**	**F**	**0.19**	**YES**
20	San Diego Mission Rd	Ward Rd	4C w/o CLTL	15,000	11,576	0.77	D	13,301	**0.89**	**E**	**0.12**	**YES**
21	West of Ward Rd		2C	10,000	1,824	0.18	A	6,275	0.63	C	0.45	NO
Ward Rd												
22	Rancho Mission Rd	Camino del Rio N	4C w/o CLTL	15,000	12,047	0.80	D	16,741	**1.12**	**F**	**0.32**	**YES**
Fairmount Ave												
23	San Diego Mission Rd/Twain Ave	Mission Gorge Rd	4C w/o CLTL	15,000	8,719	0.29	A	12,174	0.41	B	0.12	NO
Mission Village Dr												
24	Ruffin Rd	Shawn Ave	4C	30,000	18,344	0.61	C	22,623	0.75	D	0.14	NO
25	Shawn Ave	Ronda Ave	4C	30,000	14,912	0.50	C	19,399	0.65	C	0.15	NO
26	Ronda Ave	Friars Rd	4M	40,000	17,204	0.43	B	21,709	0.54	C	0.11	NO
Ruffin Rd												
27	Aero Dr	Mission Village Dr	4C	30,000	16,451	0.55	C	19,086	0.64	C	0.09	NO
Gramercy Dr												
28	Mobley St	Ruffin Rd	4M	40,000	9,456	0.24	A	10,812	0.27	A	0.03	NO
Aero Dr												
29	Sandrock Rd	Ruffin Rd	4M	40,000	24,167	0.60	C	25,505	0.64	C	0.04	NO
30	Ruffin Rd	Daley Center Dr	4M	40,000	31,494	0.79	D	32,625	0.82	D	0.03	NO
Camino del Rio N												
31	Qualcomm Way	Mission City Pkwy	4C	30,000	11,608	0.39	B	12,063	0.40	B	0.01	NO
32	Mission City Pkwy	Ward Rd	2C w/CLTL	15,000	10,318	0.69	D	11,237	0.75	D	0.06	NO
33	Ward Rd	Fairmount Ave	4C	30,000	14,706	0.49	C	18,940	0.63	C	0.14	NO
Camino del Rio S												
34	Texas St	Mission City Pkwy	2C	10,000	13,888	**1.39**	**F**	14,109	**1.41**	**F**	**0.02**	**YES**

Source: Fehr & Peers, 2019

Notes:

1 2C w/CLTL = 2-lane collector with center left-turn lane
3C w/CLTL = 3-lane collector (2 lanes in one direction and 1 in opposing direction) with center left-turn lane;
4C w/o CLTL = 4-lane collector without center left-turn lane
4C = 4-lane collector
4M = 4-lane major arterial
6M = 6-lane major arterial
6P = 6-lane primary arterial
7P = 7-lane primary arterial (4 lanes in one direction and 3 in opposing direction); the additional lane is assumed to add 5,000 ADT for LOS A, 7,500 ADT for LOS B, and 10,000 ADT for LOS C, D, and E per the Mission Valley Community Plan Update
8P = 8-lane primary arterial
6E = 6-lane expressway

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)* and the *Mission Valley Community Plan Update (2019)*

4 Unacceptable ADT volumes per segment and LOS highlighted in **bold**.

7.1.3 FREEWAY SEGMENT ANALYSIS

Table 31 displays freeway operation under Horizon Year (2037) Plus Project conditions. All freeways segments are expected to operate at undesirable levels (LOS E or F) under Horizon Year Conditions without and with the project. The addition of project trips will further exacerbate operations at these locations. Based on the applicable impact criteria, the proposed project would result in cumulative significant impacts on the following freeway segments:

10. I-15 from Adams Avenue to I-8 (NB, AM and PM peak hours; SB, PM peak hour)
11. I-15 from I-8 to Friars Road (NB auxiliary lanes, PM peak hour; SB auxiliary lanes to I-8, AM and PM peak hours; SB auxiliary lane to I-15 SB, PM peak hour)
12. I-15 from Friars Road to Aero Drive (NB, AM peak hour; SB, PM peak hour)
13. I-15 from Aero Drive to Balboa Avenue/Tierrasanta Boulevard (both directions, AM and PM peak hours)
14. I-8 from Morena Boulevard to Taylor Street (EB, PM peak hour)

15-16. I-8 from Taylor Street to SR-163 (EB, AM and PM peak hours; WB, PM peak hour)

17-18. I-8 from SR-163 to Texas Street (WB, PM peak hour)

20. I-8 from I-805 to I-15 (EB, PM peak hour; WB, AM and PM peak hours)

22-23. I-8 from Fairmount Avenue to College Avenue (EB, PM peak hour; WB, AM peak hour)

It is noted that the locations that would exceed the City of San Diego significance criteria include those noted above as well as the following:

1. SR-163 from Washington Street to I-8 (NB, PM peak hour; SB, PM peak hour)

15-17. I-8 from Taylor Street to Mission Center Road (WB, AM peak hour)

18-19. I-8 from Mission Center Road to Texas Street (EB, PM peak hour; WB, AM peak hour)

21. I-8 from I-15 to Waring Road (EB, PM peak hour)

7.1.4 FREEWAY RAMP METERING ANALYSIS

Table 32 displays the results of the ramp metering analysis conducted at the metered freeway on-ramps in the study area under Horizon Year Plus Project Conditions.

As shown in **Table 32**, all ramps are expected to operate with unacceptable delays during one or both peak hours. Additionally, at all ramps, on-ramp capacity is not sufficient to accommodate the peak hour demand during metered peak periods; thus, ramp queues are expected to spill back onto the arterial streets.

TABLE 31 – HORIZON YEAR PLUS PROJECT WITHOUT EVENT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

	Freeway Segment	Direction	Number of Lanes	Capacity[1]	Horizon Year Without the Project Conditions						Horizon Year Plus Project Conditions						V/C Delta		Significant Impact?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
State Route 163																				
1	6th Ave to I-8	NB	3M+1A	6,600	6,350	6,892	**0.96**	**1.04**	**E**	**F(0)**	6,407	6,942	**0.97**	**1.05**	**E**	**F(0)**	0.01	0.01	NO	NO*
		SB	3M+2A	7,800	10,832	9,690	**1.39**	**1.24**	**F(2)**	**F(0)**	10,868	9,757	**1.39**	**1.25**	**F(2)**	**F(1)**	0.00	0.01	NO	NO*
2	I-8 to Friars Rd	NB	2A	2,400	1,958	2,125	0.82	0.89	D	D	2,083	2,206	0.87	0.92	D	D	0.05	0.03	NO	NO
		SB	4M+2A	9,600	9,908	9,049	**1.03**	**0.94**	**F(0)**	**E**** (F)	9,944	9,122	**1.04**	**0.95**	**F(0)**	**E** (F)	0.00	0.01	NO	NO
3	Friars Rd to Mesa College Dr[5]	NB	5M	9,000	11,141	8,973	**1.24**	**1.00**	**F(0)**	**E**	11,154	9,005	**1.24**	**1.00**	**F(0)**	**F(0)**	0.00	0.00	NO	NO
		SB	4M	7,200	7,446	7,713	**1.03**	**1.07**	**F(0)**	**F(0)**** (F)	7,464	7,731	**1.04**	**1.07**	**F(0)**	**F(0)** (F)	0.00	0.00	NO	NO
4	Mesa College Dr to I-805	NB	4M+2A	9,600	9,392	8,718	**0.98**	0.91	**E**	D	9,403	8,747	**0.98**	0.91	**E**	D	0.00	0.00	NO	NO
		SB	4M+1A	8,400	8,551	7,471	**1.02**	0.89	**F(0)**	D* (F)	8,567	7,488	**1.02**	0.89	**F(0)**	D (F)	0.00	0.00	NO	NO
Interstate 805																				
5	Madison Ave to I-8	NB	4M+1A	8,400	10,241	5,976	**1.22**	0.71	**F(0)**	C	10,275	6,006	**1.22**	0.71	**F(0)**	C	0.00	0.00	NO	NO
		SB	6M	10,800	5,454	11,453	0.50	**1.06**	B	**F(0)**** (F)	5,475	11,493	0.51	**1.06**	B	**F(0)** (F)	0.00	0.00	NO	NO
6	I-8 to Murray Ridge Rd/ Phyllis Pl	NB	5M	9,000	11,876	6,885	**1.32**	0.77	**F(1)**	C	11,886	6,907	**1.32**	0.77	**F(1)**	C	0.00	0.00	NO	NO
		SB	4M+2A	9,600	6,216	11,119	0.65	**1.16**	C	**F(0)**	6,232	11,131	0.65	**1.16**	C	**F(0)**	0.00	0.00	NO	NO
7	Murray Ridge Rd/Phyllis Pl to Mesa College Dr/Kearny Villa Rd	NB	5M	9,000	11,865	6,854	**1.32**	0.76	**F(1)**	C	11,875	6,876	**1.32**	0.76	**F(1)**	C	0.00	0.00	NO	NO
		SB	5M	9,000	5,975	10,851	0.66	**1.21**	C	**F(0)**	5,992	10,862	0.67	**1.21**	C	**F(0)**	0.00	0.00	NO	NO
8	Mesa College Dr/Kearny Villa Rd to SR-163	NB	5M	9,000	9,896	5,830	**1.10**	0.65	**F(0)**** (F)	C	9,905	5,851	**1.10**	0.65	**F(0)** (F)	C	0.00	0.00	NO	NO
		SB	4M	7,200	4,290	6,701	0.60	**0.93**	B	**E**** (F)	4,305	6,712	0.60	**0.93**	B	**E** (F)	0.00	0.00	NO	NO
9	SR-163 to Balboa Ave	NB	4M+1A	8,400	7,077	5,952	0.84	0.71	D** (F)	C	7,098	6,002	0.84	0.71	D (F)	C	0.00	0.01	NO	NO
		SB	4M+2A	9,600	6,693	9,068	0.70	**0.94**	C	**E**** (F)	6,724	9,095	0.70	**0.95**	C	**E** (F)	0.00	0.00	NO	NO
Interstate 15																				
10	Adams Ave to I-8	NB	3M+2A	7,800	7,624	8,470	**0.98**	**1.09**	**E**	**F(0)**	7,978	8,775	**1.02**	**1.13**	**F(0)**	**F(0)**	**0.05**	**0.04**	**YES**	**YES**
		SB	5M	9,000	6,077	10,152	0.68	**1.13**	C	**F(0)**	6,298	10,563	0.70	**1.17**	C	**F(0)**	0.02	**0.05**	NO	**YES**
11	NB Off-Ramp to Friars Rd	NB	2A	2,400	1,381	2,140	0.58	0.89	B	D	1,880	2,590	0.78	**1.08**	C	**F(0)**	0.21	**0.19**	NO	**YES**
	Friars Rd Auxiliary Lanes to I-8	SB	3A	3,600	4,390	5,796	**1.22**	**1.61**	**F(0)**	**F(3)**	4,504	5,985	**1.25**	**1.66**	**F(1)**	**F(3)**	**0.03**	**0.05**	**YES**	**YES**
	Friars Rd Direct Ramp to I-15 SB	SB	1A	1,200	751	1,104	0.63	**0.92**	C	**E**	954	1,494	0.80	**1.24**	C	**F(0)**	0.17	**0.32**	NO	**YES**
12	Friars Rd to Aero Dr	NB	4M+1A	8,400	9,691	7,115	**1.15**	0.85	**F(0)**	D	9,964	7,620	**1.19**	0.91	**F(0)**	D	**0.03**	0.06	**YES**	NO
		SB	5M+1A	10,200	8,245	11,344	0.81	**1.11**	D	**F(0)**	8,680	11,718	0.85	**1.15**	D	**F(0)**	0.04	**0.04**	NO	**YES**
13	Aero Dr to Balboa Ave/ Tierrasanta Blvd	NB	4M+1A	8,400	10,881	8,205	**1.30**	**0.98**	**F(1)**	**E**	11,125	8,657	**1.32**	**1.03**	**F(1)**	**F(0)**	**0.03**	**0.05**	**YES**	**YES**
		SB	4M+1A	8,400	8,446	10,169	**1.01**	**1.21**	**F(0)**	**F(0)**	8,835	10,503	**1.05**	**1.25**	**F(0)**	**F(1)**	**0.05**	**0.04**	**YES**	**YES**
Interstate 8																				
14	Morena Blvd to Taylor St	EB	4M+1A	8,400	7,276	9,089	0.87	**1.08**	D	**F(0)**	7,382	9,179	0.88	**1.09**	D	**F(0)**	0.01	**0.01**	NO	**YES**
		WB	5M	9,000	8,564	7,482	**0.95**	0.83	**E**	D	8,630	7,604	**0.96**	0.84	**E**	D	0.01	0.01	NO	NO
15	Taylor St to Hotel Cir	EB	4M	7,200	7,129	9,532	**0.99**	**1.32**	**E**	**F(1)**	7,243	9,629	**1.01**	**1.34**	**F(0)**	**F(1)**	**0.02**	**0.01**	**YES**	**YES**
		WB	4M+1A	8,400	9,871	8,430	**1.18**	**1.00**	**F(0)**	**F(0)**	9,942	8,562	**1.18**	**1.02**	**F(0)**	**F(0)**	0.01	**0.02**	NO*	**YES**

TABLE 31 – HORIZON YEAR PLUS PROJECT WITHOUT EVENT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

Freeway Segment		Direction	Number of Lanes	Capacity[1]	Horizon Year Without the Project Conditions						Horizon Year Plus Project Conditions						V/C Delta		Significant Impact?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Interstate 8																				
16	Hotel Cir to SR-163	EB	4M+2A	9,600	8,841	10,972	**0.92**	**1.14**	**E**	**F(0)**	8,956	11,071	**0.93**	**1.15**	**E**	**F(0)**	**0.01**	**0.01**	**YES**	**YES**
		WB	5M	9,000	10,030	8,245	**1.11**	0.92	**F(0)**	D	10,101	8,378	**1.12**	**0.93**	**F(0)**	**E**	0.01	**0.01**	NO*	**YES**
17	SR-163 to Mission Center Rd	EB	4M	7,200	3,770	7,084	0.52	**0.98**	B	**E**** (F)	3,834	7,155	0.53	**0.99**	B	**E** (F)	0.01	**0.01**	NO	NO
		WB	3M+2A	7,800	10,364	9,544	**1.33**	**1.22**	**F(1)**	**F(0)**	10,435	9,669	**1.34**	**1.24**	**F(1)**	**F(0)**	0.01	**0.02**	NO*	**YES**
18	Mission Center Rd to Texas St	EB	4M+1A	8,400	6,280	11,826	0.75	**1.41**	C	**F(2)**	6,344	11,897	0.76	**1.42**	C	**F(2)**	0.01	0.01	NO	NO*
		WB	4M+1A	8,400	10,786	9,995	**1.28**	**1.19**	**F(1)**	**F(0)**	10,857	10,121	**1.29**	**1.20**	**F(1)**	**F(0)**	0.01	**0.01**	NO*	**YES**
19	Texas St to I-805	EB	4M	7,200	3,980	7,765	0.55	**1.08**	B	**F(0)**(F)	4,044	7,836	0.56	**1.09**	B	**F(0)** (F)	0.01	**0.01**	NO	NO*
		WB	4M	7,200	7,554	5,996	**1.05**	0.83	**F(0)**(F)	D	7,625	6,122	**1.06**	0.85	**F(0)** (F)	D	**0.01**	0.02	NO*	NO
20	I-805 to I-15	EB	4M+2A	9,600	7,374	12,462	0.77	**1.30**	C	**F(1)**	7,489	12,574	0.78	**1.31**	C	**F(1)**	0.01	**0.01**	NO	**YES**
		WB	4M+2A	9,600	12,644	10,240	**1.32**	**1.07**	**F(1)**	**F(0)**	12,742	10,409	**1.33**	**1.08**	**F(3)**	**F(3)**	**0.01**	**0.02**	**YES**	**YES**
21	I-15 to Fairmount Ave	EB	4M+2A	9,600	7,378	11,546	0.77	**1.20**	C	**F(0)**	7,406	11,595	0.77	**1.21**	C	**F(0)**	0.00	**0.01**	NO	NO*
		WB	4M+2A	9,600	8,956	6,605	**0.93**	0.69	**E**** (F)	C	9,017	6,696	**0.94**	0.70	**E**	C	**0.01**	0.01	NO	NO
22	Fairmount Ave to Waring Rd	EB	5M	9,000	8,018	12,782	0.89	**1.42**	D	**F(2)**	8,161	13,048	0.91	**1.45**	D	**F(2)**	0.02	**0.03**	NO	**YES**
		WB	6M	10,800	12,116	9,572	**1.12**	0.89	**F(0)**	D	12,345	9,769	**1.14**	0.90	**F(0)**	D	**0.02**	0.02	**YES**	NO
23	Waring Rd to College Ave	EB	5M	9,000	7,722	12,056	0.86	**1.34**	D	**F(1)**	7,864	12,318	0.87	**1.37**	D	**F(2)**	0.02	**0.03**	NO	**YES**
		WB	5M	9,000	11,307	9,051	**1.26**	**1.01**	**F(1)**	**F(0)**	11,533	9,246	**1.28**	**1.03**	**F(1)**	**F(0)**	**0.03**	**0.02**	**YES**	**YES**

Source: Fehr & Peers, 2019

Notes:

1 Capacity calculated at 1,800 vehicles/hour per mainline lane and 1,200 vehicles/hour per auxiliary lane
M = mainline lane
A = auxiliary lane

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable V/C and LOS highlighted in **bold**.

5 No data available from Genesee Ave to Mesa College Dr - assumed equivalent to the segment from Friars Rd to Genesee Ave

* Freeway segment would exceed the City of San Diego impact threshold.

** Traffic data indicate existing operations are worse than calculated. Peak hour volumes likely do not represent actual demand due to heavy congestion. Estimated operations are shown in parentheses.

LOS	V/C	LOS	V/C
A	<0.41	F(0)	1.25
B	0.62	F(1)	1.35
C	0.80	F(2)	1.45
D	0.92	F(3)	>1.46
E	1.00		

TABLE 32 – HORIZON YEAR (2037) PLUS PROJECT WITHOUT EVENT RAMP METERING ANALYSIS

Location	Peak Hour	Total # of Mixed Flow Lanes	Meter Rate[1] (veh/hr)	Horizon Year Without the Project Conditions					Horizon Year Plus Project Conditions					Delay Delta	Significant Impact?
				Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)		
				Mixed Flow & HOV	Mixed Flow only				Mixed Flow & HOV	Mixed Flow only					
I-15 NB - Friars Rd On-Ramp	AM	2	1,450	2,345	1,983	533	**22.0**	7,725	2,617	2,213	763	**31.6**	11,050	9.6	**YES**
	PM	2	888	1,503	1,369	481	**32.5**	6,975	2,010	1,830	942	**63.7**	13,675	31.2	**YES**
I-15 SB / I-8 - Friars Rd Loop On-Ramp	AM	1	N/A	914	914	N/A	N/A	N/A	1,028	1,028	N/A	N/A	N/A	N/A	NO
	PM	1	660	929	929	269	**24.5**	7,800	1,118	1,118	458	**41.7**	13,300	17.2	**YES**
I-15 SB - Friars Rd Direct On-Ramp	AM	1	N/A	751	751	N/A	N/A	N/A	954	954	N/A	N/A	N/A	N/A	NO
	PM	1	996	1,104	1,104	108	6.5	3,150	1,494	1,494	498	**30.0**	14,425	23.5	**YES**
I-8 EB - SB Fairmount Ave	AM	1	N/A	302	302	N/A	N/A	N/A	432	432	N/A	N/A	N/A	N/A	NO
	PM	1	492	664	664	172	**21.0**	5,000*	900	900	408	**49.7**	11,825	28.7	**YES**

Source: Fehr & Peers, 2019. Analysis based on Caltrans District 11 Ramp Meter methodology

Notes:

[1] Meter Rate is the peak hour capacity for the ramp meter. This value was obtained from Caltrans. The most restrictive meter rate was assumed.

[2] Demand is the peak hour demand projected to use the on-ramp.

[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.

[4] Delay = (Excess Demand / Meter Rate) x 60 min/hr. Undesirable delays in excess of 15 minutes are highlighted in **bold**.

[5] Queue = (Excess Demand / # of Lanes) x 29 ft/veh, rounded to the nearest multiple of 25 ft.

* Field observations of existing conditions indicate that operations may be better than calculated.

After applying the applicable significance criteria, the proposed project would increase delay by more than two (2) minutes compared to Horizon Year conditions without the project for on-ramps operating with delays above 15 minutes and, therefore, would result in a cumulative significant impact at the following four ramp locations:

- I-15 NB On-ramp from Friars Road – operates at 22.0 minutes of delay in the AM peak hour and 32.5 minutes of delay in the PM peak hour without the project. The addition of project traffic would further exacerbate operations and increase delay by 9.6 minutes to a total delay of 31.2 minutes in the AM peak hour and 31.6 minutes to a total of 63.7 minutes in the PM peak hour.
- I-15 SB/I-8 Loop On-ramp from Friars Road – operates at 24.5 minutes of delay in the PM peak hour without the project. The addition of project traffic would further exacerbate operations and increase delay by 17.2 minutes to a total delay of 41.7 minutes.
- I-15 SB Direct On-ramp from Friars Road – operates at 6.5 minutes of delay in the PM peak hour without the project. The addition of project traffic would further exacerbate operations and increase delay by 23.5 minutes to a total delay of 30.0 minutes.
- I-8 EB On-ramp from SB Fairmount Avenue – operates at 21.0 minutes of delay in the PM peak hour without the project. The addition of project traffic would further exacerbate operations and increase delay by 28.7 minutes to a total delay of 49.7 minutes.

It is noted that the locations that would exceed the City of San Diego significance criteria are the same as those noted above.

7.1.5 FREEWAY OFF-RAMP QUEUEING ANALYSIS

Table 33 displays the off-ramp queueing analysis conducted at the SR-163 and I-15 off-ramps at Friars Road and the I-8 off-ramps at Qualcomm Way/Texas Street and Fairmount Avenue. As shown, all off-ramp queues can be accommodated by existing storage capacity under Horizon Year Plus Project Conditions and, therefore, impacts would be less than significant.

TABLE 33 – HORIZON YEAR PLUS PROJECT WITHOUT EVENT OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)	
				Horizon Year Without the Project Conditions	Horizon Year Plus Project Conditions
1. SR-163 SB off-ramp at Friars Rd/Ulric St	AM	NBL	1,200	211	211
		NBT		104	104
		NBR		487	502
	PM	NBL	1,200	263	263
		NBT		62	62
		NBR		485	523
2. SR-163 NB off-ramp at Friars Rd	AM	SBL	700	444	505
		SBT		0	0
		SBR		305	318
	PM	SBL	700	418	456
		SBT		0	0
		SBR		447	456
17. I-15 SB off-ramp at Friars Rd	AM	SBL	1,200	460	482
		SBT		449	470
		SBR		257	500
	PM	SBL	1,200	842	911
		SBT		845	911
		SBR		80	168
18. I-15 NB off-ramp at Friars Rd	AM	NBR	1,500	0	0
		SBR	1,300	0	0
	PM	NBR	1,500	0	0
		SBR	1,300	0	0
29. I-8 WB off-ramp at Qualcomm Way/Camino del Rio N	AM	WBL	3,200	0	0
		WBT		221	243
		WBR		740	824
	PM	WBL	3,200	0	0
		WBT		394	411
		WBR		545	585
30. I-8 EB off-ramp at Qualcomm Way/Texas St	AM	EBR	900	169	169
	PM	EBR	900	274	270
35. I-8 WB off-ramp at Fairmount Ave/Alvarado Canyon Rd/Camino del Rio N	AM	WBL	1,000	627	713
		WBT		607	680
		WBR		269	394
	PM	WBL	1,000	714	714
		WBT		464	601
		WBR		308	468
36. I-8 EB off-ramp at Fairmount Ave	AM	EBL	4,100	484	505
		EBR		493	508
	PM	EBL	4,100	1,099	1,113
		EBR		1,659	1,665

Source: Fehr & Peers, 2019.

7.2 HORIZON YEAR PLUS PROJECT PLUS EVENT CONDITIONS

This chapter presents the results of the operations analysis under the Horizon Year (2037) scenario with buildout of the proposed project. Under this scenario, stadium event trips were added to the Horizon Year Plus Project Conditions to analyze operations in the scenario where a sold-out event occurs on a typical weekday. This analysis is conservative because it does not account for changes in travel patterns by local residents and employees due to the advance notice of a large-scale event occurring at the stadium. For example, office employees may be more likely to leave early on a weekday when a large event is occurring, or local residents may choose to adjust their typical commute such that they would not return home until after the event has started in order to avoid peak traffic.

The Horizon Year Plus Project Plus Event Conditions roadway network is the same network assumed under the Horizon Year Plus Project scenario.

7.2.1 INTERSECTION ANALYSIS

Turning movement traffic volumes and intersection lane configurations for the Horizon Year (2037) Plus Project Plus Event Conditions are shown on **Figure 18**. This data was used to calculate operations under this scenario.

Table 34 presents the intersection operating conditions and traffic impacts under the Horizon Year Plus Project Plus Event Conditions and compares the projected levels of service at each study area intersection under this scenario to the Horizon Year Without Project Conditions. The corresponding LOS calculation sheets are included in **Appendix E**.

As shown in **Table 34**, in addition to impacts identified for the Horizon Year Plus Project Without Event Conditions, adding stadium traffic would cause a significant impact at the following three (3) locations:

3. Frazee & Friars Road (PM peak hour)
11. Stadium Way (Street A) & Friars Road (PM peak hour)
15. Street D & Street 4 (PM peak hour)

It is noted that the locations that would exceed the City of San Diego significance criteria are the same as those noted above.

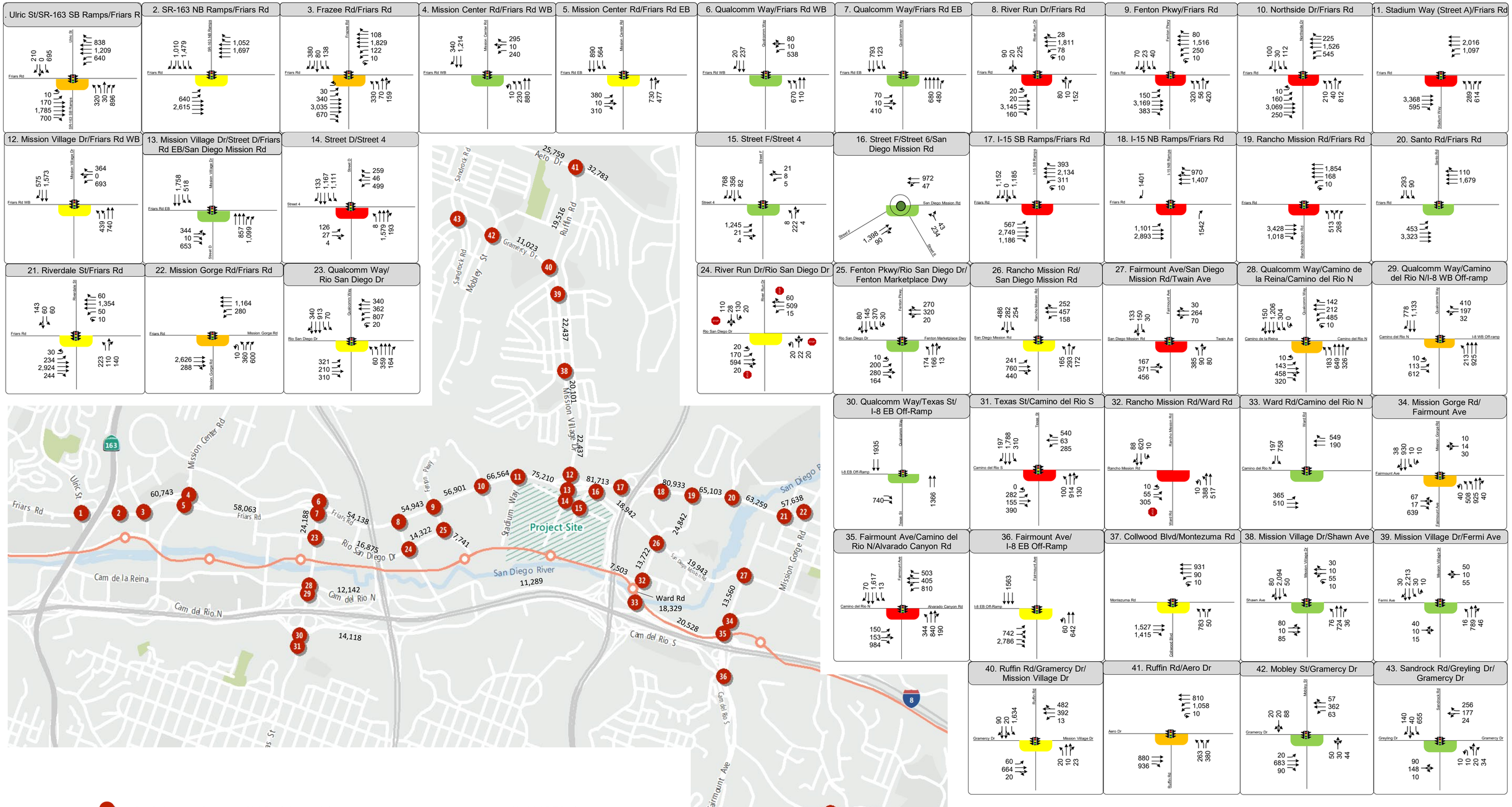


Figure 18

Horizon Year Plus Project Plus Event Conditions
Traffic Volumes, Lane Configurations, and LOS

TABLE 34 – HORIZON YEAR (2037) PLUS PROJECT PLUS EVENT CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Horizon Year Without the Project Conditions		Horizon Year Plus Project Plus Event Conditions		Delay Delta	Significant Impact?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
1. SR-163 SB Ramps/Ulric St & Friars Rd*	Signalized	AM	45.2	D	45.3	D	1.4	NO
		PM	54.5	D	**70.2**	**E**	**13.3**	**YES**
2. SR-163 NB Ramps & Friars Rd*	Signalized	AM	19.8	B	29.5	C	3.3	NO
		PM	32.4	C	42.5	D	9.0	NO
3. Frazee Rd & Friars Rd*	Signalized	AM	45.2	D	50.6	D	1.6	NO
		PM	44.8	D	**65.6**	**E**	**22.6**	**YES**
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	12.8	B	13.3	B	0.5	NO
		PM	14.1	B	15.0	B	0.9	NO
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	16.8	B	16.7	B	-0.1	NO
		PM	36.2	D	38.3	D	2.1	NO
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	15.9	B	17.0	B	1.1	NO
		PM	24.5	C	24.9	C	0.4	NO
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	5.6	A	6.2	A	0.6	NO
		PM	12.8	B	13.2	B	0.4	NO
8. River Run Dr & Friars Rd	Signalized	AM	23.0	C	25.0	C	2.0	NO
		PM	**59.6**	**E**	**146.4**	**F**	**86.8**	**YES**
9. Fenton Pkwy & Friars Rd	Signalized	AM	27.9	C	22.1	C	-5.8	NO
		PM	**92.8**	**F**	**179.1****	**F**	**86.3**	**YES**
10. Northside Dr & Friars Rd	Signalized	AM	34.3	C	26.6	C	-7.7	NO
		PM	**76.4**	**E**	**145.1**	**F**	**68.7**	**YES**
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A	10.4	B	N/A	NO
		PM	-	N/A	**134.6**	**F**	N/A	**YES**
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	30.1	C	28.8	C	-1.3	NO
		PM	52.0	D	36.6	D	-15.4	NO
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd*	Signalized	AM	**173.4****	**F**	17.0	B	-156.4	NO
		PM	**94.0**	**F**	31.7	C	-62.3	NO
14. Street D & Street 4	Signalized	AM	DNE	N/A	23.7	C	N/A	NO
		PM		N/A	**370.0****	**F**	N/A	**YES**
15. Street F & Street 4	Signalized	AM	DNE	N/A	27.0	C	N/A	NO
		PM		N/A	31.7	C	N/A	NO
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A	8.1	A	N/A	NO
		PM		N/A	13.3	B	N/A	NO
17. I-15 SB Ramps & Friars Rd	Signalized	AM	46.3	D	**124.6**	**F**	**78.3**	**YES**
		PM	**67.3**	**E***** (F)	**137.9**	**F** (F)	**70.6**	**YES**
18. I-15 NB Ramps & Friars Rd	Signalized	AM	**83.5**	**F***** (F)	**137.6**	**F** (F)	**54.1**	**YES**
		PM	**67.3**	**E***** (F)	**218.1**	**F** (F)	**150.8**	**YES**
19. Rancho Mission Rd & Friars Rd	Signalized	AM	30.3	C*** (E)	33.8	C (F)	3.5	**YES*****
		PM	**72.4**	**E***** (E)	**94.1**	**F** (F)	**21.7**	**YES**
20. Santo Rd & Friars Rd	Signalized	AM	38.1	D	47.1	D	9.0	NO
		PM	16.8	B	19.4	B	2.6	NO
21. Riverdale St & Friars Rd	Signalized	AM	37.4	D	43.8	D	6.4	NO
		PM	37.4	D	44.7	D	7.3	NO
22. Mission Gorge Rd & Friars Rd	Signalized	AM	44.1	D	46.5	D	2.4	NO
		PM	44.5	D	**56.0**	**E**	**11.5**	**YES**
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	19.3	B	22.1	C	2.8	NO
		PM	44.4	D	50.1	D	5.7	NO
24. Rio San Diego Dr & River Run Dr	AWSC	AM	12.9	B	13.6	B	0.7	NO
		PM	25.1	D	32.7	D	7.6	NO
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	16.7	B	17.0	B	0.3	NO
		PM	27.7	C	28.8	C	1.1	NO
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	31.0	C	46.0	D	15.0	NO
		PM	30.0	C	51.1	D	21.1	NO
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	23.5	C	**101.1**	**F**	**77.6**	**YES**
		PM	26.7	C	**131.0**	**F**	**104.3**	**YES**

TABLE 34 – HORIZON YEAR (2037) PLUS PROJECT PLUS EVENT CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Horizon Year Without the Project Conditions		Horizon Year Plus Project Plus Event Conditions		Delay Delta	Significant Impact?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	21.3	C	21.8	C	0.5	NO
		PM	**71.0**	**E**	**71.1**	**E**	0.1	NO
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N	Signalized	AM	20.5	C	21.8	C	1.3	NO
		PM	**73.6**	**E**	**77.3**	**E**	3.7	NO****
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.2	A	1.2	A	0.0	NO
		PM	4.9	A	4.9	A	0.0	NO
31. Texas St & Camino del Rio S	Signalized	AM	**104.1**	**F**	**111.7**	**F**	**7.6**	**YES**
		PM	**85.0**	**F**	**103.4**	**F**	**18.4**	**YES**
32. Ward Rd & Rancho Mission Rd	SSSC	AM	26.9	D	**131.2**	**F**	**104.3**	**YES**
		PM	29.9	D	**2,135.4****	**F**	**2,105.5**	**YES**
33. Camino del Rio N & Ward Ave	Signalized	AM	15.4	B	25.3	C	9.9	NO
		PM	15.9	B	31.8	C	15.9	NO
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	22.0	C	27.6	C	5.6	NO
		PM	28.1	C	**64.3**	**E**	**36.2**	**YES**
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	**94.7**	**F**	**122.5**	**F**	**27.8**	**YES**
		PM	**104.7**	**F**	**205.3****	**F**	**100.6**	**YES**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	17.7	B	20.5	C	2.8	NO
		PM	44.3	D	53.4	D	9.1	NO
37. Montezuma Rd & Collwood Blvd	Signalized	AM	46.9	D	49.2	D	2.3	NO
		PM	50.0	D	54.7	D	4.7	NO
38. Mission Village Dr & Shawn Ave	Signalized	AM	6.2	A	6.4	A	0.2	NO
		PM	10.8	B	15.4	B	4.6	NO
39. Mission Village Dr & Fermi Ave	Signalized	AM	14.5	B	15.5	B	1.0	NO
		PM	11.3	B	15.3	B	4.0	NO
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	20.5	C	32.6	C	12.1	NO
		PM	24.5	C	41.8	D	17.3	NO
41. Ruffin Rd & Aero Dr	Signalized	AM	35.7	D	36.8	D	1.1	NO
		PM	52.6	D	**67.6**	**E**	**15.0**	**YES**
42. Gramercy Dr & Mobley St	Signalized	AM	7.1	A	7.2	A	0.1	NO
		PM	6.0	A	6.1	A	0.1	NO
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	9.1	A	9.3	A	0.2	NO
		PM	11.7	B	11.9	B	0.2	NO

Source: Fehr & Peers, 2019

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections, the all-way-stop-controlled (AWSC) intersection, and the roundabout intersection. Worst movement delay reported for the side-street-stop-controlled (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual (HCM)* method.

[3] Below-standard seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Under Existing Conditions, the Stadium Way (Street A) & Friars Road intersection is only used during stadium events.

* Existing or proposed signal phasing prevents the use of *HCM 6* at this intersection. The *HCM 2000* method was applied instead.

** Calculated delays above 150 seconds may not be accurate and should be used with caution.

*** Ramp metering during the peak hours under existing conditions results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation.

****Intersection would exceed the City of San Diego impact threshold.

*****Because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would cause a significant impact.

7.2.2 ROADWAY SEGMENT ANALYSIS

The roadway segment LOS analysis is based on the City of San Diego impact thresholds and is provided for information purposes. Stadium event traffic traversing the study area roadway segments was added to Horizon Year Plus Project Without Event Conditions peak hour volumes. **Table 35** displays the LOS analysis for the study area roadway segments under Horizon Year Plus Project Plus Event Conditions and compares the projected levels of service at each segment in 2037 to conditions without the project. As shown in the table, in addition to those segments operating unacceptably under Horizon Year Plus Project Without Event Conditions, the following study area roadway segments are projected to operate at LOS E or F under this scenario:

5. Friars Road from Fenton Parkway to Northside Drive (LOS E)
7. Friars Road from Stadium Way (Street A) to Mission Village Drive (LOS E)
10. Friars Road from Rancho Mission Road to Santo Road (LOS E)

To determine which of these segments is significantly impacted by the project and event traffic, the second part of the roadway analysis must be performed, which reviews intersection operations at both ends of each segment, the arterial speed-based LOS on the segment, and the buildout community plan street classification. However, it is not reasonable to perform roadway widening or signal timing adjustments to accommodate event traffic that will occur infrequently. Therefore, for the purposes of event traffic impact determination, all segments that operate unacceptably are assumed to have a significant impact.

7.2.3 FREEWAY SEGMENT ANALYSIS

Table 36 displays freeway operation under Horizon Year Plus Project Plus Event Conditions. All freeways segments are expected to operate at undesirable levels (LOS E or F) under Horizon Year Conditions without and with the project. In addition to those impacts identified under Horizon Year Plus Project Without Event Conditions, the stadium event trips will further exacerbate operations and result in a significant cumulative impact on the following freeway segments:

1. SR-163 from 6th Avenue to I-8 (NB, PM peak hour; SB, PM peak hour)
2. SR-163 I-8 to Friars Road (NB, PM peak hour)
3. SR-163 from Friars Road to Mesa College Drive (SB, PM peak hour)
9. I-805 from SR-163 to Balboa Avenue (SB, PM peak hour)
17-19. I-8 from SR-163 to I-805 (EB, PM peak hour)
22. I-8 from Fairmount Avenue to College Avenue (WB, PM peak hour)

TABLE 35 – HORIZON YEAR PLUS PROJECT PLUS EVENT CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment			Roadway Classification (# of Lanes)[1]	Capacity	Horizon Year Without the Project Conditions			Horizon Year Plus Project Plus Event Conditions			V/C Delta	Requires Additional Analysis?
ID	Extent (from/to)				ADT	V/C[2]	LOS[3,4]	ADT	V/C[2]	LOS[3,4]		
Friars Rd												
1	Frazee Rd	Mission Center Rd	8P	80,000	52,600	0.66	C	60,743	0.76	C	0.10	NO
2	Mission Center Rd	Qualcomm Way	6E	80,000	48,594	0.61	B	58,063	0.73	C	0.12	NO
3	Qualcomm Way	River Run Dr	6E	80,000	42,681	0.53	C	54,138	0.68	C	0.15	NO
4	River Run Dr	Fenton Pkwy	6P	60,000	43,198	0.72	C	54,943	0.92	D	0.20	NO
5	Fenton Pkwy	Northside Dr	6P	60,000	45,271	0.75	C	56,901	**0.95**	**E**	**0.20**	**YES**
6	Northside Dr	Stadium Way (Street A)	6E – 6P with project	80,000 – 60,000	54,457	0.68	C	66,564	**1.11**	**F**	**0.43**	**YES**
7	Stadium Way (Street A)	Mission Village Dr	6E	80,000	54,457	0.68	C	75,210	**0.94**	**E**	**0.26**	**YES**
8	Mission Village Dr	I-15 Ramps	6E	80,000	52,850	0.66	C	81,713	**1.02**	**F**	**0.36**	**YES**
9	I-15 Ramps	Rancho Mission Rd	7P	70,000	**72,970**	**1.04**	**F**	80,933	**1.16**	**F**	**0.12**	**YES**
10	Rancho Mission Rd	Santo Rd	7P	70,000	61,340	0.88	D	65,103	**0.93**	**E**	**0.05**	**YES**
11	Santo Rd	Riverdale St	6P	60,000	**60,170**	**1.00**	**F**	63,259	**1.05**	**F**	**0.05**	**YES**
12	Riverdale St	Mission Gorge Rd	6P	60,000	54,675	0.91	D	57,638	**0.96**	**E**	**0.05**	**YES**
Qualcomm Way												
13	Friars Rd	Rio San Diego Dr	6M	50,000	22,813	0.46	B	24,188	0.48	B	0.02	NO
Rio San Diego Dr												
14	Qualcomm Way	River Run Dr	4M	40,000	15,876	0.40	B	16,875	0.42	B	0.02	NO
15	River Run Dr	Fenton Pkwy	4C/M	30,000	13,246	0.44	B	14,322	0.48	C	0.04	NO
Fenton Pkwy												
16	Rio San Diego Dr/ Fenton Marketplace Dwy	Northside Dr	4M	40,000	6,240	0.16	A	7,741	0.19	A	0.03	NO
San Diego Mission Rd												
17	Mission Village Dr/ Street F	Rancho Mission Rd	4C w/o CLTL	15,000	9,254	0.62	C	18,942	**1.26**	**F**	**0.64**	**YES**
18	Rancho Mission Rd	Fairmount Ave	2C w/CLTL	15,000	**13,240**	**0.88**	**E**	19,943	**1.33**	**F**	**0.45**	**YES**
Rancho Mission Rd												
19	Friars Rd	San Diego Mission Rd	3C w/CLTL	22,500	18,681	0.83	D	24,842	**1.10**	**F**	**0.27**	**YES**
20	San Diego Mission Rd	Ward Rd	4C w/o CLTL	15,000	11,576	0.77	D	13,722	**0.91**	**E**	**0.14**	**YES**
21	West of Ward Rd		2C	10,000	1,824	0.18	A	7,503	0.75	D	0.57	NO
Ward Rd												
22	Rancho Mission Rd	Camino del Rio N	4C w/o CLTL	15,000	12,047	0.80	D	18,329	**1.22**	**F**	**0.42**	**YES**
Fairmount Ave												
23	San Diego Mission Rd/Twain Ave	Mission Gorge Rd	4C w/o CLTL	15,000	8,719	0.29	A	13,560	0.45	B	0.16	NO
Mission Village Dr												
24	Ruffin Rd	Shawn Ave	4C	30,000	18,344	0.61	C	23,307	0.78	D	0.17	NO
25	Shawn Ave	Ronda Ave	4C	30,000	14,912	0.50	C	20,101	0.67	D	0.17	NO
26	Ronda Ave	Friars Rd	4M	40,000	17,204	0.43	B	22,437	0.56	C	0.13	NO
Ruffin Rd												
27	Aero Dr	Mission Village Dr	4C	30,000	16,451	0.55	C	19,516	0.65	C	0.10	NO
Gramercy Dr												
28	Mobley St	Ruffin Rd	4M	40,000	9,456	0.24	A	11,023	0.28	A	0.04	NO
Aero Dr												
29	Sandrock Rd	Ruffin Rd	4M	40,000	24,167	0.60	C	25,759	0.64	C	0.04	NO
30	Ruffin Rd	Daley Center Dr	4M	40,000	31,494	0.79	D	32,783	0.82	D	0.03	NO
Camino del Rio N												
31	Qualcomm Way	Mission City Pkwy	4C	30,000	11,608	0.39	B	12,124	0.40	B	0.02	NO
32	Mission City Pkwy	Ward Rd	2C w/CLTL	15,000	10,318	0.69	D	11,289	0.75	D	0.06	NO
33	Ward Rd	Fairmount Ave	4C	30,000	14,706	0.49	C	20,528	0.68	D	0.19	NO
Camino del Rio S												
34	Texas St	Mission City Pkwy	2C	10,000	13,888	**1.39**	**F**	14,118	**1.41**	**F**	**0.02**	**YES**

Source: Fehr & Peers, 2019

Notes:

1 2C w/CLTL = 2-lane collector with center left-turn lane
3C w/CLTL = 3-lane collector (2 lanes in one direction and 1 in opposing direction) with center left-turn lane;
4C w/o CLTL = 4-lane collector without center left-turn lane
4C = 4-lane collector
4M = 4-lane major arterial
6M = 6-lane major arterial
6P = 6-lane primary arterial
7P = 7-lane primary arterial (4 lanes in one direction and 3 in opposing direction); the additional lane is assumed to add 5,000 ADT for LOS A, 7,500 ADT for LOS B, and 10,000 ADT for LOS C, D, and E per the Mission Valley Community Plan Update
8P = 8-lane primary arterial
6E = 6-lane expressway

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)* and the *Mission Valley Community Plan Update (2019)*

4 Unacceptable ADT volumes per segment and LOS highlighted in **bold**.

TABLE 36 – HORIZON YEAR PLUS PROJECT PLUS EVENT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

	Freeway Segment	Direction	Number of Lanes	Capacity[1]	Horizon Year Without the Project Conditions						Horizon Year Plus Project Plus Event Conditions						V/C Delta		Significant Impact?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
State Route 163																				
1	6th Ave to I-8	NB	3M+1A	6,600	6,350	6,892	**0.96**	**1.04**	**E**	**F(0)**	6,407	7,100	**0.97**	**1.08**	**E**	**F(0)**	0.01	**0.03**	NO	**YES**
		SB	3M+2A	7,800	10,832	9,690	**1.39**	**1.24**	**F(2)**	**F(0)**	10,868	9,773	**1.39**	**1.25**	**F(2)**	**F(1)**	0.00	**0.01**	NO	**YES**
2	I-8 to Friars Rd	NB	2A	2,400	1,958	2,125	0.82	0.89	D	D	2,083	2,475	0.87	**1.03**	D	**F(0)**	0.05	**0.15**	NO	**YES**
		SB	4M+2A	9,600	9,908	9,049	**1.03**	**0.94**	**F(0)**	**E**** (F)	9,944	9,138	**1.04**	**0.95**	**F(0)**	**E** (F)	0.00	0.01	NO	NO
3	Friars Rd to Mesa College Dr[5]	NB	5M	9,000	11,141	8,973	**1.24**	**1.00**	**F(0)**	**E**	11,154	9,019	**1.24**	**1.00**	**F(0)**	**F(0)**	0.00	0.01	NO	NO*
		SB	4M	7,200	7,446	7,713	**1.03**	**1.07**	**F(0)**	**F(0)**** (F)	7,464	7,858	**1.04**	**1.09**	**F(0)**	**F(0)**	0.00	**0.02**	NO	**YES**
4	Mesa College Dr to I-805	NB	4M+2A	9,600	9,392	8,718	**0.98**	0.91	**E**	D	9,403	8,760	**0.98**	0.91	**E**	D	0.00	0.00	NO	NO
		SB	4M+1A	8,400	8,551	7,471	**1.02**	0.89	**F(0)**	D** (F)	8,567	7,602	**1.02**	0.91	**F(0)**	D (F)	0.00	0.02	NO	NO
Interstate 805																				
5	Madison Ave to I-8	NB	4M+1A	8,400	10,241	5,976	**1.22**	0.71	**F(0)**	C	10,275	6,026	**1.22**	0.72	**F(0)**	C	0.00	0.01	NO	NO
		SB	6M	10,800	5,454	11,453	0.50	**1.06**	B	**F(0)**** (F)	5,475	11,495	0.51	**1.06**	B	**F(0)** (F)	0.00	0.00	NO	NO
6	I-8 to Murray Ridge Rd/ Phyllis Pl	NB	5M	9,000	11,876	6,885	**1.32**	0.77	**F(1)**	C	11,886	6,908	**1.32**	0.77	**F(1)**	C	0.00	0.00	NO	NO
		SB	4M+2A	9,600	6,216	11,119	0.65	**1.16**	C	**F(0)**	6,232	11,142	0.65	**1.16**	C	**F(0)**	0.00	0.00	NO	NO
7	Murray Ridge Rd/Phyllis Pl to Mesa College Dr/Kearny Villa Rd	NB	5M	9,000	11,865	6,854	**1.32**	0.76	**F(1)**	C	11,875	6,877	**1.32**	0.76	**F(1)**	C	0.00	0.00	NO	NO
		SB	5M	9,000	5,975	10,851	0.66	**1.21**	C	**F(0)**	5,992	10,873	0.67	**1.21**	C	**F(0)**	0.00	0.00	NO	NO
8	Mesa College Dr/Kearny Villa Rd to SR-163	NB	5M	9,000	9,896	5,830	**1.10**	0.65	**F(0)**** (F)	C	9,905	5,852	**1.10**	0.65	**F(0)** (F)	C	0.00	0.00	NO	NO
		SB	4M	7,200	4,290	6,701	0.60	**0.93**	B	**E**** (F)	4,305	6,723	0.60	**0.93**	B	**E** (F)	0.00	0.00	NO	NO
9	SR-163 to Balboa Ave	NB	4M+1A	8,400	7,077	5,952	0.84	0.71	D** (F)	C	7,098	6,016	0.84	0.72	D (F)	C	0.00	0.01	NO	NO
		SB	4M+2A	9,600	6,693	9,068	0.70	**0.94**	C	**E**** (F)	6,724	9,220	0.70	**0.96**	C	**E**	0.00	0.02	NO	**YES**
Interstate 15																				
10	Adams Ave to I-8	NB	3M+2A	7,800	7,624	8,470	**0.98**	**1.09**	**E**	**F(0)**	7,978	8,912	**1.02**	**1.14**	**F(0)**	**F(0)**	**0.05**	**0.06**	**YES**	**YES**
		SB	5M	9,000	6,077	10,152	0.68	**1.13**	C	**F(0)**	6,298	10,579	0.70	**1.18**	C	**F(0)**	0.02	**0.05**	NO	**YES**
11	NB Off-Ramp to Friars Rd	NB	2A	2,400	1,381	2,140	0.58	0.89	B	D	1,880	2,606	0.78	**1.09**	C	**F(0)**	0.21	**0.19**	NO	**YES**
	Friars Rd Auxiliary Lanes to I-8	SB	3A	3,600	4,390	5,796	**1.22**	**1.61**	**F(0)**	**F(3)**	4,504	6,001	**1.25**	**1.67**	**F(1)**	**F(3)**	**0.03**	**0.06**	**YES**	**YES**
	Friars Rd Direct Ramp to I-15 SB	SB	1A	1,200	751	1,104	0.63	**0.92**	C	**E**	954	1,510	0.80	**1.26**	C	**F(1)**	0.17	**0.34**	NO	**YES**
12	Friars Rd to Aero Dr	NB	4M+1A	8,400	9,691	7,115	**1.15**	0.85	**F(0)**	D	9,964	7,675	**1.19**	0.91	**F(0)**	D	**0.03**	0.07	**YES**	NO
		SB	5M+1A	10,200	8,245	11,344	0.81	**1.11**	D	**F(0)**	8,680	12,231	0.85	**1.20**	D	**F(0)**	0.04	**0.09**	NO	**YES**
13	Aero Dr to Balboa Ave/ Tierrasanta Blvd	NB	4M+1A	8,400	10,881	8,205	**1.30**	**0.98**	**F(1)**	**E**	11,125	8,707	**1.32**	**1.04**	**F(1)**	**F(0)**	**0.03**	**0.06**	**YES**	**YES**
		SB	4M+1A	8,400	8,446	10,169	**1.01**	**1.21**	**F(0)**	**F(0)**	8,835	10,962	**1.05**	**1.31**	**F(0)**	**F(1)**	**0.05**	**0.09**	**YES**	**YES**
Interstate 8																				
14	Morena Blvd to Taylor St	EB	4M+1A	8,400	7,276	9,089	0.87	**1.08**	D	**F(0)**	7,382	9,311	0.88	**1.11**	D	**F(0)**	0.01	**0.03**	NO	**YES**
		WB	5M	9,000	8,564	7,482	**0.95**	0.83	**E**	D	8,630	7,617	**0.96**	0.85	**E**	D	0.01	0.02	NO	NO
15	Taylor St to Hotel Cir	EB	4M	7,200	7,129	9,532	**0.99**	**1.32**	**E**	**F(1)**	7,243	9,771	**1.01**	**1.36**	**F(0)**	**F(2)**	**0.02**	**0.03**	**YES**	**YES**
		WB	4M+1A	8,400	9,871	8,430	**1.18**	**1.00**	**F(0)**	**F(0)**	9,942	8,575	**1.18**	**1.02**	**F(0)**	**F(0)**	0.01	**0.02**	NO*	**YES**

TABLE 36 – HORIZON YEAR PLUS PROJECT PLUS EVENT CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

Freeway Segment		Direction	Number of Lanes	Capacity[1]	Horizon Year Without the Project Conditions						Horizon Year Plus Project Plus Event Conditions						V/C Delta		Significant Impact?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Interstate 8																				
16	Hotel Cir to SR-163	EB	4M+2A	9,600	8,841	10,972	**0.92**	**1.14**	**E**	**F(0)**	8,956	11,214	**0.93**	**1.17**	**E**	**F(0)**	**0.01**	**0.03**	**YES**	**YES**
		WB	5M	9,000	10,030	8,245	**1.11**	0.92	**F(0)**	D	10,101	8,392	**1.12**	**0.93**	**F(0)**	**E**	0.01	**0.02**	NO*	**YES**
17	SR-163 to Mission Center Rd	EB	4M	7,200	3,770	7,084	0.52	**0.98**	B	**E**** (F)	3,834	7,187	0.53	**1.00**	B	**E** (F)	0.01	**0.01**	NO	**YES**
		WB	3M+2A	7,800	10,364	9,544	**1.33**	**1.22**	**F(1)**	**F(0)**	10,435	9,683	**1.34**	**1.24**	**F(1)**	**F(0)**	0.01	**0.02**	NO*	**YES**
18	Mission Center Rd to Texas St	EB	4M+1A	8,400	6,280	11,826	0.75	**1.41**	C	**F(2)**	6,344	11,929	0.76	**1.42**	C	**F(2)**	0.01	**0.01**	NO	**YES**
		WB	4M+1A	8,400	10,786	9,995	**1.28**	**1.19**	**F(1)**	**F(0)**	10,857	10,135	**1.29**	**1.21**	**F(1)**	**F(0)**	0.01	**0.02**	NO*	**YES**
19	Texas St to I-805	EB	4M	7,200	3,980	7,765	0.55	**1.08**	B	**F(0)**(F)	4,044	7,868	0.56	**1.09**	B	**F(0)** (F)	0.01	**0.01**	NO	**YES**
		WB	4M	7,200	7,554	5,996	**1.05**	0.83	**F(0)**(F)	D	7,625	6,136	**1.06**	0.85	**F(0)** (F)	D	0.01	0.02	NO*	NO
20	I-805 to I-15	EB	4M+2A	9,600	7,374	12,462	0.77	**1.30**	C	**F(1)**	7,489	12,624	0.78	**1.31**	C	**F(1)**	0.01	**0.02**	NO	**YES**
		WB	4M+2A	9,600	12,644	10,240	**1.32**	**1.07**	**F(1)**	**F(0)**	12,742	10,420	**1.33**	**1.09**	**F(1)**	**F(0)**	**0.01**	**0.02**	**YES**	**YES**
21	I-15 to Fairmount Ave	EB	4M+2A	9,600	7,378	11,546	0.77	**1.20**	C	**F(0)**	7,406	11,629	0.77	**1.21**	C	**F(0)**	0.00	0.01	NO	NO*
		WB	4M+2A	9,600	8,956	6,605	**0.93**	0.69	**E**** (F)	C	9,017	6,965	**0.94**	0.73	**E** (F)	C	0.01	0.04	NO	NO
22	Fairmount Ave to Waring Rd	EB	5M	9,000	8,018	12,782	0.89	**1.42**	D	**F(2)**	8,161	13,098	0.91	**1.46**	D	**F(3)**	0.02	**0.04**	NO	**YES**
		WB	6M	10,800	12,116	9,572	**1.12**	0.89	**F(0)**	D	12,345	10,217	**1.14**	**0.95**	**F(0)**	**E**	**0.02**	**0.06**	**YES**	**YES**
23	Waring Rd to College Ave	EB	5M	9,000	7,722	12,056	0.86	**1.34**	D	**F(1)**	7,864	12,368	0.87	**1.37**	D	**F(2)**	0.02	**0.03**	NO	**YES**
		WB	5M	9,000	11,307	9,051	**1.26**	**1.01**	**F(1)**	**F(0)**	11,533	9,690	**1.28**	**1.08**	**F(1)**	**F(0)**	**0.03**	**0.07**	**YES**	**YES**

Source: Fehr & Peers, 2019

Notes:

1 Capacity calculated at 1,800 vehicles/hour per mainline lane and 1,200 vehicles/hour per auxiliary lane
M = mainline lane
A = auxiliary lane

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable V/C and LOS highlighted in **bold**.

5 No data available from Genesee Ave to Mesa College Dr - assumed equivalent to the segment from Friars Rd to Genesee Ave

* Freeway segment would exceed the City of San Diego impact threshold.

** Traffic data indicate existing operations are worse than calculated. Peak hour volumes likely do not represent actual demand due to heavy congestion. Estimated operations are shown in parentheses.

LOS	V/C	LOS	V/C
A	<0.41	F(0)	1.25
B	0.62	F(1)	1.35
C	0.80	F(2)	1.45
D	0.92	F(3)	>1.46
E	1.00		

It is noted that application of the City of San Diego significance criteria for freeway segments would result in the impacted locations as noted above or under Horizon Year Plus Project Without Event Conditions as well as the following additional impact:

3. SR-163 from Friars Road to Mesa College Drive (NB, PM peak hour)

7.2.4 FREEWAY RAMP METERING ANALYSIS

Table 37 displays the ramp metering analysis conducted at the metered freeway on-ramps in the study area under Horizon Year Plus Project Plus Event Conditions.

As shown in **Table 37**, as under Horizon Year Plus Project Without Event Conditions, all ramps are expected to operate with unacceptable delays during one or both peak hours. Additionally, at all ramps on-ramp capacity is not sufficient to accommodate the peak hour demand during metered peak periods; thus, ramp queues are expected to spill back onto the arterial street.

After applying the applicable significant impact criteria, the proposed project would increase delay by more than two minutes compared to Horizon Year Conditions for on-ramps operating with delays above 15 minutes and, therefore, would result in a significant impact at the same locations identified under Horizon Year Plus Project Without Event Conditions.

7.2.5 FREEWAY OFF-RAMP QUEUEING ANALYSIS

Table 38 displays the off-ramp queueing analysis conducted at the SR-163 and I-15 off-ramps at Friars Road and the I-8 off-ramps at Qualcomm Way/Texas Street and Fairmount Avenue. As shown, all off-ramp queues can be accommodated by existing storage capacity under Horizon Year Plus Project Plus Event Conditions and, therefore, impacts would be less than significant.

TABLE 37 – HORIZON YEAR (2037) PLUS PROJECT PLUS EVENT RAMP METERING ANALYSIS

Location	Peak Hour	Total # of Mixed Flow Lanes	Meter Rate[1] (veh/hr)	Horizon Year Without the Project Conditions					Horizon Year Plus Project Plus Event Conditions					Delay Delta	Significant Impact?
				Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)		
				Mixed Flow & HOV	Mixed Flow only				Mixed Flow & HOV	Mixed Flow only					
I-15 NB - Friars Rd On-Ramp	AM	2	1,450	2,345	1,983	533	**22.0**	7,725	2,617	2,213	763	**31.6**	11,050	9.5	**YES**
	PM	2	888	1,503	1,369	481	**32.5**	6,975	2,065	1,880	992	**67.1**	14,400	34.6	**YES**
I-15 SB / I-8 - Friars Rd Loop On-Ramp	AM	1	N/A	914	914	N/A	N/A	N/A	1,028	1,028	N/A	N/A	N/A	N/A	NO
	PM	1	660	929	929	269	**24.5**	7,800	1,149	1,149	489	**44.5**	14,200	20.0	**YES**
I-15 SB - Friars Rd Direct On-Ramp	AM	1	N/A	751	751	N/A	N/A	N/A	954	954	N/A	N/A	N/A	N/A	NO
	PM	1	996	1,104	1,104	108	6.5	3,150	1,511	1,511	515	**31.0**	14,925	24.5	**YES**
I-8 EB - SB Fairmount Ave	AM	1	N/A	302	302	N/A	N/A	N/A	432	432	N/A	N/A	N/A	N/A	NO
	PM	1	492	664	664	172	**21.0**	5,000*	935	935	443	**54.0**	12,850	33.0	**YES**

Source: Fehr & Peers, 2019. Analysis based on Caltrans District 11 Ramp Meter methodology

Notes:

[1] Meter Rate is the peak hour capacity for the ramp meter. This value was obtained from Caltrans. The most restrictive meter rate was assumed.

[2] Demand is the peak hour demand projected to use the on-ramp.

[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.

[4] Delay = (Excess Demand / Meter Rate) x 60 min/hr. Undesirable delays in excess of 15 minutes are highlighted in **bold**.

[5] Queue = (Excess Demand / # of Lanes) x 29 ft/veh, rounded to the nearest multiple of 25 ft.

* Field observations of existing conditions indicate that operations may be better than calculated.

TABLE 38 – HORIZON YEAR PLUS PROJECT PLUS EVENT OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)	
				Horizon Year Without the Project Conditions	Horizon Year Plus Project Plus Event Conditions
1. SR-163 SB off-ramp at Friars Rd/Ulric St	AM	NBL	1,200	211	211
		NBT		104	104
		NBR		487	502
	PM	NBL	1,200	263	263
		NBT		62	62
		NBR		485	669
2. SR-163 NB off-ramp at Friars Rd	AM	SBL	700	444	505
		SBT		0	0
		SBR		305	318
	PM	SBL	700	418	645
		SBT		0	0
		SBR		447	456
17. I-15 SB off-ramp at Friars Rd	AM	SBL	1,200	460	482
		SBT		449	470
		SBR		257	500
	PM	SBL	1,200	842	911
		SBT		845	911
		SBR		80	395
18. I-15 NB off-ramp at Friars Rd	AM	NBR	1,500	0	0
		SBR	1,300	0	0
	PM	NBR	1,500	0	0
		SBR	1,300	0	0
29. I-8 WB off-ramp at Qualcomm Way/Camino del Rio N	AM	WBL	3,200	0	0
		WBT		221	243
		WBR		740	824
	PM	WBL	3,200	0	0
		WBT		394	411
		WBR		545	594
30. I-8 EB off-ramp at Qualcomm Way/Texas St	AM	EBR	900	169	169
	PM	EBR	900	274	270
35. I-8 WB off-ramp at Fairmount Ave/Alvarado Canyon Rd/ Camino del Rio N	AM	WBL	1,000	627	713
		WBT		607	680
		WBR		269	394
	PM	WBL	1,000	714	783
		WBT		464	758
		WBR		308	491
36. I-8 EB off-ramp at Fairmount Ave	AM	EBL	4,100	484	505
		EBR		493	508
	PM	EBL	4,100	1,099	1,127
		EBR		1,659	1,672

Source: Fehr & Peers, 2019.

7.3 MISSION VALLEY COMMUNITY PLAN UPDATE

At the time this impact analysis was prepared, the Mission Valley Community Plan (MVCP) was undergoing a comprehensive update including an evaluation of new proposed land uses, mobility infrastructure, policies and implementation actions. The plan involves intensifying, mixing, and redeveloping land uses in Mission Valley to take advantage of the central location of the valley within the San Diego region, as well as planned service expansion of the San Diego Trolley Green Line. Much of the new development will be focused in transit priority areas (TPAs) at trolley stations where roadway capacity is limited in some cases, but new active transportation connections will enhance accessibility for valley residents, employees and visitors.

As of July 2019, the Final Program Environmental Impact Report (PEIR) for the MVCP update (MVCPU) and a final draft of the community plan were published. The following proposed MVCPU changes are of note to this study, although those changes were not assumed as part of the SDSU Mission Valley Campus Horizon Year analysis as the MVCPU has not yet been approved and funding mechanisms for proposed infrastructure have not been identified. It should be noted that the horizon year for the MVCPU mobility analysis is 2050 as compared to the 2037 horizon year for the SDSU Mission Valley Campus project.

7.3.1 MVCPU PROPOSED ROADWAY IMPROVEMENTS

The MVCPU plans to implement several roadway improvements including two new multi-modal crossings of the San Diego River to enhance vehicular and bus transit connectivity, expand the pedestrian and bicycle and pedestrian network, and to provide additional high-water street crossings of the river where regular flooding and street closures occur on other existing roadways.

The planned roadway improvement that has the greatest influence on circulation adjacent to the SDSU Mission Valley Campus site is the extension of Fenton Parkway over the San Diego River that will connect to Camino del Rio North opposite Mission City Parkway. This extension requires construction of a new bridge structure over the river and will require a full environmental review and permitting process prior to its implementation. This roadway extension is included in the approved MVCP from 1985 as a two-lane roadway (i.e., one lane in each direction), but no construction date has been scheduled and only $2.7 million dollars in funding has been identified. In the 2019 MVCPU, the Year 2050 forecast traffic volume of 13,800 vehicles per day warrants a two-lane facility from a volume perspective, but the draft MVCP ultimately recommends construction of a four-lane extension to provide additional capacity for emergency purposes (given the limited number of high-water crossings in Mission Valley) and stadium event traffic. Because no dedicated funding or construction schedule for either a two-lane or four-lane bridge was identified at the time of this analysis, and because the extension and bridge are not part of the SDSU Mission Valley Campus project, this facility was not included in the baseline horizon year evaluation for this TIA. In addition, the

extension is not proposed as mitigation for the SDSU Mission Valley Campus project since it is not required to reduce an identified significant impact. However, a discussion of the Fenton Parkway extension is included in **Sections 8.0** and **9.5** regarding its potential effects on this analysis and the proposed project mitigation measures.

Per the July 2019 final draft of MVCPU, the street classifications for sections of Rancho Mission Road and Ward Road are proposed to be reduced from a four-lane collector to a two-lane collector with a center left-turn lane. It should be noted that under existing conditions there are 15,210 daily vehicles traveling between Friars Road and San Diego Mission Road, which already exceeds the capacity of the proposed two-lane collector with a center left-turn lanes, and that the MVCPU forecasted volume in 2050 is larger yet at 19,000 daily vehicles.

Additionally, the street classification for Rio San Diego Drive from River Run Drive to Fenton Parkway is proposed to be reduced from a four-lane collector to a two-lane collector with center left-turn pockets. This proposed restriping would cause the project to have an additional significant impact along this segment. It should be noted that the MVCPU forecasted volume on this segment is 13,900, which would result in LOS E operations.

The MVCPU Final PEIR identifies potential intersection and roadway improvements (i.e., additional through and turn lanes) at multiple locations – including along Rancho Mission Road/Ward Road and Rio San Diego Drive segments identified above – to mitigate significant impacts from projected traffic from new development and redevelopment. However, the MVCPU does not propose to implement any of these roadway mitigation measures because they would conflict with planned active and transit improvements. The Final PEIR also includes references to a Specific Plan or Campus Master Plan that is expected to be completed for the existing SDCCU stadium property and defers any proposed roadway improvements in the vicinity of the stadium site to that Specific Plan analysis. This SDSU Mission Valley Campus TIA provides the findings for that "Specific Plan" study referenced in the Final PEIR.

7.3.2 MVCPU PROPOSED BICYCLE FACILITY IMPROVEMENTS

Per the MVCPU, Friars Road and Rancho Mission Road/Ward Road are planned to include future one-way cycle tracks. Additionally, Frazee Road, San Diego Mission Road and Rio San Diego Drive are planned to include future bike lanes. Finally, the San Diego River Trail is planned to be extended to connect with the existing multi-use path along the eastern edge of the project site, parallel to I-15. A pedestrian and bicycle bridge would also be constructed to connect the San Diego River Trail to Camino del Rio S parallel to and west of I-15. The northern terminus of this new pedestrian bridge would land within the proposed SDSU

Mission Valley Campus area, but the landing area is located within the future River Park area that will be owned by the City of San Diego.

7.3.3 MVCPU PROPOSED PEDESTRIAN FACILITY IMPROVEMENTS

The MVCPU proposes a variety of improvements to fill gaps in the pedestrian connections within the SDSU Mission Valley Campus project study area. In the immediate vicinity of the project, there are two segments that are proposed to receive new sidewalks:

- Friars Road, east of Mission Village Drive ramps to east of I-15 NB ramps (north and south side)
- San Diego Mission Road, from approximately 480' east of Mission Village Drive to Rancho Mission Road (north side)

The proposed project does not preclude these improvements from occurring as funding becomes available.

7.3.4 MVCPU PROPOSED TRANSIT FACILITY IMPROVEMENTS

The new Purple Line trolley route is proposed by SANDAG, is included in the currently approved RTP, and is included in the MVCPU. It is planned to extend as an above-ground trolley route from South Bay to Kearny Mesa and to include a station within the project site with a connection to the existing Green Line Stadium Station. While there are multiple potential alignments within the vicinity of the proposed project, the preferred alignment from the perspective of SDSU is along the eastern edge of the site, with the on-site station provided in the southeastern corner. It should be noted that the Executive Director of SANDAG recently indicated in late March 2019 that the Purple Line may be more productive as a transit facility if it were underground to allow it to more directly serve communities and transit patrons. The Draft RTP update that was originally scheduled for review and approval in 2019 is now being revised and a two-year delay before its publication is anticipated.

7.3.5 MVCPU TRAFFIC VOLUME FORECASTS

To develop traffic forecasts for the MVCPU, the City of San Diego conducted a calibration and validation process of the SANDAG Series 13 base year (2012) and made modifications to Year 2050 land uses and roadway network based on the planned MVCP land use changes and mobility improvements. These changes included assumption of a mixed-use redevelopment at the existing SDCCU Stadium site that was generally similar to the SDSU Mission Valley Campus project. As of March 2019, this MVCPU model was under review by SANDAG and was not available for public use and could not be reviewed in detail or used for this TIA. However, the 2050 forecasted volumes published in the MVCPU were compared to the Horizon Year (2037) Plus Project volumes presented in this report (see **Appendix F**). Overall, the Horizon Year (2037) Plus Project

volumes in this TIA are equal to or higher than the MVCPU 2050 forecast volumes despite an additional 13 years of growth. Segments where MVCPU 2050 volumes were higher than the Horizon Year Plus Project volumes were on Friars Road between Mission Village Drive and the I-15 ramps, Friars Road between Santo Road and Riverdale Street, Rancho Mission Road/Ward Road between San Diego Mission Road and Camino del Rio N, Fenton Parkway between Rio San Diego Drive and Street A, and Qualcomm Way between Friars Road and Camino de la Reina. In most cases, these differences can be attributed to greater detail regarding the site access and trip assignment known for the SDSU Mission Valley Campus project in this TIA, and the inclusion of the Fenton Parkway bridge, which was not included in the initial impact evaluation in this report. At the time of this report, the MVCPU model is still under review by SANDAG, and therefore the SANDAG Series 13 model is the best tool available for forecasting future travel patterns, as applied in this analysis.

8.0 EFFECT OF FENTON PARKWAY EXTENSION ON PROJECT IMPACTS

The project's traffic impacts as documented in **Chapter 7.0** were evaluated without the extension of Fenton Parkway to Camino del Rio N opposite Mission City Parkway, including a new bridge (collectively, the "bridge") over the San Diego River. While a 4-lane bridge is included in the MVCP update presently being considered for approval by the City of San Diego, and the City Council-adopted 1985 MVCP included a 2-lane bridge over the River, sufficient funding to construct either the 2-lane or 4-lane bridge proposal has not been identified and no environmental review has been completed as to either bridge proposal, nor has a timeframe for the bridge's construction been established. Moreover, the bridge is not a part of the proposed project, nor is the bridge required as mitigation for the proposed project's impacts; that is, construction of the bridge is not required to accommodate project traffic or to reduce any of the proposed project's identified significant impacts.

Because the 4-lane bridge is a long-range improvement included in the draft MVCP Update, City staff requested that an analysis be conducted of traffic conditions both with and without the 4-lane bridge, including analysis of the effect of the proposed project under such scenario. Accordingly, a new Horizon Year (2037) baseline scenario without the SDSU Mission Valley project was developed that includes the 4-lane Fenton Parkway bridge across the San Diego River and the associated redistribution of baseline traffic volumes. In addition to the 4-lane bridge analysis, 2-lane bridge conditions with and without the proposed project also were developed and are presented here in response to meetings with the City in which staff have stated that: 1) a 4-lane bridge is not mandated in the MVCP Update, and 2) the City is willing to consider a two-lane bridge based on considerations of congestion, connectivity, accessibility, and public safety.

The effect of adding the proposed project's-generated traffic to this new network configuration, both 2-lane and 4-lane, was evaluated for all study facilities (plus several additional locations that would otherwise not be affected by project traffic). All other technical assumptions under Horizon Year Plus Project Conditions (e.g., project trip generation and distribution) and the use of CSU TISM impact criteria remain unchanged from the no bridge scenario analysis. Notations are included where the proposed project may cause an exceedance of City of San Diego threshold criteria under this scenario. Because the 2-lane and 4-lane bridge and roadway extension are not fully funded and their ultimate construction timeframe is uncertain, the analyses presented in this **Section 8.0** as well as the corresponding improvements identified in **Sections 9.5** and **9.6** are provided for information purposes only.

8.1 HORIZON YEAR (2037) CONDITIONS WITH 4-LANE BRIDGE

8.1.1 DESCRIPTION OF 4-LANE FENTON PARKWAY EXTENSION AND BRIDGE

The planned roadway extension across the San Diego River would connect the existing southern terminus of Fenton Parkway at the San Diego Trolley line to Camino del Rio North opposite Mission City Parkway. Under the scenario analyzed here, the extension and bridge would be constructed as a four-lane collector with a center left-turn lane for its entire length. The center turn lane would be striped as an exclusive left-turn lane at intersections but could be used as a travel lane when manual traffic control was employed during an emergency situation, or fully attended stadium events, etc.

With development of the SDSU Mission Valley Campus, direct vehicular access to the project site would be provided via Street A (also known as Mission City Street I in the MVCP update). The Fenton Parkway/Street A intersection (Intersection 49) would be signalized with permitted left-turns to facilitate automobile, bicycle, and pedestrian movements, as well as to control traffic when a trolley vehicle is crossing Fenton Parkway. The proposed intersection lane configuration would include: one northbound through lane, one shared northbound through/right lane, one southbound through lane, one shared southbound through/left lane, one westbound left-turn lane, and one westbound right-turn lane (see **Figure 20**).

8.1.2 TRAFFIC REDISTRIBUTION WITH 4-LANE BRIDGE

With the bridge in place, vehicle trips with origins and destinations in the immediate vicinity of the bridge are expected to take different paths across the study roadway network; that is, the bridge would alter traffic distribution as compared to a without bridge scenario. Accordingly, a new run of the SANDAG Series 13 Year 2035 travel demand model was performed with the Fenton Parkway extension and 4-lane bridge in place. The results of this new run were then compared to the previous run without the extension to determine where traffic volumes would shift to with the new connection. The comparison identified that some traffic that is projected to travel on I-8 east of I-15 without the bridge would shift to Montezuma Road and travel via Fairmount Avenue and Camino del Rio N to use the new bridge connection. Similarly, some traffic projected to travel on I-15 south of Friars Road under future conditions without the bridge would shift to travel south on Fenton Parkway to Camino del Rio S and access I-15 via the Camino del Rio S interchange. These and other changes in travel pattern and paths will affect operations at selected intersections, roadway segments, ramps, freeway segments, and off-ramps in the area immediately surrounding the project site.

The total Horizon Year (2037) No Project and Horizon Year (2037) Plus Project traffic volumes at all study area locations under a 4-lane bridge scenario are presented on **Figures 19** and **20,** respectively. Traffic volume redistribution for each applicable turning movement with the 4-lane Fenton Parkway bridge in place (compared to "no bridge" conditions) is illustrated on **Figure 21**, with positive numbers indicating volume increases and negative numbers showing decreases in traffic. Volumes are also included for intersections on Camino del Rio North and South that were not included in the TIA for the proposed project. These locations would serve a negligible amount of project traffic without the bridge, but would see a substantial increase in baseline and project-generated traffic with the 4-lane bridge in place.

8.1.3 INTERSECTION ANALYSIS

All 43 of the study area intersections included in the TIA were analyzed using the anticipated Horizon Year intersection lane configurations and the traffic volumes illustrated on **Figure 20** for plus Project Conditions. As noted above, additional intersections along Camino del Rio N and Camino del Rio S were analyzed due to the anticipated change in traffic on those facilities with the bridge in place. The Horizon Year No Project lane configuration at the southern bridge intersection (Intersection 44) was obtained from the *Mission Valley Community Plan Update: Final Environmental Impact Report Traffic Impact Analysis Appendix D – (May 2019)* (MVCPU FEIR). Otherwise, existing lane configurations were used for the other additional locations (Intersections 45 through 48). The proposed SDSU Mission Valley Campus project will construct the Fenton Parkway/Street A intersection (Intersection 49) to be configured as: one northbound through lane, one shared northbound through/right lane, one southbound through lane, one shared southbound through/left lane, one westbound left-turn lane, and one westbound right-turn lane (see **Figure 20**). Existing volumes for the additional study area intersections were also obtained from the MVCPU FEIR and factored to account for growth (at 1% per year compounded) up to 2037, which is the study horizon year for this analysis and consistent with the approach used in the TIA based on SANDAG model projections.

Table 39 presents intersection operations under the Horizon Year Plus Project Conditions *with* the Fenton Parkway bridge and compares the projected LOS at each study area intersection to the Horizon Year No Project Conditions with the bridge. The corresponding LOS calculation sheets for all intersections are included in **Appendix G**.

As indicated in **Table 39**, the addition of project traffic to the baseline roadway network with the Fenton Parkway bridge would cause the intersection threshold to be exceeded at the following 15 locations (with projected LOS and applicable peak hour indicated in parentheses):

1. SR-163 Southbound Ramps/Ulric Street & Friars Road (LOS E in the PM peak hour)
8. River Run Dr & Friars Road (LOS F in the PM peak hour)
9. Fenton Parkway & Friars Road (LOS E in the PM peak hour)

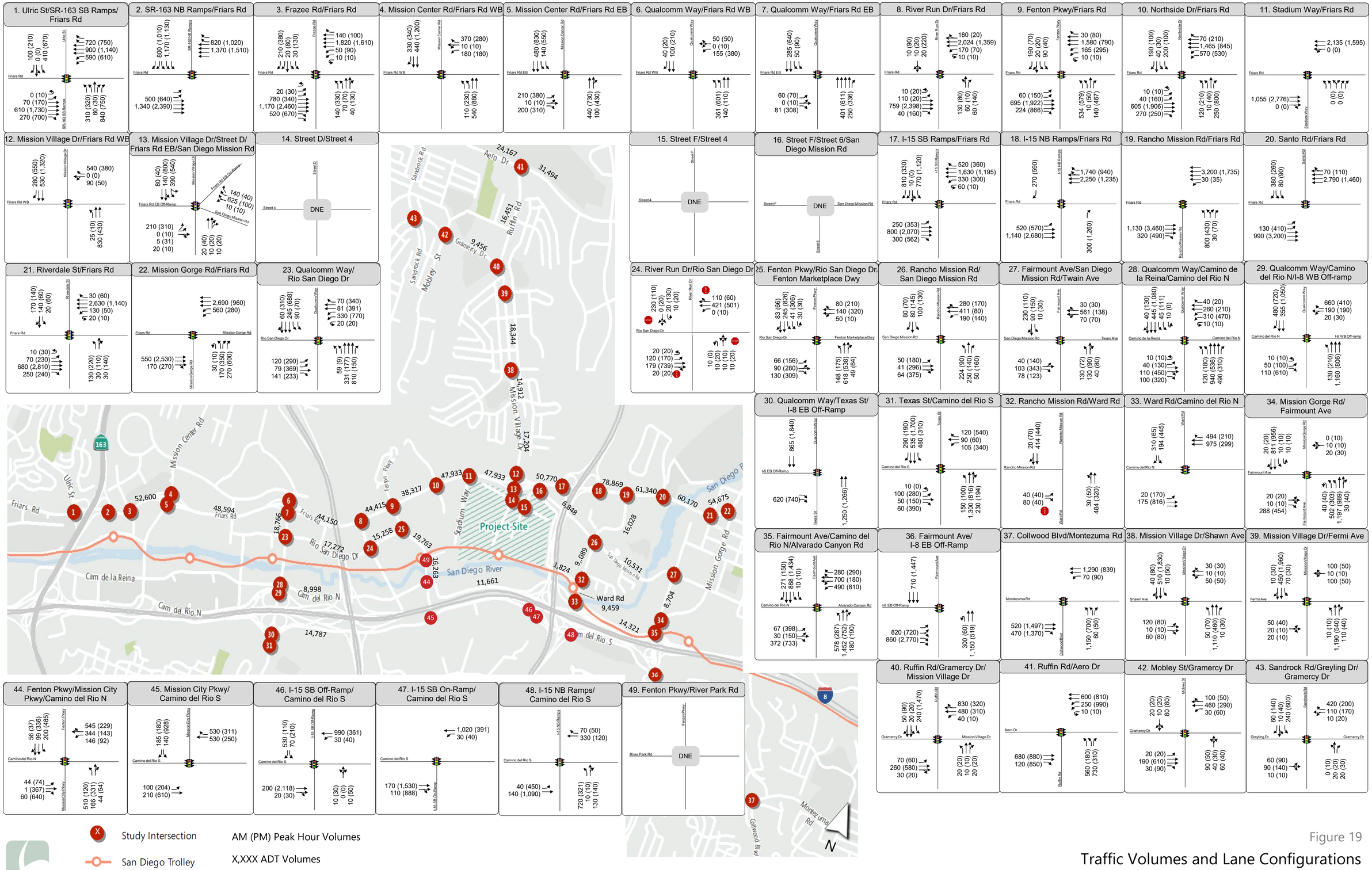


Figure 19

Traffic Volumes and Lane Configurations

Horizon Year No Project Without Event Conditions with 4-Lane Fenton Parkway Bridge

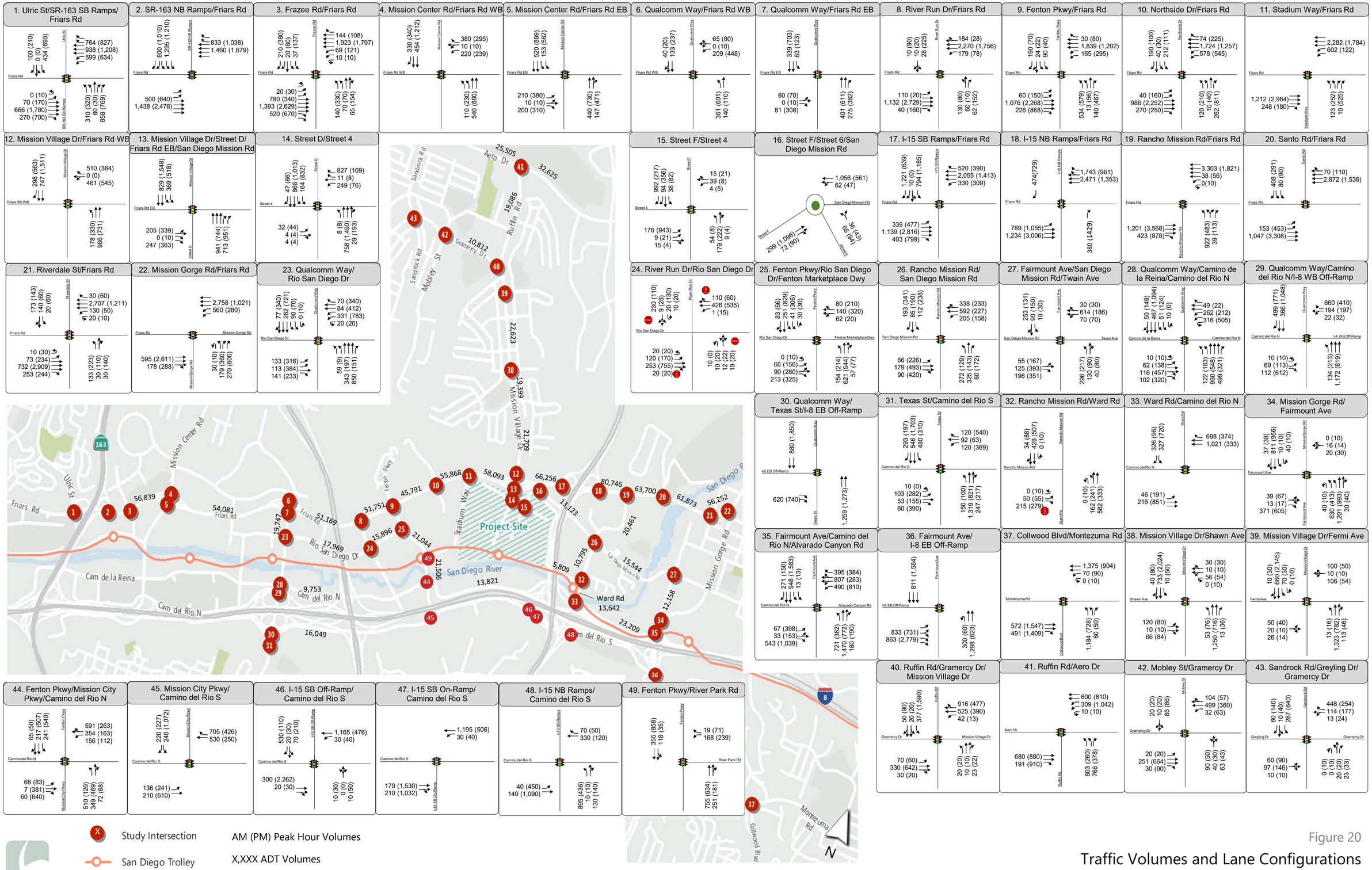


Figure 20

Traffic Volumes and Lane Configurations

Horizon Year Plus Project Without Event Conditions with 4-Lane Fenton Parkway Bridge

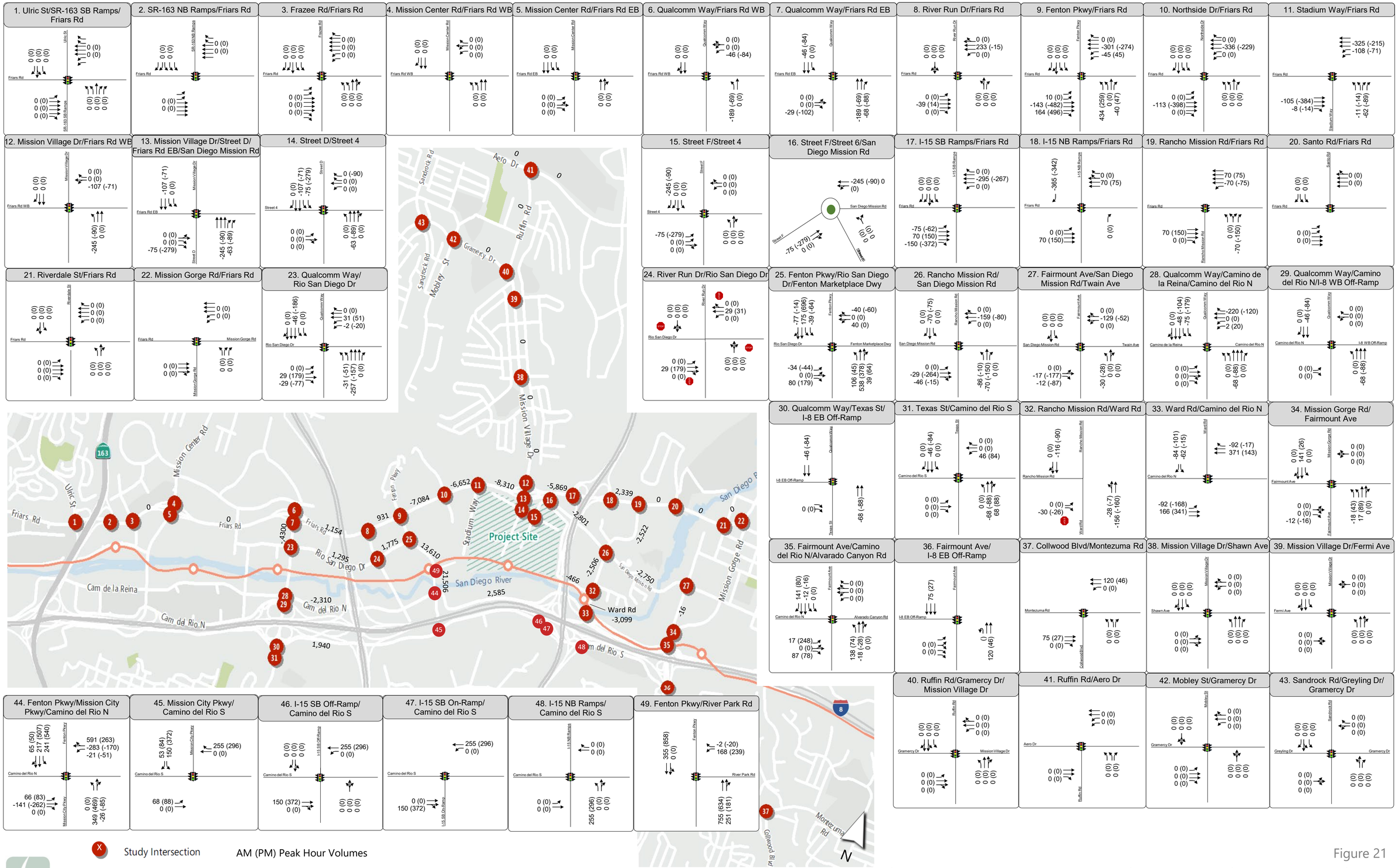


Figure 21

Effect of 4-Lane Fenton Parkway Extension on Horizon Year Plus Project Without Event Conditions

Traffic Redistribution

TABLE 39 – HORIZON YEAR (2037) PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE WITH 4-LANE FENTON BRIDGE

Intersection	Traffic Control	Peak Hour	Horizon Year with Bridge - No Project		Horizon Year with Bridge Plus Project		Delay Delta	Exceeds Operating Threshold?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
1. SR-163 SB Ramps/Ulric St & Friars Rd*	Signalized	AM	43.9	D	45.3	D	1.4	NO
		PM	**56.7**	**E**	**62.1**	**E**	**5.4**	**YES**
2. SR-163 NB Ramps & Friars Rd*	Signalized	AM	26.2	C	29.5	C	3.3	NO
		PM	29.8	C	36.2	D	6.4	NO
3. Frazee Rd & Friars Rd*	Signalized	AM	49.0	D	50.6	D	1.6	NO
		PM	44.8	D	46.9	D	2.1	NO
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	12.8	B	13.3	B	0.5	NO
		PM	14.1	B	15.0	B	0.9	NO
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	16.8	B	16.7	B	-0.1	NO
		PM	36.2	D	37.3	D	1.1	NO
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	15.3	B	16.6	B	1.3	NO
		PM	23.7	C	24.2	C	0.5	NO
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	6.2	A	7.0	A	0.8	NO
		PM	10.3	B	10.9	B	0.6	NO
8. River Run Dr & Friars Rd	Signalized	AM	24.9	C	28.2	C	3.3	NO
		PM	**62.3**	**E**	**96.4**	**F**	**34.1**	**YES**
9. Fenton Pkwy & Friars Rd	Signalized	AM	**79.9**	**E**	**71.6**	**E**	-8.3	NO
		PM	43.5	D	**75.4**	**E**	**31.9**	**YES**
10. Northside Dr & Friars Rd	Signalized	AM	35.1	D	28.0	C	-7.1	NO
		PM	**77.2**	**E**	**72.8**	**E**	-4.4	NO
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A	9.3	A	9.3	NO
		PM	-	N/A	12.7	B	12.7	NO
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	18.1	B	28.3	C	10.2	NO
		PM	53.5	D	32.4	C	-21.1	NO
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd*	Signalized	AM	**93.5**	**F**	17.2	B	-76.3	NO
		PM	**69.8**	**E**	24.8	C	-45.0	NO
14. Street D & Street 4	Signalized	AM	DNE		N/A	21.4	C	N/A	NO
		PM			N/A	49.9	D	N/A	NO
15. Street F & Street 4	Signalized	AM	DNE		N/A	25.8	C	N/A	NO
		PM			N/A	31.4	C	N/A	NO
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE		N/A	6.7	A	N/A	NO
		PM			N/A	7.4	A	N/A	NO
17. I-15 SB Ramps & Friars Rd	Signalized	AM	37.6	D	**81.3**	**F**	**43.7**	**YES**
		PM	**56.1**	**E*** (F)**	**78.8**	**E***(F)**	**22.7**	**YES**
18. I-15 NB Ramps & Friars Rd	Signalized	AM	**89.8**	**F*** (F)**	**142.2**	**F***(F)**	**52.4**	**YES**
		PM	**66.6**	**E*** (F)**	**205.4**	**F*** (F)**	**138.8**	**YES**
19. Rancho Mission Rd & Friars Rd	Signalized	AM	31.2	C*** **(E)**	36.2	D***(F)**	5.0	**YES*****
		PM	**59.1**	**E*** (E)**	**71.7**	**E***(F)**	**12.6**	**YES**
20. Santo Rd & Friars Rd	Signalized	AM	38.1	D	47.1	D	9.0	NO
		PM	16.8	B	19.0	B	2.2	NO
21. Riverdale St & Friars Rd	Signalized	AM	37.4	D	43.8	D	6.4	NO
		PM	37.4	D	43.8	D	6.4	NO
22. Mission Gorge Rd & Friars Rd	Signalized	AM	44.1	D	46.5	D	2.4	NO
		PM	44.5	D	54.2	D	9.7	NO
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	19.6	B	23.3	C	3.7	NO
		PM	39.5	D	43.3	D	3.8	NO
24. Rio San Diego Dr & River Run Dr	AWSC	AM	13.5	B	14.3	B	0.8	NO
		PM	**48.0**	**E**	**57.1**	**F**	**9.1**	**YES**
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	21.7	C	22.3	C	0.6	NO
		PM	47.2	D	51.4	D	4.2	NO
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	21.8	C	30.1	C	8.3	NO
		PM	21.0	C	29.4	C	8.4	NO
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	19.8	B	44.6	D	24.8	NO
		PM	17.9	B	32.6	C	14.7	NO

TABLE 39 – HORIZON YEAR (2037) PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE WITH 4-LANE FENTON BRIDGE

Intersection	Traffic Control	Peak Hour	Horizon Year with Bridge - No Project		Horizon Year with Bridge Plus Project		Delay Delta	Exceeds Operating Threshold?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	19.8	B	20.3	C	0.5	NO
		PM	**68.3**	**E**	**71.1**	**E**	2.8	NO****
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N	Signalized	AM	19.8	B	20.8	C	1.0	NO
		PM	**74.4**	**E**	**77.9**	**E**	3.5	NO****
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.1	A	1.1	A	0.0	NO
		PM	4.8	A	4.8	A	0.0	NO
31. Texas St & Camino del Rio S	Signalized	AM	**113.0**	**F**	**125.4**	**F**	**12.4**	**YES**
		PM	**90.3**	**F**	**110.3**	**F**	**20.0**	**YES**
32. Ward Rd & Rancho Mission Rd	SSSC	AM	19.6	C	**49.5**	**E**	**29.9**	**YES**
		PM	22.3	C	**123.9**	**F**	**101.6**	**YES**
33. Camino del Rio N & Ward Ave	Signalized	AM	13.3	B	17.8	B	4.5	NO
		PM	13.5	B	24.8	C	11.3	NO
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	22.2	C	26.9	C	4.7	NO
		PM	26.8	C	**56.2**	**E**	**29.4**	**YES**
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	**103.0**	**F**	**140.3**	**F**	**37.3**	**YES**
		PM	**119.0**	**F**	**196.7****	**F**	**77.7**	**YES**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	19.5	B	24.5	C	5.0	NO
		PM	45.8	D	54.0	D	8.2	NO
37. Montezuma Rd & Collwood Blvd	Signalized	AM	47.1	D	48.3	D	1.2	NO
		PM	49.9	D	53.1	D	3.2	NO
38. Mission Village Dr & Shawn Ave	Signalized	AM	6.2	A	6.4	A	0.2	NO
		PM	10.8	B	13.7	B	2.9	NO
39. Mission Village Dr & Fermi Ave	Signalized	AM	14.5	B	15.5	B	1.0	NO
		PM	11.3	B	13.8	B	2.5	NO
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	20.5	C	32.6	C	12.1	NO
		PM	24.5	C	36.6	D	12.1	NO
41. Ruffin Rd & Aero Dr	Signalized	AM	35.7	D	36.8	D	1.1	NO
		PM	52.6	D	**63.2**	**E**	**10.6**	**YES**
42. Gramercy Dr & Mobley St	Signalized	AM	7.1	A	7.2	A	0.1	NO
		PM	6.0	A	6.1	A	0.1	NO
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	9.1	A	9.3	A	0.2	NO
		PM	11.7	B	11.9	B	0.2	NO
44. Fenton Pkwy/Mission City Pkwy & Camino del Rio N	Signalized	AM	**92.3**	**F**	**171.7****	**F**	**79.4**	**YES**
		PM	**65.0**	**E**	**117.9**	**F**	**52.9**	**YES**
45. Mission City Pkwy & Camino del Rio S	Signalized	AM	9.6	A	14.0	B	4.4	NO
		PM	54.9	D	**75.5**	**E**	**20.6**	**YES**
46. I-15 SB Off-Ramp & Camino del Rio S	Signalized	AM	54.6	D	**82.3**	**F**	**27.7**	**YES**
		PM	38.4	D	53.2	D	14.8	NO
47. I-15 SB On-Ramp & Camino del Rio S	Signalized	AM	2.1	A	3.0	A	0.9	NO
		PM	10.2	B	15.3	B	5.1	NO
48. I-15 NB Ramps & Camino del Rio S	Signalized	AM	21.5	C	34.4	C	12.9	NO
		PM	32.0	C	48.1	D	16.1	NO
49. Fenton Pkwy & Street A	Signalized	AM	DNE	N/A	5.8	A	N/A	NO
		PM		N/A	6.7	A	N/A	NO

Source: Fehr & Peers, 2019

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections, the all-way-stop-controlled (AWSC) intersection, and the roundabout intersection. Worst movement delay reported for the side-street-stop-controlled (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual (HCM)* method.

[3] Below-standard seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Under Horizon Year Conditions without the project, the Stadium Way & Friars Road intersection would only be used intermittently during stadium events (i.e., outside the typical AM and PM hours).

* Existing or proposed signal phasing prevents the use of *HCM 6* at this intersection. The *HCM 2000* method was applied instead.

** Calculated delays above 150 seconds may not be accurate and should be used with caution.

*** Ramp metering during the peak hours under existing conditions results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation and affects operations at the subject intersection.

**** Intersection would exceed the City of San Diego impact threshold.

*****Because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would cause a significant impact.

17. I-15 SB Ramps & Friars Road (LOS F in both peak hours)
18. I-15 NB Ramps & Friars Road (LOS F in both peak hours)
19. Rancho Mission Road & Friars Road (LOS F in both peak hours)
24. Rio San Diego Drive & River Run Drive (LOS F in the PM peak hour)
31. Texas St & Camino del Rio S (LOS F in both peak hours)
32. Ward Road & Rancho Mission Road (LOS E in the AM peak hour and LOS F in the PM peak hour)
34. Fairmount Avenue & Mission Gorge Road (LOS E in the PM peak hour)
35. Fairmount Avenue & Camino del Rio North (LOS F in both peak hours)
41. Ruffin Road & Aero Drive (LOS E in the PM peak hour)
44. Fenton Parkway/Mission City Parkway & Camino del Rio N (LOS F in both peak hours)
45. Mission City Parkway & Camino del Rio S (LOS E in the PM peak hour)
46. I-15 Southbound Off-Ramp & Camino del Rio S (LOS F in the AM peak hour)

At the side-street stop-controlled Ward Road/Rancho Mission Road intersection (Intersection 32), the MUTCD peak hour signal warrant would be satisfied during the PM peak hour only. The signal warrant is part of the threshold evaluation for unsignalized intersections. The warrant evaluation is included in **Appendix G**.

The locations that would exceed the City of San Diego threshold criteria include those noted above, as well as the following intersections:

28. Qualcomm Way & Camino del Rio North/Camino de la Reina (LOS E in the PM peak hour)
29. Qualcomm Way & I-8 Westbound Off-ramp/Camino del Rio North (LOS E in the PM peak hour)

8.1.4 ROADWAY SEGMENT ANALYSIS

The roadway segment LOS analysis was conducted using the City of San Diego impact thresholds and, as is the case in the TIA, is presented for information purposes only. **Table 40** displays the results of the LOS analysis for the study area roadway segments under Horizon Year with Bridge Conditions both without and with the proposed project. As previously noted, in addition to the study area roadway segments reviewed in the TIA under the without bridge scenario, additional segments along Camino del Rio N and Camino del Rio S were reviewed here due to the anticipated change in traffic on those facilities with the bridge in place.

As shown in the table, with the bridge in place the proposed project would cause the City's segment threshold to be exceeded on the following study area roadway segments:

6. Friars Road: Northside Drive to Stadium Way (Street A) (LOS E)
9. Friars Road: I-15 NB Ramps to Rancho Mission Road (LOS F)
11. Friars Road: Santo Road to Riverdale St (LOS F)
12. Friars Road: Riverdale Street to Mission Gorge Road (LOS F)
17. San Diego Mission Road: Mission Village Drive/Street F to Rancho Mission Road (LOS E)

TABLE 40 – HORIZON YEAR PLUS PROJECT WITHOUT AND WITH 4-LANE BRIDGE CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment			Roadway Classification (# of Lanes)[1]	Capacity	Horizon Year With Bridge No Project			Horizon Year With Bridge Plus Project			V/C Delta
ID	Extent (from/to)				ADT	V/C[2]	LOS[3,4]	ADT	V/C[2]	LOS[3,4]	
Friars Rd											
1	Frazee Rd	Mission Center Rd	8P	80,000	52,600	0.66	C	56,839	0.71	C	0.05
2	Mission Center Rd	Qualcomm Way	6E	80,000	48,594	0.61	C	54,081	0.68	C	0.07
3	Qualcomm Way	River Run Dr	6E	80,000	44,150	0.55	C	51,169	0.64	C	0.09
4	River Run Dr	Fenton Pkwy	6P	60,000	44,415	0.74	C	51,751	0.86	D	0.12
5	Fenton Pkwy	Northside Dr	6P	60,000	38,317	0.64	C	45,791	0.76	C	0.12
6	Northside Dr	Stadium Way	6P	60,000	47,933	0.60	C	55,868	**0.93**	**E**	**0.33**
7	Stadium Way (Street A)	Mission Village Dr	6E	80,000	47,933	0.60	C	58,093	0.73	C	0.13
8	Mission Village Dr	I-15 Ramps	6E	80,000	50,770	0.63	C	66,256	0.83	D	0.20
9	I-15 Ramps	Rancho Mission Rd	7P	70,000	78,869	**1.13**	**F**	80,746	**1.15**	**F**	**0.02**
10	Rancho Mission Rd	Santo Rd	7P	70,000	61,340	0.88	D	63,700	0.91	D	0.03
11	Santo Rd	Riverdale St	6P	60,000	60,170	**1.00**	**F**	61,873	**1.03**	**F**	**0.03**
12	Riverdale St	Mission Gorge Rd	6P	60,000	54,675	0.91	D	56,252	**0.94**	**E**	**0.03**
Qualcomm Way											
13	Friars Rd	Rio San Diego Dr	6M	50,000	18,766	0.38	A	19,747	0.39	A	0.01
Rio San Diego Dr											
14	Qualcomm Way	River Run Dr	4M	40,000	17,272	0.43	B	17,969	0.45	B	0.02
15	River Run Dr	Fenton Pkwy	4C/M	30,000	15,258	0.51	C	15,896	0.53	C	0.02
Fenton Pkwy											
16	Rio San Diego Dr/ Fenton Marketplace Dwy	Northside Dr	4M	40,000	19,763	0.49	B	21,506	0.54	C	0.04
16a	Northside Dr	Camino del Rio N	4C	30,000	16,263	0.54	C	21,506	0.72	D	0.18
San Diego Mission Rd											
17	Mission Village Dr/ Street F	Rancho Mission Rd	4C w/o CLTL	15,000	6,848	0.46	B	13,123	**0.87**	**E**	**0.41**
18	Rancho Mission Rd	Fairmount Ave	2C w/CLTL	15,000	10,531	0.70	D	15,544	**1.04**	**F**	**0.34**
Rancho Mission Rd											
19	Friars Rd	San Diego Mission Rd	3C w/CLTL	22,500	16,028	0.71	D	20,461	**0.91**	**E**	**0.20**
20	San Diego Mission Rd	Ward Rd	4C w/o CLTL	15,000	9,089	0.61	C	10,795	0.72	D	0.11
21	West of Ward Rd		2C	10,000	1,824	0.18	A	5,809	0.58	C	0.40
Ward Rd											
22	Rancho Mission Rd	Camino del Rio N	4C w/o CLTL	15,000	9,459	0.63	C	13,642	**0.91**	**E**	**0.28**
Fairmount Ave											
23	San Diego Mission Rd/ Twain Ave	Mission Gorge Rd	4C w/o CLTL	15,000	8,704	0.29	A	12,158	0.41	B	0.12
Mission Village Dr											
24	Ruffin Rd	Shawn Ave	4C	30,000	18,344	0.61	C	22,623	0.75	D	0.14
25	Shawn Ave	Ronda Ave	4C	30,000	14,912	0.50	C	19,399	0.65	C	0.15
26	Ronda Ave	Friars Rd	4M	40,000	17,204	0.43	B	21,709	0.54	C	0.11
Ruffin Rd											
27	Aero Dr	Mission Village Dr	4C	30,000	16,451	0.55	C	19,086	0.64	C	0.09
Gramercy Dr											
28	Mobley St	Ruffin Rd	4M	40,000	9,456	0.24	A	10,812	0.27	A	0.03
Aero Dr											
29	Sandrock Rd	Ruffin Rd	4M	40,000	24,167	0.60	C	25,505	0.64	C	0.04
30	Ruffin Rd	Daley Center Dr	4M	40,000	31,494	0.79	D	32,625	0.82	D	0.03
Camino del Rio N											
31	Qualcomm Way	Mission City Pkwy	4C	30,000	8,998	0.30	A	9,753	0.33	A	0.03
32	Mission City Pkwy	Ward Rd	2C w/CLTL	15,000	11,661	0.78	D	13,821	**0.92**	**E**	**0.14**
33	Ward Rd	Fairmount Ave	4C	30,000	14,321	0.48	C	23,209	0.77	D	0.29
Camino del Rio S											
34	Texas St	Mission City Pkwy	2C	10,000	14,787	**1.48**	**F**	16,049	**1.60**	**F**	**0.12**
35	Mission City Pkwy	I-15 Ramps	3C w/CLTL	22,500	14,581	0.65	C	16,800	0.75	D	0.10
36	I-15 Ramps	Caminito Pintoresco	2C w/CLTL	15,000	8,372	0.56	C	8,372	0.56	C	0.00

Source: Fehr & Peers, 2019

Notes:

1 2C w/CLTL = 2-lane collector with center left-turn lane
3C w/CLTL = 3-lane collector (2 lanes in one direction and 1 in opposing direction) with center left-turn lane;
4C w/o CLTL = 4-lane collector without center left-turn lane
4C = 4-lane collector
4M = 4-lane major arterial
6M = 6-lane major arterial
6P = 6-lane primary arterial
7P = 7-lane primary arterial (4 lanes in one direction and 3 in opposing direction); the additional lane is assumed to add 5,000 ADT for LOS A, 7,500 ADT for LOS B, and 10,000 ADT for LOS C, D, and E per the Mission Valley Community Plan Update
8P = 8-lane primary arterial
6E = 6-lane expressway

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)* and the *Mission Valley Community Plan Update (2019)*

4 Unacceptable ADT volumes per segment and LOS highlighted in **bold**.

18. San Diego Mission Road: Rancho Mission Road to Fairmount Avenue (LOS F)
19. Rancho Mission Road: Friars Road to San Diego Mission Road (LOS E)
22. Ward Road from Rancho Mission Road to Camino del Rio North (LOS E)
32. Camino del Rio N: Mission City Pkwy to Ward Rd (LOS E)
34. Camino del Rio S: Texas St to Mission City Parkway (LOS F)

Additionally, the road segment including the new bridge facility, which is planned to include four lanes with a two-way left-turn lane per the MVCP update, would operate acceptably at LOS D under this scenario.

8.1.5 FREEWAY SEGMENT ANALYSIS

Table 41 displays the study area freeway operations under Horizon Year (2037) Plus Project Conditions with the Fenton Parkway bridge. As noted above, the redistribution of traffic would result in some traffic projected to travel on I-8 east of I-15 under the without bridge analysis would shift to Montezuma Road with the new bridge connection. Similarly, some traffic projected to travel on I-15 south of Friars Road under the without bridge analysis would shift to the Camino del Rio S interchange.

Ultimately, under this scenario, with the proposed project, the following freeway segments would exceed the operating threshold:

10. I-15 from Adams Avenue to I-8 (NB, AM and PM peak hours; SB, PM peak hour)
11. I-15 from I-8 to Friars Road (NB auxiliary lanes, PM peak hour; SB auxiliary lanes to I-8, AM and PM peak hours; SB auxiliary lane to I-15 SB, PM peak hour)
12. I-15 from Friars Road to Aero Drive (NB, AM peak hour; SB, PM peak hour)
13. I-15 from Aero Drive to Balboa Avenue/Tierrasanta Boulevard (both directions, AM and PM peak hours)
14. I-8 from Morena Boulevard to Taylor Street (EB, PM peak hour)
15-16. I-8 from Taylor Street to SR-163 (EB, AM and PM peak hours; WB, PM peak hour)
17. I-8 from SR-163 to Mission Center Road (WB, PM peak hour)
18. I-8 from Mission Center Road to Texas Street (WB, PM peak hour)
20. I-8 from I-805 to I-15 (EB, PM peak hour; WB, AM and PM peak hours)
22. I-8 from Fairmount Avenue to Waring Road (EB, PM peak hour; WB, AM peak hour)
23. I-8 from Waring Road to College Avenue (EB, PM peak hour; WB, AM and PM peak hour)

The locations that would exceed the City of San Diego threshold criteria include those noted above, as well as the following segments:

1. SR-163 from Washington Street to I-8 (NB, PM peak hour; SB, PM peak hour)
15-17. I-8 from Taylor Street to Mission Center Road (WB, AM peak hour)
18-19. I-8 from Mission Center Road to I-805 (EB, PM peak hour; WB, AM peak hour)

TABLE 41 – HORIZON YEAR PLUS PROJECT WITH 4-LANE BRIDGE CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

Freeway Segment		Direction	Number of Lanes	Capacity[1]	Horizon Year With Bridge - No Project						Horizon Year With Bridge Plus Project						V/C Delta		Exceeds Threshold?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
State Route 163																				
1	6th Ave to I-8	NB	3M+1A	6,600	6,350	6,892	**0.96**	**1.04**	**E**	**F(0)**	6,407	6,942	**0.97**	**1.05**	**E**	**F(0)**	0.01	0.01	NO	NO*
		SB	3M+2A	7,800	10,832	9,690	**1.39**	**1.24**	**F(2)**	**F(0)**	10,868	9,757	**1.39**	**1.25**	**F(2)**	**F(1)**	0.00	0.01	NO	NO*
2	I-8 to Friars Rd	NB	2A	2,400	1,958	2,125	0.82	0.89	D	D	2,083	2,206	0.87	0.92	D	D	0.05	0.03	NO	NO
		SB	4M+2A	9,600	9,908	9,049	**1.03**	**0.94**	**F(0)**	**E**** (F)	9,944	9,122	**1.04**	**0.95**	**F(0)**	**E** (F)	0.00	0.01	NO	NO
3	Friars Rd to Mesa College Dr[5]	NB	5M	9,000	11,141	8,973	**1.24**	**1.00**	**F(0)**	**E**	11,154	9,005	**1.24**	**1.00**	**F(0)**	**F(0)**	0.00	0.00	NO	NO
		SB	4M	7,200	7,446	7,713	**1.03**	**1.07**	**F(0)**	**F(0)**(F)	7,464	7,731	**1.04**	**1.07**	**F(0)**	**F(0)** (F)	0.00	0.00	NO	NO
4	Mesa College Dr to I-805	NB	4M+2A	9,600	9,392	8,718	**0.98**	0.91	**E**	D	9,403	8,747	**0.98**	0.91	**E**	D	0.00	0.00	NO	NO
		SB	4M+1A	8,400	8,551	7,471	**1.02**	0.89	**F(0)**	D** (F)	8,567	7,488	**1.02**	0.89	**F(0)**	D (F)	0.00	0.00	NO	NO
Interstate 805																				
5	Madison Ave to I-8	NB	4M+1A	8,400	10,241	5,976	**1.22**	0.71	**F(0)**	C	10,275	6,006	**1.22**	0.71	**F(0)**	C	0.00	0.00	NO	NO
		SB	6M	10,800	5,454	11,453	0.50	**1.06**	B	**F(0)**(F)	5,475	11,493	0.51	**1.06**	B	**F(0)** (F)	0.00	0.00	NO	NO
6	I-8 to Murray Ridge Rd/ Phyllis Pl	NB	5M	9,000	11,876	6,885	**1.32**	0.77	**F(1)**	C	11,886	6,907	**1.32**	0.77	**F(1)**	C	0.00	0.00	NO	NO
		SB	4M+2A	9,600	6,216	11,119	0.65	**1.16**	C	**F(0)**	6,232	11,131	0.65	**1.16**	C	**F(0)**	0.00	0.00	NO	NO
7	Murray Ridge Rd/Phyllis Pl to Mesa College Dr/Kearny Villa Rd	NB	5M	9,000	11,865	6,854	**1.32**	0.76	**F(1)**	C	11,875	6,876	**1.32**	0.76	**F(1)**	C	0.00	0.00	NO	NO
		SB	5M	9,000	5,975	10,851	0.66	**1.21**	C	**F(0)**	5,992	10,862	0.67	**1.21**	C	**F(0)**	0.00	0.00	NO	NO
8	Mesa College Dr/Kearny Villa Rd to SR-163	NB	5M	9,000	9,896	5,830	**1.10**	0.65	**F(0)**(F)	C	9,905	5,851	**1.10**	0.65	**F(0)** (F)	C	0.00	0.00	NO	NO
		SB	4M	7,200	4,290	6,701	0.60	**0.93**	B	**E**** (F)	4,305	6,712	0.60	**0.93**	B	**E** (F)	0.00	0.00	NO	NO
9	SR-163 to Balboa Ave	NB	4M+1A	8,400	7,077	5,952	0.84	0.71	D** (F)	C	7,098	6,002	0.84	0.71	D (F)	C	0.00	0.01	NO	NO
		SB	4M+2A	9,600	6,693	9,068	0.70	**0.94**	C	**E**** (F)	6,724	9,095	0.70	**0.95**	C	**E** (F)	0.00	0.00	NO	NO
Interstate 15																				
10	Adams Ave to I-8	NB	3M+2A	7,800	7,624	8,470	**0.98**	**1.09**	**E**	**F(0)**	7,978	8,775	**1.02**	**1.13**	**F(0)**	**F(0)**	**0.05**	**0.04**	**YES**	**YES**
		SB	5M	9,000	6,077	10,152	0.68	**1.13**	C	**F(0)**	6,298	10,563	0.70	**1.17**	C	**F(0)**	0.02	**0.05**	NO	**YES**
11	NB Off-Ramp to Friars Rd	NB	2A	2,400	1,231	1,940	0.51	0.81	B	D	1,515	2,248	0.63	**0.94**	C	**E**	0.12	**0.13**	NO	**YES**
	Friars Rd Auxiliary Lanes to I-8	SB	3A	3,600	4,340	5,769	**1.21**	**1.60**	**F(0)**	**F(3)**	4,429	5,923	**1.23**	**1.65**	**F(0)**	**F(3)**	**0.02**	**0.04**	**YES**	**YES**
	Friars Rd Direct Ramp to I-15 SB	SB	1A	1,200	701	876	0.58	0.73	B	C	804	1,122	0.67	**0.93**	C	**E**	0.09	**0.20**	NO	**YES**
12	Friars Rd to Aero Dr	NB	4M+1A	8,400	9,691	7,115	**1.15**	0.85	**F(0)**	D	9,964	7,620	**1.19**	0.91	**F(0)**	D	**0.03**	0.06	**YES**	NO
		SB	5M+1A	10,200	8,245	11,344	0.81	**1.11**	D	**F(0)**	8,680	11,718	0.85	**1.15**	D	**F(0)**	0.04	**0.04**	NO	**YES**
13	Aero Dr to Balboa Ave/ Tierrasanta Blvd	NB	4M+1A	8,400	10,881	8,205	**1.30**	**0.98**	**F(1)**	**E**	11,125	8,657	**1.32**	**1.03**	**F(1)**	**F(0)**	**0.03**	**0.05**	**YES**	**YES**
		SB	4M+1A	8,400	8,446	10,169	**1.01**	**1.21**	**F(0)**	**F(0)**	8,835	10,503	**1.05**	**1.25**	**F(0)**	**F(1)**	**0.05**	**0.04**	**YES**	**YES**
Interstate 8																				
14	Morena Blvd to Taylor St	EB	4M+1A	8,400	7,276	9,089	0.87	**1.08**	D	**F(0)**	7,382	9,179	0.88	**1.09**	D	**F(0)**	0.01	**0.01**	NO	**YES**
		WB	5M	9,000	8,564	7,482	**0.95**	0.83	**E**	D	8,630	7,604	**0.96**	0.84	**E**	D	0.01	0.01	NO	NO
15	Taylor St to Hotel Cir	EB	4M	7,200	7,129	9,532	**0.99**	**1.32**	**E**	**F(1)**	7,243	9,629	**1.01**	**1.34**	**F(0)**	**F(1)**	**0.02**	**0.01**	**YES**	**YES**
		WB	4M+1A	8,400	9,871	8,430	**1.18**	**1.00**	**F(0)**	**F(0)**	9,942	8,562	**1.18**	**1.02**	**F(0)**	**F(0)**	0.01	**0.02**	NO*	**YES**

TABLE 41 – HORIZON YEAR PLUS PROJECT WITH 4-LANE BRIDGE CONDITIONS FREEWAY SEGMENT LEVEL OF SERVICE

	Freeway Segment	Direction	Number of Lanes	Capacity[1]	Horizon Year With Bridge - No Project						Horizon Year With Bridge Plus Project						V/C Delta		Exceeds Threshold?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Interstate 8																				
16	Hotel Cir to SR-163	EB	4M+2A	9,600	8,841	10,972	**0.92**	**1.14**	**E**	**F(0)**	8,956	11,071	**0.93**	**1.15**	**E**	**F(0)**	**0.01**	**0.01**	**YES**	**YES**
		WB	5M	9,000	10,030	8,245	**1.11**	0.92	**F(0)**	D	10,101	8,378	**1.12**	**0.93**	**F(0)**	**E**	0.01	**0.01**	NO*	**YES**
17	SR-163 to Mission Center Rd	EB	4M	7,200	3,770	7,084	0.52	**0.98**	B	**E**** (F)	3,834	7,155	0.53	**0.99**	B	**E** (F)	0.01	**0.01**	NO	NO
		WB	3M+2A	7,800	10,364	9,544	**1.33**	**1.22**	**F(1)**	**F(0)**	10,435	9,669	**1.34**	**1.24**	**F(1)**	**F(0)**	0.01	**0.02**	NO*	**YES**
18	Mission Center Rd to Texas St	EB	4M+1A	8,400	6,280	11,826	0.75	**1.41**	C	**F(2)**	6,344	11,897	0.76	**1.42**	C	**F(2)**	0.01	0.01	NO	NO*
		WB	4M+1A	8,400	10,786	9,995	**1.28**	**1.19**	**F(1)**	**F(0)**	10,857	10,121	**1.29**	**1.20**	**F(1)**	**F(0)**	0.01	**0.01**	NO*	**YES**
19	Texas St to I-805	EB	4M	7,200	3,980	7,765	0.55	**1.08**	B	**F(0)**(F)	4,044	7,836	0.56	**1.09**	B	**F(0)** (F)	0.01	**0.01**	NO	NO*
		WB	4M	7,200	7,554	5,996	**1.05**	0.83	**F(0)**(F)	D	7,625	6,122	**1.06**	0.85	**F(0)** (F)	D	**0.01**	0.02	NO*	NO
20	I-805 to I-15	EB	4M+2A	9,600	7,374	12,462	0.77	**1.30**	C	**F(1)**	7,489	12,574	0.78	**1.31**	C	**F(1)**	0.01	**0.01**	NO	**YES**
		WB	4M+2A	9,600	12,644	10,240	**1.32**	**1.07**	**F(1)**	**F(0)**	12,742	10,409	**1.33**	**1.08**	**F(3)**	**F(3)**	**0.01**	**0.02**	**YES**	**YES**
21	I-15 to Fairmount Ave	EB	4M+2A	9,600	7,378	11,546	0.77	**1.20**	C	**F(0)**	7,331	11,533	0.76	**1.20**	C	**F(0)**	0.00	0.01	NO	NO
		WB	4M+2A	9,600	8,956	6,605	**0.93**	0.69	**E**** (F)	C	8,897	6,650	**0.93**	0.69	**E** (F)	C	**0.01**	0.01	NO	NO
22	Fairmount Ave to Waring Rd	EB	5M	9,000	8,018	12,782	0.89	**1.42**	D	**F(2)**	8,086	12,986	0.90	**1.44**	D	**F(2)**	0.02	**0.03**	NO	**YES**
		WB	6M	10,800	12,116	9,572	**1.12**	0.89	**F(0)**	D	12,225	9,723	**1.13**	0.90	**F(0)**	D	**0.02**	0.02	**YES**	NO
23	Waring Rd to College Ave	EB	5M	9,000	7,672	12,029	0.85	**1.34**	D	**F(1)**	7,789	12,256	0.87	**1.36**	D	**F(2)**	0.01	**0.03**	NO	**YES**
		WB	5M	9,000	11,227	9,032	**1.25**	**1.00**	**F(0)**	**F(0)**	11,413	9,200	**1.27**	**1.02**	**F(1)**	**F(0)**	**0.02**	**0.02**	**YES**	**YES**

Source: Fehr & Peers, 2019

Notes:

1 Capacity calculated at 1,800 vehicles/hour per mainline lane and 1,200 vehicles/hour per auxiliary lane
M = mainline lane
A = auxiliary lane

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable V/C and LOS highlighted in **bold**.

5 No data available from Genesee Ave to Mesa College Dr - assumed equivalent to the segment from Friars Rd to Genesee Ave

* Freeway segment would exceed the City of San Diego impact threshold.

** Traffic data indicate existing operations are worse than calculated. Peak hour volumes likely do not represent actual demand due to heavy congestion. Estimated operations are shown in parentheses.

LOS	V/C	LOS	V/C
A	<0.41	F(0)	1.25
B	0.62	F(1)	1.35
C	0.80	F(2)	1.45
D	0.92	F(3)	>1.46
E	1.00		

8.1.6 FREEWAY RAMP METERING ANALYSIS

Table 42 displays the results of the ramp metering analysis conducted at the metered freeway on-ramps in the study area under Horizon Year with the Fenton Parkway Bridge both without and with the proposed project. Based on this data, the following ramps would exceed the operating threshold:

- I-15 NB On-ramp from Friars Road – The addition of project traffic would exacerbate already excessive delays by 9.6 minutes (to a total of 31.2 minutes) in the AM peak hour and by 30.1 minutes (to a total of 59.6 minutes) in the PM peak hour.
- I-15 SB/I-8 Loop On-ramp from Friars Road – The addition of project traffic would exacerbate already excessive delays by 14.0 minutes (to a total delay of 41.7 minutes) in the PM peak hour.
- I-8 EB On-ramp from SB Fairmount Avenue – The addition of project traffic would exacerbate already excessive delays and increase delay by 28.7 minutes (to a total delay of 49.7 minutes) in the PM peak hour.

The same locations would exceed the City of San Diego impact thresholds for metered on-ramps.

8.1.7 FREEWAY OFF-RAMP QUEUEING ANALYSIS

Table 43 displays the results of the off-ramp queueing analysis conducted at the SR-163 and I-15 off-ramps at Friars Road, and the I-8 off-ramps at Qualcomm Way/Texas Street and Fairmount Avenue. In addition to the study area off-ramps reviewed under the scenario without the bridge, the off-ramp from Northbound I-15 to Camino del Rio S was also evaluated under this 4-lane bridge scenario due to the anticipated increase in traffic on those facilities with the bridge in place. As shown on the table, all projected off-ramp queues in 2037 would be accommodated under this scenario by the existing storage capacity with the addition of the proposed project traffic.

8.2 COMPARISON OF HORIZON YEAR PLUS PROJECT WITHOUT EVENT OPERATIONS WITHOUT AND WITH 4-LANE FENTON PARKWAY BRIDGE

This chapter presents a comparative summary of the change in operations and impacts between the Horizon Year (2037) "No Bridge" primary analysis presented in this TIA with the results of the Horizon Year "With 4-Lane Bridge" analysis presented in this document. A summary by facility type is presented below.

TABLE 42 – HORIZON YEAR (2037) PLUS PROJECT WITH 4-LANE BRIDGE CONDITIONS - RAMP METERING ANALYSIS

Location	Peak Hour	Total # of Mixed Flow Lanes	Meter Rate[1] (veh/hr)	Horizon Year With Bridge No Project					Horizon Year With Bridge Plus Project					Delay Delta	Exceeds Threshold?
				Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)		
				Mixed Flow & HOV	Mixed Flow only				Mixed Flow & HOV	Mixed Flow only					
I-15 NB - Friars Rd On-Ramp	AM	2	1,450	2,345	1,983	533	**22.0**	7,725	2,617	2,213	763	**31.6**	11,050	9.6	**YES**
	PM	2	888	1,503	1,324	436	**29.5**	6,325	2,010	1,770	882	**59.6**	12,800	30.1	**YES**
I-15 SB / I-8 - Friars Rd Loop On-Ramp	AM	1	N/A	914	914	N/A	N/A	N/A	1,028	1,028	N/A	N/A	N/A	N/A	NO
	PM	1	660	902	902	242	**22.0**	7,025	1,056	1,056	396	**36.0**	11,500	14.0	**YES**
I-15 SB - Friars Rd Direct On-Ramp	AM	1	N/A	751	751	N/A	N/A	N/A	954	954	N/A	N/A	N/A	N/A	NO
	PM	1	996	876	876	0	0.0	0	1,122	1,122	126	7.6	3,650	7.6	NO
I-8 EB - SB Fairmount Ave	AM	1	N/A	302	302	N/A	N/A	N/A	432	432	N/A	N/A	N/A	N/A	NO
	PM	1	492	664	664	172	**21.0**	5,000*	900	900	408	**49.7**	11,825	28.7	**YES**

Source: Fehr & Peers, 2019. Analysis based on Caltrans District 11 Ramp Meter methodology

[1] Meter Rate is the peak hour capacity for the ramp meter. This value was obtained from Caltrans. The most restrictive meter rate was assumed.

[2] Demand is the peak hour demand projected to use the on-ramp.

[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.

[4] Delay = (Excess Demand / Meter Rate) x 60 min/hr. Undesirable delays in excess of 15 minutes are highlighted in **bold**.

[5] Queue = (Excess Demand / # of Lanes) x 29 ft/veh, rounded to the nearest multiple of 25 ft.

* Field observations of existing conditions indicate that operations may be better than calculated.

TABLE 43 – HORIZON YEAR PLUS PROJECT WITH 4-LANE BRIDGE CONDITIONS - OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)		Capacity Exceeded?
				Horizon Year No Project Conditions With Bridge	Horizon Year Plus Project Conditions With Bridge	
1. SR-163 SB off-ramp at Friars Rd/ Ulric St	AM	NBL	1,200	211	211	NO
		NBT		104	104	NO
		NBR		487	502	NO
	PM	NBL	1,200	263	263	NO
		NBT		62	62	NO
		NBR		485	523	NO
2. SR-163 NB off-ramp at Friars Rd	AM	SBL	700	444	505	NO
		SBT		0	0	NO
		SBR		305	318	NO
	PM	SBL	700	418	456	NO
		SBT		0	0	NO
		SBR		447	456	NO
17. I-15 SB off-ramp at Friars Rd	AM	SBL	1,200	460	482	NO
		SBT		449	470	NO
		SBR		257	500	NO
	PM	SBL	1,200	842	911	NO
		SBT		845	911	NO
		SBR		80	168	NO
18. I-15 NB off-ramp at Friars Rd	AM	NBR	1,500	0	0	NO
		SBR	1,300	0	0	NO
	PM	NBR	1,500	0	0	NO
		SBR	1,300	0	0	NO
29. I-8 WB off-ramp at Qualcomm Way/Camino del Rio N	AM	WBL	3,200	0	0	NO
		WBT		215	232	NO
		WBR		718	786	NO
	PM	WBL	3,200	0	0	NO
		WBT		394	411	NO
		WBR		503	538	NO
30. I-8 EB off-ramp at Qualcomm Way/ Texas St	AM	EBR	900	167	166	NO
	PM	EBR	900	274	616	NO
35. I-8 WB off-ramp at Fairmount Ave/Alvarado Canyon Rd/ Camino del Rio N	AM	WBL	1,000	627	713	NO
		WBT		607	680	NO
		WBR		269	394	NO
	PM	WBL	1,000	714	714	NO
		WBT		464	601	NO
		WBR		308	468	NO
36. I-8 EB off-ramp at Fairmount Ave	AM	EBL	4,100	496	505	NO
		EBR		505	508	NO
	PM	EBL	4,100	1,099	1,113	NO
		EBR		1,659	1,665	NO

TABLE 43 – HORIZON YEAR PLUS PROJECT WITH 4-LANE BRIDGE CONDITIONS - OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)		Capacity Exceeded?
				Horizon Year No Project Conditions With Bridge	Horizon Year Plus Project Conditions With Bridge	
46. I-15 SB off-ramp at Camino del Rio S	AM	SBL	900	0	0	NO
		SBT		716	129	NO
		SBR		376	835	NO
	PM	SBL	900	0	0	NO
		SBT		59	469	NO
		SBR		542	60	NO
48. I-15 NB off-ramp at Camino del Rio S	AM	NBL	1,300	29	773	NO
		NBT		0	26	NO
		NBR		324	0	NO
	PM	NBL	1,300	75	502	NO
		NBT		0	88	NO
		NBR		211	0	NO

Source: Fehr & Peers, 2019.

8.2.1 INTERSECTION ANALYSIS COMPARISON

The inclusion of the 4-lane bridge with the addition of project traffic under Horizon Year conditions will notably change operations in one of two ways: 1) a change in threshold exceedance (i.e., either add or eliminate a significant impact), or 2) change the delay by ± 10 seconds. These changes would occur at the following 17 study area intersections as follows:

9. Fenton Parkway & Friars Road (degrade operations in the AM peak hour; improve operations in the PM peak hour)
10. Northside Drive & Friars Road (improve operations in the PM peak hour, which would *eliminate the previously identified project impact* per both CSU and City thresholds)
11. Stadium Way (Street A) & Friars Road (degrade but still acceptable operations in the PM peak hour)
17. I-15 SB Ramps & Friars Road (improve operations in the AM and PM peak hours)
19. Rancho Mission Road & Friars Road (improve but still unacceptable operations in the PM peak hour)
24. Rio San Diego Drive & River Run Drive (degrade operations in the PM peak hour, which would result in a *new impact* per both CSU and City thresholds)
25. Fenton Parkway & Rio San Diego Drive/Fenton Marketplace Driveway (degrade but still acceptable operations in the PM peak hour)
26. Rancho Mission Road & San Diego Mission Road (improve operations in the AM and PM peak hours)
27. Fairmount Avenue & San Diego Mission Road/Twain Avenue (improve operations in the AM and PM peak hours, which would *eliminate the previously identified project impact* per both CSU and City thresholds)
28. Qualcomm Way & Camino del Rio North/Camino de la Reina (slightly degrade operations in the PM peak hour, resulting in a *new City threshold exceedance*, but not a significant impact per CSU thresholds)
31. Texas Street & Camino del Rio S (degrade operations in the AM peak hour)
32. Ward Road & Rancho Mission Road (improve operations in the AM and PM peak hours)
35. Fairmount Avenue & Camino del Rio North (degrade operations in the AM and PM peak hours)
44. Fenton Parkway/Mission City Parkway & Camino del Rio N (degrade operations in the AM and PM peak hours, which would result in a *new impact*)
45. Mission City Parkway & Camino del Rio S (degrade operations in the PM peak hour, which would result in a *new impact*)
46. I-15 Southbound Off-Ramp & Camino del Rio S (degrade operations in the AM and PM peak hours, which would result in a *new impact*)
48. I-15 Northbound Ramps & Camino del Rio S (degrade but still acceptable operations in the AM and PM peak hours)

In summary, the addition of the 4-lane bridge as compared to the no bridge scenario would cause a total of four (4) new significant impact locations and one (1) new City threshold exceedance location, and would eliminate two (2) significant impact locations based on both CSU and City thresholds.

8.2.2 ROADWAY SEGMENT ANALYSIS COMPARISON

Similar to intersections, the inclusion of the 4-lane bridge with the addition of project traffic under Horizon Year conditions will notably change operations in one of two ways: 1) a change in threshold exceedance, or 2) change the delay by ± 10% of the capacity (i.e., a change of 0.10 to V/C). These changes would occur at the following 15 study area roadway segments as follows:

5. Friars Road from Fenton Parkway to Northside Drive (improve operations)
6. Friars Road from Northside Drive to Stadium Way (Street A) (improve but still unacceptable operations)
7. Friars Road from Stadium Way to Mission Village Drive (improve operations)
8. Friars Road from Mission Village Drive to the I-15 Ramps (improve operations, which would *eliminate the previously identified threshold exceedance*)

16-16a. Fenton Parkway south of Rio San Diego Drive/Fenton Marketplace Driveway (degrade operations, though they remain acceptable, due to conversion from a dead-end street to a new cross-river connection)

17. San Diego Mission Road from Mission Village Drive/Street F to Rancho Mission Road (improve operations)
18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue (improve operations)
19. Rancho Mission Road from Friars Road to San Diego Mission Road (improve operations)
20. Rancho Mission Road from San Diego Mission Road to Ward Road (improve operations, which would *eliminate the previously identified threshold exceedance*)
22. Ward Road from Rancho Mission Road to Camino del Rio North (improve operations)
32. Camino del Rio North from Mission City Parkway to Ward Road (degrade operations, which would result in a *new threshold exceedance*)
33. Camino del Rio North from Ward Road to Fairmount Avenue (degrade operations)
34. Camino del Rio South from Texas St to Mission City Parkway (degrade operations)
35. Camino del Rio South from Mission City Parkway to I-15 Ramps (degrade operations)

In summary, the addition of the 4-lane bridge as compared to the no bridge scenario would cause one (1) new threshold exceedance and would eliminate two (2) threshold exceedances based on City thresholds.

8.2.3 FREEWAY SEGMENT ANALYSIS COMPARISON

Provision of the bridge would change the way some vehicles circulate around the project site and which interchanges would be used to access origins and destinations in the area extending from west of Qualcomm Way to east of Fairmount Avenue and accessed by Camino del Rio N and S, as well as Friars Road. More specifically, the redistribution of traffic under the 4-lane bridge scenario would result in some traffic otherwise projected to travel on I-8 east of I-15 shifting to Montezuma Road with the new bridge connection. Similarly, some traffic projected to travel on I-15 south of Friars Road would shift to the Camino del Rio S interchange. Therefore, on the I-8 freeway segments from I-15 to College Avenue and the I-15 auxiliary lanes at Friars Road, operations would improve with the 4-lane bridge in place. However, the addition of the bridge would still result in the same number of impacted freeway segments.

8.2.4 FREEWAY RAMP METERING ANALYSIS COMPARISON

Related to the freeway segment comparison in the previous section, the addition of a 4-lane Fenton Parkway bridge would change travel patterns related to freeway access and affect the traffic volume and projected delay on metered on-ramps at selected interchanges. Specifically, with the traffic redistribution, the metered direct on-ramp to I-15 Southbound at Friars Road would serve less traffic and would experience improved operations with the bridge in place. The primary shift in traffic volume would occur between this ramp and the on-ramp from Camino del Rio S to southbound I-15. The volume on the direct on-ramp from Friars Road would be reduced enough to eliminate the previously identified project impact on that facility. All other impacts would be similar to conditions without the bridge. Therefore, the addition of the bridge would result in the elimination of one (1) significant impact.

8.2.5 FREEWAY OFF-RAMP QUEUEING ANALYSIS

The addition of the 4-lane bridge and resulting redistribution of vehicle trips would change the length of vehicle queues at the following freeway off-ramps:

29. Qualcomm Wy & Camino del Rio N/I-8 WB Off-ramp (decrease queues on one turning movement during both the AM and PM peak hour)
30. Texas St/Qualcomm Wy & I-8 EB Off-ramp (slightly decrease the AM peak hour queue and more than double the PM peak hour queue)
46. Camino del Rio S & I-15 SB Off-ramp (increase the AM peak hour queues and negligibly change the PM peak hour queue)
48. I-15 NSB Off-ramp & Camino del Rio S (increase both the AM and PM peak hour queues)

In all cases, however, the projected off-ramp queues in 2037 would be accommodated by the existing storage capacity with the 4-lane Fenton Parkway bridge. This is the same finding reached for conditions without the bridge.

8.3 HORIZON YEAR (2037) CONDITIONS WITH 2-LANE BRIDGE

While all of the Fenton Parkway bridge references in the MVCP update allows for a four-lane collector cross-section with a two-way left-turn lane (or turn lanes as needed), a two-lane facility was also evaluated.

8.3.1 DESCRIPTION OF 2-LANE FENTON PARKWAY EXTENSION AND BRIDGE

The planned roadway extension across the San Diego River would connect the existing southern terminus of Fenton Parkway at the San Diego Trolley line to Camino del Rio North opposite Mission City Parkway. Under the scenario analyzed here, the extension and bridge would be constructed as a two-lane collector with a center left-turn lane for its entire length. The center turn lane would be striped as an exclusive left-turn lane at intersections but could be used as a travel lane when manual traffic control was employed during an emergency situation, or fully attended stadium events, etc.

With development of the SDSU Mission Valley Campus, direct vehicular access to the project site would be provided via Street A (also known as Mission City Street I in the MVCP update). The Fenton Parkway/Street A intersection (Intersection 49) would be signalized with permitted left-turns to facilitate automobile, bicycle, and pedestrian movements, as well as to control traffic when a trolley vehicle is crossing Fenton Parkway. The proposed intersection lane configuration would include: one northbound through lane, one northbound right-turn lane, one southbound through lane, one southbound left-turn lane, one westbound left-turn lane, and one westbound right-turn lane (see **Figure 23**).

8.3.2 TRAFFIC REDISTRIBUTION WITH 2-LANE BRIDGE

A new run of the SANDAG Series 13 Year 2035 travel demand model was performed with the Fenton Parkway extension and 2-lane bridge in place. The results of this new run were then compared to the 4-lane bridge to determine how travel patterns would be different. The comparison identified that the shifting patterns would be generally the same as with the 4-lane bridge, but the 2-lane bridge would attract approximately 66% of the traffic that shifted under the 4-lane bridge scenario. These and other changes in travel pattern and paths will affect operations at selected intersections, roadway segments, ramps, freeway segments, and off-ramps in the area immediately surrounding the project site.

The total Horizon Year (2037) No Project and Horizon Year (2037) Plus Project traffic volumes at all study area locations under a 2-lane bridge scenario are presented on **Figures 22** and **23**, respectively. Traffic volume redistribution for each applicable turning movement with the 2-lane Fenton Parkway bridge in place (compared to "no bridge" conditions) is illustrated on **Figure 24**, with positive numbers indicating volume increases and negative numbers showing decreases in traffic. Volumes are also included for intersections on Camino del Rio North and South that were not included in the TIA for the proposed project. These locations would serve a negligible amount of project traffic without the bridge, but would see a substantial increase in baseline and project-generated traffic with the 2-lane bridge in place.

8.3.3 INTERSECTION ANALYSIS

All 43 of the study area intersections included in the TIA were analyzed using the anticipated Horizon Year intersection lane configurations and the traffic volumes illustrated on **Figure 23** for plus Project Conditions. As noted above, additional intersections along Camino del Rio N and Camino del Rio S were analyzed due to the anticipated change in traffic on those facilities with the 2-lane bridge in place. The Horizon Year No Project lane configuration at the southern bridge intersection (Intersection 44) was obtained from the *Mission Valley Community Plan Update: Final Environmental Impact Report Traffic Impact Analysis Appendix D – (May 2019)* (MVCPU FEIR). Otherwise, existing lane configurations were used for the other additional locations (Intersections 45 through 48). The proposed SDSU Mission Valley Campus project will construct the Fenton Parkway/Street A intersection (Intersection 49) to be configured as: one northbound through lane, one northbound right-turn lane, one southbound through lane, one southbound left-turn lane, one westbound left-turn lane, and one westbound right-turn lane (see **Figure 23**). Existing volumes for the additional study area intersections were also obtained from the MVCPU FEIR and factored to account for growth (at 1% per year compounded) up to 2037, which is the study horizon year for this analysis and consistent with the approach used in the TIA based on SANDAG model projections.

Table 44 presents intersection operations under the Horizon Year Plus Project Conditions *with* the 2-Lane Fenton Parkway bridge and compares the projected LOS at each study area intersection to the Horizon Year No Project Conditions with the bridge scenario. The corresponding LOS calculation sheets for all intersections are included in **Appendix H**.

As illustrated in **Table 44**, the addition of project traffic to the baseline roadway network with the 2-lane Fenton Parkway bridge would cause the CSU TISM intersection threshold to be exceeded at the following 15 locations (with projected LOS and applicable peak hour indicated in parentheses):

1. SR-163 Southbound Ramps/Ulric Street & Friars Road (LOS E in the PM peak hour)
8. River Run Drive & Friars Road (LOS F in the PM peak hour)
9. Fenton Parkway & Friars Road (LOS F in the PM peak hour)

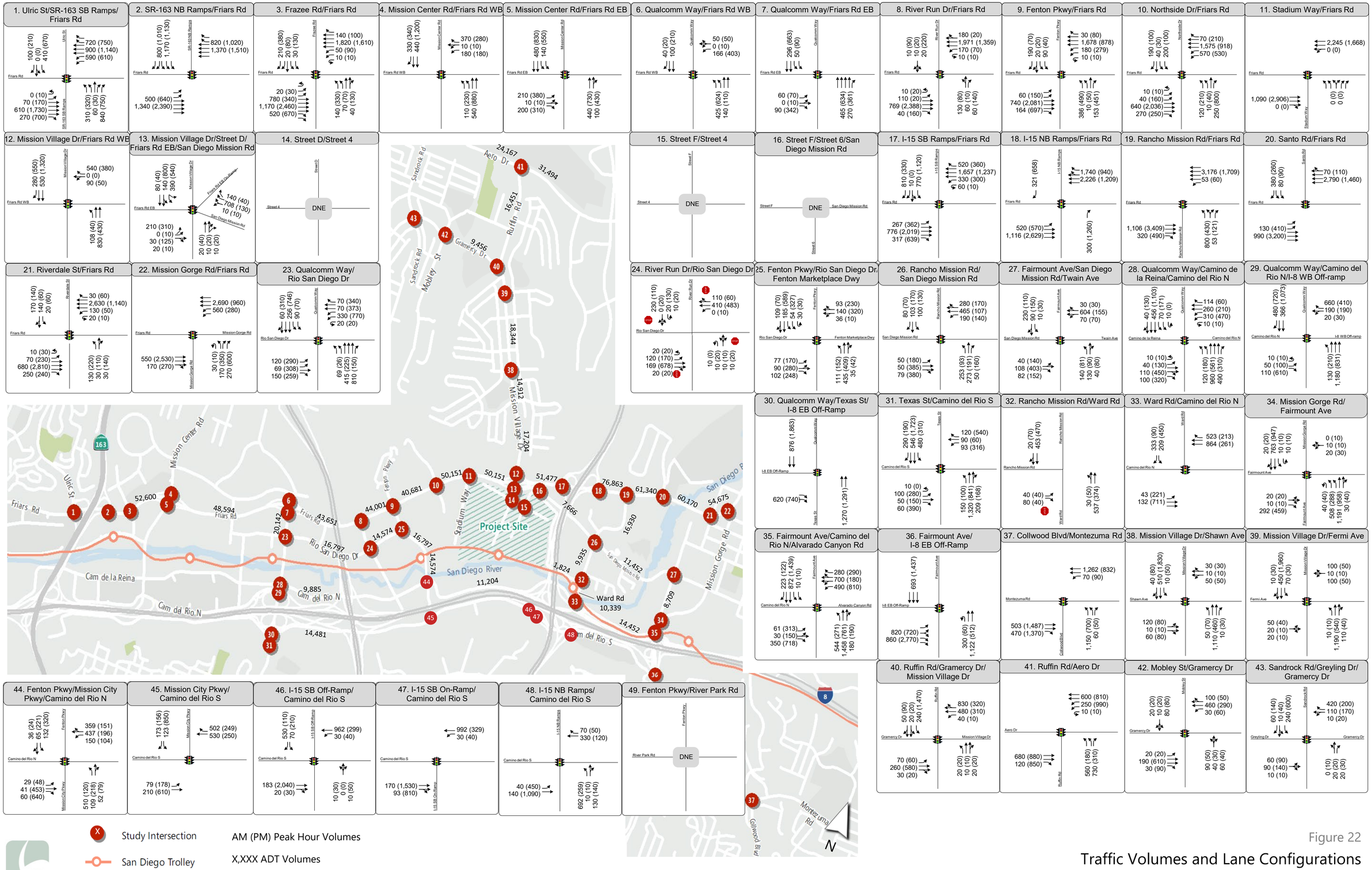


Figure 22

Traffic Volumes and Lane Configurations

Horizon Year No Project Without Event Conditions with 2-Lane Fenton Parkway Bridge

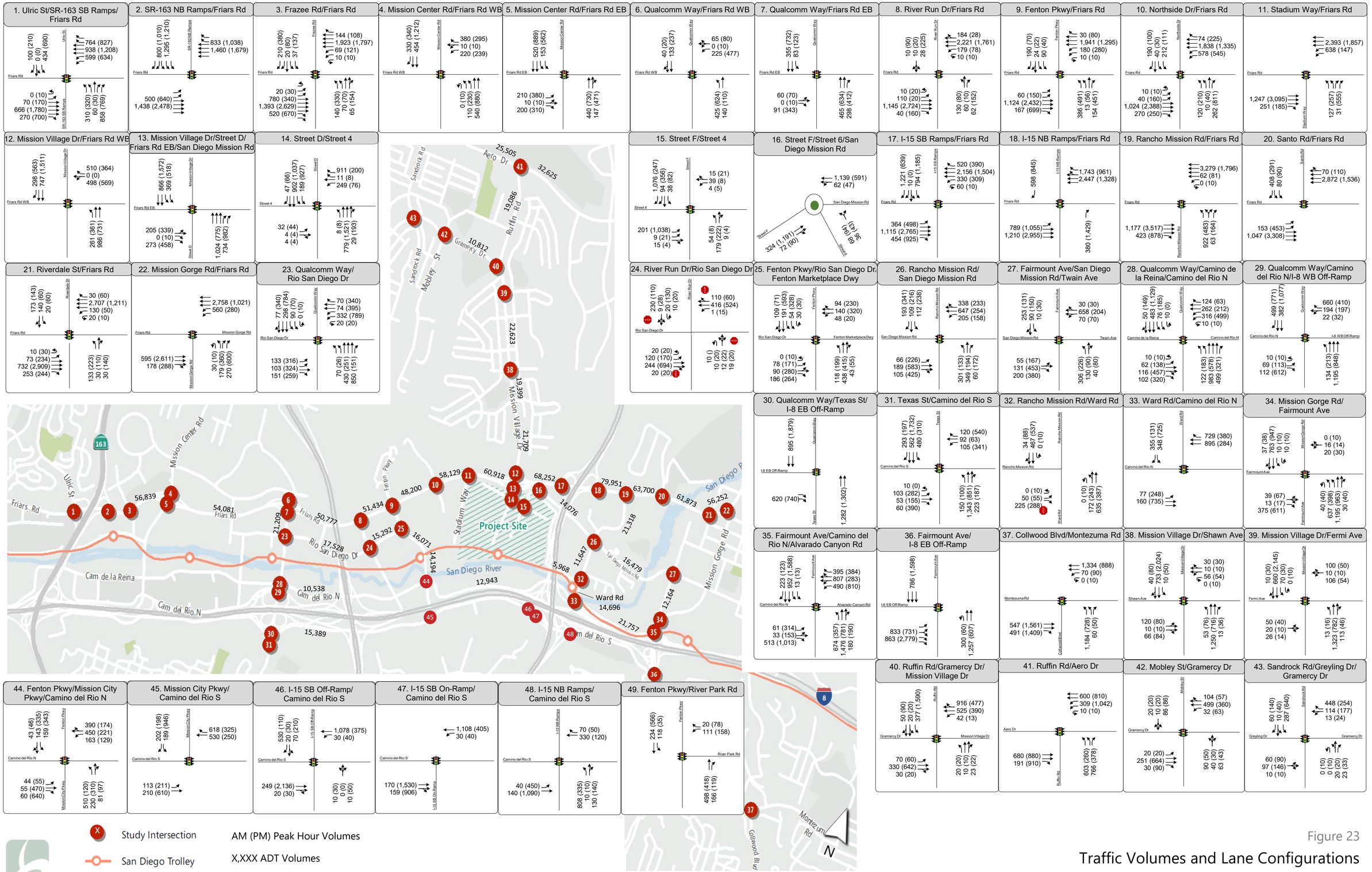


Figure 23

Traffic Volumes and Lane Configurations

Horizon Year Plus Project Without Event Conditions with 2-Lane Fenton Parkway Bridge

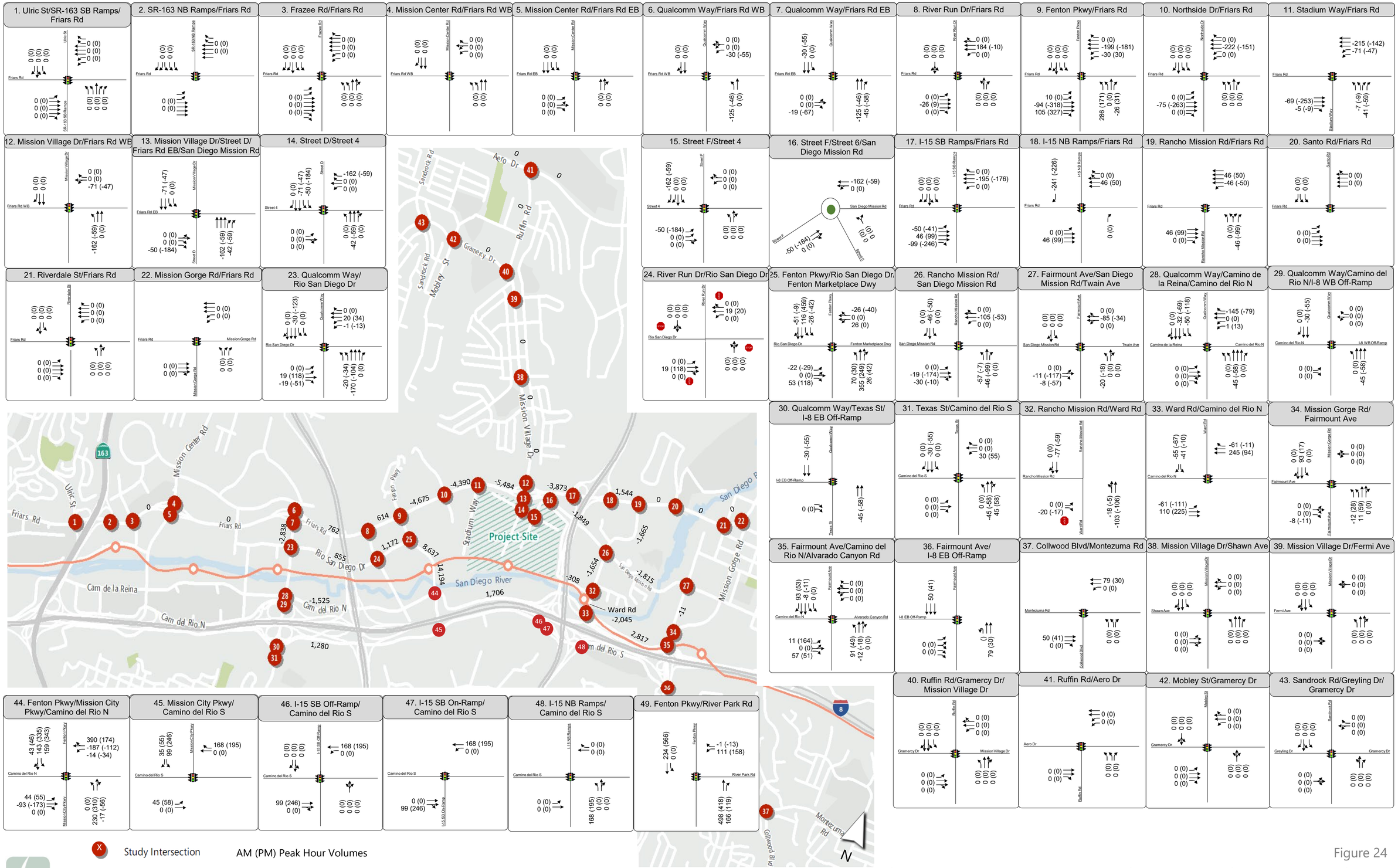


Figure 24

Effect of 2-Lane Fenton Parkway Extension on Horizon Year Plus Project Without Event Conditions

Traffic Redistribution

TABLE 44 – HORIZON YEAR (2037) PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE WITH 2-LANE FENTON BRIDGE

Intersection	Traffic Control	Peak Hour	Horizon Year with Bridge - No Project		Horizon Year with Bridge Plus Project		Delay Delta	Exceeds Operating Threshold?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
1. SR-163 SB Ramps/Ulric St & Friars Rd*	Signalized	AM	43.9	D	45.3	D	1.4	NO
		PM	**56.7**	**E**	**62.1**	**E**	**5.4**	**YES**
2. SR-163 NB Ramps & Friars Rd*	Signalized	AM	26.2	C	29.5	C	3.3	NO
		PM	29.8	C	36.2	D	6.4	NO
3. Frazee Rd & Friars Rd*	Signalized	AM	49.0	D	50.6	D	1.6	NO
		PM	44.8	D	46.9	D	2.1	NO
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	12.8	B	13.3	B	0.5	NO
		PM	14.1	B	15.0	B	0.9	NO
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	16.8	B	16.7	B	-0.1	NO
		PM	36.2	D	38.1	D	1.9	NO
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	15.5	B	16.7	B	1.2	NO
		PM	24.0	C	24.5	C	0.5	NO
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	6.0	A	6.6	A	0.6	NO
		PM	11.0	B	11.6	B	0.6	NO
8. River Run Dr & Friars Rd	Signalized	AM	24.4	C	27.3	C	2.9	NO
		PM	**61.4**	**E**	**95.9**	**F**	**34.5**	**YES**
9. Fenton Pkwy & Friars Rd	Signalized	AM	43.6	D	41.4	D	-2.2	NO
		PM	**63.9**	**E**	**92.5**	**F**	**28.6**	**YES**
10. Northside Dr & Friars Rd	Signalized	AM	34.8	C	27.4	C	-7.4	NO
		PM	**75.0**	**E**	**79.5**	**E**	4.5	NO****
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A	9.7	A	9.7	NO
		PM	-	N/A	14.3	B	14.3	NO
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	21.1	C	28.4	C	7.3	NO
		PM	52.8	D	32.7	C	-20.1	NO
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd*	Signalized	AM	**117.9**	**F**	16.9	B	-101.0	NO
		PM	**71.9**	**E**	25.5	C	-46.4	NO
14. Street D & Street 4	Signalized	AM	DNE	N/A	21.3	C	N/A	NO
		PM		N/A	51.7	D	N/A	NO
15. Street F & Street 4	Signalized	AM	DNE	N/A	25.9	C	N/A	NO
		PM		N/A	30.6	C	N/A	NO
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A	7.2	A	N/A	NO
		PM		N/A	8.0	A	N/A	NO
17. I-15 SB Ramps & Friars Rd	Signalized	AM	40.4	D	**93.7**	**F**	**53.3**	**YES**
		PM	**57.7**	**E*** (F)**	**85.4**	**F***(F)**	**27.7**	**YES**
18. I-15 NB Ramps & Friars Rd	Signalized	AM	**87.7**	**F*** (F)**	**140.6**	**F***(F)**	**52.9**	**YES**
		PM	**66.7**	**E*** (F)**	**206.3****	**F*** (F)**	**139.6**	**YES**
19. Rancho Mission Rd & Friars Rd	Signalized	AM	30.9	C*** **(E)**	35.1	D***(F)**	4.2	**YES*****
		PM	**64.2**	**E*** (E)**	**75.8**	**E***(F)**	**11.6**	**YES**
20. Santo Rd & Friars Rd	Signalized	AM	38.1	D	47.1	D	9.0	NO
		PM	16.8	B	19.0	B	2.2	NO
21. Riverdale St & Friars Rd	Signalized	AM	37.4	D	43.8	D	6.4	NO
		PM	37.4	D	43.8	D	6.4	NO
22. Mission Gorge Rd & Friars Rd	Signalized	AM	44.1	D	46.5	D	2.4	NO
		PM	44.5	D	54.2	D	9.7	NO
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	18.9	B	22.4	C	3.5	NO
		PM	39.1	D	42.9	D	3.8	NO
24. Rio San Diego Dr & River Run Dr	AWSC	AM	13.3	B	14.1	B	0.8	NO
		PM	**37.6**	**E**	**45.9**	**E**	**8.3**	**YES**
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	20.0	B	20.5	C	0.5	NO
		PM	40.2	D	43.5	D	3.3	NO
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	24.1	C	33.6	C	9.5	NO
		PM	23.7	C	34.2	C	10.5	NO
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	20.9	C	**55.5**	**E**	**34.6**	**YES**
		PM	19.6	B	41.1	D	21.5	NO

TABLE 44 – HORIZON YEAR (2037) PLUS PROJECT CONDITIONS INTERSECTION LEVEL OF SERVICE WITH 2-LANE FENTON BRIDGE

Intersection	Traffic Control	Peak Hour	Horizon Year with Bridge - No Project		Horizon Year with Bridge Plus Project		Delay Delta	Exceeds Operating Threshold?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	20.2	C	20.7	C	0.5	NO
		PM	**68.7**	**E**	**70.8**	**E**	2.1	NO****
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N	Signalized	AM	20.0	B	21.1	C	1.1	NO
		PM	**74.0**	**E**	**77.6**	**E**	3.6	NO****
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.1	A	1.1	A	0.0	NO
		PM	4.8	A	4.8	A	0.0	NO
31. Texas St & Camino del Rio S	Signalized	AM	**108.4**	**F**	**119.6**	**F**	**11.2**	**YES**
		PM	**87.8**	**F**	**107.2**	**F**	**19.4**	**YES**
32. Ward Rd & Rancho Mission Rd	SSSC	AM	22.0	C	**65.1**	**F**	**43.1**	**YES**
		PM	24.5	C	**165.9****	**F**	**141.4**	**YES**
33. Camino del Rio N & Ward Ave	Signalized	AM	14.0	B	20.3	C	6.3	NO
		PM	14.1	B	24.8	C	10.7	NO
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	22.1	C	27.0	C	4.9	NO
		PM	27.2	C	**58.2**	**E**	**31.0**	**YES**
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	**99.7**	**F**	**133.2**	**F**	**33.5**	**YES**
		PM	**112.5**	**F**	**187.6****	**F**	**75.1**	**YES**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	18.8	B	22.9	C	4.1	NO
		PM	45.2	D	54.8	D	9.6	NO
37. Montezuma Rd & Collwood Blvd	Signalized	AM	47.0	D	48.6	D	1.6	NO
		PM	49.9	D	53.3	D	3.4	NO
38. Mission Village Dr & Shawn Ave	Signalized	AM	6.2	A	6.4	A	0.2	NO
		PM	10.8	B	13.6	B	2.8	NO
39. Mission Village Dr & Fermi Ave	Signalized	AM	14.5	B	15.5	B	1.0	NO
		PM	11.3	B	13.9	B	2.6	NO
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	20.5	C	32.6	C	12.1	NO
		PM	24.5	C	36.4	D	11.9	NO
41. Ruffin Rd & Aero Dr	Signalized	AM	35.7	D	36.8	D	1.1	NO
		PM	52.6	D	**63.2**	**E**	**10.6**	**YES**
42. Gramercy Dr & Mobley St	Signalized	AM	7.1	A	7.2	A	0.1	NO
		PM	6.0	A	6.1	A	0.1	NO
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	9.1	A	9.3	A	0.2	NO
		PM	11.7	B	11.9	B	0.2	NO
44. Fenton Pkwy/Mission City Pkwy & Camino del Rio N	Signalized	AM	**76.8**	**E**	**105.1**	**F**	**28.3**	**YES**
		PM	38.4	D	**58.9**	**E**	**20.5**	**YES**
45. Mission City Pkwy & Camino del Rio S	Signalized	AM	8.9	A	10.9	B	2.0	NO
		PM	42.5	D	**55.8**	**E**	**13.3**	**YES**
46. I-15 SB Off-Ramp & Camino del Rio S	Signalized	AM	50.1	D	**68.1**	**E**	**18.0**	**YES**
		PM	36.3	D	46.8	D	10.5	NO
47. I-15 SB On-Ramp & Camino del Rio S	Signalized	AM	2.1	A	2.3	A	0.2	NO
		PM	8.1	A	10.8	B	2.7	NO
48. I-15 NB Ramps & Camino del Rio S	Signalized	AM	19.9	B	29.0	C	9.1	NO
		PM	24.8	C	33.8	C	9.0	NO
49. Fenton Pkwy & Street A	Signalized	AM	DNE	N/A	5.4	A	N/A	NO
		PM		N/A	6.1	A	N/A	NO

Source: Fehr & Peers, 2019

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections, the all-way-stop-controlled (AWSC) intersection, and the roundabout intersection. Worst movement delay reported for the side-street-stop-controlled (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual (HCM)* method.

[3] Below-standard seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Under Horizon Year Conditions without the project, the Stadium Way & Friars Road intersection would only be used intermittently during stadium events (i.e., outside the typical AM and PM hours).

* Existing or proposed signal phasing prevents the use of *HCM 6* at this intersection. The *HCM 2000* method was applied instead.

** Calculated delays above 150 seconds may not be accurate and should be used with caution.

*** Ramp metering during the peak hours under existing conditions results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation and affects operations at the subject intersection.

**** Intersection would exceed the City of San Diego impact threshold.

*****Because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would cause a significant impact.

17. I-15 SB Ramps & Friars Road (LOS F in both peak hours)
18. I-15 NB Ramps & Friars Road (LOS F in both peak hours)
19. Rancho Mission Road & Friars Road (LOS F in both peak hours)
24. Rio San Diego Drive & River Run Drive (LOS E in the PM peak hour)
31. Texas St & Camino del Rio S (LOS F in both peak hours)
32. Ward Road & Rancho Mission Road (LOS F in both peak hours)
34. Fairmount Avenue & Mission Gorge Road (LOS E in the PM peak hour)
35. Fairmount Avenue & Camino del Rio North (LOS F in both peak hours)
41. Ruffin Road & Aero Drive (LOS E in the PM peak hour)
44. Fenton Parkway/Mission City Parkway & Camino del Rio N (LOS F in the AM peak hour, LOS E in the PM peak hour)
45. Mission City Parkway & Camino del Rio S (LOS E in the PM peak hour)
46. I-15 Southbound Off-Ramp & Camino del Rio S (LOS E in the AM peak hour)

At the side-street stop-controlled Ward Road/Rancho Mission Road intersection (Intersection 32), the MUTCD peak hour signal warrant would be satisfied during the PM peak hour only. The signal warrant is part of the threshold evaluation for unsignalized intersections. The warrant evaluation is included in **Appendix H**.

The locations that would exceed the City of San Diego threshold criteria include those noted above, as well as the following intersections:

10. Northside Drive & Friars Road (LOS E in the PM peak hour)
28. Qualcomm Way & Camino del Rio North/Camino de la Reina (LOS E in the PM peak hour)
29. Qualcomm Way & I-8 Westbound Off-ramp/Camino del Rio North (LOS E in the PM peak hour)

8.3.4 ROADWAY SEGMENT ANALYSIS

The roadway segment LOS analysis was conducted using the City of San Diego impact thresholds and, as is the case with the primary no bridge analysis presented in the TIA, the roadway segment analysis is presented for information purposes only. **Table 45** displays the results of the LOS analysis for the study area roadway segments under Horizon Year with 2-Lane Bridge Conditions both without and with the proposed project. As previously noted, in addition to the study area roadway segments reviewed in the TIA under the without bridge scenario, additional segments along Camino del Rio N and Camino del Rio S were reviewed here due to the anticipated change in traffic on those facilities with the bridge in place.

As shown in the table, with the 2-lane bridge in place the proposed project would cause the City's segment threshold to be exceeded on the following study area roadway segments:

6. Friars Road: Northside Drive to Stadium Way (Street A) (LOS E)
9. Friars Road: I-15 NB Ramps to Rancho Mission Road (LOS F)

TABLE 45 – HORIZON YEAR PLUS PROJECT WITHOUT AND WITH 2-LANE BRIDGE CONDITIONS ROADWAY SEGMENT LEVEL OF SERVICE

Roadway Segment			Roadway Classification (# of Lanes)[1]	Capacity	Horizon Year With Bridge No Project			Horizon Year With Bridge Plus Project			V/C Delta
ID	Extent (from/to)				ADT	V/C[2]	LOS[3,4]	ADT	V/C[2]	LOS[3,4]	
Friars Rd											
1	Frazee Rd	Mission Center Rd	8P	80,000	52,600	0.66	C	56,839	0.71	C	0.05
2	Mission Center Rd	Qualcomm Way	6E	80,000	48,594	0.61	C	54,081	0.68	C	0.07
3	Qualcomm Way	River Run Dr	6E	80,000	43,651	0.55	C	50,777	0.63	C	0.08
4	River Run Dr	Fenton Pkwy	6P	60,000	44,001	0.73	C	51,434	0.86	D	0.13
5	Fenton Pkwy	Northside Dr	6P	60,000	40,681	0.68	C	48,200	0.80	C	0.12
6	Northside Dr	Stadium Way (Street A)	6P	60,000	50,151	0.63	D	58,129	**0.97**	**E**	**0.34**
7	Stadium Way (Street A)	Mission Village Dr	6E	80,000	50,151	0.63	C	60,918	0.76	D	0.13
8	Mission Village Dr	I-15 Ramps	6E	80,000	51,477	0.64	C	68,252	0.85	D	0.21
9	I-15 Ramps	Rancho Mission Rd	7P	70,000	76,863	**1.10**	**F**	79,951	**1.14**	**F**	**0.04**
10	Rancho Mission Rd	Santo Rd	7P	70,000	61,340	0.88	D	63,700	0.91	D	0.03
11	Santo Rd	Riverdale St	6P	60,000	60,170	**1.00**	**F**	61,873	**1.03**	**F**	**0.03**
12	Riverdale St	Mission Gorge Rd	6P	60,000	54,675	0.91	D	56,252	**0.94**	**E**	**0.03**
Qualcomm Way											
13	Friars Rd	Rio San Diego Dr	6M	20,142	20,142	0.40	B	21,209	0.42	B	0.02
Rio San Diego Dr											
14	Qualcomm Way	River Run Dr	4M	40,000	16,797	0.42	B	17,528	0.44	B	0.02
15	River Run Dr	Fenton Pkwy	4C/M	30,000	14,574	0.49	C	15,292	0.51	C	0.02
Fenton Pkwy											
16	Rio San Diego Dr/ Fenton Marketplace Dwy	Northside Dr	4M	40,000	14,743	0.37	A	16,071	0.40	B	0.03
16a	Northside Dr	Camino del Rio N	2C w/CLTL	15,000	10,733	0.72	D	14,194	**0.95**	**E**	**0.23**
San Diego Mission Rd											
17	Mission Village Dr/ Street F	Rancho Mission Rd	4C w/o CLTL	15,000	7,666	0.51	C	14,076	**0.94**	**E**	**0.43**
18	Rancho Mission Rd	Fairmount Ave	2C w/CLTL	15,000	11,452	**0.76**	D	16,479	**1.10**	**F**	**0.34**
Rancho Mission Rd											
19	Friars Rd	San Diego Mission Rd	3C w/CLTL	22,500	16,930	0.75	D	21,318	**0.95**	**E**	**0.20**
20	San Diego Mission Rd	Ward Rd	4C w/o CLTL	15,000	9,935	0.66	C	11,647	0.78	D	0.12
21	West of Ward Rd		2C	10,000	1,824	0.18	A	5,968	0.60	C	0.42
Ward Rd											
22	Rancho Mission Rd	Camino del Rio N	4C w/o CLTL	15,000	10,339	0.69	D	14,696	**0.98**	**E**	**0.29**
Fairmount Ave											
23	San Diego Mission Rd/ Twain Ave	Mission Gorge Rd	4C w/o CLTL	15,000	8,709	0.29	A	12,164	0.41	B	0.12
Mission Village Dr											
24	Ruffin Rd	Shawn Ave	4C	30,000	18,344	0.61	C	22,623	0.75	D	0.14
25	Shawn Ave	Ronda Ave	4C	30,000	14,912	0.50	C	19,399	0.65	C	0.15
26	Ronda Ave	Friars Rd	4M	40,000	17,204	0.43	B	21,709	0.54	C	0.11
Ruffin Rd											
27	Aero Dr	Mission Village Dr	4C	30,000	16,451	0.55	C	19,086	0.64	C	0.09
Gramercy Dr											
28	Mobley St	Ruffin Rd	4M	40,000	9,456	0.24	A	10,812	0.27	A	0.03
Aero Dr											
29	Sandrock Rd	Ruffin Rd	4M	40,000	24,167	0.60	C	25,505	0.64	C	0.04
30	Ruffin Rd	Daley Center Dr	4M	40,000	31,494	0.79	D	32,625	0.82	D	0.03
Camino del Rio N											
31	Qualcomm Way	Mission City Pkwy	4C	30,000	9,885	0.33	A	10,538	0.35	B	0.02
32	Mission City Pkwy	Ward Rd	2C w/CLTL	15,000	11,204	0.75	D	12,943	0.86	D	0.11
33	Ward Rd	Fairmount Ave	4C	30,000	14,452	0.48	C	21,757	0.73	D	0.25
Camino del Rio S											
34	Texas St	Mission City Pkwy	2C	10,000	14,481	**1.45**	**F**	15,389	**1.54**	**F**	**0.09**
35	Mission City Pkwy	I-15 Ramps	3C w/CLTL	22,500	13,819	0.61	C	15,284	0.68	D	0.07
36	I-15 Ramps	Caminito Pintoresco	2C w/CLTL	15,000	8,372	0.56	C	8,372	0.56	C	0.00

Source: Fehr & Peers, 2019

Notes:

1 2C w/CLTL = 2-lane collector with center left-turn lane
3C w/CLTL = 3-lane collector (2 lanes in one direction and 1 in opposing direction) with center left-turn lane;
4C w/o CLTL = 4-lane collector without center left-turn lane
4C = 4-lane collector
4M = 4-lane major arterial
6M = 6-lane major arterial
6P = 6-lane primary arterial
7P = 7-lane primary arterial (4 lanes in one direction and 3 in opposing direction); the additional lane is assumed to add 5,000 ADT for LOS A, 7,500 ADT for LOS B, and 10,000 ADT for LOS C, D, and E per the Mission Valley Community Plan Update
8P = 8-lane primary arterial
6E = 6-lane expressway

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)* and the *Mission Valley Community Plan Update (2019)*

4 Unacceptable ADT volumes per segment and LOS highlighted in **bold**.

11. Friars Road: Santo Road to Riverdale St (LOS F)
12. Friars Road: Riverdale Street to Mission Gorge Road (LOS E)
16a. Fenton Pkwy: Northside Dr to Camino del Rio N (LOS E; this roadway segment includes the new bridge facility)
17. San Diego Mission Road: Mission Village Drive/Street F to Rancho Mission Road (LOS E)
18. San Diego Mission Road: Rancho Mission Road to Fairmount Avenue (LOS F)
19. Rancho Mission Road: Friars Road to San Diego Mission Road (LOS E)
22. Ward Road from Rancho Mission Road to Camino del Rio North (LOS E)
34. Camino del Rio S: Texas St to Mission City Parkway (LOS F)

8.3.5 FREEWAY SEGMENT ANALYSIS

Table 46 displays the study area freeway operations under Horizon Year (2037) Plus Project Conditions with the 2-lane Fenton Parkway bridge. As noted above, the redistribution of traffic would result in some traffic otherwise projected to travel on I-8 east of I-15 under the without bridge analysis shifting to Montezuma Road with the new bridge connection. Similarly, some traffic projected to travel on I-15 south of Friars Road under the without bridge analysis would shift to the Camino del Rio S interchange under the 2-lane bridge scenario.

Ultimately, under this 2-lane bridge scenario, with the addition of proposed project traffic, the following freeway segments would exceed the CSU TISM/Caltrans operating threshold:

10. I-15 from Adams Avenue to I-8 (NB, both peak hours; SB, PM peak hour)
11. I-15 from I-8 to Friars Road (NB auxiliary lanes, PM peak hour; SB auxiliary lanes to I-8, both peak hours; SB auxiliary lane to I-15 SB, PM peak hour)
12. I-15 from Friars Road to Aero Drive (NB, AM peak hour; SB, PM peak hour)
13. I-15 from Aero Drive to Balboa Avenue/Tierrasanta Boulevard (both directions, both peak hours)
14. I-8 from Morena Boulevard to Taylor Street (EB, PM peak hour)
15-16. I-8 from Taylor Street to SR-163 (EB, both peak hours; WB, PM peak hour)
17. I-8 from SR-163 to Mission Center Road (WB, PM peak hour)
18. I-8 from Mission Center Road to Texas Street (WB, PM peak hour)
20. I-8 from I-805 to I-15 (EB, PM peak hour; WB, both peak hours)
22. I-8 from Fairmount Avenue to Waring Road (EB, PM peak hour; WB, AM peak hour)
23. I-8 from Waring Road to College Avenue (EB, PM peak hour; WB, both peak hour)

The locations that would exceed the City of San Diego threshold criteria include those noted above, as well as the following segments:

1. SR-163 from Washington Street to I-8 (NB, PM peak hour; SB, PM peak hour)
15-17. I-8 from Taylor Street to Mission Center Road (WB, AM peak hour)
18-19. I-8 from Mission Center Road to I-805 (EB, PM peak hour; WB, AM peak hour)

TABLE 46 – HORIZON YEAR PLUS PROJECT FREEWAY SEGMENT LEVEL OF SERVICE WITH 2-LANE BRIDGE

Freeway Segment		Direction	Number of Lanes	Capacity[1]	Horizon Year With Bridge - No Project						Horizon Year With Bridge Plus Project						V/C Delta		Exceeds Threshold?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
State Route 163																				
1	6th Ave to I-8	NB	3M+1A	6,600	6,350	6,892	**0.96**	**1.04**	**E**	**F(0)**	6,407	6,942	**0.97**	**1.05**	**E**	**F(0)**	0.01	0.01	NO	NO*
		SB	3M+2A	7,800	10,832	9,690	**1.39**	**1.24**	**F(2)**	**F(0)**	10,868	9,757	**1.39**	**1.25**	**F(2)**	**F(1)**	0.00	0.01	NO	NO*
2	I-8 to Friars Rd	NB	2A	2,400	1,958	2,125	0.82	0.89	D	D	2,083	2,206	0.87	0.92	D	D	0.05	0.03	NO	NO
		SB	4M+2A	9,600	9,908	9,049	**1.03**	**0.94**	**F(0)**	**E**** (F)	9,944	9,122	**1.04**	**0.95**	**F(0)**	**E** (F)	0.00	0.01	NO	NO
3	Friars Rd to Mesa College Dr[5]	NB	5M	9,000	11,141	8,973	**1.24**	**1.00**	**F(0)**	**E**	11,154	9,005	**1.24**	**1.00**	**F(0)**	**F(0)**	0.00	0.00	NO	NO
		SB	4M	7,200	7,446	7,713	**1.03**	**1.07**	**F(0)**	**F(0)**(F)	7,464	7,731	**1.04**	**1.07**	**F(0)**	**F(0)** (F)	0.00	0.00	NO	NO
4	Mesa College Dr to I-805	NB	4M+2A	9,600	9,392	8,718	**0.98**	0.91	**E**	D	9,403	8,747	**0.98**	0.91	**E**	D	0.00	0.00	NO	NO
		SB	4M+1A	8,400	8,551	7,471	**1.02**	0.89	**F(0)**	D** (F)	8,567	7,488	**1.02**	0.89	**F(0)**	D (F)	0.00	0.00	NO	NO
Interstate 805																				
5	Madison Ave to I-8	NB	4M+1A	8,400	10,241	5,976	**1.22**	0.71	**F(0)**	C	10,275	6,006	**1.22**	0.71	**F(0)**	C	0.00	0.00	NO	NO
		SB	6M	10,800	5,454	11,453	0.50	**1.06**	B	**F(0)**(F)	5,475	11,493	0.51	**1.06**	B	**F(0)** (F)	0.00	0.00	NO	NO
6	I-8 to Murray Ridge Rd/ Phyllis Pl	NB	5M	9,000	11,876	6,885	**1.32**	0.77	**F(1)**	C	11,886	6,907	**1.32**	0.77	**F(1)**	C	0.00	0.00	NO	NO
		SB	4M+2A	9,600	6,216	11,119	0.65	**1.16**	C	**F(0)**	6,232	11,131	0.65	**1.16**	C	**F(0)**	0.00	0.00	NO	NO
7	Murray Ridge Rd/Phyllis Pl to Mesa College Dr/Kearny Villa Rd	NB	5M	9,000	11,865	6,854	**1.32**	0.76	**F(1)**	C	11,875	6,876	**1.32**	0.76	**F(1)**	C	0.00	0.00	NO	NO
		SB	5M	9,000	5,975	10,851	0.66	**1.21**	C	**F(0)**	5,992	10,862	0.67	**1.21**	C	**F(0)**	0.00	0.00	NO	NO
8	Mesa College Dr/Kearny Villa Rd to SR-163	NB	5M	9,000	9,896	5,830	**1.10**	0.65	**F(0)**(F)	C	9,905	5,851	**1.10**	0.65	**F(0)** (F)	C	0.00	0.00	NO	NO
		SB	4M	7,200	4,290	6,701	0.60	**0.93**	B	**E**** (F)	4,305	6,712	0.60	**0.93**	B	**E** (F)	0.00	0.00	NO	NO
9	SR-163 to Balboa Ave	NB	4M+1A	8,400	7,077	5,952	0.84	0.71	D** (F)	C	7,098	6,002	0.84	0.71	D (F)	C	0.00	0.01	NO	NO
		SB	4M+2A	9,600	6,693	9,068	0.70	**0.94**	C	**E**** (F)	6,724	9,095	0.70	**0.95**	C	**E** (F)	0.00	0.00	NO	NO
Interstate 15																				
10	Adams Ave to I-8	NB	3M+2A	7,800	7,624	8,470	**0.98**	**1.09**	**E**	**F(0)**	7,978	8,775	**1.02**	**1.13**	**F(0)**	**F(0)**	**0.05**	**0.04**	**YES**	**YES**
		SB	5M	9,000	6,077	10,152	0.68	**1.13**	C	**F(0)**	6,298	10,563	0.70	**1.17**	C	**F(0)**	0.02	**0.05**	NO	**YES**
11	NB Off-Ramp to Friars Rd	NB	2A	2,400	1,282	2,008	0.53	0.84	B	D	1,639	2,364	0.68	**0.99**	C	**E**	0.15	**0.15**	NO	**YES**
	Friars Rd Auxiliary Lanes to I-8	SB	3A	3,600	4,357	5,778	**1.21**	**1.61**	**F(0)**	**F(3)**	4,454	5,944	**1.24**	**1.65**	**F(0)**	**F(3)**	**0.03**	**0.05**	**YES**	**YES**
	Friars Rd Direct Ramp to I-15 SB	SB	1A	1,200	718	954	0.60	0.79	B	C	855	1,248	0.71	**1.04**	C	**F(0)**	0.11	**0.25**	NO	**YES**
12	Friars Rd to Aero Dr	NB	4M+1A	8,400	9,691	7,115	**1.15**	0.85	**F(0)**	D	9,964	7,620	**1.19**	0.91	**F(0)**	D	**0.03**	0.06	**YES**	NO
		SB	5M+1A	10,200	8,245	11,344	0.81	**1.11**	D	**F(0)**	8,680	11,718	0.85	**1.15**	D	**F(0)**	0.04	**0.04**	NO	**YES**
13	Aero Dr to Balboa Ave/ Tierrasanta Blvd	NB	4M+1A	8,400	10,881	8,205	**1.30**	**0.98**	**F(1)**	**E**	11,125	8,657	**1.32**	**1.03**	**F(1)**	**F(0)**	**0.03**	**0.05**	**YES**	**YES**
		SB	4M+1A	8,400	8,446	10,169	**1.01**	**1.21**	**F(0)**	**F(0)**	8,835	10,503	**1.05**	**1.25**	**F(0)**	**F(1)**	**0.05**	**0.04**	**YES**	**YES**
Interstate 8																				
14	Morena Blvd to Taylor St	EB	4M+1A	8,400	7,276	9,089	0.87	**1.08**	D	**F(0)**	7,382	9,179	0.88	**1.09**	D	**F(0)**	0.01	**0.01**	NO	**YES**
		WB	5M	9,000	8,564	7,482	**0.95**	0.83	**E**	D	8,630	7,604	**0.96**	0.84	**E**	D	0.01	0.01	NO	NO
15	Taylor St to Hotel Cir	EB	4M	7,200	7,129	9,532	**0.99**	**1.32**	**E**	**F(1)**	7,243	9,629	**1.01**	**1.34**	**F(0)**	**F(1)**	**0.02**	**0.01**	**YES**	**YES**
		WB	4M+1A	8,400	9,871	8,430	**1.18**	**1.00**	**F(0)**	**F(0)**	9,942	8,562	**1.18**	**1.02**	**F(0)**	**F(0)**	0.01	**0.02**	NO*	**YES**

TABLE 46 – HORIZON YEAR PLUS PROJECT FREEWAY SEGMENT LEVEL OF SERVICE WITH 2-LANE BRIDGE

Freeway Segment		Direction	Number of Lanes	Capacity[1]	Horizon Year With Bridge - No Project						Horizon Year With Bridge Plus Project						V/C Delta		Exceeds Threshold?	
					Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]		Peak Hour Volume		V/ C Ratio[2,4]		LOS[3,4]					
					AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Interstate 8																				
16	Hotel Cir to SR-163	EB	4M+2A	9,600	8,841	10,972	**0.92**	**1.14**	**E**	**F(0)**	8,956	11,071	**0.93**	**1.15**	**E**	**F(0)**	**0.01**	**0.01**	**YES**	**YES**
		WB	5M	9,000	10,030	8,245	**1.11**	0.92	**F(0)**	D	10,101	8,378	**1.12**	**0.93**	**F(0)**	**E**	0.01	**0.01**	NO*	**YES**
17	SR-163 to Mission Center Rd	EB	4M	7,200	3,770	7,084	0.52	**0.98**	B	**E**** (F)	3,834	7,155	0.53	**0.99**	B	**E** (F)	0.01	**0.01**	NO	NO
		WB	3M+2A	7,800	10,364	9,544	**1.33**	**1.22**	**F(1)**	**F(0)**	10,435	9,669	**1.34**	**1.24**	**F(1)**	**F(0)**	0.01	**0.02**	NO*	**YES**
18	Mission Center Rd to Texas St	EB	4M+1A	8,400	6,280	11,826	0.75	**1.41**	C	**F(2)**	6,344	11,897	0.76	**1.42**	C	**F(2)**	0.01	0.01	NO	NO*
		WB	4M+1A	8,400	10,786	9,995	**1.28**	**1.19**	**F(1)**	**F(0)**	10,857	10,121	**1.29**	**1.20**	**F(1)**	**F(0)**	0.01	**0.01**	NO*	**YES**
19	Texas St to I-805	EB	4M	7,200	3,980	7,765	0.55	**1.08**	B	**F(0)**(F)	4,044	7,836	0.56	**1.09**	B	**F(0)** (F)	0.01	**0.01**	NO	NO*
		WB	4M	7,200	7,554	5,996	**1.05**	0.83	**F(0)**(F)	D	7,625	6,122	**1.06**	0.85	**F(0)** (F)	D	**0.01**	0.02	NO*	NO
20	I-805 to I-15	EB	4M+2A	9,600	7,374	12,462	0.77	**1.30**	C	**F(1)**	7,489	12,574	0.78	**1.31**	C	**F(1)**	0.01	**0.01**	NO	**YES**
		WB	4M+2A	9,600	12,644	10,240	**1.32**	**1.07**	**F(1)**	**F(0)**	12,742	10,409	**1.33**	**1.08**	**F(3)**	**F(3)**	**0.01**	**0.02**	**YES**	**YES**
21	I-15 to Fairmount Ave	EB	4M+2A	9,600	7,378	11,546	0.77	**1.20**	C	**F(0)**	7,356	11,554	0.77	**1.20**	C	**F(0)**	0.00	0.00	NO	NO
		WB	4M+2A	9,600	8,956	6,605	**0.93**	0.69	**E**** (F)	C	8,938	6,666	**0.93**	0.69	**E** (F)	C	**0.00**	0.01	NO	NO
22	Fairmount Ave to Waring Rd	EB	5M	9,000	8,018	12,782	0.89	**1.42**	D	**F(2)**	8,112	13,007	0.90	**1.45**	D	**F(2)**	0.01	**0.02**	NO	**YES**
		WB	6M	10,800	12,116	9,572	**1.12**	0.89	**F(0)**	D	12,265	9,738	**1.14**	0.90	**F(0)**	D	**0.01**	0.02	**YES**	NO
23	Waring Rd to College Ave	EB	5M	9,000	7,689	12,038	0.85	**1.34**	D	**F(1)**	7,814	12,277	0.87	**1.36**	D	**F(2)**	0.01	**0.03**	NO	**YES**
		WB	5M	9,000	11,254	9,039	**1.25**	**1.00**	**F(1)**	**F(0)**	11,454	9,216	**1.27**	**1.02**	**F(1)**	**F(0)**	**0.02**	**0.02**	**YES**	**YES**

Source: Fehr & Peers, 2019

Notes:

1 Capacity calculated at 1,800 vehicles/hour per mainline lane and 1,200 vehicles/hour per auxiliary lane
M = mainline lane
A = auxiliary lane

2 Volume-to-capacity ratio. Worst-case is shown on segments with multiple classifications

3 LOS calculations performed using *City of San Diego Traffic Impact Study Manual (1998)*

4 Unacceptable V/C and LOS highlighted in **bold**.

5 No data available from Genesee Ave to Mesa College Dr - assumed equivalent to the segment from Friars Rd to Genesee Ave

* Freeway segment would exceed the City of San Diego impact threshold.

** Traffic data indicate existing operations are worse than calculated. Peak hour volumes likely do not represent actual demand due to heavy congestion. Estimated operations are shown in parentheses.

LOS	V/C	LOS	V/C
A	<0.41	F(0)	1.25
B	0.62	F(1)	1.35
C	0.80	F(2)	1.45
D	0.92	F(3)	>1.46
E	1.00		

8.3.6 FREEWAY RAMP METERING ANALYSIS

Table 47 displays the results of the ramp metering analysis conducted at the metered freeway on-ramps in the study area under Horizon Year with the 2-lane Fenton Parkway Bridge both without and with the proposed project. Based on this data, the following ramps would exceed the operating threshold:

- I-15 NB On-ramp from Friars Road – The addition of project traffic would exacerbate already excessive delays by 9.6 minutes (to a total of 31.2 minutes) in the AM peak hour and by 30.1 minutes (to a total of 59.6 minutes) in the PM peak hour.
- I-15 SB/I-8 Loop On-ramp from Friars Road – The addition of project traffic would exacerbate already excessive delays by 22.9 minutes (to a total delay of 38.0 minutes) in the PM peak hour.
- I-15 SB Direct On-ramp from Friars Road – The addition of project traffic would result in an unacceptable delay of 15.2 minutes in the PM peak hour.
- I-8 EB On-ramp from SB Fairmount Avenue – The addition of project traffic would exacerbate already excessive delays and increase delay by 21.0 minutes (to a total delay of 49.7 minutes) in the PM peak hour.

The same locations would exceed the City of San Diego impact thresholds for metered on-ramps.

8.3.7 FREEWAY OFF-RAMP QUEUEING ANALYSIS

Table 48 displays the results of the off-ramp queueing analysis conducted at the SR-163 and I-15 off-ramps at Friars Road, and the I-8 off-ramps at Qualcomm Way/Texas Street and Fairmount Avenue. In addition to the study area off-ramps reviewed under the scenario without the bridge, the off-ramp from Northbound I-15 to Camino del Rio S was also evaluated under this 2-lane bridge scenario due to the anticipated increase in traffic on those facilities with the bridge in place. As shown on the table, all projected off-ramp queues in 2037 would be accommodated under this scenario by the existing storage capacity with the addition of the proposed project traffic.

8.4 COMPARISON OF HORIZON YEAR PLUS PROJECT WITHOUT EVENT OPERATIONS WITHOUT AND WITH 2-LANE FENTON PARKWAY BRIDGE

This chapter presents a comparative summary of the change in operations and impacts between the Horizon Year (2037) "No Bridge" primary analysis presented in the TIA with the results of the Horizon Year "With 2-Lane Bridge" analysis presented in this document. A summary by facility type is presented below.

TABLE 47 – HORIZON YEAR (2037) PLUS PROJECT WITH 2-LANE BRIDGE CONDITIONS - RAMP METERING ANALYSIS

Location	Peak Hour	Total # of Mixed Flow Lanes	Meter Rate[1] (veh/hr)	Horizon Year With Bridge No Project					Horizon Year With Bridge Plus Project					Delay Delta	Exceeds Threshold?
				Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)	Demand[2] (veh/hr)		Excess Demand[3] (veh/hr)	Delay[4] (min)	Queue[5] (ft)		
				Mixed Flow & HOV	Mixed Flow only				Mixed Flow & HOV	Mixed Flow only					
I-15 NB - Friars Rd On-Ramp	AM	2	1,450	2,345	1,983	533	**22.0**	7,725	2,617	2,213	763	**31.6**	11,050	9.6	**YES**
	PM	2	888	1,503	1,324	436	**29.5**	6,325	2,010	1,770	882	**59.6**	12,800	30.1	**YES**
I-15 SB / I-8 - Friars Rd Loop On-Ramp	AM	1	N/A	914	914	N/A	N/A	N/A	1,028	1,028	N/A	N/A	N/A	N/A	NO
	PM	1	660	911	911	251	**22.9**	7,300	1,077	1,077	417	**38.0**	12,100	15.1	**YES**
I-15 SB - Friars Rd Direct On-Ramp	AM	1	N/A	751	751	N/A	N/A	N/A	954	954	N/A	N/A	N/A	N/A	NO
	PM	1	996	954	954	0	0.0	0	1,248	1,248	252	**15.2**	7,300	15.2	**YES**
I-8 EB - SB Fairmount Ave	AM	1	N/A	302	302	N/A	N/A	N/A	432	432	N/A	N/A	N/A	N/A	NO
	PM	1	492	664	664	172	**21.0**	5,000*	900	900	408	**49.7**	11,825	28.7	**YES**

Source: Fehr & Peers, 2019. Analysis based on Caltrans District 11 Ramp Meter methodology

[1] Meter Rate is the peak hour capacity for the ramp meter. This value was obtained from Caltrans. The most restrictive meter rate was assumed.

[2] Demand is the peak hour demand projected to use the on-ramp.

[3] Excess Demand = (Demand) – (Meter Rate) or zero, whichever is greater.

[4] Delay = (Excess Demand / Meter Rate) x 60 min/hr. Undesirable delays in excess of 15 minutes are highlighted in **bold**.

[5] Queue = (Excess Demand / # of Lanes) x 29 ft/veh, rounded to the nearest multiple of 25 ft.

* Field observations of existing conditions indicate that operations may be better than calculated.

TABLE 48 – HORIZON YEAR PLUS PROJECT WITH 2-LANE BRIDGE CONDITIONS - OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)		Capacity Exceeded?
				Horizon Year No Project Conditions With Bridge	Horizon Year Plus Project Conditions With Bridge	
1. SR-163 SB off-ramp at Friars Rd/ Ulric St	AM	NBL	1,200	211	211	NO
		NBT		104	104	NO
		NBR		487	502	NO
	PM	NBL	1,200	263	263	NO
		NBT		62	62	NO
		NBR		485	523	NO
2. SR-163 NB off-ramp at Friars Rd	AM	SBL	700	444	505	NO
		SBT		0	0	NO
		SBR		305	318	NO
	PM	SBL	700	418	456	NO
		SBT		0	0	NO
		SBR		447	456	NO
17. I-15 SB off-ramp at Friars Rd	AM	SBL	1,200	460	482	NO
		SBT		449	470	NO
		SBR		257	500	NO
	PM	SBL	1,200	842	911	NO
		SBT		845	911	NO
		SBR		80	168	NO
18. I-15 NB off-ramp at Friars Rd	AM	NBR	1,500	0	0	NO
		SBR	1,300	0	0	NO
	PM	NBR	1,500	0	0	NO
		SBR	1,300	0	0	NO
29. I-8 WB off-ramp at Qualcomm Way/Camino del Rio N	AM	WBL	3,200	0	0	NO
		WBT		217	236	NO
		WBR		725	797	NO
	PM	WBL	3,200	0	0	NO
		WBT		394	411	NO
		WBR		518	556	NO
30. I-8 EB off-ramp at Qualcomm Way/ Texas St	AM	EBR	900	168	167	NO
	PM	EBR	900	274	269	NO
35. I-8 WB off-ramp at Fairmount Ave/Alvarado Canyon Rd/ Camino del Rio N	AM	WBL	1,000	627	713	NO
		WBT		607	680	NO
		WBR		269	394	NO
	PM	WBL	1,000	714	714	NO
		WBT		464	601	NO
		WBR		308	468	NO
36. I-8 EB off-ramp at Fairmount Ave	AM	EBL	4,100	496	505	NO
		EBR		505	508	NO
	PM	EBL	4,100	1,099	1,113	NO
		EBR		1,659	1,665	NO

TABLE 48 – HORIZON YEAR PLUS PROJECT WITH 2-LANE BRIDGE CONDITIONS - OFF-RAMP QUEUEING ANALYSIS

Intersection	Peak Hour	Movement	Capacity (ft)	95th Percentile Queue (ft)		Capacity Exceeded?
				Horizon Year No Project Conditions With Bridge	Horizon Year Plus Project Conditions With Bridge	
46. I-15 SB off-ramp at Camino del Rio S	AM	SBL	900	95	0	NO
		SBT		0	126	NO
		SBR		708	798	NO
	PM	SBL	900	376	0	NO
		SBT		0	438	NO
		SBR		59	59	NO
48. I-15 NB off-ramp at Camino del Rio S	AM	NBL	1,300	510	676	NO
		NBT		29	27	NO
		NBR		0	0	NO
	PM	NBL	1,300	239	343	NO
		NBT		75	75	NO
		NBR		0	0	NO

Source: Fehr & Peers, 2019.

8.4.2 INTERSECTION ANALYSIS COMPARISON

The inclusion of the 2-lane bridge with the addition of project traffic under Horizon Year conditions will notably change operations in one of two ways: 1) a change in threshold exceedance (i.e., either add or eliminate a significant impact), or 2) change the delay by ± 10 seconds. These changes would occur at the following 15 study area intersections as follows:

9. Fenton Parkway & Friars Road (degrade operations in the AM peak hour; improve operations in the PM peak hour)
10. Northside Drive & Friars Road (improve operations in the PM peak hour, which would *eliminate the previously identified project impact* per CSU thresholds; the City threshold exceedance would remain)
14. Street D & Street 4 (degrade but still acceptable operations in the PM peak hour)
17. I-15 SB Ramps & Friars Road (improve operations in the AM peak hour)
24. Rio San Diego Drive & River Run Drive (degrade operations in the PM peak hour, which would result in a *new impact* per both CSU and City thresholds)
25. Fenton Parkway & Rio San Diego Drive/Fenton Marketplace Driveway (degrade but still acceptable operations in the PM peak hour)
26. Rancho Mission Road & San Diego Mission Road (improve operations in the AM and PM peak hours)
27. Fairmount Avenue & San Diego Mission Road/Twain Avenue (improve but still unacceptable operations in the AM peak hour, improve operations in the PM peak hour)
28. Qualcomm Way & Camino del Rio North/Camino de la Reina (slightly degrade operations in the PM peak hour, resulting in a *new City threshold exceedance*, but not a significant impact per CSU thresholds)
32. Ward Road & Rancho Mission Road (improve operations in the AM and PM peak hours)
35. Fairmount Avenue & Camino del Rio North (degrade operations in the AM and PM peak hours)
44. Fenton Parkway/Mission City Parkway & Camino del Rio N (degrade operations in the AM and PM peak hours, which would result in a *new impact*)
45. Mission City Parkway & Camino del Rio S (degrade operations in the PM peak hour, which would result in a *new impact*)
46. I-15 Southbound Off-Ramp & Camino del Rio S (degrade operations in the AM and PM peak hours, which would result in a *new impact*)
48. I-15 Northbound Ramps & Camino del Rio S (degrade but still acceptable operations in the AM and PM peak hours)

In summary, the addition of the 2-lane bridge as compared to the no bridge scenario would cause a total of four (4) new significant impact locations and one (1) new City threshold exceedance location, and would eliminate one (1) significant impact locations based on CSU thresholds, though this location would still exceed the City threshold.

8.4.3 ROADWAY SEGMENT ANALYSIS COMPARISON

Similar to intersections, the inclusion of the 2-lane bridge with the addition of project traffic under Horizon Year conditions will notably change operations in one of two ways: 1) a change in threshold exceedance, or 2) change the delay by ± 10% of the capacity (i.e., a change of 0.10 to V/C). These changes would occur at the following 11 study area roadway segments as follows:

8. Friars Road from Mission Village Drive to the I-15 Ramps (slightly improve operations, which would *eliminate the previously identified threshold exceedance*)
16-16a. Fenton Parkway south of Rio San Diego Drive/Fenton Marketplace Driveway (degrade operations due to conversion from a dead-end street to a new cross-river connection, which would result in a *new threshold exceedance*)
17. San Diego Mission Road from Mission Village Drive/Street F to Rancho Mission Road (improve operations)
18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue (improve operations)
20. Rancho Mission Road from San Diego Mission Road to Ward Road (improve operations, which would *eliminate the previously identified threshold exceedance*)
22. Ward Road from Rancho Mission Road to Camino del Rio North (improve operations)
32. Camino del Rio North from Mission City Parkway to Ward Road (degrade operations)
33. Camino del Rio North from Ward Road to Fairmount Avenue (degrade operations)
34. Camino del Rio South from Texas St to Mission City Parkway (degrade operations)
35. Camino del Rio South from Mission City Parkway to I-15 Ramps (degrade operations)

In summary, the addition of the 2-lane bridge as compared to the no bridge scenario would cause one (1) new threshold exceedance and would eliminate two (2) threshold exceedances based on City thresholds.

8.4.4 FREEWAY SEGMENT ANALYSIS COMPARISON

Provision of the bridge would change the way some vehicles circulate around the project site and which interchanges would be used to access origins and destinations in the area extending from west of Qualcomm Way to east of Fairmount Avenue and accessed by Camino del Rio N and S, as well as Friars Road. More specifically, the redistribution of traffic under the 2-lane bridge scenario would result in some traffic otherwise projected to travel on I-8 east of I-15 shifting to Montezuma Road with the new 2-lane bridge connection. Similarly, some traffic projected to travel on I-15 south of Friars Road would shift to the Camino del Rio S interchange. Therefore, on the I-8 freeway segments from I-15 to College Avenue and the I-15 auxiliary lanes at Friars Road, operations would improve with the 2-lane bridge in place. However, the addition of the bridge would still result in the same number of impacted freeway segments.

8.4.5 FREEWAY RAMP METERING ANALYSIS COMPARISON

Related to the freeway segment comparison in the previous section, the addition of a 2-lane Fenton Parkway bridge would change travel patterns related to freeway access and affect the traffic volume and projected delay on metered on-ramps at selected interchanges. Specifically, with the traffic redistribution, the metered direct on-ramp to I-15 Southbound at Friars Road would serve less traffic and would experience improved operations with the bridge in place. The primary shift in traffic volume would occur between this ramp and the on-ramp from Camino del Rio S to southbound I-15. However, the improvement does not eliminate the project impact on the affected ramps and, therefore, the addition of the bridge would still result in the same number of impacted metered freeway on-ramps.

8.4.6 FREEWAY OFF-RAMP QUEUEING ANALYSIS

The addition of the 2-lane bridge and resulting redistribution of vehicle trips would change the length of vehicle queues at the following freeway off-ramps:

29. Qualcomm Wy & Camino del Rio N/I-8 WB Off-ramp (negligibly decrease queues on one turning movement during both the AM and PM peak hour)
46. Camino del Rio S & I-15 SB Off-ramp (increase the AM peak hour queues and negligibly change the PM peak hour queue)
48. I-15 NSB Off-ramp & Camino del Rio S (increase both the AM and PM peak hour queues)

In all cases, however, the projected off-ramp queues in 2037 would be accommodated by the existing storage capacity with the 2-lane Fenton Parkway bridge. This is the same finding reached for conditions without the bridge.

9.0 SIGNIFICANT IMPACTS AND MITIGATION

This chapter summarizes the significant impacts of the proposed project on the transportation system based on the applicable significance thresholds. Each identified significant impact is followed by a recommended mitigation improvement that would reduce the impact to less than significant where feasible.

9.1 EXISTING PLUS PROJECT WITHOUT EVENT CONDITIONS

As previously explained, due to the long-term nature of the buildout project, the Existing Plus Project analysis presented in this report is provided for information purposes only; that is, for CEQA purposes, the identification of significant impacts and mitigation recommended for adoption is based on the Horizon Year (2037) Plus Project Conditions presented in **Section 7.0** of this report, which more appropriately reflects future cumulative traffic conditions, as well as future road improvements, forecast to be in place at the time the project reaches full buildout. Additionally, because the Stadium, separate and apart from the rest of the Project, is planned to be built in the near-term (i.e., 2022), the Existing Plus Event analysis presented in **Section 5.3** does present a realistic scenario and, therefore, applicable significant impacts and mitigation are identified for CEQA purposes under this scenario as well.

Accordingly, this **Section 9.1** and the following **Section 9.2** identify what improvements would be necessary to avoid the previously identified exceedances of the significance threshold identified under the Existing plus Project scenario and is provided for information purposes only.

9.1.1 INTERSECTIONS

Under Existing Plus Project Conditions, the proposed project would cause or contribute to exceedances of the CSU TISM thresholds at the following 11 intersections:

1. SR-163 Southbound Ramps/Ulric Street & Friars Road (Caltrans) – Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 6.1 seconds.
   - *Improvement*: Widen the westbound approach to add a second westbound right-turn lane. Note that this widening is part of the Friars Road/SR-163 Interchange Phase I project that is currently under construction. This would improve operations in the PM peak hour to 28.4 seconds of delay.
   - *Threshold Level After Improvement*: Less than threshold upon completion of current construction

2. SR-163 Northbound Ramps & Friars Road (Caltrans) – Project traffic would degrade LOS E operations to LOS F in the PM peak hour and increase delay by 42.8 seconds.
   - *Improvement*: Widen Friars Road westbound to add a third through lane. Note that this widening is part of the Friars Road/SR-163 Interchange Phase I project that is currently under construction. This would improve operations in the PM peak hour to 15.3 seconds of delay.
   - *Impact Level After Improvement*: Less than threshold upon completion of current construction

3. Frazee Road & Friars Road (City of San Diego) – Project traffic would degrade LOS D operations to LOS E in the PM peak hour and increase delay by 27.0 seconds.
   - *Improvement*: Widen Friars Road eastbound to add an a fourth through lane. Note that this widening is part of the Friars Road/SR-163 Interchange Phase I project that is currently under construction. This would improve operations in the PM peak hour to 34.4 seconds of delay.
   - *Threshold Level After Improvement*: Less than threshold upon completion of current construction

9. Fenton Parkway & Friars Road (City of San Diego) – Project traffic would degrade LOS C operations to LOS E in the PM peak hour and increase delay by 33.7 seconds.
   - *Improvement*: Roadway improvement would be to widen Friars Road eastbound to add a fourth through lane. Note that a widening of this segment of Friars Road is not consistent with the currently adopted (1985) Mission Valley Community Plan or the Final Draft of the Mission Valley Community Plan Update (July 2019). An alternative would be to re-optimize the coordinated signal timing along Friars Road from River Run Drive to Stadium Way (Street A). This option would improve operations in the PM peak hour to 49.2 seconds of delay. Signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes regardless of the addition of project traffic.
   - *Threshold Level After Improvement:* Less than threshold (signal optimization assumed)

17. I-15 Southbound Ramps & Friars Road (Caltrans) – Project traffic would degrade LOS D operations to LOS F in the AM peak hour, would degrade LOS E operations to LOS F in the PM peak hour, and would increase delay by 84.2 and over 100.0 seconds, respectively.
   - *Improvement*: The required improvement would be to reconstruct the intersection to add a second eastbound left-turn lane, a second eastbound right-turn lane, and a second westbound right-turn lane. This requires widening both on-ramps to allow for two receiving lanes. It is recommended that the westbound right-turn lane be squared off and that a blank-out "No Right Turn" sign be installed on both the westbound and eastbound approaches to prohibit right turns on red when the pedestrian "Walk" phase is activated. It is also proposed that the westbound right-turn be provided with an overlap phase. Signal re-optimization is assumed, which is standard practice with intersection

reconfiguration. These improvements would result in delays in the AM and PM peak hours of 54.2 and 52.9 seconds, respectively. It should be noted that the Civita (Quarry Falls) development is also required to implement a portion of these improvements including the addition of the second eastbound left-turn lane and squaring up the westbound right-turn movement; the SDSU Mission Valley Campus improvements would provide substantially more vehicle queueing approaching the ramp intersections, including on the bridge. These calculated operations are based on standalone intersection operations; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations at this intersection will remain above the threshold.

- *Threshold Level After Improvement*: Exceeds threshold

18. I-15 Northbound Ramps & Friars Road (Caltrans) – Project traffic would degrade LOS E operations to LOS F in the AM and PM peak hours and would increase delay by 78.0 and over 100.0 seconds, respectively.
    - *Improvement*: The required improvement would be to reconstruct intersection to add a second eastbound left-turn lane. Signal re-optimization is assumed, which is standard practice with intersection reconfiguration. These improvements would result in delays in the AM and PM peak hours of 33.0 and 36.1 seconds, respectively. It should be noted that the Civita (Quarry Falls) development is also required to implement this identified improvement, but that it does not include any widening of the Friars Road bridge; the SDSU Mission Valley Campus improvements would provide substantially more vehicle queueing approaching the ramp intersections, including on the bridge. These calculated operations are based on standalone intersection operations; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations at this intersection will remain above the threshold.
    - *Threshold Level After Improvement*: Exceeds threshold

19. Rancho Mission Road & Friars Road (City of San Diego) – At this intersection, I-15 ramp metering results in queueing through this intersection that is not reflected in the delay calculation. Existing conditions are estimated to be LOS D based on engineering judgement and field observations, and to be conservative it is assumed that project traffic would degrade operations to LOS E.
    - *Improvement*: Without improving ramp meter operations, the operations at this intersection will remain above the threshold.
    - *Threshold Level After Improvement*: Exceeds threshold

31. Texas Street & Camino del Rio South (City of San Diego) – Project traffic would exacerbate LOS E operations in the PM peak hour and would increase delay by 7.7 seconds.
    - *Improvement*: Restripe both the eastbound and westbound through lanes as shared through and left-turn lanes. This would improve operations to 60.0 seconds of delay,

which falls below the CSU TISM significance threshold. However, the improved operations would not reduce the impact below the City of San Diego impact threshold. To avoid exceeding the City threshold, signal re-optimization would need to be implemented, which is standard practice with intersection reconfiguration.

- *Impact Level After Improvement:* Less than threshold (only restriping assumed)

32. Ward Road & Rancho Mission Road (City of San Diego) – Project traffic would degrade LOS C to LOS F operations in the AM and PM peak hours and would increase delay by 39.4 seconds and 67.2 seconds, respectively. The addition of project traffic would satisfy the peak hour signal warrant per the California MUTCD.
    - *Improvement*: Pay fair-share towards cost to install a traffic signal. This improvement would improve operations in the AM and PM peak hours to 3.9 and 6.0 seconds of delay, respectively.
    - *Threshold Level After Improvement:* Less than threshold

35. Fairmount Avenue & Camino del Rio North (Caltrans) – Project traffic would degrade LOS D operations to LOS E in the AM peak hour, would degrade LOS E operations to LOS F in the PM peak hour, and would increase delay by 21.1 and 55.6 seconds, respectively.
    - *Improvement*: The required improvement would be to restripe the eastbound approach to provide a second eastbound right-turn lane as an approximately 150-foot pocket lane and increase the traffic signal cycle length from 130 to 150 seconds. Signal re-optimization is standard practice with intersection reconfiguration. Note that this signal is coordinated with the signal at Fairmount Avenue & Mission Gorge Road. Northbound and southbound through volumes are high enough to warrant additional capacity at this intersection, and a road widening to add lanes is recommended in the current Navajo Community Plan (adopted 2015). However, this improvement is currently considered infeasible due to physical limitations beneath the adjacent bridges serving the I-8 mainline, I-8 ramp, and trolley. It also should be noted that the Mission Valley Community Plan Update FEIR (May 2019) identified mitigation at this intersection but determined that roadway widening was infeasible due to limited right-of-way. The improvement to add a second eastbound right-turn lane would still result in increases of delay over baseline conditions of 5.4 and 11.1 seconds of delay in the AM and PM peak hours, respectively.
    - *Threshold Level After Improvement*: Exceeds threshold

9.1.2 ROADWAY SEGMENTS

As previously noted, the roadway segment LOS analysis is based on the City of San Diego impact thresholds and is presented for information purposes. Under Existing Plus Project Conditions, the project would result in a change in roadway vehicle-to-capacity ratio (V/C) that exceeds the maximum threshold on six (6) roadway segments. This result triggers the second part of the roadway analysis, which evaluates intersection LOS on either side of the segment, the arterial speed-based LOS on the segment, and the existing

community plan street classification. **Table 49** summarizes the results of this second part of the roadway analysis assuming, hypothetically, implementation of the previously described improvements.

9. Friars Road from the I-15 Ramp to Rancho Mission Road
    - *Initial Evaluation*: Project traffic would degrade LOS D operations to LOS E and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Intersections on both sides of the segment do not meet the City standard in both the AM and PM peak hours.
        - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the eastbound and westbound directions.
        - The existing configuration as a 7-lane primary arterial is consistent with the currently adopted (1985) Mission Valley Community Plan and the Final Draft of the Mission Valley Community Plan Update (July 2019).
    - *Final Evaluation*: Due to the intersection and arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is no more than 32 seconds in each direction and peak hour.
    - *Improvement*: Re-optimize the signal timing at Friars Road & Rancho Mission Road. Add a second eastbound left-turn lane at Friars Road & I-15 NB Ramps, then re-optimize the signal timing. This would improve speeds on this segment to below the threshold.

17. San Diego Mission Road from Mission Village Drive/Street F to Rancho Mission Road
    - *Initial Evaluation*: Project traffic would degrade LOS C operations to LOS E and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
        - Arterial analysis shows that the segment meets the City of San Diego criterion.
        - The existing configuration as a 4-lane collector without a center left-turn lane is consistent with the currently adopted (1985) Mission Valley Community Plan and the Final Draft of the Mission Valley Community Plan Update (July 2019).
    - *Final Evaluation*: Because all three of the above criteria are met, this roadway segment operates below the City of San Diego significance threshold.

18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue
    - *Initial Evaluation*: Project traffic would degrade LOS C operations to LOS E and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:

TABLE 49 – EXISTING PLUS PROJECT SECONDARY ROADWAY SEGMENT ARTERIAL ANALYSIS

Study Area Segments				Segment Endpoint Peak Hour Intersection LOS[1]	Direction	Peak Hour Speed-Based Performance Meets Criterion? AM (PM)?	Classification Consistent with Adopted Community Plan?
ID	Roadway	To/From					
9	Friars Road	I-15 Ramps	Rancho Mission Rd	Does not meet the City standard for both peak hours	EB WB	**No** (**No**) **No** (**No**)	Yes
17	San Diego Mission Rd	Mission Village Dr/Street F	Rancho Mission Rd	Meets City standard for both peak hours	EB WB	Yes (Yes) Yes (Yes)	Yes
18	San Diego Mission Rd	Rancho Mission Rd	Fairmount Ave	Meets City standard for both peak hours	EB WB	Yes (Yes) Yes (Yes)	Yes
19	Rancho Mission Rd	Friars Rd	San Diego Mission Rd	Meets City standard for both peak hours	EB WB	Yes (Yes) Yes (Yes)	Yes*
22	Ward Rd	Rancho Mission Rd	Camino del Rio N	Meets City standard for both peak hours	EB WB	Yes (Yes) **No** (**No**)	Yes*
34	Camino del Rio S	Texas St	Mission City Pkwy	Texas St & Camino del Rio S does not meet City standard for the PM peak hour.	- WB	- (-) Yes (**No**)	Yes

Source: Appendix B (Synchro 10.0 Arterial Analysis)

1 Analysis performed using Existing Plus Project with Mitigations Conditions in order to reflect intersection improvements.

* The Mission Valley Community Plan Update proposes restriping to remove lanes on these segments.

- Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
- Arterial analysis shows that the segment meets the City of San Diego criterion.
- The existing configuration as a 2-lane collector with a center left-turn lane is consistent with the currently adopted (1985) Mission Valley Community Plan and the Final Draft of the Mission Valley Community Plan Update (July 2019).

- *Final Evaluation*: Because all three of the above criteria are met, this roadway segment operates below the City of San Diego significance threshold.

19. Rancho Mission Road from Friars Road to San Diego Mission Road
    - *Initial Evaluation*: Project traffic would degrade LOS D operations to LOS E and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
        - Arterial analysis shows that the segment meets the City of San Diego criterion.
        - The existing configuration as a 3-lane collector with a center left-turn lane is consistent with the currently adopted (1985) Mission Valley Community Plan; however, the Final Draft of the Mission Valley Community Plan Update (July 2019) identifies restriping on this segment to remove one through lane in each direction and provide a two-way center left-turn lane in addition to bike lanes. The latter restriping would result in LOS F operations on this roadway segment. It should be noted that the Mission Valley Community Plan Update FEIR (May 2019) shows an impact here without recommended mitigation.
    - *Final Evaluation*: Under the current approved Mission Valley Community Plan, all three of the above criteria are met, and, therefore, this roadway segment operates below the City of San Diego significance threshold. However, it is noted that the existing configuration is not consistent with the currently proposed Community Plan Update.

22. Ward Road from Rancho Mission Road to Camino del Rio North
    - *Initial Evaluation*: Project traffic would degrade LOS C operations to LOS F and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
        - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the southbound direction.
        - The existing configuration as a 4-lane collector without a center left-turn lane is consistent with the currently adopted (1985) Mission Valley Community Plan; however, the Final Draft of the Mission Valley Community Plan Update (July 2019) identifies restriping on this segment to remove one through lane in each

direction and provide a two-way center left-turn lane in addition to bike lanes. The latter restriping would result in LOS F operations on this roadway segment. It should be noted that the Mission Valley Community Plan Update FEIR (May 2019) shows an impact here without recommended mitigation.

- *Final Evaluation*: *Final Evaluation*: Due to the arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is no more than 32 seconds in each peak hour.
- *Improvement*: The typical improvement would be to re-stripe Ward Road with a two-way center left-turn lane, which would require eliminating all the on-street parking on this segment. Alternatively, the road could be widened to install the two-way left turn-lane and to maintain the parking. In addition, widening of this segment is identified in the currently adopted (1985) Mission Valley Community Plan; however, the Final Draft of the Mission Valley Community Plan Update (July 2019) identifies restriping on this segment to remove one through lane in each direction and provide a two-way center left-turn lane in addition to bike lanes. The latter restriping would result in LOS F operations on this roadway segment. The former reclassification to a four-lane collector with a two-way center left-turn lane would result in a V/C of 0.55, which would fall below the significance threshold. However, this segment only includes one low-volume driveway serving an adjacent property that also has a driveway located on Rancho Mission Road west of Ward Road. Given that the purpose of the center left-turn lane is to provide a staging area for vehicles to turn left into or out of driveways, it is not recommended to be installed for a single low volume driveway. Instead, the existing Ward Road driveway could be closed, and access to the second driveway would be enhanced with the new signal and proposed northbound left-turn pocket at the Ward Road & Rancho Mission Road intersection. The current four-lane configuration with the remaining on-street parking is expected to be sufficient to serve the projected daily volume. It should be noted that the Mission Valley Community Plan Update FEIR (May 2019) shows an impact here without recommended mitigation.

34. Camino del Rio South from Texas Street to Mission City Parkway
    - *Initial Evaluation*: Project traffic would exacerbate LOS F operations and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Texas Street & Camino del Rio South does not meet the City standard in the PM peak hour.
        - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the westbound direction in the PM peak hour.
        - The existing configuration as a 2-lane collector is consistent with the currently adopted (1985) Mission Valley Community Plan classification as a 4-lane collector

as well as the Final Draft of the Mission Valley Community Plan Update (July 2019) classification as a 2-lane collector with a center left-turn lane.

- *Final Evaluation*: *Final Evaluation*: Due to the intersection and arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is no more than 19 seconds in the PM peak hour, and that the travel time in unchanged along this segment in the AM peak hour.
- *Improvement*: The required improvement would be to restripe Camino del Rio South in order to provide a two-way center left-turn lane, which would require eliminating the on-street parking along one side of this segment. Alternatively, the road could be widened to install the two-way left turn-lane and to maintain the parking. In addition, widening of this segment is identified in the currently adopted (1985) Mission Valley Community Plan; however, the Final Draft of the Mission Valley Community Plan Update (July 2019) identifies restriping on this segment to remove on-street parking at some locations to provide a two-way center left-turn lane (or left-turn pockets) in addition to bike lanes. The reclassification to a two-lane collector with a two-way center left-turn lane would result in a V/C of 0.78, which would fall below the significance threshold.

9.1.3 FREEWAY SEGMENTS

As shown in the analysis results presented in **Table 16** and the applicable significance criteria, the project would contribute to operations exceeding the threshold on 11 bi-directional study area freeway segments on I-15 and I-8 during one or both peak hours under Existing Plus Project Conditions. As previously noted, the analysis presented in this section is for information purposes only, though improvements would theoretically involve widening of the freeway facility to provide additional mainline capacity to reduce the projected V/C ratio(s). However, improving mainline freeway operations is beyond the scope of a single development project due to numerous factors including the complexities of modifying adjacent interchanges, potentially acquiring right-of-way, proximity of existing building structures and roadways, high construction costs, etc. In addition, no established mechanism (i.e., a fee program) exists to obtain a fair-share contribution from new development.

SANDAG is the regional planning agency in San Diego County and has completed various comprehensive studies regarding improvements along all the major freeways within the study area. In particular, SANDAG in collaboration with Caltrans, the City of San Diego, the Metropolitan Transit System, and other key stakeholders, is developing a multimodal corridor study for I-8 within the City of San Diego. The Preliminary Draft Report for the *I-8 Corridor Study* (August 2016) includes various elements including: right-of-way constraints, transit services, freeway interchanges, selected local streets and intersections, bike and pedestrian access (active transportation), Transportation Demand Management (TDM), Transportation Systems Management (TSM), and other strategies to encourage the use of alternative travel modes. The

corridor study considers future improvements, as well as other feasible concepts, describes existing conditions, identifies future deficiencies, develops multimodal alternatives and measures, performs technical analysis, and proposes an implementation strategy.

More recently, Caltrans completed an I-805 Transportation Concept Report to address congestion and operations along the entire length of that corridor. A combination of strategies are planned and incorporated in the RTP including high capacity transit projects, managed lanes, active transportation projects, auxiliary lanes and ramp metering. Many of the concepts in the I-8 and I-805 corridors can be applied to other freeways including I-15. Caltrans is also considering implementing managed lane strategies within the I-15 corridor in the future to address congestion and enhance mobility.

9.1.4 FREEWAY RAMP METERS

According to the results presented in **Table 17** and the Caltrans/SANTEC significance criteria, the project would contribute to operations exceeding the threshold on all of the study area on-ramps:

- I-15 NB On-Ramp at Friars Road – Project traffic would exacerbate undesirable operations and result in a delay increase that exceeds the threshold for an on-ramp operating with delays greater than 15 minutes.
  Improvements: Delays could be reduced to below 15 minutes by the addition of a third mixed flow lane. However, this ramp already consists of two mixed flow lanes and one HOV lane, which is the maximum number of lanes typically designed by Caltrans. Therefore, no additional on-ramp capacity is considered feasible. As traffic patterns change, the metering rate may be able to be adjusted, particularly with future I-15 corridor improvements such as managed lanes implemented by SANDAG and/or Caltrans.
  Impact Level After Improvement: Exceeds threshold

- I-15 SB / I-8 Loop On-Ramp at Friars Road – Project traffic would exacerbate undesirable operations and result in a delay increase that exceeds the threshold for an on-ramp operating with delays greater than 15 minutes.
  Improvements: Delays could be reduced to below 15 minutes by the addition of a second mixed flow lane on this ramp. To provide a second lane on this ramp will also require widening of a bridge structure over both the multi-use path connecting the site to Murphy Canyon Road and a drainage channel.
  Impact Level After Improvement: Less than threshold

- I-15 SB Direct On-Ramp at Friars Road – Project traffic would degrade operations to undesirable levels and result in a delay greater than 15 minutes.
  Improvements: Delays could be reduced to below 15 minutes by the addition of a second mixed flow lane on this ramp. To provide a second lane on this ramp will also require

widening of a bridge structure over the multi-use path connecting the site to Murphy Canyon Road.
Impact Level After Improvement: Less than threshold

- I-8 EB On-Ramp from SB Fairmount Avenue – Project traffic would degrade operations to undesirable levels and result in a delay greater than 15 minutes.
  Improvements: Delays could be reduced to below 15 minutes by the addition of a second mixed flow lane. However, this improvement is infeasible due to insufficient right-of-way. As traffic patterns change, the metering rate may be able to be adjusted, particularly with I-8 corridor improvements such as managed lanes.
  Impact Level After Improvement: Exceeds threshold

9.2 EXISTING PLUS PROJECT PLUS EVENT CONDITIONS

9.2.1 INTERSECTIONS

The addition of stadium event trips, in combination with the traffic that would be generated at project buildout by the other project land uses, would exacerbate operations. Specifically, the resulting LOS and operations at study intersections assuming, hypothetically, implementation of the previously described improvements would result in exceedance of the significance thresholds at the following additional five (5) intersections under Existing Plus Project Plus Event Conditions:

3. Frazee Road & Friars Road – Project plus event traffic would degrade LOS D operations to LOS E in the PM peak hour and increase delay by 16.9 seconds.
9. Fenton Parkway & Friars Road – Project plus event traffic would degrade LOS C operations to LOS F in the PM peak hour and increase delay by 63.6 seconds.
10. Northside Drive & Friars Road – Project plus event traffic would degrade LOS D operations to LOS F in the PM peak hour and increase delay by 46.1 seconds.
11. Stadium Way (Street A) & Friars Road – Project plus event traffic would degrade free-flow operations to LOS F in the PM peak hour.
14. Street D & Street 4 – Project plus event traffic would result in LOS F operations in PM peak hour.

The same intersections would also exceed the City of San Diego significance thresholds.

It should be noted that operational measures directed to stadium event traffic would be implemented through the proposed project's TDM Program, in combination with the TPMP; see **Sections 2.1.2** and **4.3.1**, respectively, for further information regarding each program. These programs will reduce overall vehicle demand by discouraging the use of private automobiles and encouraging active and transit trips to sold

out events, and managing traffic, respectively. At site-adjacent intersections, the TPMP will include the use of manual traffic control (i.e., personnel similar to those deployed at existing events at SDCCU Stadium) to maximize flow into and out of the project site during peak inbound and outbound demand times. The use of TPMP personnel generally results in operations that are more efficient than a traffic signal. Another key element of the TPMP will be advance notice of high attendance events to both commuters traveling on roadways adjacent to the site, as well as residents, employees and guests within the project itself.

Measures to assist in the reduction of weekday stadium event traffic and related impacts would be implemented through the TDM and TPMP Programs. As previously explained, event-generated congestion (albeit at a lesser level) is also expected to occur for other major and high-attendance weekday events with attendance levels ranging from 5,000 to 20,000 or more. At site-adjacent intersections, the TPMP will include manual traffic control, which will operate more efficiently than a signal. Although intersection operations under this scenario would likely exceed the applicable thresholds at high attendance events, this scenario represents such events that occur on a weekday, which will occur very rarely.

9.2.2 ROADWAY SEGMENTS

As previously noted, the roadway segment LOS analysis presented under both the Existing plus Project and Horizon Year scenarios is based on the City of San Diego impact thresholds and is provided for information purposes. Under Existing Plus Project Plus Event Conditions, the project would result in a change in roadway vehicle-to-capacity ratio (V/C) that exceeds the City of San Diego's maximum threshold on seven (7) roadway segments, presented below. Because high-attendance stadium events are expected to happen very infrequently over the course of the year, permanent roadway capacity improvements are not recommended since they would provide excess capacity and, consistent with the proposed MVCP update, would degrade with bicycle and pedestrian travel. Accordingly, each of the following segments is assumed to exceed the significance threshold without the need to conduct arterial analysis.

6. Friars Road from Northside Drive to Stadium Way (Street A) – Project plus event traffic would degrade LOS C operations to LOS E.
8. Friars Road from Mission Village Drive to the I-15 Ramps Way – Project plus event traffic would degrade LOS C operations to LOS E.
9. Friars Road from the I-15 Ramps to Rancho Mission Road – Project plus event traffic would degrade LOS D operations to LOS E.
17. San Diego Mission Road from Mission Village Drive/Street F to Rancho Mission Road – Project plus event traffic would degrade LOS C operations to LOS F.
18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue – Project plus event traffic would degrade LOS C operations to LOS F.
19. Rancho Mission Road from Friars Road to San Diego Mission Road – Project plus event traffic would degrade LOS D operations to LOS E.

22. Ward Road from Rancho Mission Road to Camino del Rio North – Project plus event traffic would degrade LOS C operations to LOS F.
34. Camino del Rio South from Texas Street to Mission City Parkway – Project plus event traffic would exacerbate LOS F operations.

As previously explained, measures to assist in the reduction and management of weekday stadium event traffic would be implemented through the TDM and TPMP Programs. These programs would minimize potential effects on roadway operations; however, the maximum V/C thresholds would continue to be exceeded on days with high attendance events that occur during the week, although such events will occur infrequently as noted above.

9.2.3 FREEWAY SEGMENTS

As shown on **Table 21**, the stadium traffic would cause operations to exceed the applicable thresholds on two (2) additional bi-directional study area freeway segments on SR-163 and I-8 during one or both peak hours under Existing Plus Project Plus Event Conditions beyond what was identified for Existing Plus Project Without Event Conditions. As with Existing Plus Project Without Event Conditions, improvements to reduce such impacts to below exceedance thresholds are considered infeasible. See **Section 9.1.3** for an expanded discussion.

9.2.4 FREEWAY RAMP METERS

Stadium event traffic would not cause any additional impacts under Existing Plus Project With Event Conditions than under Without Event Conditions. Therefore, the improvements previously identified in **Section 9.1.4**, and resulting impact conclusions, applies under the With Event Conditions.

9.3 HORIZON YEAR PLUS PROJECT WITHOUT EVENT CONDITIONS

This section provides the analysis used to identify significant impacts and recommended mitigation for CEQA purposes, which accurately reflects future cumulative traffic conditions, as well as future road improvements, forecast to be in place at the time the project reaches full buildout. Included with the description of each significant impact is the development trigger that results in the impact.

As noted in the Project Description in **Section 2.1**, the proposed project will be developed over time in a generally linear timeline. The major project features (e.g., reconstruction of the Mission Village Road/Friars Road interchange) and other mitigation measures identified in this report are based on complete buildout

of the proposed project by 2037. However, the need for each improvement to eliminate or reduce the anticipated significant project impact will occur at different times during project construction and occupancy. Accordingly, the timing of when each improvement would be necessary was estimated based on the level of development. To determine such level, all of the land uses that comprise the project were converted to dwelling unit equivalents (DUEs)[7] by using the conversion factors provided in **Appendix K**. Full buildout of the project would result in 10,950 DUEs, and buildout is anticipated to occur by 2037.

9.3.1 INTERSECTIONS

Under Horizon Year Conditions, the proposed project would contribute to significant cumulative impacts to the following 13 intersections. All proposed mitigation measures are intended to eliminate the project's incremental impact, resulting in operations at or slightly better than Horizon Year Without Project conditions. Since the project would be fully responsible for mitigating its incremental impact, the project's "fair share" for the applicable improvements is 100%.

1. SR-163 Southbound Ramps/Ulric Street & Friars Road (Caltrans) – Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 5.2 seconds.
   Mitigation: The required improvement would be to re-optimize the coordinated signal offset. This mitigation would result in a less than significant impact per the CSU TISM but would not reduce the impact below the City of San Diego impact thresholds. To avoid exceeding the City threshold, additional signal timing re-optimization would need to be implemented. Signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes regardless of the addition of project traffic. This additional improvement is provided for information purposes only. Regarding the proposed signal offset optimization, CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the impact is significant and unavoidable.
   - *Impact Level After Mitigation*: Significant and unavoidable

[7] The dwelling unit equivalent (DUE) normalizes land use quantities for various uses relative to the trip generation of a typical dwelling unit, in this case an apartment dwelling. Each of the proposed project's land use has an average daily trip generation rate, which rate was divided by the average apartment rate of 6 daily trips. For example, Scientific Research uses have a daily trip generation rate of 8 trips per thousand square feet. By dividing this rate (8) by the average daily trip generation rate for apartments (6), the result is that one thousand square feet of Scientific Research uses is equivalent to 1.33 dwelling units, or DUEs. Thus, the total proposed 301 thousand square feet of Scientific Research space, which generate 2,408 average daily trips, is equivalent to approximately 401 DUEs. Based on the proposed project phasing, in combination with the results of the impact analysis, a DUE trigger identifying when the mitigation improvement is necessary, can then be determined.

8. River Run Drive & Friars Road (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the PM peak hour and would increase delay by 35.3 seconds.
   - *Mitigation*: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, pay fair-share towards cost to widen Friars Road eastbound to add a fourth through lane. Note, however, that widening this segment of Friars Road is not consistent with the currently adopted (1985) Mission Valley Community Plan or the Final Draft of the Mission Valley Community Plan Update (July 2019); therefore, for CEQA purposes, such physical mitigation is considered infeasible. An alternative mitigation would be to optimize the traffic signals along the Friars Road corridor extending from River Run Drive to Stadium Way (Street A) to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This option would improve operations in the PM peak hour to 32.9 seconds of delay. Signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes regardless of the addition of project traffic. It should be noted that CSU does not have jurisdiction over this City of San Diego facility, and therefore cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended traffic signal optimization, thereby reducing the project's impact to less-than-significant.
   - *Impact Level After Mitigation:* If City authorization is provided, less than significant (signal optimization assumed)

9. Fenton Parkway & Friars Road (City of San Diego) – Project traffic would exacerbate LOS F operations in the PM peak hour and would increase delay by 33.8 seconds.
   - *Mitigation*: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, 4,150 DUEs, pay fair-share towards cost to widen Friars Road eastbound to add a fourth through lane. Note, however, that widening this segment of Friars Road is not consistent with the currently adopted (1985) Mission Valley Community Plan or the Final Draft of the Mission Valley Community Plan Update (July 2019); therefore, for CEQA purposes, such physical mitigation is considered infeasible. An alternative mitigation would be to optimize the traffic signals along the Friars Road corridor extending from River Run Drive to Stadium Way (Street A) to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This option would improve operations in the PM peak hour to 83.2 seconds of delay. Signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes regardless of the addition of project traffic. It should be noted that CSU does not have jurisdiction over this City of San Diego facility, and therefore cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended traffic signal optimization, thereby reducing the project's impact to less-than-significant.

- *Impact Level After Mitigation:* If City authorization is provided, less than significant (signal optimization assumed)

10. Northside Drive & Friars Road (City of San Diego) – Project traffic would degrade LOS E operations to LOS F operations and would increase delay by 21.1 seconds.
    - *Mitigation*: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, 5,270 DUEs, pay fair-share towards cost to widen Friars Road eastbound to add a fourth through lane. Note, however, that widening this segment of Friars Road is not consistent with the currently adopted (1985) Mission Valley Community Plan or the Final Draft of the Mission Valley Community Plan Update (July 2019). An alternative mitigation would be to pay fair-share towards cost to add a second northbound right-turn lane and optimize the traffic signals along the Friars Road corridor extending from River Run Drive to Stadium Way (Street A) to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. The projected right-turn volume of approximately 800 vehicles in the PM peak hour warrants additional capacity for this movement. The existing width for the northbound approach is approximately 50 feet, so the landscape strip could be converted to widen the road by four feet to provide a 13' outside right turn lane and an 11' inside right turn-lane (assuming the left-turn and through lanes are 10' wide). To address potential pedestrian safety related impacts, it is recommended that a protected pedestrian phase be provided with this improvement to avoid the dual threat conflict. This option would improve operations in the PM peak hour to 51.8 seconds of delay. However, as to the physical improvement, there is no plan or program in place to provide the necessary additional funding and construct the improvement; therefore, the addition of a second northbound right-turn lane is infeasible. As to traffic signal optimization, signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes regardless of the addition of project traffic. However, CSU does not have jurisdiction over this City of San Diego facility, and therefore cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. If the City grants authorization as to the traffic signal optimization, CSU will implement the re-optimization improvement, thereby reducing the delay to 87.6 seconds of delay, which remains above the significance threshold. Therefore, the impact is significant and unavoidable.
    - *Impact Level After Mitigation:* Significant and unavoidable

17. I-15 Southbound Ramps & Friars Road (Caltrans) – Project traffic would degrade LOS D operations to LOS F operations in the AM peak hour, would degrade LOS E operations to LOS F in the PM peak hour, and would increase delay by 78.3 and 33.3 seconds, respectively.
    - *Mitigation*: The required improvement would be to reconstruct the intersection to add a second eastbound left-turn lane, a second eastbound right-turn lane, and a second westbound right-turn lane. This requires widening both on-ramps to allow for two

receiving lanes. If this improvement were implemented, to be consistent with current design practice, it is expected that Caltrans would require the inclusion of pedestrian and bicycle enhancements. Accordingly, the westbound right-turn lane would be squared off to improve pedestrian safety, and the westbound right-turn would be provided with an overlap phase. It should be noted that the Civita (Quarry Falls) development is also required to implement a portion of these improvements, including the addition of the second eastbound left-turn lane and squaring up the westbound right-turn movement; the SDSU Mission Valley Campus improvements would provide substantially more vehicle queueing approaching the ramp intersections, including on the bridge. Caltrans is expected to additionally require that sidewalks and buffered bike lanes are provided as part of this improvement, and that a blank-out No Right Turn sign be installed at the dual eastbound and westbound right turn lanes. It is expected that pedestrian activity will be very low given the limited surrounding uses, and therefore pedestrian calls will be very rare and were not included in the operations analysis. Signal re-optimization is assumed, which is standard practice with intersection reconfiguration. These improvements would result in operations in the AM and PM peak hours of 52.0 and 67.0 seconds of delay, respectively. These calculated operations are based on standalone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the impact is significant and unavoidable.

- *Impact Level After Mitigation*: Significant and unavoidable

18. I-15 Northbound Ramps & Friars Road (Caltrans) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and would increase delay by 54.1 and over 100.0 seconds, respectively.
    - *Mitigation*: The required improvement would be to reconstruct intersection to add a second eastbound left-turn lane. It should be noted that the Civita (Quarry Falls) development is also required to implement this improvement but that it does not include any widening of the Friars Road bridge; the SDSU Mission Valley Campus improvements would provide substantially more vehicle queueing approaching the ramp intersections, including on the bridge. If this improvement were implemented, to be consistent with current design practice, it is expected that Caltrans would require the inclusion of sidewalks and buffered bike lanes be provided as part of this improvement, which would require widening the Friars Road overpass to I-15. Caltrans is expected to additionally require that the southbound approach be squared off and converted to two right-turn lanes provided with an overlap phase, and that a blank-out No Right Turn sign be installed for the westbound approach to improve pedestrian safety. It is expected that

pedestrian activity will be very low given the limited surrounding uses, and therefore pedestrian calls will be very rare and were not included in the operations analysis. Signal re-optimization is assumed, which is standard practice with intersection reconfiguration. In the PM peak hour, re-optimization would include coordinating the signal with the adjacent I-15 Southbound Ramps & Friars Road intersection and the adjacent Rancho Mission Road & Friars Road intersection, where coordination is already in place in the AM peak hour. These improvements would result in operations in the AM and PM peak hours of 80.9 and 53.5 seconds of delay, respectively. These calculated operations are based on standalone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the impact is significant and unavoidable.

- *Impact Level After Mitigation*: Significant and unavoidable

19. Rancho Mission Road & Friars Road (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the AM and PM peak hours and would increase delay by 3.5 and 10.8 seconds, respectively.
    - *Mitigation*: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, 5,830 DUEs, implement coordination of this signal with the adjacent I-15 Northbound Ramps & Friars Road intersection as indicated above, where coordination is already in place in the AM peak hour. Signal re-optimization is assumed. This mitigation would improve operations in the PM peak hour to 67.2 seconds of delay. These calculated operations are based on standalone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. However, as stated above with respect to Intersection 18, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the impact is significant and unavoidable.
    - *Impact Level After Mitigation*: Significant and unavoidable

27. Fairmount Avenue & San Diego Mission Road/Twain Avenue (City of San Diego) – Project traffic would degrade LOS C operations to LOS F in the AM, would degrade LOS C operations to LOS E in the PM peak hour, and would increase delay by over 100.0 and 73.2 seconds, respectively.
    - Mitigation: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, 8,940 DUEs, re-stripe San Diego Mission Road to add a separate eastbound left-turn lane. This re-striping would result in an 11'-wide right-turn lane and 10' left-turn and through lanes for the eastbound approach. To properly align the east-west approaches, the westbound approach of Twain Avenue should also be re-striped to

provide a separate left-turn lane. On this approach, the re-striping would result in a 12' curb lane that is a shared right-turn and through lane, an 11' exclusive through lane, and a 10' left-turn lane. Protected left-turn phasing is assumed to be provided for both eastbound and westbound approaches. This mitigation would improve operations in the AM peak hour to 35.3 seconds of delay and in the PM peak hour to 33.1 seconds of delay. It should be noted that CSU does not have jurisdiction over this City of San Diego facility, and therefore cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.

- *Impact Level After Mitigation:* If City authorization is provided, less than significant

29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N (Caltrans) – *No Impact*: Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 3.6 seconds. While this does not result in a significant impact per the CSU TISM, it does exceed the City of San Diego impact threshold. To avoid exceeding the City threshold, signal re-optimization would need to be implemented to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This information is provided for information purposes only.

31. Texas Street & Camino del Rio S (City of San Diego) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and would increase delay by 7.6 and 18.3 seconds, respectively.
    - Mitigation: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, 5,130 DUEs, restripe both the eastbound and westbound through lanes to be shared left-turn and through lanes and performing signal re-optimization, which is standard practice with intersection reconfiguration. This mitigation would improve operations in the AM peak hour to 108.4 seconds of delay and in the PM peak hour to 86.9 seconds of delay. This mitigation would result in a less than significant impact per the CSU TISM but the resulting net increase in delay would exceed the City of San Diego impact threshold. To avoid exceeding the City threshold, a southbound right-turn overlap phase would need to be implemented. This information is provided for information purposes only. It should be noted that CSU does not have jurisdiction over this City of San Diego facility, and therefore cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.
    - *Impact Level After Mitigation:* If City authorization is provided, less than significant

32. Ward Road & Rancho Mission Road (City of San Diego) – Project traffic would degrade LOS D to LOS F operations in the AM and PM peak hours and would increase delay by over 100.0 seconds in both peak hours. The addition of project traffic would satisfy the peak hour signal warrant per the California MUTCD.
    - Mitigation: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, 3,950 DUEs, install a traffic signal at this intersection. This improvement would improve operations in the AM and PM peak hours to 4.2 and 6.3 seconds of delay, respectively. It should be noted that CSU does not have jurisdiction over this City of San Diego facility, and therefore cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.
    - *Impact Level After Mitigation:* If City authorization is provided, less than significant

34. Fairmount Avenue & Mission Gorge Road (City of San Diego) – Project traffic would degrade LOS C to LOS E operations in the PM peak hour and increase delay by 34.0 seconds.
    - *Mitigation*: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, 10,160 DUEs, optimize the signal timing to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This mitigation would improve operations in the PM peak hour to 54.1 seconds of delay. It should be noted that CSU does not have jurisdiction over this City of San Diego facility, and therefore cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.
    - *Impact Level After Mitigation:* If City authorization is provided, less than significant

35. Fairmount Avenue & Camino del Rio North (Caltrans) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and increase delay by 27.8 and over 71.8 seconds, respectively.
    - *Mitigation*: The required improvement would be to restripe the eastbound approach to provide a second eastbound right-turn lane as an approximately 150-foot pocket lane and increase the traffic signal cycle length from 130 to 150 seconds. Signal re-optimization is standard practice with intersection reconfiguration. Note that this signal is coordinated with the signal at Fairmount Avenue & Mission Gorge Road. Northbound and southbound through volumes are high enough to warrant additional capacity at this intersection, and a road widening to add lanes is recommended in the current Navajo Community Plan (adopted 2015). However, this mitigation is currently considered infeasible due to physical limitations beneath the adjacent bridges serving the I-8 mainline, I-8 ramp, and trolley. It also should be noted that the Mission Valley Community Plan Update FEIR (May 2019) identified mitigation at this intersection but determined that

roadway widening was infeasible due to limited right-of-way. The mitigation to add a second eastbound right-turn lane would improve operations to 95.2 and 109.0 seconds of delay in the AM and PM peak hours, respectively. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the impact is significant and unavoidable.

- *Impact Level After Mitigation*: Significant and unavoidable

41. Ruffin Road & Aero Drive (City of San Diego) – Project traffic would degrade LOS D operations to LOS E in the PM peak hour and increase delay by 10.6 seconds.
    - Mitigation: Prior to the issuance of the applicable CSU building permit for, or occupancy of, 5,160 DUEs, 9,780 DUEs, optimize the signal timing to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This mitigation would improve operations in the PM peak hour to 49.8 seconds of delay. It should be noted that CSU does not have jurisdiction over this City of San Diego facility, and therefore cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.
    - *Impact Level After Mitigation*: If City authorization is provided, less than significant

Table 50 summarizes the intersection operations after implementation of the proposed mitigations.

9.3.2 ROADWAY SEGMENTS

As previously explained, the roadway segment LOS analysis is based on the City of San Diego impact thresholds and is provided for information purposes; as a result, no mitigation on the part of CSU is proposed for threshold exceedances related to roadway segments.

As previously explained, under Horizon Year Conditions, the project would result in a change in roadway vehicle/capacity (V/C) ratio that exceeds the City of San Diego's maximum threshold on 11 roadway segments. This exceedance triggers the second part of the roadway analysis, which evaluates intersection LOS on either side of the segment, the arterial speed-based LOS on the segment, and the existing community plan street classification. The analysis presented in this section was performed on the Horizon Year Plus Project with Mitigation scenario such that the proposed intersection mitigations could be reflected. **Table 51** summarizes results of the second part of the roadway analysis assuming, hypothetically, implementation of the previously described improvements.

TABLE 50 – HORIZON YEAR (2037) PLUS PROJECT CONDITIONS WITH MITIGATIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Horizon Year Without the Project Conditions		Horizon Year Plus Project Conditions		Horizon Year Plus Project Conditions after Mitigations		Significant Impact After Mitigation?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]	
1. SR-163 SB Ramps/Ulric St & Friars Rd*	Signalized	AM	45.2	D	45.3	D	45.3	D	NO
		PM	54.5	D	**62.1**	**E**	**62.1**	**E**	**YES**
2. SR-163 NB Ramps & Friars Rd*	Signalized	AM	19.8	B	29.5	C	29.5	C	NO
		PM	32.4	C	36.2	D	36.2	D	NO
3. Frazee Rd & Friars Rd*	Signalized	AM	45.2	D	50.6	D	50.6	D	NO
		PM	44.8	D	46.9	D	46.9	D	NO
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	12.8	B	13.3	B	13.3	B	NO
		PM	14.1	B	15.0	B	15.0	B	NO
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	16.8	B	16.7	B	16.7	B	NO
		PM	36.2	D	38.1	D	38.1	D	NO
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	15.9	B	17.0	B	17.0	B	NO
		PM	24.5	C	24.9	C	24.9	C	NO
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	5.6	A	6.2	A	6.2	A	NO
		PM	12.8	B	13.3	B	13.3	B	NO
8. River Run Dr & Friars Rd	Signalized	AM	23.0	C	25.0	C	25.0	C	NO
		PM	**59.6**	**E**	**94.9**	**F**	32.9	C	NO
9. Fenton Pkwy & Friars Rd	Signalized	AM	27.9	C	22.1	C	22.1	C	NO
		PM	**92.8**	**F**	**126.6**	**F**	**83.2**	**F**	NO
10. Northside Dr & Friars Rd	Signalized	AM	34.3	C	26.6	C	26.6	C	NO
		PM	**76.4**	**E**	**97.5**	**F**	**87.6**	**F**	**YES**
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A	10.4	B	10.4	B	NO
		PM	-	N/A	22.9	C	34.1	C	NO
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	30.1	C	28.8	C	28.8	C	NO
		PM	52.0	D	33.6	C	33.6	C	NO
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd*	Signalized	AM	**173.4****	**F**	17.0	B	17.0	B	NO
		PM	**94.0**	**F**	30.0	C	30.0	C	NO
14. Street D & Street 4	Signalized	AM	DNE	N/A	23.7	C	23.7	C	NO
		PM		N/A	40.9	D	40.9	D	NO
15. Street F & Street 4	Signalized	AM	DNE	N/A	27.0	C	27.0	C	NO
		PM		N/A	35.1	D	35.1	D	NO
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A	8.1	A	8.1	A	NO
		PM		N/A	9.3	A	9.3	A	NO
17. I-15 SB Ramps & Friars Rd	Signalized	AM	46.3	D	**124.6**	**F**	**124.6**	**F**	**YES**
		PM	**67.3**	**E***** (F)	**100.6**	**F** (F)	**100.6**	**F** (F)	**YES**
18. I-15 NB Ramps & Friars Rd	Signalized	AM	**83.5**	**F***** (F)	**137.6**	**F** (F)	**137.6**	**F** (F)	**YES**
		PM	**67.3**	**E***** (F)	**208.4****	**F** (F)	**208.4****	**F** (F)	**YES**
19. Rancho Mission Rd & Friars Rd	Signalized	AM	30.3	C*** (E)	33.8	C (F)	27.9	C (F)	**YES*****
		PM	**72.4**	**E***** (E)	**83.2**	**F** (F)	**83.2**	**F** (F)	**YES**
20. Santo Rd & Friars Rd	Signalized	AM	38.1	D	47.1	D	47.1	D	NO
		PM	16.8	B	19.0	B	19.0	B	NO
21. Riverdale St & Friars Rd	Signalized	AM	37.4	D	43.8	D	43.8	D	NO
		PM	37.4	D	43.8	D	43.8	D	NO
22. Mission Gorge Rd & Friars Rd	Signalized	AM	44.1	D	46.5	D	46.5	D	NO
		PM	44.5	D	54.2	D	54.2	D	NO
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	19.3	B	22.1	C	22.1	C	NO
		PM	44.4	D	49.6	D	49.6	D	NO
24. Rio San Diego Dr & River Run Dr	AWSC	AM	12.9	B	13.6	B	13.6	B	NO
		PM	25.1	D	30.8	D	30.8	D	NO
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	16.7	B	17.0	B	17.0	B	NO
		PM	27.7	C	28.7	C	28.7	C	NO
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	31.0	C	46.0	D	46.0	D	NO
		PM	30.0	C	48.4	D	48.4	D	NO
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	23.5	C	**101.1**	**F**	35.3	D	NO
		PM	26.7	C	**73.2**	**E**	33.1	C	NO

TABLE 50 – HORIZON YEAR (2037) PLUS PROJECT CONDITIONS WITH MITIGATIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Horizon Year Without the Project Conditions		Horizon Year Plus Project Conditions		Horizon Year Plus Project Conditions after Mitigations		Significant Impact After Mitigation?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]	
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	21.3	C	21.8	C	21.8	C	NO
		PM	**71.0**	**E**	**71.0**	**E**	**71.0**	**E**	NO
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N	Signalized	AM	20.5	C	21.8	C	21.8	C	NO
		PM	**73.6**	**E**	**77.2**	**E**	**77.2**	**E**	NO****
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.2	A	1.2	A	1.2	A	NO
		PM	4.9	A	4.9	A	4.9	A	NO
31. Texas St & Camino del Rio S	Signalized	AM	**104.1**	**F**	**111.7**	**F**	**108.4**	**F**	NO****
		PM	**85.0**	**F**	**103.3**	**F**	**86.9**	**F**	NO****
32. Ward Rd & Rancho Mission Rd	SSSC	AM	26.9	D	**131.2**	**F**	4.2	A	NO
		PM	29.9	D	**321.1****	**F**	6.3	A	NO
33. Camino del Rio N & Ward Ave	Signalized	AM	15.4	B	25.3	C	25.3	C	NO
		PM	15.9	B	29.6	C	29.6	C	NO
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	22.0	C	27.6	C	27.6	C	NO
		PM	28.1	C	**62.1**	**E**	54.1	D	NO
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	**94.7**	**F**	**122.5**	**F**	**122.5**	**F**	**YES**
		PM	**104.7**	**F**	**176.5****	**F**	**176.6****	**F**	**YES**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	17.7	B	20.5	C	20.5	C	NO
		PM	44.3	D	52.7	D	52.7	D	NO
37. Montezuma Rd & Collwood Blvd	Signalized	AM	46.9	D	49.2	D	49.2	D	NO
		PM	50.0	D	53.5	D	53.5	D	NO
38. Mission Village Dr & Shawn Ave	Signalized	AM	6.2	A	6.4	A	6.4	A	NO
		PM	10.8	B	13.6	B	13.6	B	NO
39. Mission Village Dr & Fermi Ave	Signalized	AM	14.5	B	15.5	B	15.5	B	NO
		PM	11.3	B	13.9	B	13.9	B	NO
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	20.5	C	32.6	C	32.6	C	NO
		PM	24.5	C	36.4	D	36.4	D	NO
41. Ruffin Rd & Aero Dr	Signalized	AM	35.7	D	36.8	D	36.8	D	NO
		PM	52.6	D	**63.2**	**E**	49.8	D	NO
42. Gramercy Dr & Mobley St	Signalized	AM	7.1	A	7.2	A	7.2	A	NO
		PM	6.0	A	6.1	A	6.1	A	NO
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	9.1	A	9.3	A	9.3	A	NO
		PM	11.7	B	11.9	B	11.9	B	NO

Source: Fehr & Peers, 2019

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections, the all-way-stop-controlled (AWSC) intersection, and the roundabout intersection. Worst movement delay reported for the side-street-stop-controlled (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual (HCM)* method.

[3] Below-standard seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Under Existing Conditions, the Stadium Way & Friars Road intersection is only used during stadium events.

* Existing or proposed signal phasing prevents the use of *HCM 6* at this intersection. The *HCM 2000* method was applied instead.

** Calculated delays above 150 seconds may not be accurate and should be used with caution.

*** Ramp metering during the peak hours under existing conditions results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation. This additional delay is estimated to result in operations as shown in parentheses.

**** Intersection would exceed the City of San Diego impact threshold.

*****Because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would cause a significant impact.

TABLE 51 – HORIZON YEAR PLUS PROJECT WITH MITIGATIONS ROADWAY SEGMENT ARTERIAL ANALYSIS

ID	Study Area Segments Roadway		To/From	Peak Hour Intersection LOS[1]	Direction	Peak Hour Speed-Based Performance Meets Criterion in AM (PM)?	Consistent with Community Plan?
6	Friars Road	Northside Dr	Stadium Way (Street A)	Meets City standard in both peak hours	EB WB	Yes (Yes) Yes (Yes)	Yes
8	Friars Road	Mission Village Dr	I-15 Ramps	Friars Rd & Mission Village Dr meets City standard for both peak hours. Friars Rd & I-15 NB Ramps does not meet the City standard.	EB WB	Yes (**No**) Yes (Yes)	Yes
9	Friars Road	I-15 Ramps	Rancho Mission Rd	Do not meet City standard in both peak hours	EB WB	Yes (**No**) **No** (**No**)	Yes
11	Friars Road	Santo Rd	Riverdale St	Meets City standard in both peak hours	EB WB	Yes (**No**) Yes (Yes)	Yes
12	Friars Road	Riverdale St	Mission Gorge Rd	Meets City standard in both peak hours	EB WB	Yes (**No**) **No** (Yes)	Yes
17	San Diego Mission Rd	Mission Village Dr/Street F	Rancho Mission Rd	Meets City standard in both peak hours	EB WB	Yes (**No**) Yes (Yes)	Yes
18	San Diego Mission Rd	Rancho Mission Rd	Fairmount Ave	Meets City standard in both peak hours	EB WB	Yes (Yes) Yes (Yes)	Yes
19	Rancho Mission Rd	Friars Rd	San Diego Mission Rd	Meets City standard in both peak hours	EB WB	Yes (Yes) Yes (Yes)	Yes*
20	Rancho Mission Rd	San Diego Mission Rd	Ward Rd	Meets City standard in both peak hours	EB WB	**No** (**No**) Yes (Yes)	Yes*
22	Ward Rd	Rancho Mission Rd	Camino del Rio N	Meets City standard in both peak hours	EB WB	Yes (Yes) **No** (**No**)	Yes*
34	Camino del Rio S	Texas St	Mission City Pkwy	Texas St & Camino del Rio S does not meet City standard for both peak hours.	- WB	- (-) Yes (**No**)	Yes

Source: Appendix E (Synchro 10.0 Arterial Analysis)

1 Analysis performed using Horizon Year Plus Project with Mitigations Conditions in order to reflect intersection improvements.

* Existing or proposed roadway configuration is consistent with the adopted (1985) Mission Valley Community Plan, but not the Final Draft of the Mission Valley Community Plan Update (July 2019)

6. Friars Road from Northside Drive to Stadium Way (Street A)
   - *Initial Evaluation*: Project traffic would degrade LOS C operations to LOS F and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
     - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
     - Arterial analysis shows that the segment meets the City of San Diego criterion.
     - By converting the Stadium Way (Street A) signal from event-only operations to typical operations, the classification of this roadway segment will be downgraded to a 6-lane primary arterial. This is consistent with the currently adopted (1985) Mission Valley Community Plan and the Final Draft of the Mission Valley Community Plan Update (July 2019) classification as a 6-lane expressway.
   - *Final Evaluation*: Because all three of the above criteria are met, this roadway segment operates below the City of San Diego significance threshold.

8. Friars Road from Mission Village Drive to the I-15 Ramps
   - *Initial Evaluation*: Project traffic would degrade LOS C operations to LOS E and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
     - One adjacent intersection to the segment meets the City standard in both the AM and PM peak hours, and one does not meet the City standard.
     - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the eastbound direction in the PM peak hour.
     - The existing configuration as a 6-lane expressway is consistent with the currently adopted (1985) Mission Valley Community Plan and the Final Draft of the Mission Valley Community Plan Update (July 2019).
   - *Final Evaluation*: Due to the intersection and arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. The travel time increase along this segment is more than three minutes.
   - *Improvement*: At Friars Road & I-15 SB Ramps, add a second eastbound left-turn lane, a second eastbound right-turn lane, and a second westbound right-turn lane; re-optimize the signal.

9. Friars Road from the I-15 Ramp to Rancho Mission Road
   - *Initial Evaluation*: Project traffic would exacerbate LOS F operations and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
     - Intersections on both sides of the segment do meet the City standard for both the AM and PM peak hours.

  - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the both directions in one or both peak hours.
  - The existing configuration as a 7-lane primary arterial is consistent with the currently adopted (1985) Mission Valley Community Plan and the Final Draft of the Mission Valley Community Plan Update (July 2019).
- *Final Evaluation*: Due to the intersection and arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is no more than 37 seconds for any direction or peak period.
- *Improvement*: At Friars Road & I-15 NB Ramps, add a second eastbound left-turn lane and re-optimize the signal.

11. Friars Road from Santo Road to Riverdale Street
    - *Initial Evaluation*: Project traffic would exacerbate LOS F operations and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
      - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
      - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the eastbound direction in the PM peak hour.
      - The existing configuration as a 6-lane primary arterial is consistent with the currently adopted (2015) Navajo Community Plan.
    - *Final Evaluation*: Due to the arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is less than 18 seconds.
    - *Improvement*: Physical improvement would be to widen Friars Road eastbound to add a fourth lane, although the west-bound direction currently has three lanes. Note that a widening of this segment of Friars Road is not consistent with the currently adopted (2015) Navajo Community Plan. An alternative would be to optimize the Riverdale Street & Friars Road traffic signal to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This improvement would result in an arterial analysis that meets the City of San Diego criterion.

12. Friars Road from Riverdale Street to Mission Gorge Road
    - *Initial Evaluation*: Project traffic would degrade LOS D operations to LOS E and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
      - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.

  - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the westbound direction in the AM peak hour.
  - The existing configuration as a 6-lane primary arterial is consistent with the currently adopted (2015) Navajo Community Plan.
- *Final Evaluation*: Due to the arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is less than approximately 20 seconds.
- *Improvement*: Widen Friars Road westbound to add a fourth lane, although the east-bound direction currently has three lanes. Note that a widening of this segment of Friars Road is not consistent with the currently adopted (2015) Navajo Community Plan. An alternative would be to optimize the Riverdale Street & Friars Road traffic signal to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This improvement would result in an arterial analysis that meets the City of San Diego criterion.

17. <u>San Diego Mission Road from Mission Village Drive/Street F to Rancho Mission Road</u>
    - *Initial Evaluation*: Project traffic would degrade LOS C operations to LOS F and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
      - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
      - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the eastbound direction in the PM peak hour.
      - The existing configuration as a 4-lane collector without a center left-turn lane is consistent with the currently adopted (1985) Mission Valley Community Plan and the Final Draft of the Mission Valley Community Plan Update (July 2019).
    - *Final Evaluation*: Due to the arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is less than 30 seconds.
    - *Improvement*: Widen San Diego Mission Road to add a center left-turn lane. Note that a widening of this segment of San Diego Mission Road is consistent with the currently adopted (1985) Mission Valley Community Plan or the Final Draft of the Mission Valley Community Plan Update (July 2019). However, all the driveways located along San Diego Mission Road in the Plus Project scenario are located more than 2,000 feet from Mission Village Drive, and five (5) of the nine (9) driveways are already provided with either a center left-turn lane or are treated with a raised median. It is not recommended that a center left-turn lane be installed for the benefit of few driveways. An alternative would be to optimize the San Diego Mission Road & Rancho Mission Road traffic signal to accommodate the change in traffic demand over the next 19 years plus the addition of

project traffic. This improvement would result in an arterial analysis that meets the City of San Diego criterion.

18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue
    - *Initial Evaluation*: Project traffic would degrade LOS E operations to LOS F and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
        - Arterial analysis shows that the segment meets the City of San Diego criterion.
        - The existing configuration as a 2-lane collector with a center left-turn lane is consistent with the currently adopted (1985) Mission Valley Community Plan and the Final Draft of the Mission Valley Community Plan Update (July 2019).
    - *Final Evaluation*: Because all three of the above criteria are met, this roadway segment operates below the City of San Diego significance threshold.

19. Rancho Mission Road from Friars Road to San Diego Mission Road
    - *Initial Evaluation*: Project traffic would degrade LOS D operations to LOS F and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
        - Arterial analysis shows that the segment meets the City of San Diego criterion.
        - The existing configuration as a 3-lane collector with a center left-turn lane is consistent with the currently adopted (1985) Mission Valley Community Plan; however, it is not consistent with the Final Draft of the Mission Valley Community Plan Update (July 2019) which calls for restriping to remove lanes on this segment. The latter restriping would result in LOS F operations on this roadway segment both without and with the project. It should be noted that the Mission Valley Community Plan Update FEIR (May 2019) shows an impact here without recommended mitigation.
    - *Final Evaluation*: Under the current approved Mission Valley Community Plan, all three of the above criteria are met and, therefore, this roadway segment operates below the City of San Diego significance threshold. However, it is noted that the existing configuration is not consistent with the currently proposed Community Plan Update.

20. Rancho Mission Road from San Diego Mission Road to Ward Road
    - *Initial Evaluation*: Project traffic would degrade LOS D operations to LOS E and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.

  - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the northbound direction in both peak hours.
  - The existing configuration as a 4-lane collector without a center left-turn lane is a lower capacity than the 4-lane collector *with* a center left-turn lane called for in the currently adopted (1985) Mission Valley Community Plan; however, the Final Draft of the Mission Valley Community Plan Update (July 2019) calls for restriping to remove lanes on this segment. The latter restriping would result in LOS F operations on this roadway segment both without and with the project. It should be noted that the Mission Valley Community Plan Update FEIR (May 2019) shows an impact here without recommended mitigation.
- *Final Evaluation*: Due to the arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is less than 35 seconds.
- *Improvement*: Physical improvement would be to remove on-street parking on both sides of the street and re-stripe Rancho Mission Road with a center left-turn lane. This improvement would result in a V/C of 0.45. This configuration would be consistent with the currently adopted (1985) Mission Valley Community Plan; however it is not consistent with the Final Draft of the Mission Valley Community Plan Update (July 2019) which calls for restriping to remove lanes in order to provide buffered bike lanes in both directions while maintaining on-street parking. Furthermore, it is typically not a City practice to remove parking at this scale. Therefore, this improvement is not considered feasible.

22. Ward Road from Rancho Mission Road to Camino del Rio North
    - *Initial Evaluation*: Project traffic would degrade LOS D operations to LOS F and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
      - Intersections on both sides of the segment meet the City standard in both the AM and PM peak hours.
      - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the southbound direction.
      - The existing configuration as a 4-lane collector without a center left-turn lane is consistent with the currently adopted (1985) Mission Valley Community Plan; however, the Final Draft of the Mission Valley Community Plan Update (July 2019) calls for restriping to remove lanes on this segment. The latter restriping would result in LOS F operations on this roadway segment both without and with the project. It should be noted that the Mission Valley Community Plan Update FEIR (May 2019) shows an impact here without recommended mitigation.

- *Final Evaluation*: Due to the arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is less than 60 seconds.
- *Improvement*: Re-stripe Ward Road with a center left-turn lane, which would require eliminating all the on-street parking on this segment. Alternatively, the road could be widened to install the two-way left turn-lane and to maintain the parking. In addition, widening this segment is consistent with the currently adopted (1985) Mission Valley Community Plan. This improvements would result in a V/C of 0.62, which brings operations below the significance threshold. However, this segment only includes one driveway serving an adjacent property that also has a driveway located on Rancho Mission Road west of Ward Road. Given that the purpose of the center left-turn lane is to provide a staging area for vehicles to turn left into or out of driveways, it is not recommended that a center left-turn lane be installed for a single low volume driveway. Instead, the existing Ward Road driveway could be closed, and access to the second driveway would be enhanced with the new signal and proposed northbound left-turn pocket at the Ward Road/Rancho Mission Road intersection. The current four-lane configuration with the remaining on-street parking is expected to be sufficient to serve the projected daily volume. However, the Final Draft of the Mission Valley Community Plan Update (July 2019) calls for restriping to remove lanes on this segment in order to provide buffered bike lanes in both directions while maintaining on-street parking.

34. Camino del Rio South from Texas Street to Mission City Parkway
    - *Initial Evaluation*: Project traffic would exacerbate LOS F operations and would result in a V/C increase that exceeds the maximum threshold. The second portion of the analysis shows:
        - Texas Street & Camino del Rio South does not meet the City standard in both peak hours.
        - Arterial analysis shows that the segment does not meet the City of San Diego criterion because the project decreases speeds beyond the threshold in the westbound direction in the PM peak hour.
        - The existing configuration as a 2-lane collector is consistent with the currently adopted (1985) Mission Valley Community Plan classification as a 4-lane collector as well as the Final Draft of the Mission Valley Community Plan Update (July 2019) classification as a 2-lane collector with a center left-turn lane.
    - *Final Evaluation*: *Final Evaluation*: Due to the intersection and arterial analysis results, this roadway segment exceeds the City of San Diego significance threshold. It should be noted that the travel time increase along this segment is no more than 17 seconds in the PM peak hour, and that the travel time decreases by one (1) second along this segment in the AM peak hour.
    - *Improvement*: The required improvement would be to restripe Camino del Rio South in order to provide a two-way center left-turn lane, which would require eliminating the on-

street parking along one side of this segment. Alternatively, the road could be widened to install the two-way left turn-lane and to maintain the parking. In addition, widening of this segment is identified in the currently adopted (1985) Mission Valley Community Plan; however, the Final Draft of the Mission Valley Community Plan Update (July 2019) identifies restriping on this segment to remove on-street parking at some locations to provide a two-way center left-turn lane (or left-turn pockets) in addition to bike lanes. The reclassification to a two-lane collector with a two-way center left-turn lane would result in a V/C of 0.94, which would fall below the significance threshold.

9.3.3 FREEWAY SEGMENTS

As shown in **Table 31**, the project would contribute to significant impacts to 12 study area freeway segments on I-15 and I-8 during one or both peak hours under Horizon Year Plus Project Conditions. Mitigation of freeway impacts would theoretically involve widening of the freeway facility to provide additional mainline or auxiliary lane capacity to reduce the projected V/C ratio(s). However, widening mainline freeway segments is beyond the scope of a single development project due to numerous factors including the potential complexities of modifying adjacent interchanges, acquiring right-of-way, proximity of existing building structures and roadways, high construction costs, etc. In addition, no established mechanism (i.e., fee program) exists for any of the three facilities to obtain a fair-share contribution from all new development in the area and region.

SANDAG, as the regional planning agency in San Diego County, has completed various studies regarding improvements along all the major freeways within the study area. In particular, SANDAG, in collaboration with Caltrans, the City of San Diego, the Metropolitan Transit System, and other key stakeholders, is developing a multimodal corridor study for the section of I-8 located within the City of San Diego. The Preliminary Draft Report for the *I-8 Corridor Study* (August 2016) considers future improvements, as well as other feasible concepts, describes existing conditions, identifies future deficiencies, develops multimodal alternatives and measures, performs technical analysis, and proposes an implementation strategy. The study addresses various topics, including: right-of-way constraints, transit services, freeway interchanges, select local streets and intersections, bike and pedestrian access (active transportation), Transportation Demand Management (TDM), Transportation Systems Management (TSM), and other strategies to encourage the use of alternative travel modes.

Additionally, Caltrans recently completed an I-805 Transportation Concept Report that addresses congestion and operations along the entire length of the corridor. A combination of strategies is planned and incorporated in the Regional Transportation Plan (RTP), including high capacity transit projects, managed lanes, active transportation projects, auxiliary lanes, and ramp metering. Many of the concepts addressed in the I-8 and I-805 studies can be applied to other freeways, including I-15. Caltrans is also

considering implementing managed lane strategies within the I-15 corridor in the future to address congestion and enhance mobility.

In furtherance of these studies, the lead agency, CSU/SDSU will support Caltrans in its efforts to obtain funding from the state Legislature for the costs to prepare a Project Study Report-Project Development Support-Project Initiation Document (Study) to evaluate alternatives to increase capacity, improve mobility, and relieve congestion on impacted segments or adjacent interchanges. Alternatives to be considered include enhanced acceleration/deceleration lanes and interconnecting ramp meters. Dependent upon the outcome of the Study, CSU/SDSU shall continue to support Caltrans in its efforts to obtain funding from the state Legislature for the costs to implement the capital improvements identified in the Study.

In addition, the proposed project would implement a TDM Program to reduce the number of site-generated vehicle trips beyond the level used in this analysis (see **Section 2.1.2**). Additionally, as a mixed-use project located in a transit priority area (TPA) with a high-capacity transit station that is centrally located in the region, the proposed project will minimize the number of trips and corresponding vehicle miles of travel (VMT) within the region, including on the freeway system as compared to other development projects within the County located beyond the reach of a transit station. Accordingly, the SDSU Mission Valley Campus Master Plan project would reduce its freeway impacts to the greatest extent feasible, although freeway mainline impacts will remain significant and unavoidable.

9.3.4 FREEWAY RAMP METERS

As shown in **Table 32,** the project would cause the following significant impacts to the study area on-ramps under Horizon Year Plus Project Conditions:

- I-15 NB On-Ramp at Friars Road – *Significant Cumulative Impact:* Project traffic would exacerbate unacceptable operations resulting in a delay increase that exceeds the significance threshold for an on-ramp operating with delays greater than 15 minutes.
  - Mitigation: Delays could be reduced to below 15 minutes by the addition of a third mixed flow lane. However, this ramp already consists of two mixed flow lanes and one HOV lane, which is the maximum number of lanes typically designed by Caltrans. Therefore, additional roadway capacity is infeasible. As traffic patterns change, it may be possible to adjust the metering rate, particularly with I-15 corridor improvements such as managed lanes.
  - *Impact Level After Mitigation*: Significant and unavoidable
- I-15 SB Loop On-Ramp at Friars Road – *Significant Cumulative Impact:* Project traffic would exacerbate unacceptable operations resulting in a delay increase that exceeds the significance threshold for an on-ramp operating with delays greater than 15 minutes.

- Mitigation: Delays could be reduced to below 15 minutes by the addition of a second mixed flow lane on this ramp. To provide a second lane on this ramp will require widening a bridge structure over both the multi-use path connecting the site to Murphy Canyon Road and a drainage channel. CSU will support Caltrans in its effort to obtain funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the threshold exceedance will remain.
- *Impact Level After Mitigation*: Significant and unavoidable

- I-15 SB Direct On-Ramp at Friars Road – *Significant Cumulative Impact:* Project traffic would exacerbate unacceptable operations resulting in a delay increase that exceeds the threshold for an on-ramp operating with delays greater than 15 minutes.
  - Mitigation: Delays could be reduced to below 15 minutes by the addition of a second mixed flow lane on this ramp. To provide a second lane on this ramp will require widening of a bridge structure over the multi-use path connecting the site to Murphy Canyon Road. CSU will support Caltrans in its effort to obtain funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the threshold exceedance will remain.
  - *Impact Level After Mitigation*: Significant and unavoidable

- I-8 EB On-Ramp at SB Fairmount Avenue – *Significant Cumulative Impact:* Project traffic would exacerbate undesirable operations and result in a delay increase that exceeds the threshold for an on-ramp operating with delays greater than 15 minutes.
  - *Mitigation*: Delays could be reduced to below 15 minutes by the addition of a second mixed flow lane. However, this improvement is infeasible due to the insufficient right-of-way. Therefore, no additional on-ramp capacity is recommended. As such, mitigation is infeasible. As traffic patterns change, the metering rate may be able to be adjusted, particularly with I-8 corridor improvements such as managed lanes.
  - *Impact Level After Mitigation*: Significant and unavoidable

9.4 HORIZON YEAR PLUS PROJECT PLUS EVENT CONDITIONS

9.4.1 INTERSECTIONS

After incorporating the mitigations proposed under **Section 9.3** for Horizon Year Plus Project Without Event Conditions, the addition of stadium event trips would exacerbate operations. The resulting LOS and

operations at study intersections is presented in **Table 52**. As shown, event traffic would result in significant cumulative impacts at the following additional intersections after implementing the proposed mitigations:

3. Frazee Road & Friars Road – Project plus event traffic would degrade LOS D operations to LOS E in the PM peak hour and increase delay by 22.6 seconds.
9. Fenton Parkway & Friars Road – Project plus event traffic would exacerbate LOS F operations in the PM peak hour and increase delay by 30.4 seconds.
10. Northside Drive & Friars Road – Project plus event traffic would exacerbate LOS F operations in the PM peak hour and increase delay by 53.2 seconds.
11. Stadium Way (Street A) & Friars Road – Project plus event traffic would degrade free-flow operations to LOS F.
14. Street D & Street 4 – Project plus event traffic would result in LOS F operations.
22. Mission Gorge Road & Friars Road – Project plus event traffic would degrade LOS D operations to LOS E and increase delay by 11.5 seconds.
34. Fairmount Avenue & Mission Gorge Road – Project plus event traffic would degrade LOS C operations to LOS E and increase delay by 28.3 seconds.

The same intersections would also exceed the City of San Diego impact thresholds. Strategies to assist in the reduction of weekday stadium event traffic and related impacts would be implemented through the TDM and TPMP Programs previously described. Event-generated congestion (albeit at a lesser level) is also expected to occur for other major and high-attendance weekday events with attendance levels ranging from 5,000 to 20,000 or more. At site-adjacent intersections, the TPMP will include manual traffic control, which will operate more efficiently than a signal. Although intersection operations under this scenario would likely remain significant and unavoidable, this scenario represents a sold-out event (i.e., 35,000 attendees) that occurs on a weekday, which will occur only up to a few times per year.

9.4.2 ROADWAY SEGMENTS

As previously noted, the roadway segment LOS analysis is based upon the City of San Diego impact thresholds and is presented for information purposes. Under Horizon Year Plus Project Plus Event Conditions, the project would result in a change in roadway vehicle-to-capacity ratio (V/C) that exceeds the City of San Diego's maximum threshold on 14 roadway segments, presented below. Because high-attendance stadium events are expected to happen infrequently, mitigation in the form of roadway improvements is not feasible. For these reasons, all segments are assumed to exceed the significance threshold.

5. Friars Road from Fenton Parkway to Northside Drive – Project plus event traffic would degrade LOS C operations to LOS E.

TABLE 52 – HORIZON YEAR PLUS PROJECT PLUS EVENT WITH PROJECT MITIGATION CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Horizon Year Without the Project Conditions		Horizon Year Plus Project Plus Event with Project Mitigation Conditions		Delay Delta	Significant Impact?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
1. SR-163 SB Ramps/Ulric St & Friars Rd*	Signalized	AM	45.2	D	45.3	D	1.4	NO
		PM	54.5	D	**70.2**	**E**	**13.3**	**YES**
2. SR-163 NB Ramps & Friars Rd*	Signalized	AM	19.8	B	29.5	C	3.3	NO
		PM	32.4	C	42.5	D	9.0	NO
3. Frazee Rd & Friars Rd*	Signalized	AM	45.2	D	50.6	D	1.6	NO
		PM	44.8	D	**65.6**	**E**	**22.6**	**YES**
4. Mission Center Rd & Friars Rd WB Ramps	Signalized	AM	12.8	B	13.3	B	0.5	NO
		PM	14.1	B	15.0	B	0.9	NO
5. Mission Center Rd & Friars Rd EB Ramps	Signalized	AM	16.8	B	16.7	B	-0.1	NO
		PM	36.2	D	38.3	D	2.1	NO
6. Qualcomm Way & Friars Rd WB Ramps	Signalized	AM	15.9	B	17.0	B	1.1	NO
		PM	24.5	C	24.9	C	0.4	NO
7. Qualcomm Way & Friars Rd EB Ramps	Signalized	AM	5.6	A	6.2	A	0.6	NO
		PM	12.8	B	13.2	B	0.4	NO
8. River Run Dr & Friars Rd	Signalized	AM	23.0	C	25.0	C	2.0	NO
		PM	**59.6**	**E**	**60.9**	**E**	1.3	NO****
9. Fenton Pkwy & Friars Rd	Signalized	AM	27.9	C	22.1	C	-5.8	NO
		PM	**92.8**	**F**	**123.2**	**F**	**30.4**	**YES**
10. Northside Dr & Friars Rd*	Signalized	AM	34.3	C	26.6	C	-7.7	NO
		PM	**76.4**	**E**	**129.6**	**F**	**53.2**	**YES**
11. Stadium Way (Street A) & Friars Rd[4]	Signalized	AM	-	N/A	10.4	B	N/A	NO
		PM	-	N/A	**142.5**	**F**	N/A	**YES**
12. Mission Village Dr & Friars Rd WB Ramps	Signalized	AM	30.1	C	28.8	C	-1.3	NO
		PM	52.0	D	36.6	D	-15.4	NO
13. Mission Village Dr/Street D & Friars Rd EB Ramps/San Diego Mission Rd*	Signalized	AM	**173.4****	**F**	17.0	B	-156.4	NO
		PM	**94.0**	**F**	31.9	C	-62.1	NO
14. Street D & Street 4	Signalized	AM	DNE	N/A	23.7	C	N/A	NO
		PM		N/A	**370.0****	**F**	N/A	**YES**
15. Street F & Street 4	Signalized	AM	DNE	N/A	27.0	C	N/A	NO
		PM		N/A	31.8	C	N/A	NO
16. Street F/San Diego Mission Rd & Street 6	Roundabout	AM	DNE	N/A	8.1	A	N/A	NO
		PM		N/A	13.3	B	N/A	NO
17. I-15 SB Ramps & Friars Rd	Signalized	AM	46.3	D	**124.6**	**F**	**78.3**	NO
		PM	**67.3**	**E***** (F)	**137.9**	**F** (F)	**70.6**	**YES*****
18. I-15 NB Ramps & Friars Rd	Signalized	AM	**83.5**	**F***** (F)	**137.6**	**F** (F)	**54.1**	**YES*****
		PM	**67.3**	**E***** (F)	**218.1****	**F** (F)	**150.8**	**YES*****
19. Rancho Mission Rd & Friars Rd	Signalized	AM	30.3	C*** (E)	27.9	C (F)	3.9	**YES*****
		PM	**72.4**	**E***** (E)	**94.1**	**F** (F)	**21.7**	**YES*****
20. Santo Rd & Friars Rd	Signalized	AM	38.1	D	47.1	D	9.0	NO
		PM	16.8	B	19.4	B	2.6	NO
21. Riverdale St & Friars Rd	Signalized	AM	37.4	D	43.8	D	6.4	NO
		PM	37.4	D	44.7	D	7.3	NO
22. Mission Gorge Rd & Friars Rd	Signalized	AM	44.1	D	46.5	D	2.4	NO
		PM	44.5	D	**56.0**	**E**	**11.5**	**YES**
23. Qualcomm Way & Rio San Diego Dr	Signalized	AM	19.3	B	22.1	C	2.8	NO
		PM	44.4	D	50.1	D	5.7	NO
24. Rio San Diego Dr & River Run Dr	AWSC	AM	12.9	B	13.6	B	0.7	NO
		PM	25.1	D	32.7	D	7.6	NO
25. Fenton Pkwy & Rio San Diego Dr/ Fenton Marketplace Dwy	Signalized	AM	16.7	B	17.0	B	0.3	NO
		PM	27.7	C	28.8	C	1.1	NO
26. Rancho Mission Rd & San Diego Mission Rd	Signalized	AM	31.0	C	46.0	D	15.0	NO
		PM	30.0	C	51.1	D	21.1	NO
27. Fairmount Ave & San Diego Mission Rd/Twain Ave	Signalized	AM	23.5	C	35.3	D	11.8	NO
		PM	26.7	C	51.7	D	25.0	NO

TABLE 52 – HORIZON YEAR PLUS PROJECT PLUS EVENT WITH PROJECT MITIGATION CONDITIONS INTERSECTION LEVEL OF SERVICE

Intersection	Traffic Control	Peak Hour	Horizon Year Without the Project Conditions		Horizon Year Plus Project Plus Event with Project Mitigation Conditions		Delay Delta	Significant Impact?
			Delay (sec/veh)[1]	LOS[2,3]	Delay (sec/veh)[1]	LOS[2,3]		
28. Qualcomm Way & Camino del Rio N/Camino de la Reina	Signalized	AM	21.3	C	21.8	C	0.5	NO
		PM	**71.0**	**E**	**71.1**	**E**	**0.1**	NO
29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N	Signalized	AM	20.5	C	21.8	C	1.3	NO
		PM	**73.6**	**E**	**77.8**	**E**	**4.2**	NO****
30. Qualcomm Way/Texas St & I-8 EB Off-Ramp	Signalized	AM	1.2	A	1.2	A	0.0	NO
		PM	4.9	A	4.9	A	0.0	NO
31. Texas St & Camino del Rio S	Signalized	AM	**104.1**	**F**	**108.4**	**F**	**4.3**	NO****
		PM	**85.0**	**F**	**87.0**	**F**	**2.0**	NO****
32. Ward Rd & Rancho Mission Rd	SSSC converted to Signalized	AM	26.9	D	4.2	A	-22.7	NO
		PM	29.9	D	8.5	A	-21.4	NO
33. Camino del Rio N & Ward Ave	Signalized	AM	15.4	B	25.3	C	9.9	NO
		PM	15.9	B	31.8	C	15.9	**YES**
34. Fairmount Ave & Mission Gorge Rd	Signalized	AM	22.0	C	27.6	C	5.6	NO
		PM	28.1	C	**56.4**	**E**	**28.3**	**YES**
35. Fairmount Ave & Camino del Rio N*	Signalized	AM	**94.7**	**F**	**122.5**	**F**	**27.8**	**YES**
		PM	**104.7**	**F**	**205.4****	**F**	**100.7**	**YES**
36. I-8 EB Off-Ramp & Fairmount Ave	Signalized	AM	17.7	B	20.5	C	2.8	NO
		PM	44.3	D	53.4	D	9.1	NO
37. Montezuma Rd & Collwood Blvd	Signalized	AM	46.9	D	49.2	D	2.3	NO
		PM	50.0	D	54.7	D	4.7	NO
38. Mission Village Dr & Shawn Ave	Signalized	AM	6.2	A	6.4	A	0.2	NO
		PM	10.8	B	15.4	B	4.6	NO
39. Mission Village Dr & Fermi Ave	Signalized	AM	14.5	B	15.5	B	1.0	NO
		PM	11.3	B	15.3	B	4.0	NO
40. Gramercy Dr/Mission Village Dr & Ruffin Rd	Signalized	AM	20.5	C	32.6	C	12.1	NO
		PM	24.5	C	41.5	D	17.0	NO
41. Ruffin Rd & Aero Dr	Signalized	AM	35.7	D	36.8	D	1.1	NO
		PM	52.6	D	53.9	D	1.3	NO
42. Gramercy Dr & Mobley St	Signalized	AM	7.1	A	7.2	A	0.1	NO
		PM	6.0	A	6.1	A	0.1	NO
43. Gramercy Dr/Greyling Dr & Sandrock Rd	Signalized	AM	9.1	A	9.3	A	0.2	NO
		PM	11.7	B	11.9	B	0.2	NO

Source: Fehr & Peers, 2019

Notes:

[1] Whole intersection weighted average stopped delay expressed in seconds per vehicle for signalized intersections, the all-way-stop-controlled (AWSC) intersection, and the roundabout intersection. Worst movement delay reported for the side-street-stop-controlled (SSSC) intersection.

[2] LOS calculations performed using the *Highway Capacity Manual (HCM)* method.

[3] Below-standard seconds of delay per vehicle and LOS highlighted in **bold**.

[4] Under Existing Conditions, the Stadium Way & Friars Road intersection is only used during stadium events.

* Existing or proposed signal phasing prevents the use of *HCM 6* at this intersection. The *HCM 2000* method was applied instead.

** Calculated delays above 150 seconds may not be accurate and should be used with caution.

***Ramp metering during the peak hours under existing conditions results in queues back to and through the adjacent arterial intersection causing additional delay for selected movements that is not reflected in the calculation.

****Exceeds the City of San Diego impact threshold.

*****Because existing conditions are worse than calculated, it is conservatively assumed that the addition of project traffic would cause a significant impact.

6. Friars Road from Northside Drive to Stadium Way (Street A) – Project plus event traffic would degrade LOS C operations to LOS F.
7. Friars Road from Stadium Way (Street A) to Mission Village Drive – Project plus event traffic would degrade LOS C operations to LOS E.
8. Friars Road from Mission Village Drive to the I-15 Ramps – Project plus event traffic would degrade LOS C operations to LOS F.
9. Friars Road from the I-15 Ramps to Rancho Mission Road – Project plus event traffic would exacerbate LOS F operations.
10. Friars Road from Rancho Mission Road to Santo Road – Project plus event traffic would degrade LOS D operations to LOS E.
11. Friars Road from Santo Road to Riverdale Street – Project plus event traffic would exacerbate LOS F operations.
12. Friars Road from Riverdale Street to Mission Gorge Road – Project plus event traffic would degrade LOS D operations to LOS E.
17. San Diego Mission Road from Mission Village Drive/Street F to Rancho Mission Road – Project plus event traffic would degrade LOS C operations to LOS F.
18. San Diego Mission Road from Rancho Mission Road to Fairmount Avenue – Project plus event traffic would degrade LOS E operations to LOS F.
19. Rancho Mission Road from Friars Road to San Diego Mission Road – Project plus event traffic would degrade LOS D operations to LOS F.
20. Rancho Mission Road from San Diego Mission Road to Ward Road – Project plus event traffic would degrade LOS D operations to LOS E.
22. Ward Road from Rancho Mission Road to Camino del Rio North – Project plus event traffic would degrade LOS C operations to LOS F.
34. Camino del Rio South from Texas Street to Mission City Parkway – Project plus event traffic would exacerbate LOS F operations.

As previously noted as part of the intersection analyses, measures to assist in the reduction of weekday stadium event traffic and related impacts would be implemented through the TDM and TPMP Programs. Although roadway segment operations under this scenario would likely remain significant and unavoidable, this scenario represents a sold-out event (i.e., 35,000 attendees) that occurs on a weekday, which will occur only up to a few times per year.

9.4.3 FREEWAY SEGMENTS

According to **Table 36** and the applicable significance criteria, the stadium traffic would cause significant impacts to five (5) additional bi-directional study area freeway segments on SR-163, I-805, and I-8 during one or both peak hours under Horizon Year Plus Project Plus Event Conditions. As with Horizon Year Plus Project Without Event Conditions, these freeway segment impacts will remain significant and unavoidable. See **Section 9.3.3** for an expanded discussion.

9.4.4 FREEWAY RAMP METERS

Stadium event traffic would not cause any additional impacts under Horizon Year Plus Project with Event Conditions than under Without Event Conditions. Therefore, the mitigation previously identified in **Section 9.3.4**, and resulting impact conclusions, applies under the With Event Conditions.

9.5 EFFECT OF 4-LANE FENTON PARKWAY EXTENSION ON PROJECT ROADWAY MITIGATION

This section identifies the improvements that would be necessary to reduce or eliminate the exceedances of the impact thresholds under the Horizon Year Plus Project Conditions with the 4-Lane Fenton Parkway bridge in place presented in the previous section. As noted previously, the analysis of Horizon Year with Fenton Bridge conditions without and with the proposed project and the associated improvements are provided for information purposes only.

Overall, the inclusion of the Fenton Parkway extension would not substantially change the impacts and proposed mitigation for the SDSU Mission Valley Campus Master Plan project. This conclusion supports the initial analysis approach that the extension is not required to reduce project impacts, and that the project impacts can be reasonably mitigated with physical improvements without the bridge in place.

9.5.1 INTERSECTIONS

Under Horizon Year Conditions with the 4-lane bridge in place, the proposed project would contribute to exceedances of the CSU TISM and/or City of San Diego thresholds at the following intersections requiring the corresponding improvements as appropriate; the agency with jurisdiction over the improvements is noted in parentheses:

1. SR-163 Southbound Ramps/Ulric Street & Friars Road (Caltrans) – Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 5.4 seconds.
   Improvements: The required improvement would be to re-optimize the coordinated signal offset. This improvement would result in a less than significant impact per the CSU TISM but would not reduce the impact below the City of San Diego impact thresholds. To avoid exceeding the City threshold, additional signal timing re-optimization would need to be implemented. Signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes regardless of the addition of project traffic. Regarding the proposed signal offset optimization, CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the

recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the impact is significant and unavoidable.

- *Impact Level After Improvements*: Significant and unavoidable

8. River Run Drive & Friars Road (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the PM peak hour and would increase delay by 34.1 seconds.
   - *Improvement*: To increase intersection capacity to eliminate the project impact, Friars Road would need to be widened to add a fourth eastbound through lane. Note, however, that widening this segment of Friars Road is not consistent with the currently adopted (1985) Mission Valley Community Plan or the Final Draft of the Mission Valley Community Plan Update (July 2019); therefore, this improvement is not recommended. An alternative improvement is the optimization of traffic signals along the Friars Road corridor extending from River Run Drive to Stadium Way (Street A) to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic; signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes, especially with the new bridge, regardless of the addition of project traffic.. This option would improve operations in the PM peak hour to 32.6 seconds of delay. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended traffic signal optimization.
   - *Threshold Level After Improvement:* Less than threshold if City authorization is provided to implement signal optimization.

9. Fenton Parkway & Friars Road (City of San Diego) – Project traffic would degrade LOS D operations to LOS E in the PM peak hour by increasing delay 31.9 seconds.
   - *Improvement*: Optimize the traffic signals along the Friars Road corridor extending from Fenton Parkway to Stadium Way (Street A) to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic; signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes, especially with the new bridge, regardless of the addition of project traffic. This option would improve operations to 53.4 seconds of delay in the PM peak hour. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended traffic signal optimization.
   - *Threshold Level After Improvement:* Less than threshold if City authorization is provided to implement signal optimization.

17. I-15 Southbound Ramps & Friars Road (Caltrans) – Project traffic would degrade LOS D operations to LOS F operations in the AM peak hour, would exacerbate LOS F operations in the PM peak hour, and would increase delay by 35.1 and 22.7 seconds, respectively.
    - *Improvement*: The needed improvement would be to reconstruct the intersection to add a second eastbound left-turn lane, a second eastbound right-turn lane, and a second westbound right-turn lane. This improvement would require widening both on-ramps to allow for two receiving lanes. If this improvement were implemented, to be consistent with current design practice, it is expected that Caltrans would require the inclusion of pedestrian and bicycle enhancements. Accordingly, the westbound right-turn lane would be squared off to improve pedestrian safety, and the westbound right-turn would be provided with an overlap phase. It should be noted that the Civita (Quarry Falls) development is also required to implement a portion of these improvements, including the addition of the second eastbound left-turn lane and squaring up the westbound right-turn movement; the SDSU Mission Valley Campus project improvements, beyond the Civita improvements, would provide substantially more vehicle queueing approaching the ramp intersections, including on the bridge. Caltrans and/or the City of San Diego is expected to additionally require that sidewalks and buffered bike lanes are provided as part of this improvement, and that a blank-out No Right Turn sign be installed at the dual eastbound and westbound right turn lanes. It is expected that pedestrian activity will be very low given the limited surrounding uses and, therefore, pedestrian calls will be very rare and were not included in the operations analysis. Signal re-optimization is assumed, which is standard practice with intersection reconfiguration. Once implemented, these improvements would result in operations in the AM and PM peak hours of 50.2 and 57.5 seconds of delay, respectively. Please note that these calculated operations are based on stand-alone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.
    - *Threshold Level After Improvement*: Exceeds threshold

18. I-15 Northbound Ramps & Friars Road (Caltrans) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and would increase delay by 54.1 and over 100.0 seconds, respectively.
    - *Improvement*: The needed improvement would be to reconstruct the intersection to add a second eastbound left-turn lane. Note that the Civita (Quarry Falls) development is also required to implement this improvement but it does not include any widening of the Friars Road bridge; the SDSU Mission Valley Campus improvements, beyond the Civita improvements, would provide substantially more space for vehicle queuing approaching

the ramp intersections, including on the bridge. If this improvement were implemented, to be consistent with current design practice, it is expected that Caltrans would require the inclusion of sidewalks and buffered bike lanes be provided as part of this improvement, which would require widening the Friars Road overpass to I-15. Caltrans is expected to additionally require that the southbound approach be squared off and converted to two right-turn lanes provided with an overlap phase, and that a blank-out No Right Turn sign be installed for the westbound approach to improve pedestrian safety. It is expected that pedestrian activity will be very low given the limited surrounding uses and, therefore, pedestrian calls will be very rare and were not included in the operations analysis. Signal re-optimization is assumed, which is standard practice with intersection reconfiguration. In the PM peak hour, re-optimization would include coordinating the signal with the adjacent I-15 Southbound Ramps & Friars Road intersection and the adjacent Rancho Mission Road & Friars Road intersection, where coordination is already in place in the AM peak hour. These improvements would result in operations in the AM and PM peak hours of 66.2 and 37.6 seconds of delay, respectively. Please note that these calculated operations are based on stand-alone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.

- *Threshold Level After Improvement*: Exceeds threshold

19. Rancho Mission Road & Friars Road (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the AM and PM peak hours and would increase delay by 5.0 and 12.6 seconds, respectively.
    - *Improvement*: Implement coordination of this signal with the adjacent improvements to Intersection No. 18, I-15 Northbound Ramps & Friars Road intersection (where coordination is already in place in the AM peak hour) and optimize both of the interchange traffic signals with this location. This improvement would result in reduced delay to 57.1 seconds in the PM peak hour. Please note that these calculated operations are based on standalone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. However, as stated above with respect to Intersection 18, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the improvement is considered infeasible.
    - *Threshold Level After Improvement*: Exceeds threshold

24. River Run Drive & Rio San Diego Drive (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the PM peak hour and would increase delay by 9.1 seconds.
    - *Improvement*: Reconstruct the intersection as a single-lane roundabout as proposed in the MVCPU FEIR. This improvement would improve operations in the PM peak hour to 29.1 seconds of delay. However, CSU does not have jurisdiction over these City of San Diego roadways and, therefore, cannot guarantee implementation of this improvement. In addition, there is no established funding program for this specific improvement in place that would enable CSU to make a fair-share payment towards the improvement. Accordingly, the improvement is considered infeasible.
    - *Threshold Level After Improvement*: Exceeds threshold

28. Qualcomm Way & Camino del Rio N/Camino de la Reina (City of San Diego) – *No Impact*: Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 2.1 seconds. While this does not result in a significant impact per the CSU TISM, it does exceed the City of San Diego impact threshold. To avoid exceeding the City threshold, signal re-optimization would need to be implemented to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This information is provided for information purposes only.

29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N (Caltrans) – *No Impact*: Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 3.6 seconds. While this does not result in a significant impact per the CSU TISM, it does exceed the City of San Diego impact threshold. To avoid exceeding the City threshold, signal re-optimization would need to be implemented to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This information is provided for information purposes only.

31. Texas Street & Camino del Rio S (City of San Diego) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and would increase delay by 25.5 and 20.0 seconds, respectively.
    - *Improvement*: The needed improvement is the restriping of both the eastbound and westbound through lanes to be shared left-turn and through lanes. This improvement would improve operations in the AM and PM peak hours to 113.0 and 89.3 seconds of delay, respectively. CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement.
    - *Threshold Level After Improvement:* Less than the threshold if City authorization is provided.

32. Ward Road & Rancho Mission Road (City of San Diego) – Project traffic would degrade LOS D to LOS F operations in the AM and PM peak hours and would increase delay by 29.5 seconds and over 100.0 seconds, respectively. The addition of project traffic would satisfy the California MUTCD peak hour signal warrant in both peak hours.
    - *Improvement*: Install a traffic signal at this intersection. This improvement would improve operations in the AM and PM peak hours to 4.0 and 5.9 seconds of delay, respectively. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement.
    - *Threshold Level After Improvement:* If City authorization is provided, less than threshold

34. Fairmount Avenue & Mission Gorge Road (City of San Diego) – Project traffic would degrade LOS C to LOS E operations in the PM peak hour and increase delay by 29.4 seconds.
    - *Improvement*: Optimize the signal timing to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This improvement would improve operations in the PM peak hour to 53.7 seconds of delay. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement.
    - *Threshold Level After Improvement:* If City authorization is provided, less than threshold

35. Fairmount Avenue & Camino del Rio North (Caltrans) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and increase delay by 37.3 and 77.7 seconds, respectively.
    - *Improvement*: The needed improvement would be to restripe the eastbound approach to provide a second eastbound right-turn lane as an approximately 150-foot pocket lane and increase the traffic signal cycle length from 130 to 150 seconds. Signal re-optimization is standard practice with intersection reconfiguration. Note that this signal is coordinated with the signal at Fairmount Avenue & Mission Gorge Road, Intersection No. 34. Separately, northbound and southbound through volumes are high enough to warrant additional capacity at this intersection, and a road widening to add lanes is recommended in the current Navajo Community Plan (adopted 2015). However, this improvement is currently considered infeasible due to physical limitations beneath the adjacent bridges serving the I-8 mainline, I-8 ramp, and trolley. Additionally, the MVCPU FEIR (May 2019) identified mitigation at this intersection but also determined that roadway widening was infeasible due to limited right-of-way. The improvement to add a second eastbound right-turn lane would improve operations to 106.7 and 131.2 seconds of delay in the AM and PM peak hours, respectively. This improvement does not fully mitigate the PM peak hour impact. CSU will support Caltrans in its effort to obtain the

project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.

- *Threshold Level After Improvement*: Exceeds threshold

41. Ruffin Road & Aero Drive (City of San Diego) – Project traffic would degrade LOS D operations to LOS E in the PM peak hour and increase delay by 10.6 seconds.
    - *Improvement*: Optimize the signal timing to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This improvement would improve operations in the PM peak hour to 49.8 seconds of delay. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.
    - *Threshold Level After Improvement*: If City authorization is provided, less than threshold.

44. Fenton Parkway/Mission City Parkway & Camino del Rio N (City of San Diego) –Project traffic would degrade LOS E operations to LOS F in the AM peak hour, degrade LOS F operations in the PM peak hour, and increase delay by 79.4 and 52.9 seconds, respectively.
    - *Improvement*: Reconstruct the intersection to add a separate westbound right-turn pocket with an overlap phase, convert the leftmost southbound through lane to be a southbound left-turn lane, and re-optimize the signal to account for the change in configuration. This improvement would require widening the east leg to provide two receiving lanes, which could merge after an allowable taper distance. This improvement would improve operations to 49.9 and 64.3 seconds of delay, respectively. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.
    - *Threshold Level After Improvement*: If City authorization is provided, less than threshold

45. Mission City Parkway & Camino del Rio S (City of San Diego) – Project traffic would degrade LOS D operations to LOS E in the PM peak hour and increase delay by 20.6 seconds.
    - *Improvement*: Reconstruct the intersection to provide a second southbound left-turn lane, restripe the median on the east leg to be a second receiving lane, and re-optimize the signal to account for the change in configuration. This improvement would improve operations in the PM peak hour to 18.5 seconds of delay. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered

infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.

- *Threshold Level After Improvement*: If City authorization is provided, less than threshold

46. I-15 Southbound Off-Ramp & Camino del Rio S (Caltrans) – Project traffic would degrade LOS D operations to LOS F in the AM peak hour and increase delay by 27.7 seconds.
    - *Improvement*: Restripe the westbound left-turn lane to a shared through/left lane, restripe the west leg to convert the median into a second receiving lane, and re-optimize the signal to account for the change in configuration. A westbound permitted left-turn is assumed given the low demand. This improvement would improve operations in the PM peak hour to 23.5 seconds of delay. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.
    - *Threshold Level After Improvement*: Exceeds threshold

9.5.2 ROADWAY SEGMENTS

With the 4-lane bridge in place, one new threshold exceedances for roadway segments was identified as compared to "without bridge" conditions. On Segment #32: Camino del Rio North from Mission City Parkway to Ward Road, the addition of project traffic would degrade LOS D operations to LOS E. The required improvement would be to widen the roadway to provide an additional travel lane in each direction. However, while this widening is consistent with the currently adopted (1985) Mission Valley Community Plan Update, it is not consistent with the Final Draft of the Mission Valley Community Plan Update (July 2019). Therefore, the improvement is not considered feasible and the threshold exceedance will remain. This analysis is provided for information purposes only.

9.5.3 FREEWAY SEGMENTS

With the 4-lane bridge in place, no new freeway segment threshold exceedances were identified as compared to "without bridge" conditions.

9.5.4 FREEWAY RAMP METERS

With the 4-lane bridge in place, no additional freeway ramp meter threshold exceedances were identified as compared to "without bridge" conditions.

9.5.5 FREEWAY OFF-RAMPS

Since no vehicle queues are projected to exceed the available storage capacity of any off-ramp, no improvements for these facilities are needed.

9.5.6 EFFECT OF A STADIUM EVENT

As with the Horizon Year (2037) "No Bridge" primary analysis presented in the TIA, the addition of stadium event trips during the weekday PM peak would exacerbate traffic operations. Although operations under this scenario would likely remain significant and unavoidable as physical, capacity-enhancing improvements are not feasible as mitigation to address short-term impacts as these, high-attendance stadium events are expected to happen infrequently. However, as would be the case under the "no bridge" scenario, strategies would be implemented to assist in the reduction of weekday stadium event traffic and to minimize related impacts will under a 2-lane bridge scenario as well through the TDM and TPMP Programs described in the TIA.

9.6 EFFECT OF 2-LANE FENTON PARKWAY EXTENSION ON PROJECT ROADWAY MITIGATION

This section identifies the improvements that would be necessary to reduce or eliminate the exceedances of the impact thresholds under the Horizon Year Plus Project Conditions with the 2-Lane Fenton Parkway bridge in place presented in the previous section. As noted previously, the analysis of Horizon Year with Fenton Bridge conditions without and with the proposed project and the associated improvements are provided for information purposes only.

Overall, the inclusion of the Fenton Parkway extension would not substantially change the impacts and proposed mitigation for the SDSU Mission Valley Campus Master Plan project. This conclusion supports the initial analysis approach that the extension is not required to reduce project impacts, and that the project impacts can be reasonably mitigated with physical improvements without the bridge in place.

9.6.1 INTERSECTIONS

Under Horizon Year Conditions with the 2-lane bridge in place, the proposed project would contribute to exceedances of the CSU TISM and/or City of San Diego thresholds at the following intersections requiring the corresponding improvements as appropriate; the agency with jurisdiction over the improvements is noted in parentheses:

1. SR-163 Southbound Ramps/Ulric Street & Friars Road (Caltrans) – Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 5.4 seconds.
   Improvements: The required improvement would be to re-optimize the coordinated signal offset. This improvement would result in a less than significant impact per the CSU TISM but would not reduce the impact below the City of San Diego impact thresholds. To avoid exceeding the City threshold, additional signal timing re-optimization would need to be implemented. Signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes regardless of the addition of project traffic. Regarding the proposed signal offset optimization, CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible, and the impact is significant and unavoidable.
   - *Impact Level After Improvements*: Significant and unavoidable

8. River Run Drive & Friars Road (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the PM peak hour and would increase delay by 34.5 seconds.
   - *Improvement*: To increase intersection capacity to eliminate the project impact, Friars Road would need to be widened to add a fourth eastbound through lane. Note, however, that widening this segment of Friars Road is not consistent with the currently adopted (1985) Mission Valley Community Plan or the Final Draft of the Mission Valley Community Plan Update (July 2019); therefore, this improvement is not recommended. An alternative improvement is the optimization of traffic signals along the Friars Road corridor extending from River Run Drive to Stadium Way (Street A) to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic; signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes, especially with the new bridge, regardless of the addition of project traffic. This option would improve operations in the PM peak hour to 32.3 seconds of delay. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended traffic signal optimization.
   - *Threshold Level After Improvement:* Less than threshold if City authorization is provided to implement signal optimization.

9. Fenton Parkway & Friars Road (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the PM peak hour by increasing delay 28.6 seconds.
   - *Improvement*: Optimize the traffic signals along the Friars Road corridor extending from Fenton Parkway to Stadium Way (Street A) to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic; signal timing modifications

would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes, especially with the new bridge, regardless of the addition of project traffic. This option would improve operations to 67.6 seconds of delay in the PM peak hour. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended traffic signal optimization.

- *Threshold Level After Improvement:* Less than threshold if City authorization is provided to implement signal optimization.

10. Northside Drive & Friars Road (City of San Diego) – *No Impact:* Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 4.5 seconds. While this does not result in a significant impact per the CSU TISM, it does exceed the City of San Diego impact threshold. To avoid exceeding the City threshold, optimize the traffic signals along the Friars Road corridor extending from Fenton Parkway to Stadium Way to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic; signal timing modifications would normally be implemented periodically at an intersection to optimize operations and address changing traffic volumes, especially with the new bridge, regardless of the addition of project traffic.

17. I-15 Southbound Ramps & Friars Road (Caltrans) – Project traffic would degrade LOS D operations to LOS F operations in the AM peak hour, would exacerbate LOS F operations in the PM peak hour, and would increase delay by 53.3 and 27.7 seconds, respectively.
    - *Improvement*: The needed improvement would be to reconstruct the intersection to add a second eastbound left-turn lane, a second eastbound right-turn lane, and a second westbound right-turn lane. This improvement would require widening both on-ramps to allow for two receiving lanes. If this improvement were implemented, to be consistent with current design practice, it is expected that Caltrans would require the inclusion of pedestrian and bicycle enhancements. Accordingly, the westbound right-turn lane would be squared off to improve pedestrian safety, and the westbound right-turn would be provided with an overlap phase. It should be noted that the Civita (Quarry Falls) development is also required to implement a portion of these improvements, including the addition of the second eastbound left-turn lane and squaring up the westbound right-turn movement; the SDSU Mission Valley Campus project improvements, beyond the Civita improvements, would provide substantially more vehicle queueing approaching the ramp intersections, including on the bridge. Caltrans and/or the City of San Diego is expected to additionally require that sidewalks and buffered bike lanes are provided as part of this improvement, and that a blank-out No Right Turn sign be installed at the dual eastbound and westbound right turn lanes. It is expected that pedestrian activity will be very low given the limited surrounding uses and, therefore, pedestrian calls will be very rare and were not included in the operations analysis. Signal re-optimization is assumed,

which is standard practice with intersection reconfiguration. Once implemented, these improvements would result in operations in the AM and PM peak hours of 54.5 and 58.4 seconds of delay, respectively. Please note that these calculated operations are based on stand-alone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.

- *Threshold Level After Improvement*: Exceeds threshold

18. I-15 Northbound Ramps & Friars Road (Caltrans) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and would increase delay by 52.9 and over 100.0 seconds, respectively.
    - *Improvement*: The needed improvement would be to reconstruct the intersection to add a second eastbound left-turn lane. Note that the Civita (Quarry Falls) development is also required to implement this improvement but it does not include any widening of the Friars Road bridge; the SDSU Mission Valley Campus improvements, beyond the Civita improvements, would provide substantially more space for vehicle queuing approaching the ramp intersections, including on the bridge. If this improvement were implemented, to be consistent with current design practice, it is expected that Caltrans would require the inclusion of sidewalks and buffered bike lanes be provided as part of this improvement, which would require widening the Friars Road overpass to I-15. Caltrans is expected to additionally require that the southbound approach be squared off and converted to two right-turn lanes provided with an overlap phase, and that a blank-out No Right Turn sign be installed for the westbound approach to improve pedestrian safety. It is expected that pedestrian activity will be very low given the limited surrounding uses and, therefore, pedestrian calls will be very rare and were not included in the operations analysis. Signal re-optimization is assumed, which is standard practice with intersection reconfiguration. In the PM peak hour, re-optimization would include coordinating the signal with the adjacent I-15 Southbound Ramps & Friars Road intersection and the adjacent Rancho Mission Road & Friars Road intersection, where coordination is already in place in the AM peak hour. These improvements would result in operations in the AM and PM peak hours of 65.0 and 55.3 seconds of delay, respectively. Please note that these calculated operations are based on stand-alone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other

available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.

- *Threshold Level After Improvement*: Exceeds threshold

19. Rancho Mission Road & Friars Road (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the AM and PM peak hours and would increase delay by 4.2 and 11.6 seconds, respectively.
    - *Improvement*: Implement coordination of this signal with the adjacent improvements to Intersection No. 18, I-15 Northbound Ramps & Friars Road intersection (where coordination is already in place in the AM peak hour) and optimize both of the interchange traffic signals with this location. This improvement would result in reduced delay to 60.7 seconds in the PM peak hour. Please note that these calculated operations are based on standalone intersection analysis; however, under existing conditions, the adjacent ramp meter causes queueing through this intersection, and without improving ramp meter operations, the operations will remain above the threshold. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.
    - *Threshold Level After Improvement*: Exceeds threshold

24. River Run Drive & Rio San Diego Drive (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the PM peak hour and would increase delay by 8.3 seconds.
    - *Improvement*: Reconstruct the intersection as a single-lane roundabout as proposed in the MVCPU FEIR. This improvement would improve operations in the PM peak hour to 22.3 seconds of delay. However, CSU does not have jurisdiction over these City of San Diego roadways and, therefore, cannot guarantee implementation of this improvement. In addition, there is no established funding program for this specific improvement in place that would enable CSU to make a fair-share payment towards the improvement. Accordingly, the improvement is considered infeasible.
    - *Threshold Level After Improvement*: Exceeds threshold

28. Qualcomm Way & Camino del Rio N/Camino de la Reina (City of San Diego) – *No Impact*: Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 2.1 seconds. While this does not result in a significant impact per the CSU TISM, it does exceed the City of San Diego impact threshold. To avoid exceeding the City threshold, signal re-optimization would need to be implemented to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic.

29. Qualcomm Way & I-8 WB Off-Ramp/Camino del Rio N (Caltrans) – *No Impact*: Project traffic would exacerbate LOS E operations in the PM peak hour and increase delay by 3.6 seconds. While this does not result in a significant impact per the CSU TISM, it does exceed the City of

San Diego impact threshold. To avoid exceeding the City threshold, signal re-optimization would need to be implemented to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. d

31. Texas Street & Camino del Rio S (City of San Diego) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and would increase delay by 11.2 and 19.4 seconds, respectively.
    - *Improvement*: The needed improvement is the restriping of both the eastbound and westbound through lanes to be shared left-turn and through lanes. This improvement would improve operations in the AM and PM peak hours to 109.3 and 89.6 seconds of delay, respectively. CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement.
    - *Threshold Level After Improvement:* Less than the threshold if City authorization is provided.

32. Ward Road & Rancho Mission Road (City of San Diego) – Project traffic would degrade LOS C to LOS F operations in the AM and PM peak hours and would increase delay by 43.6 seconds and over 100.0 seconds, respectively. The addition of project traffic would satisfy the California MUTCD peak hour signal warrant in both peak hours.
    - *Improvement*: Install a traffic signal at this intersection. This improvement would improve operations in the AM and PM peak hours to 4.1 and 6.4 seconds of delay, respectively. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement.
    - *Threshold Level After Improvement:* If City authorization is provided, less than threshold

34. Fairmount Avenue & Mission Gorge Road (City of San Diego) – Project traffic would degrade LOS C to LOS E operations in the PM peak hour and increase delay by 31.0 seconds.
    - *Improvement*: Optimize the signal timing to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This improvement would improve operations in the PM peak hour to 50.7 seconds of delay. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement.
    - *Threshold Level After Improvement:* If City authorization is provided, less than threshold

35. Fairmount Avenue & Camino del Rio North (Caltrans) – Project traffic would exacerbate LOS F operations in the AM and PM peak hours and increase delay by 33.5 and 75.1 seconds, respectively.
    - *Improvement*: The needed improvement would be to restripe the eastbound approach to provide a second eastbound right-turn lane as an approximately 150-foot pocket lane and increase the traffic signal cycle length from 130 to 150 seconds. Signal re-optimization is standard practice with intersection reconfiguration. Note that this signal is coordinated with the signal at Fairmount Avenue & Mission Gorge Road, Intersection No. 34. Separately, northbound and southbound through volumes are high enough to warrant additional capacity at this intersection, and a road widening to add lanes is recommended in the current Navajo Community Plan (adopted 2015). However, this improvement is currently considered infeasible due to physical limitations beneath the adjacent bridges serving the I-8 mainline, I-8 ramp, and trolley. Additionally, the MVCPU FEIR (May 2019) identified mitigation at this intersection but also determined that roadway widening was infeasible due to limited right-of-way. The improvement to add a second eastbound right-turn lane would improve operations to 113.4 and 122.0 seconds of delay in the AM and PM peak hours, respectively. This improvement does not fully mitigate the PM peak hour impact. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.
    - *Threshold Level After Improvement*: Exceeds threshold

41. Ruffin Road & Aero Drive (City of San Diego) – Project traffic would degrade LOS D operations to LOS E in the PM peak hour and increase delay by 10.6 seconds.
    - *Improvement*: Optimize the signal timing to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This improvement would improve operations in the PM peak hour to 49.8 seconds of delay. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.
    - *Threshold Level After Improvement*: If City authorization is provided, less than threshold.

44. Fenton Parkway/Mission City Parkway & Camino del Rio N (City of San Diego) – Project traffic would degrade LOS E operations to LOS F in the AM peak hour, degrade LOS D operations to LOS E in the PM peak hour, and increase delay by 28.3 and 20.5 seconds, respectively.
    - *Improvement*: Reconstruct the intersection to add a separate westbound right-turn pocket with an overlap phase, restripe the south leg to provide a separate northbound right-turn pocket, and re-optimize the signal to account for the change in configuration. This

improvement would require widening the east leg to provide two receiving lanes, which could merge after an allowable taper distance. This improvement would improve operations to 38.8 and 47.5 seconds of delay, respectively. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.

- *Threshold Level After Improvement*: If City authorization is provided, less than threshold

45. Mission City Parkway & Camino del Rio S (City of San Diego) – Project traffic would degrade LOS D operations to LOS E in the PM peak hour and increase delay by 13.3 seconds.
    - *Improvement*: Optimize the signal timing to accommodate the change in traffic demand over the next 19 years plus the addition of project traffic. This improvement would improve operations in the PM peak hour to 54.8 seconds of delay. However, CSU does not have jurisdiction over this City of San Diego facility and, therefore, cannot guarantee implementation of this improvement. Accordingly, the improvement is considered infeasible. However, if the City grants authorization, CSU will implement the recommended improvement, thereby reducing the project's impact to less-than-significant.
    - *Threshold Level After Improvement*: If City authorization is provided, less than threshold

46. I-15 Southbound Off-Ramp & Camino del Rio S (Caltrans) – Project traffic would degrade LOS D operations to LOS F in the AM peak hour and increase delay by 18.0 seconds.
    - *Improvement*: Restripe the westbound left-turn lane to a shared through/left lane, restripe the west leg to convert the median into a second receiving lane, and re-optimize the signal to account for the change in configuration. A westbound permitted left-turn is assumed given the low demand. This improvement would improve operations in the AM peak hour to 21.0 seconds of delay. CSU will support Caltrans in its effort to obtain the project's proportionate share of funding for the recommended improvements from the Legislature or other available funding sources. However, because CSU cannot guarantee that Caltrans will be able to obtain such funds, the recommended improvements are considered infeasible.
    - *Threshold Level After Improvement*: Exceeds threshold

9.6.2 ROADWAY SEGMENTS

With the 2-lane bridge in place, one new threshold exceedance for roadway segments was identified as compared to "without bridge" conditions. Specifically, the addition of project traffic on Segment #16a: Fenton Parkway from Northside Drive to Camino del Rio North (including the new bridge facility) would degrade LOS D operations to LOS E, thereby resulting in an exceedance of the City's threshold. The

projected average daily traffic (ADT) volume of 14,194 vehicles would exceed the City's daily LOS D threshold of 13,000 by less than 1,200 vehicles per day or roughly 120 vehicles during the peak hour. Typically, the improvement that would be implemented to return to LOS D or better operations would be to provide additional vehicle capacity on the bridge. However, in this instance, the actual capacity of the two-lane roadway with a center-left-turn-lane, as would be in place under this scenario, would be higher, or better, than the City's stated capacity because there would be no fronting uses and/or driveways on the bridge (i.e., there would be no conflicting vehicle movements thereby resulting in a higher overall capacity). Based on this traffic engineer's judgement, the lack of conflicts is estimated to result in a daily segment capacity that is at least 10% higher, resulting in an actual LOS D threshold of 14,300, which would accommodate the projected daily volume of 14,194 vehicles noted above. In addition, the intersections at each end of the bridge are the operating constraints for traffic on the bridge (i.e., not the number of through lanes on the bridge itself) and the intersections could be designed to operate within the City's LOS standard per improvements noted in the previous section. It is important to note that the provision of a 2-lane bridge (relative to a 4-lane bridge) still enhances area multimodal connectivity, accessibility to adjacent land uses, and public safety in the form of another river crossing that may be used by emergency response vehicles and general traffic in the case of evacuations or high-attendance stadium events. Moreover, providing additional capacity would be inconsistent with the City's efforts to achieve Climate Action Plan (CAP) active transportation mode share goals as limiting roadway segment expansion and providing a 2-lane bridge with a volume that is close to the LOS D/E threshold would be preferable in that it would encourage active transportation alternatives and minimize excess vehicle capacity. However, by maintaining a 2-lane bridge and without making an adjustment to account for a higher actual roadway capacity, the threshold exceedance would remain.

9.6.3 FREEWAY SEGMENTS

With the 2-lane bridge in place, no new freeway segment threshold exceedances were identified as compared to "without bridge" conditions.

9.6.4 FREEWAY RAMP METERS

With the 2-lane bridge in place, no additional freeway ramp meter threshold exceedances were identified as compared to "without bridge" conditions.

9.6.5 FREEWAY OFF-RAMPS

Since no vehicle queues are projected to exceed the available storage capacity of any off-ramp, no improvements for these facilities are needed.

9.6.6 EFFECT OF A STADIUM EVENT

As with the Horizon Year (2037) "No Bridge" primary analysis presented in the TIA, the addition of stadium event trips during the weekday PM peak would exacerbate traffic operations. Although operations under this scenario would likely remain significant and unavoidable as physical, capacity-enhancing improvements are not feasible as mitigation to address short-term impacts as these, high-attendance stadium events are expected to happen infrequently. However, as would be the case under the "no bridge" scenario, strategies to assist in the reduction of weekday stadium event traffic and to minimize related impacts would be implemented under a 2-lane bridge scenario as well through the TDM and TPMP Programs described in the TIA.

10.0 PARKING ASSESSMENT

10.1 OVERALL PARKING SUPPLY

The proposed project will include a total of 13,192 on-site parking spaces. The supply will include dedicated spaces for the residents and guests of the residential uses, metered on-street public spaces, shared spaces to support the campus office and retail uses, dedicated spaces for hotel guests and employees, and special event spaces to supplement the overall supply. **Table 53** summarizes the proposed parking supply by land use or area within the project site.

TABLE 53 – PROPOSED PARKING SUPPLY

Land Use/Supply	Description	Function	Number of Spaces
Residential	Structured/underground/wrap; only available to residents and guests (ratio of 1.23 spaces/unit)	Dedicated	5,662
Hotel	Structured/underground; only available to hotel guests/conference facility attendees (ratio of 1.2 spaces/room)	Dedicated	485
		Dedicated Subtotal	*6,147*
Campus Office and Retail	Structured/underground with some daylight; paid parking available for shared use with stadium events (ratio of 3.05 spaces/1,000 sf of space)	Shared	5,065
Tailgate Park	Surface lot on grass; only available for stadium and other special events	Shared	1,140
On-Street	Surface parking located throughout site; expected to be metered during the day and free during evening hours; spaces in River Park areas are expected to be free to provide public access to the park but would be time-constrained (e.g., 3-hour maximum.)	Shared	840
		Shared Subtotal	*7,045*
		Total Parking Supply	**13,192**

Source: Carrier-Johnson Architects, 2019.

The overall supply, combined with anticipated parking costs for shared spaces, is intended to provide an appropriate supply for the proposed uses but also to encourage the use of non-auto modes to access the site and minimize overall vehicle trip generation. All shared spaces within the site will be managed similar to other urban core/downtown environments. The on-street spaces will be metered and the campus office and retail spaces will be gate controlled, where the cost for parking will be integrated with individual leases

or obtained through a validation/permit program. Validation will allow management of spaces during stadium events to ensure that an appropriate supply is always available for retail customers.

In general, the limited availability of free parking would help to encourage the use of other modes of travel and reduce overall parking demand as evidenced in numerous urban centers and downtown environments, including downtown San Diego. The presence of a trolley stop within an approximate 1,500 feet radius of nearly all the project uses, as well as the integration of residential, employment, and supporting retail uses with a robust pedestrian and bicycle network, will provide attractive mobility options to the use of a private vehicle. This combination of factors is expected to reduce the overall parking and traffic demand at the site consistent with the trip reductions applied to the project vehicle trip generation estimates. This parking strategy approach is encouraged for all locations within transit priority areas (TPAs) within the City of San Diego and other jurisdictions within the County. Therefore, the project does not cause a significant impact to parking facilities under Without Event conditions.

10.2 STADIUM PARKING SUPPLY AND DEMAND

Parking demand for the stadium is expected to be served by the parking structure under the campus office space and by the surface spaces in Tailgate Park, both of which are immediately adjacent to the stadium. These areas will provide a total of 6,205 spaces. The vast majority of stadium events will be held on weekend afternoons and evenings when the demand for the campus office uses will be negligible. As previously explained, a transportation and parking management plan (TPMP) is proposed as part of the project that would manage parking demand and traffic associated with various attendance levels. Please see **Section 4.3.1** for additional information regarding the TPMP.

Similar to events at the existing SDCCU stadium, attendees will use a variety of travel modes to get to the new stadium facility. In addition to the trolley and private vehicles, visitors will arrive by bus/shuttle, transportation network companies (TNC) such as Uber and Lyft, taxi, walking, and bicycling. The use of TNCs has dramatically increased over the last several years[8] and specifically as it relates to the share of trips serving stadium patrons.

To estimate the number of parking spaces needed for the proposed stadium, the number of patrons arriving by private vehicle must first be calculated. **Table 54** presents the transportation mode share (i.e., transit,

[8]Per www.sfmta.com/sites/default/files/reports/2017/Travel_Decision_Survey_Comparison_Report_2017.pdf, www.universityofcalifornia.edu/news/how-ride-hailing-could-improve-public-transportation-instead-undercutting-it and http://www.schallerconsult.com/rideservices/automobility.pdf

private auto, etc.; see **Sections 3.8 and 4.1.3**) of event attendees for a sold out event of 35,000 persons, as well as attendance levels of 30,000 and 25,000.

TABLE 54– PROJECTED SHARE OF STADIUM ATTENDEES BY MODE

Mode	Mode Share[1]	Attendees		
		35,000 (100% of Capacity)	30,000 (86% of Capacity)	25,000 (71% of Capacity)
Transit	22%	7,700	6,600	5,500
TNC/Taxi	8%	2,800	2,400	2,000
Shuttle/Bus	1%	350	300	250
Walk/Bike	2%	700	600	500
Private Auto	67%	23,450	20,100	16,750

Source: Fehr & Peers, 2019.
Notes:
[1] Percent of attendees driving and using TNC/Taxi for general major events is estimated to be higher than observed for an SDSU Aztec football game (**Section 3.8**) given fewer students traveling by trolley to the stadium. Other mode share is based on engineering judgement.
[2] TNC = Transportation Network Company (e.g., Uber, Lyft)
[2] Estimated to be 4 trips per vehicle and 2.75 persons per vehicle
[4] Estimated to be 4 trips per vehicle and 15 persons per vehicle
[5] Estimated to be 2 trips per vehicle and 2.75 persons per vehicle

The number of parking spaces needed to meet the demand for each attendance level will depend on the number of attendees arriving in each vehicle or the average vehicle occupancy (AVO). Typical AVOs for sporting events can range from 2.5 persons to 3.5 persons depending on the sport, venue, location, parking costs, etc. While AVO was observed at a recent Aztec football game to be approximately 2.29 (see **Section 3.8**), this was not a sold-out event where attendees are expected to avoid driving alone to a greater extent. **Table 55** illustrates the expected parking demand for the three attendance levels and AVOs ranging from 2.5 to 3.78 persons per vehicle.

As shown in **Table 55**, the parking demand for a capacity crowd at the proposed stadium could range from less than 5,000 spaces to nearly 9,400 spaces depending on the AVO. At an AVO of 3.78 persons/vehicle, the parking demand would require essentially every one of the 6,204-shared supply spaces within the project site. If the AVO were lower, there would be a parking deficiency, and patrons desiring to get to the site would likely park in adjacent areas and walk to the facility unless another convenient off-site supply was provided. For an event that attracts 85% of the stadium capacity, the AVO would have to be 3.24 to roughly match the on-site shared space supply. For an event of 25,000 attendees with a 2.70 AVO, the stadium demand would require the entire campus office supply.

TABLE 55 – ESTIMATED PARKING DEMAND FOR PROPOSED STADIUM BY ATTENDANCE LEVEL

Average Vehicle Occupancy (AVO in persons/vehicle)	Parking Demand Based on Number of Attendees[1]		
	35,000 (100% of Capacity)	30,000 (86% of Capacity)	25,000 (71% of Capacity)
2.50	9,380	8,040	6,700
2.70	8,685	7,444	**6,204**
2.75	8,527	7,309	6,091
3.00	7,817	6,700	5,583
3.24	7,238	**6,204**	5,170
3.25	7,215	6,185	5,154
3.50	6,700	5,743	4,786
3.75	6,253	5,360	4,467
3.78	**6,204**	5,317	4,431

Source: Fehr & Peers, 2019.
Notes:
[1] **Bold** demand number identifies AVO that would need to be achieved to be equivalent to total shared supply, with the understanding that the campus office and retail uses will generate some demand during weekend games. Shared parking supply for 25,000 attendees would accommodate all stadium patrons and provide nearly 350 additional spaces for office and retail uses.

Even on weekend days, the campus office will still generate a small amount of parking demand that will have to be accommodated by the shared space supply. Similarly, while many of the retail/restaurant patrons are also expected to attend a stadium event, those stores, restaurants, and the grocery store will still generate some demand for parking by others.

These findings indicate that an additional off-site parking supply will likely need to be provided for events exceeding 25,000 attendees regardless of day of week. The stadium TDM and TPMP Programs will help to minimize overall parking demand and to identify off-site parking supplies as appropriate. The number of additional spaces needed for a capacity event of 35,000 attendees could range from 1,000 to 2,500 depending on the AVO, and available parking at the existing SDSU College Area campus with direct trolley service to the site will be one option identified in the TPMP. In addition, parking for most events is expected to be pre-paid so that attendees will know if they have a space at the site or if they will have to find another means of traveling to and from the site (e.g., park elsewhere and take the trolley, rideshare, etc.). Even with a successful TDM program and TPMP measures in place, parking impacts for some major and all high attendance events are expected to be significant and unavoidable.

11.0 MULTI-MODAL ASSESSMENT

11.1 PEDESTRIAN FACILITIES

The proposed project would not conflict with any existing or planned pedestrian facilities. The dense and extensive network of on-site pedestrian facilities will provide new connections parallel to the high-stress Friars Road environment that will enhance pedestrian accessibility adjacent to and within the site for area residents, employees and visitors. Additionally, the proposed site connection to Fenton Parkway provides an additional walkable connection to the shops and restaurants at Fenton Marketplace, as well as the low-volume east-west connection provided by Rio San Diego Drive. The proposed connections will provide an improved pedestrian link between the existing neighborhoods along Rancho Mission Road and Fenton Marketplace area. This new connection will be a substantial improvement over the current walking path through the Friars Road/I-15 interchange. Additionally, the site connection to Rancho Mission Road will provide a walkable route to the bus stops along Rancho Mission Road.

Within the site itself, nearly all roadways will include a sidewalk or path on both sides of the street. For the few segments with a walking facility on only one side that will serve a pedestrian destination, appropriate street crossings treatments will be provided within a reasonable walking distance. These treatments include traffic signals, raised crosswalks, or stop signs to delineate right of way. Therefore, the project would not result in a significant impact to pedestrian facilities.

11.2 BICYCLE FACILITIES

Similarly, the project would not conflict with any existing or planned bicycle facilities, and it would substantially enhance bicycle travel adjacent to and through the site. The existing protected bike lanes on the Mission Village Drive overpass over Friars Road would be maintained with the proposed widening of the overpass, and they would connect to bike lanes on Street D through the center of the site. A connection to existing bike lanes on Friars Road will also be provided by the signalized intersection at Stadium Way (Street A). A new on-site path system along the northern and eastern edges of the site (connecting to San Diego and Rancho Mission Roads) will provide a safer and lower stress option for cyclists traveling from west of Stadium Way (Street A) to east of I-15. Another on-site path system along the southern edge of the site will provide a critical connection between the San Diego River Trail and the path parallel to I-15. Additionally, the proposed site connection to Fenton Parkway provides a convenient bikeable connection to the shops and restaurants at Fenton Marketplace, improving the link between the Rio San Diego neighborhood and the Rancho Mission Road neighborhood east of I-15. Additionally, the site connection

to Rancho Mission Road will provide a bikeable route to the bus stops along Rancho Mission Road and Camino del Rio North. Therefore, the project will not result in a significant impact to bicycle facilities.

11.3 TRANSIT FACILITIES

As noted in the project's trip generation estimate shown in **Table 11**, the total trip reduction attributable to transit, bicycle and pedestrian trips is expected to be 4,599 daily trips. The higher of the inbound or outbound volumes that comprise this reduction are 361 and 407 during the AM and PM peak hours, respectively, which include the transit alightings and boardings at the project site. The trip reduction provided by MXD does not segregate between modes of transportation, but using engineering judgment and considering adjacent developments and facilities, the highest share is expected to be transit trips. Using a transit mode share of 85% (with the remaining 15% constituting bicycle and pedestrian trips), the project would add roughly 4,000 daily transit trips (4,599 x .85 = 3,909) to and from the site, with the vast majority of those trips expected to be trolley trips, rather than bus trips, due to the nearby convenient location of the Stadium trolley stop within the project site. Conservatively assuming that all peak hour transit trips are trolley trips, this would equate to roughly 309 and 346 peak directional trolley trips in the AM and PM peak hours, respectively. We are not aware of a trolley station that serves a similar development and context as the proposed project, so engineering judgment was used to estimate that a conservative 65% of these peak hour trips would occur in the peak direction (westbound in the morning and eastbound in the evening) consistent with the existing directional split. This would result in roughly 202 and 226 trips in the peak direction during each commute hour. With the current 15-minute headways (or four (4) trains per hour) and assuming an equal number of riders per train, the project is expected to add up to 50 and 56 patrons in the AM and PM peak directional hours, respectively. The estimate of transit riders is presented in **Appendix J**.

As noted in **Section 3.1.2**: Existing Transit Services, the total number of existing boardings and alightings at Stadium Station is only 391 per day with extensive person capacity available during the peak hours. Accordingly, the addition of the projected trolley ridership of up to 56 passengers to a given train (with lower numbers for non-peak trains), which for a typical 3-car train would be fewer than 20 passengers per car. This addition is not expected to cause any train or station operational impacts to the trolley system. Therefore, the project would not cause a significant impact to transit operations.

12.0 CONSTRUCTION IMPACTS

As the proposed project builds out over time, there will be temporary construction related traffic on the study roadway network. Construction traffic will consistent of private automobiles driven by workers, as well as trucks transporting materials to and from the site. Potential access points for construction-generated vehicle trips will include Friars Road, Mission Village Drive, and San Diego Mission Road, and possibly Rancho Mission Road. The busiest construction period involving truck traffic will occur during site grading, the bulk of which is planned to occur during the early phases of site development through Year 2022. Substantial excavation and movement of earth will be required as part of the construction of the proposed stadium, as well as preparation of the building pads for the non-stadium uses across the site.

Detailed information related to calculating the number of construction-related vehicles was provided by the air quality consultant, Ramboll. **Table 56** provides the estimated number of construction trips that would be generated in connection with each phase of site development (e.g., grading, site preparation, paving, building construction, etc.), including worker, vendor, and haul truck trips. As shown in **Table 56**, the highest number of vehicle trips that would be generated during a given phase of construction would result from trucks removing excavation material from the project site (i.e., trucks arriving at the site empty and leaving with material). This phase will generate an estimated average of 375 trips per day, and the total daily construction traffic volume during this phase is estimated to be 395 trips per day. Staging areas will be provided on-site and out of the public right-of-way to minimize heavy equipment trips on surrounding roadways, and to provide parking for construction workers.

Overall, the number of daily construction-related trips during the site development and during vertical construction, and the associated impacts, will be very limited compared to the projected number of net new daily vehicle trips (over 58,000 vehicles per day) generated at project buildout and full occupancy. In addition, many of the daily construction vehicle trips will occur outside of the peak commute hours when volumes on the study roadways adjacent to the site are at their highest. This is because construction workers typically arrive before the AM peak commute hour and often depart prior to the PM peak hour. Additionally, many of the heavy truck trips will occur outside of the AM and PM peak hours and, as a result, these trips will not substantially influence peak period travel.

Nonetheless, as stated in **Section 2.1.3**, in order to minimize the potential temporary impacts on the roadway network resulting from construction-related traffic, the project applicant will prepare a Construction Traffic Management Plan in consultation with the City of San Diego and Caltrans and affected adjacent property owners as appropriate prior to initiating any construction activities. The Construction Traffic Management Plan will specifically address project construction traffic and parking, and will address,

TABLE 56 – CONSTRUCTION TRIPS BY PHASE

Construction Phase Name	Worker Trips per Day[1]	Vendor Trips per Day[1]	Hauling Truck Trips per Day[2]	Total Trips per Day[2]
Grading Phase A	20	0	87	107
Site Preparation Phase A	18	0	0	18
Building Construction Stadium (Phase A)	271	106	0	377
Grading Phase A (cont'd)	20	0	0	20
Grading Phase B (Rough Residential Pad & Initial River Park)	20	0	375	395
Site Preparation Phase B (utilities)	18	0	0	18
Paving Stadium (Phase A)	15	0	0	15
Demolition of SDCCU (Phase A)	15	0	69	84
Architectural Coating Stadium (Phase A)	54	0	0	54
Demolition of SDCCU (Phase B)	15	0	96	111
Finish Phase B (Finish Residential Pad and River Park)	18	0	0	18
Grading Phase C	20	0	114	134
Building Construction Phase C1	189	58	0	247
Site Preparation - Off-Site Improvements	18	0	0	18
Paving Phase C1	15	0	0	15
Architectural Coating Phase C1	38	0	0	38
Building Construction Phase C2	122	32	0	154
Paving Phase C2	15	0	0	15
Architectural Coating Phase C2	24	0	0	24
Building Construction Phase C3	122	32	0	154
Paving Phase C3	15	0	0	15
Architectural Coating Phase C3	24	0	0	24

Source: California Emissions Estimator Model SDCCU - San Diego County Credit Union Stadium (CalEEMod) and Fehr & Peers, 2019.

Notes:

[1] Trips are presented as one-way trips and are based on CalEEMod® defaults.

[2] Trips are presented as one-way trips and represent the average daily trips for the phase. Hauling trips reflect project specific estimates of the volume of soil imported during Grading Phases A, B, and C; and demolition waste hauled during the Demolition Phases A and B.

at minimum, truck haul routes, truck turning movements at the project driveways, traffic control signage, accommodation of bicycle and pedestrian traffic, restriction of hauling activities to specific time periods, on-site circulation and staging areas, traffic control plans indicating temporary lane closures, and monitoring of traffic control to implement revisions, if necessary. Necessary encroachment and transportation permits will be obtained by the project applicant and/or a representative of the applicant prior to construction.

Beyond site development and construction of the proposed stadium, the timing of vertical construction of the residential, campus office/retail, and hotel buildings is not known at this time. Buildings may be constructed individually or in multiples and will involve varying levels of construction traffic. Accordingly, specific Construction Traffic Management Plans similar to the Construction Traffic Management Plan described in **Section 2.1.3** and proposed as part of the project will be developed for each specific phase of construction as site and building development progress based on the proposed construction activities and then-current traffic conditions and transportation network. While implementation of the Construction Traffic Management Plan will help to minimize most construction traffic impacts, some potential temporary significant and unavoidable impacts are expected to occur during both site preparation and vertical construction (e.g., lane closures during the widening of the off-ramp from Friars Road to Mission Village Drive). These impacts will be temporary in duration and will likely vary in location from day to day, and they are expected to include increased intersection delay (due to slow-moving vehicles or lane closures) for some short time periods relative to the overall development schedule of the project.

13.0 TRANSPORTATION IMPROVEMENT IMPLEMENTATION PLAN

A summary of all traffic-related project features and mitigation improvements to support buildout of the proposed development is provided on **Figure 25**. Mitigation consisting of reconfigurations are presented conceptually in **Figure 26**.

As noted in **Section 9.3**, the timing of when each improvement would be necessary was estimated by the level of development using the metric dwelling unit equivalents (DUEs). Full buildout would be 10,950 DUEs and is anticipated to occur by 2037. The improvement phasing plan for the major project transportation features and mitigation improvements to address the identified potentially significant impacts are presented in **Table 57** along with project share percentages. Project share percentages for all impacted facilities are provided in **Appendix L**.

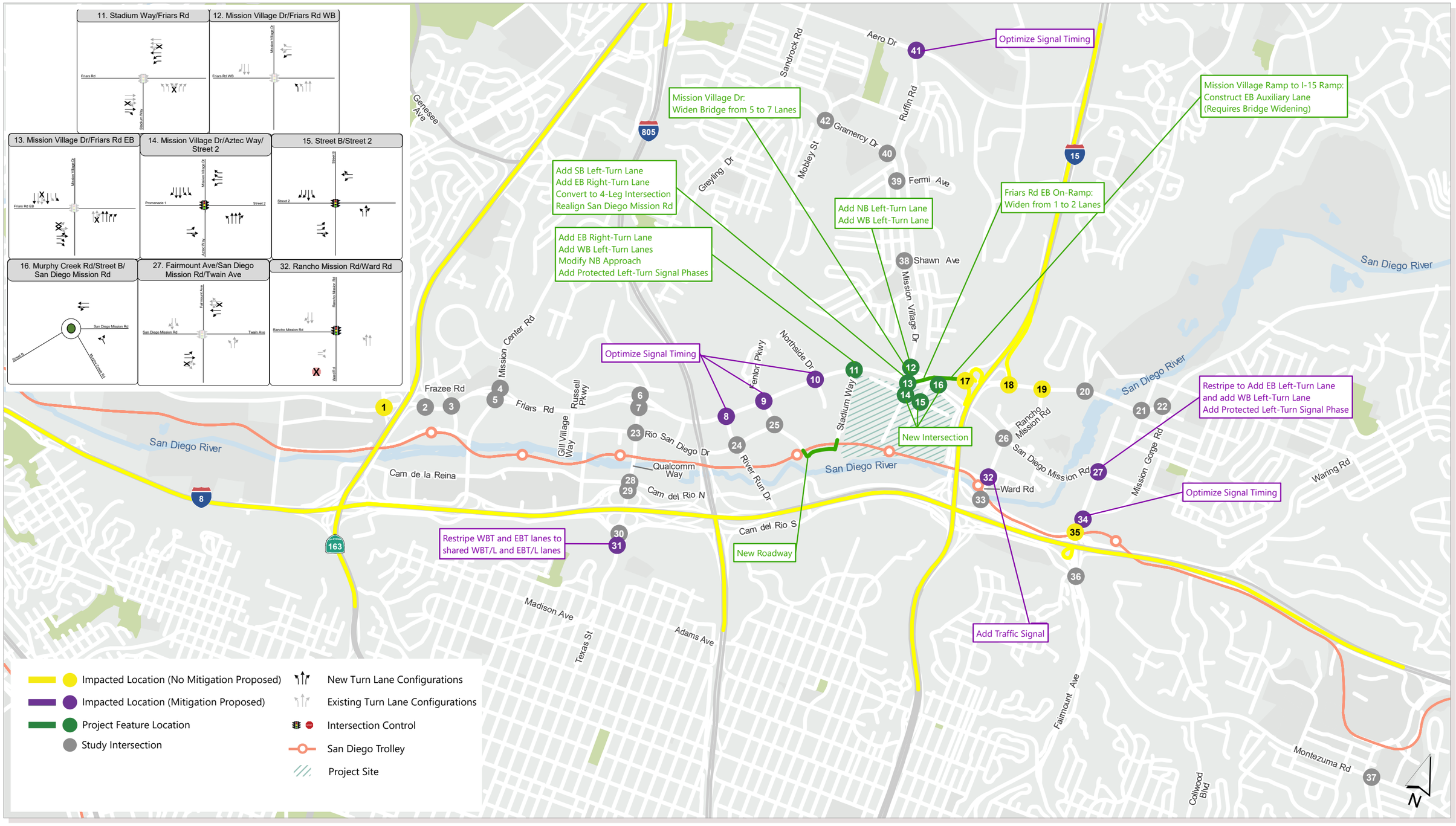


Figure 25

Traffic Impacts and Improvements for Buildout

Figure 26

Proposed Mitigation

TABLE 57 – TRANSPORTATION IMPROVEMENT IMPLEMENTATION PLAN

Improvement	Development Trigger (DUEs[1])	Project Share of Future Growth[2]
Initial Improvements with Stadium Only		
Stadium Transportation and Parking Management Plan (TPMP)	w/Stadium only	N/A
Proposed Project Features		
Intersection 11. Friars Road & Stadium Way (Street A) – Feature: Install a new traffic signal, replace the existing free eastbound right-turn lane with a single right-turn lane (squared up at the signal), install an eastbound protected bike lane, and construct and two westbound left-turn lanes. Reconstruct Stadium Way (Street A) at Friars Road to accommodate two southbound departure lanes and modify the northbound approach to include two left-turn lanes and two-right turn lanes. Lanes can be temporarily reconfigured during major stadium events as part of the TPMP noted above. See **Figure 11**.	w/first office building on main campus or completion of the shared use campus loop path	N/A
Intersection 13. Mission Village Drive/Street D & Friars Road EB Ramps/San Diego Mission Rd – Feature: Widen the eastbound off-ramp approach to include a shared left-turn/through lane and dual right turn lanes at Mission Village Drive. Widen the northbound approach to provide dual right-turn lanes, and widen the EB-on ramp from Mission Village Road to Friars Road to two lanes along the entire length and extend a new lane to the I-15 S Ramps intersection. This includes widening of the Friars Road bridge over tank farm access road. See **Figure 11**.	4,270	N/A
Intersection 12. Mission Village Drive & Friars Road WB Ramps – Feature: Widen the Friars Road WB Off-Ramp to add a separate westbound left-turn pocket (maintaining the existing shared through/left-turn lane). Widen the Mission Village Drive overpass to Friars Road in both directions to provide a second northbound left-turn lane at this intersection (and a second southbound left-turn lane at (Intersection 13). Buffered bike lanes and sidewalks will be maintained. See **Figure 11**.	7,840	N/A
Proposed Project Mitigations		
Intersection 32. Ward Road & Rancho Mission Road – Mitigation: Install a traffic signal.	3,950	69.1%
Intersection 9. Fenton Parkway & Friars Road – Mitigation: Optimize signals within corridor of Friars Road from River Run Drive to Stadium Way (Street A).	4,510	41.5%
Intersection 31. Texas Street & Camino del Rio S – Mitigation: Restripe to convert WBT lane to a shared WBT/L lane and EBT to EBT/L lane; re-optimize signal timing splits.	5,130	9.0%
Intersection 8. River Run Drive & Friars Road – Mitigation: Optimize signals within corridor of Friars Road from River Run Drive to Stadium Way (Street A).	5,160	47.8%
Intersection 10. Northside Drive & Friars Road – Mitigation: Optimize signals within corridor of Friars Road from River Run Drive to Stadium Way (Street A).	5,270	44.2%

TABLE 57 – TRANSPORTATION IMPROVEMENT IMPLEMENTATION PLAN

Improvement	Development Trigger (DUEs[1])	Project Share of Future Growth[2]
Intersection 19. Rancho Mission Road & Friars Road – Mitigation: Coordinate signal with I-15 NB Ramps & Friars Rd in the PM peak hour.	5,830	38.6%
Intersection 27. Fairmount Ave & San Diego Mission Rd/Twain Ave – Mitigation: Restripe the eastbound and westbound approaches to provide each with a dedicated left-turn lane (see **Figure 26**). Signal modification (including new heads) to provide protected left turn phases on these approaches.	8,940	49.9%
Intersection 41. Ruffin Road & Aero Drive – Mitigation: Optimize signal timing splits.	9,780	26.2%
Intersection 34. Fairmount Ave & Mission Gorge Rd – Mitigation: Optimize signal timing splits.	10,160	32.5%

Source: Fehr & Peers, 2019
Notes:
[1] DUEs=dwelling unit equivalents
[2] Project share percentage = (Project Traffic) / (Horizon Year Plus Project Traffic – Existing Traffic)
For impacts in both the AM and PM peak hour, the larger of the two peak hour project shares is applied.

14.0 VEHICLE MILES TRAVELED (VMT)

14.1 BACKGROUND OF SB 743 LEGISLATION

On September 27, 2013, former Governor Jerry Brown signed SB 743 into law, starting a process that will fundamentally change the way transportation impact analysis is conducted under CEQA. These changes include elimination of auto delay, LOS, and similar measurements of vehicular roadway capacity and traffic congestion as the basis for determining significant impacts. One of the primary goals of SB 743 is to streamline the environmental review process for projects that result in overall reductions in vehicular travel and to encourage infill and mixed-use developments, especially around high-capacity transit stations. These types of projects have a much higher propensity for travelers to use non-automobile modes and to make shorter vehicle trips for all their needs, including commuting to and from work. The proposed SDSU Mission Valley Campus project is the specific type of development that this legislation is intended to encourage because the project would be located in an urban, infill setting within the Mission Valley area and serviced by an existing and potential future trolley line, and regularly scheduled bus routes.

In response to SB 743, in December 2018, the state Resources Agency approved revised CEQA Guidelines that provide the framework for moving forward with the analysis of vehicle related impacts based on assessment of a project's vehicle miles traveled (VMT) as compared to the current methodology based on LOS. Lead agencies can begin implementation of the VMT format any time between now and July 1, 2020, but must do so after that date; thus, lead agencies have until July 1, 2020 to begin implementing the new analysis metric, VMT. To assist lead agencies in conducting such analyses, the state Office of Planning and Research (OPR) prepared a "Technical Advisory on Evaluating Transportation Impacts in CEQA" (Technical Advisory). For land use projects such as the proposed project, the Technical Advisory specifies that automobile VMT be measured by land use type for specific trip purposes or tours depending on the type of forecasting model being used.

OPR's Technical Advisory contains specifications for VMT analysis methodology and recommendations for significance thresholds. The Technical Advisory and related CEQA Guidelines contain sufficient information to inform lead agencies how to conduct the proposed analyses under the transition to a VMT metric. In response to SB 743 and the revised CEQA Guidelines, CSU has prepared revisions to its *Transportation Impact Study Manual* (revised CSU TISM) which describes the analysis methodology for analyzing impacts based on vehicle miles of travel or VMT, which is the new metric recommended in the California Environmental Quality Act (CEQA) guidelines resulting from implementation of SB 743. The revisions provide that transportation analyses prepared for CSU projects within the transition period between the present and July 2020 may include both types of analyses to provide information to both the CSU Board of Trustees,

affected agencies, and the general public. Thus, the VMT analysis presented in this chapter is provided for information purposes only, and it is not used to identify any significant environmental impacts.

14.2 SB 743 VMT ASSESSMENT THRESHOLDS

The proposed project is located in a Transit Priority Area (TPA), which the revised CEQA Guidelines, OPR Technical Advisory, and the revised CSU TISM note are areas where new land use projects generally are exempt from project-level VMT assessment. TPAs are areas within ½-mile of either a high-quality (e.g., passenger rail) transit station or a bus stop two routes with headways of 15 minutes or less. The SDSU Mission Valley Campus site contains the Stadium Station serving light-rail transit with existing peak hour headways of 15 minutes. The Guidelines and OPR Technical Advisory state that projects to be developed in these areas are "generally" screened out from needing to conduct project-level VMT. Use of the modifier "generally" implies that some developments may still result in project-level impacts. Therefore, a project-level VMT analysis was performed to fully evaluate this metric.

The project-level impact threshold for mixed-use projects like the SDSU Mission Valley Campus Master Plan development is project-generated VMT per service population that is 15% below the existing regional, subregional or Citywide VMT per service population (see Table 2: VMT Significance Thresholds on page 14 of the revised CSU TISM). Service population is defined as the sum of the population and employees within the subject area (e.g., region or project site). For this evaluation, the regional VMT per service population or travel efficiency is used as the comparative metric since the scale of this project is regional in nature and preliminary discussions of local jurisdiction's SB 743 guidelines indicate a preference for a regional comparison.

In addition, to the project-level assessment, a cumulative impact assessment is also required per the revised CSU TISM to assess the project's consistency with assumptions in the Regional Transportation Plan (RTP), in this case for the SANDAG region. This evaluation determines the project's effect on overall VMT, and the cumulative impact threshold is when the VMT per service population for the regional "with project" condition exceeds that of the RTP condition, which in this case is the baseline "without project" scenario. The following sections present the VMT analysis.

14.3 PROJECT VMT ASSESSMENT

A VMT assessment for the proposed project was completed using output from the SANDAG regional travel demand model. The SANDAG regional travel demand model is the best available planning tool for forecasting travel demand in the greater San Diego area over the next 20 to 30 years. The model is also the

most appropriate tool for determining how a development project of the scope of the SDSU Mission Valley Campus Master Plan would affect regional and area-wide trip-making patterns in terms of VMT. The SANDAG Year 2012 regional travel demand model was used to establish existing conditions, while the Year 2035 model was used to establish baseline conditions without and with the proposed project. Year 2012 was the latest validation year model available and therefore is the best tool for evaluating existing baseline conditions.

As noted in previous chapters in this report, the SANDAG 2035 regional travel demand model was used to establish long-term baseline traffic volumes on the roadway network just prior to the time of project buildout in 2037, but without any new development on the site. This scenario assumed that the project site would remain in operation as SDCCU stadium through 2035 and that only a negligible amount of traffic would be generated on site during a typical weekday and during the normal AM and PM commute peak periods. That traffic would be primarily attributed to the presence of the Stadium Station trolley stop and vehicles using the site as a park and ride facility, as well as from any minor stadium maintenance activities. This "No Project" model run excluded the Fenton Parkway bridge since that roadway: 1) does not have all of its final approvals, 2) is not fully funded at this time, 3) is not proposed as part of the proposed SDSU Mission Valley Campus Master Plan project, and 4) was not included in the baseline analysis for any of the project scenarios in this TIA.

The SANDAG model was subsequently run with the proposed project in place to determine both the amount of project-generated VMT and how the project is expected to affect regional VMT. The proposed land uses were input to the model in place of the existing SDCCU stadium, and the model trips were assigned to and from each zone within the region using complex algorithms based on existing travel patterns and household survey data. This "Plus Project" run shows how the proposed development would change regional and area-wide travel patterns relative to VMT.

The VMT for various scenarios is presented in **Table 58**. The first row in the table lists the total regional VMT for the 2012 Baseline (effectively existing conditions), as well as 2035 conditions without and with the project, in the first, third, and fourth columns, respectively. The second column in the table is the project-generated VMT isolated for the proposed SDSU Mission Valley Campus project. The corresponding service population is listed in the second row of **Table 58** and the VMT per service population is presented in the third row.

TABLE 58 – VMT ANALYSIS

Metric	Project-Level Assessment		Cumulative Level Assessment	
	2012 Baseline	Project Buildout	2035 No Project	2035 With Project
Vehicle Miles Traveled	157,783,545	358,758	185,304,624	185,460,707
Service Population	4,594,395	14,058	5,623,920	5,637,978
VMT Per Service Population	**34.34**	**25.52**	**32.95**	**32.89**
% Decrease from 2012 Baseline		**25.7%**		

Source: SANDAG 2035 Regional Activity-Based Travel Demand Model (Series 13) and Fehr & Peers, 2019.

As shown in **Table 58**, for the project-level VMT assessment, the buildout 2035 project-generated VMT per service population of 25.52 is 25.7% lower than the existing 2012 baseline efficiency metric of 34.34. Thus, the project-generated VMT would be more than 15% below the existing VMT, which is the applicable threshold established in both the revised CSU TISM and OPR Technical Advisory and, therefore, the project-generated VMT would be within the acceptable levels established by the State.

Also as shown on **Table 58**, for the cumulative impact analysis, the regional VMT per service population would decrease in 2035 from 32.95 without the project to 32.89 with the project. Given that the project would reduce regional VMT per service population compared to the RTP scenario (i.e., without the project), the 2035 plus project scenario is less than the applicable threshold.

In addition to the above analysis, which was conducted relative to the SANDAG regional model, an additional evaluation was conducted comparing the project-generated VMT to the City-wide VMT per service population due to the project site location within the City of San Diego. The results of this supplemental analysis are provided in **Appendix M** and result in the same conclusion as the region-wide analysis presented above in that both project- and cumulative level impacts are below the applicable threshold.

14.3.1 EFFECT OF 4-LANE FENTON PARKWAY EXTENSION AND BRIDGE ON PROJECT VMT ASSESSMENT

Similar to the process described in **Section 14.3**, a SANDAG model run with the 4-lane Fenton Parkway extension was run both without and with the proposed project in place. The resulting VMT for each scenario is presented in **Table 59**.

TABLE 59 – VMT ANALYSIS WITH 4-LANE BRIDGE

Metric	Project-Level Assessment		Cumulative Level Assessment	
	2012 Baseline	Project Buildout	2035 No Project	2035 With Project
Vehicle Miles Traveled	157,783,545	358,434	185,462,877	185,379,029
Service Population	4,594,395	14,058	5,623,920	5,637,978
VMT Per Service Population	**34.34**	**25.50**	**32.98**	**32.88**
% Decrease from 2012 Baseline		**25.8%**		

Source: SANDAG 2035 Regional Activity-Based Travel Demand Model (Series 13) and Fehr & Peers, 2019.

As shown on **Table 59**, the proposed project's VMT/service population with the 4-lane bridge in place would be 25.8% less than the regional baseline. Based on a threshold of 15% less than the regional baseline, the addition of the 4-lane bridge to the project buildout scenario would not result in a project level impact.

As to cumulative impacts, as shown on **Table 59**, implementation of the proposed project would result in a VMT/service population of 32.88 under the long-range scenario, which is lower than the VMT without the project would be at that time. As such, the proposed project would not result in a cumulative VMT impact with a 4-lane bridge in place. Thus, the conclusion of the analysis with the 4-lane bridge in place is the same conclusion as that reached without the Fenton Parkway extension and bridge in place.

14.3.2 EFFECT OF 2-LANE FENTON PARKWAY EXTENSION AND BRIDGE ON PROJECT VMT ASSESSMENT

Similar to the process described in **Section 14.3**, a SANDAG model run with the 2-lane Fenton Parkway extension was run both without and with the proposed project in place. The resulting VMT for each scenario is presented in **Table 60**.

As shown on **Table 60**, the proposed project's VMT/service population with the 2-lane bridge in place would be 25.7% less than the regional baseline. Based on a threshold of 15% less than the regional baseline, the addition of the 2-lane bridge to the project buildout scenario would not result in a project level impact.

As to cumulative impacts, as shown on **Table 60**, implementation of the proposed project would result in a VMT/service population of 32.88 under the long-range scenario, which is lower than the VMT without the project would be at that time. As such, the proposed project would not result in a cumulative VMT impact with a 2-lane bridge in place. Thus, the conclusion of the analysis with the 2-lane bridge in place is the same conclusion as that reached without the Fenton Parkway extension and bridge in place.

TABLE 60 – VMT ANALYSIS WITH 2-LANE BRIDGE

Metric	Project-Level Assessment		Cumulative Level Assessment	
	2012 Baseline	Project Buildout	2035 No Project	2035 With Project
Vehicle Miles Traveled	157,783,545	358,667	185,526,143	185,442,098
Service Population	4,594,395	14,058	5,623,920	5,637,978
VMT Per Service Population	**34.34**	**25.51**	**32.99**	**32.88**
% Decrease from 2012 Baseline		**25.7%**		

Source: SANDAG 2035 Regional Activity-Based Travel Demand Model (Series 13) and Fehr & Peers, 2019.