University Community Plan Update

Draft Mobility Technical Report

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1.0 Introduction

1.1 Background and Purpose

The current University Community Plan was originally adopted in 1987 and provides the framework to guide development in University. There have been nineteen amendments since its inception. The current University Community Plan Update process was initiated in 2018 to provide direction and guidance for future growth, development, and infrastructure in the community. The Community Plan Update also serves to describe the community's vision and to identify strategies for enhancing community character and managing change. It also aligns with the City of San Diego's goals and policies detailed in the General Plan, Climate Action Plan as well as state mandates on housing and mobility practices.

This Mobility Technical Report summarizes the physical and operational conditions of the planned mobility system outlined in the University Mobility Element. This report is one component of the University Community Plan Update, identifying the planned mobility improvements culminating with an analysis of all travel modes under the proposed plan horizon year of 2050.

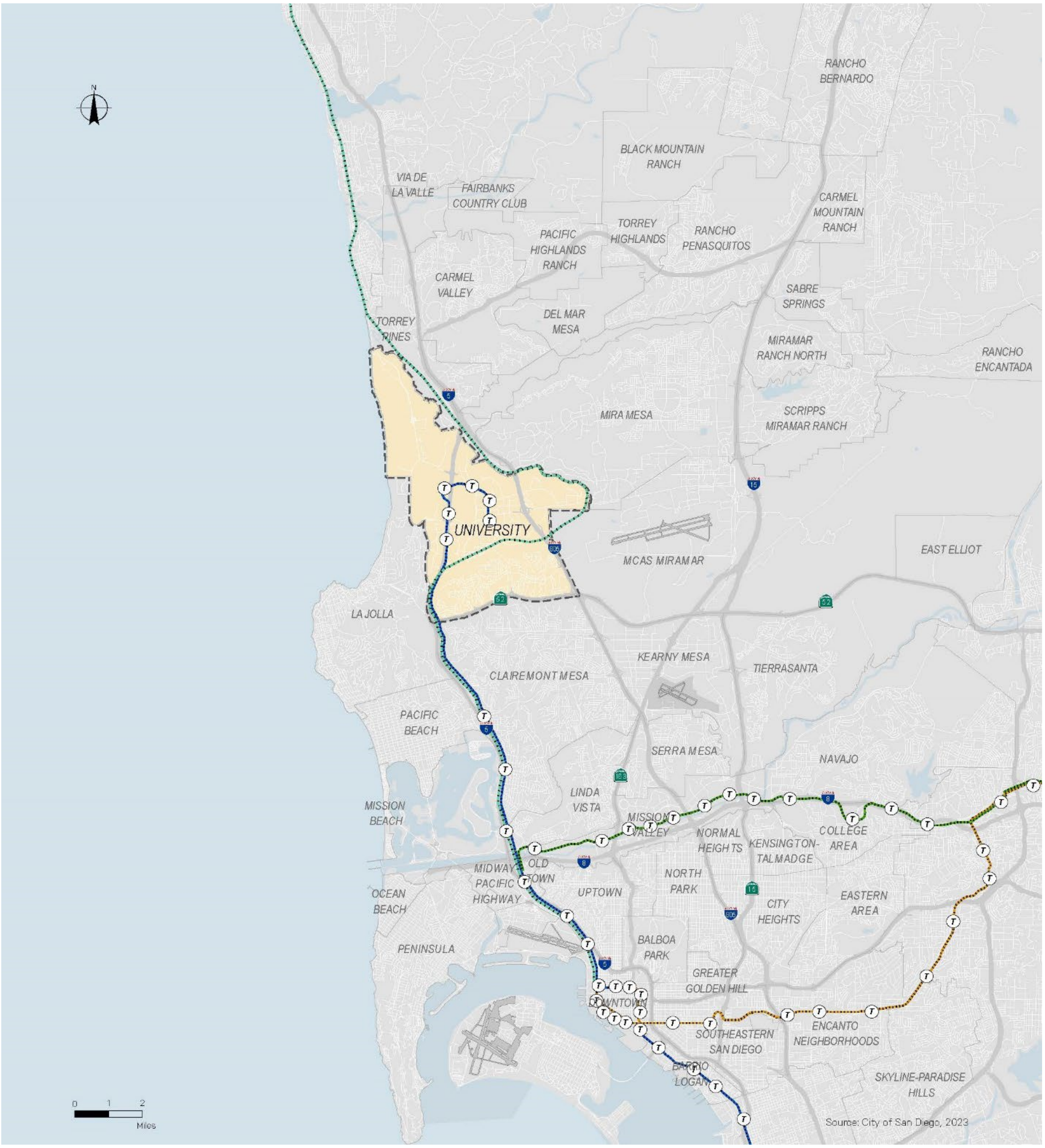
The Proposed Plan is a strategy to address existing and forecast deficiencies related to the transportation system within the University community. It also strives to improve personal mobility through a balanced, multimodal transportation network, which supports the updated land use vision for University and aligns with the City's General Plan, Blueprint SD, and Climate Action Plan (CAP). The mobility system is comprised of roadway and freeway system, pedestrian and bicycle infrastructure, and public transit. Each of these transportation modes is discussed in the following chapters.

1.2 Project Location

The University community is approximately 8,700 acres in area and is located in the northwestern portion of the City of San Diego. The University community is bounded on the north by I-5 and the Torrey Pines State Natural Preserve; on the east by Marine Corps Air Station (MCAS) Miramar and the Mira Mesa community; on the south by State Route 52 (SR-52) and the Clairemont community; and on the west by the community of La Jolla and the Pacific coast.

Figure 1-1 displays the University Community Planning Area within the San Diego region.

Figure 1-1 Regional Vicinity Map



1.3 Organization of the Report

The Mobility Technical Report is organized into the following chapters:

- ***Chapter 1 Introduction*** – provides information on the current and Proposed Plan, report organization, and analysis methodology.
- ***Chapter 2 University Proposed Plan*** – highlight results of the existing conditions process and the needs identified for each mode of travel. Recommended improvements of the Proposed Plan for the University community are also presented.
- ***Chapter 3 Proposed Plan Analysis*** – concludes this document with the analyses results of the Proposed Plan for each mode of travel.
- ***Appendices*** – provide backup information and detailed results from the analyses described in Chapters 1 through 3.

1.4 Analysis Methodology

Appendix – A Existing Conditions Report describes the methodology used to determine the study area and analyze the transportation system for the University community. Since the adoption of the 2008 California Complete Streets Act (AB 1358), the City of San Diego has employed multimodal analysis procedures to assess mobility needs for pedestrians, cyclists, and transit users.

Analysis of the existing pedestrian, bicycle, transit, and vehicular system can also be found in **Appendix A**.

1.4.1 Vehicle Miles Traveled – SB 743 Analysis

Senate Bill 743 (SB 743) was signed into law in September 2013, modifying the existing California Environmental Quality Act (CEQA) by removing auto delay, level of service (LOS), parking and other vehicular capacity measures as metrics of transportation system impacts for mixed-use, infill or transit-oriented development projects. Vehicle miles traveled (VMT) is considered the new analysis metric used to measure transportation impacts and must be incorporated by July 1, 2020 statewide.
VMT reflects the land use type, intensity and location in relation to the capacity and roadway connectivity of the transportation network. It is also influenced by the availability and quality of multimodal facilities, and system operations. VMT is metric that measures the number of vehicle trips generated and the length or distance of those vehicle trips. For transportation analysis, VMT is generally expressed in VMT per capita for a typical weekday. VMT does not directly measure traffic operations but instead measures the efficiency of the transportation system and is expressed as a function of population or employment.

The VMT assessment for the community is discussed in **Appendix B – Blueprint SD, University CPU, and Hillcrest FPA Vehicle Miles Traveled (VMT) Analysis**

2.0 University Proposed Plan

This section identifies University's mobility issues and needs as determined through the existing conditions analyses. The Proposed Plan mobility improvement development process and resulting recommendations were made using existing conditions data and analysis results, field review of the network, and current regional and local policies and initiatives.

2.1 Development of the Proposed Plan

2.1.1 Identification of Issues and Needs

Existing mobility related issues and needs within University were identified in the University Community Plan Update's Existing Conditions Reports (April 2018), included as **Appendix A**. The Existing Conditions Report was used, in conjunction with the other planning efforts and the overall community visions, to develop the recommended mobility improvements incorporated into the Proposed Plan.

2.1.2 Development of Proposed Plan Improvements

Proposed Plan improvements were developed by first cross checking the mobility issues and needs against several other on-going or recent planning efforts, including:

- SANDAG's 2021 Regional Plan (December 2021);
- SANDAG's South Bay 2 Sorrento (SB2S) Comprehensive Multimodal Corridor Plan (CMCP) (September 2022);
- SANDAG's SR 52 Coast, Canyons, and Trails Comprehensive Multimodal Corridor Plan (CMCP) (June 2023);
- City of San Diego Bicycle Master Plan (December 2013);
- City of San Diego Pedestrian Master Plan – Phase 4 (December 2013);
- UC San Diego 2018 Long Range Development Plan (July 2018)

Where possible, the Proposed Plan carried forward improvements from previous planning efforts which have been adopted or vetted by the community. New improvements were then developed that addressed the issues and needs identified in the Mobility Existing Conditions Report and to accommodate the anticipated future growth within the community. Additionally, public input received through outreach efforts was also used to shape the recommendations in the Proposed Plan. The following sections outline the mobility issues and needs identified in the Mobility Existing Conditions Report and the associated Proposed Plan improvements.

2.1.3 Design and Mobility Considerations

The University Community Plan Update is a high-level planning document that recommends multiple projects that aim to enhance safety, facilitate goods movement, and incorporate transportation management techniques that support the University community today and in the future. The specifics of these projects and how they can most effectively achieve these goals can be decided at the project level. Considerations for how to best align the proposed projects with these goals are described below.

Safety Enhancement

The safety of all demographics of roadway users is extremely important. With initiatives such as Vision Zero, which intends to eliminate all traffic-related fatalities and severe injuries through more conscious street design, the City of San Diego is setting a precedent of intent for safe roadway design. To turn this intention into action, the City is using the Systemic Safety Analysis Reporting Program (SSARP), which uses existing road data, such as traffic levels and road geometries, to predict future traffic-related incidents. Intersections and roadway segments with high crash rates are recognized as priority locations for the program and are then considered for redesigns and infrastructure modifications to address safety issues. Using SSARP provides a systemic approach to identifying where new construction is needed most and can help prioritize the projects proposed in this Community Plan Update.

Goods Movement

Optimizing goods movement to support the needs of existing and expanding business and industry will continue to be important, while minimizing potential conflicts to general mobility and protecting neighborhood quality of life. The Community Plan Update provides supporting policies to accommodate efficient freight movement and to alleviate the impacts of truck traffic, deliveries, and staging. Considerations, such as curb/corner radii, loading/unloading areas, and vertical/horizontal clearances, help trucks traverse along roadways and intersections, and allows them to coexist with proposed multimodal facilities that will be implemented. Specific design concepts and operational features that facilitate the movement of goods via trucks will be identified at the project-level of infrastructure improvements and development.

Transportation Management

Transportation demand management (TDM) is an important part of determining the composition of vehicle miles traveled (VMT) of daily traffic in an area. Some employers use TDM strategies to incentivize workers to use active or public transit to get to work. These strategies can fundamentally alter traffic growth and distribution and can diversify road utilization by adding more bicyclists, pedestrians, and transit users. The University Community Plan proposes a mobility network that can accommodate these new traffic distributions, and employers within the community—especially those within the Community Plan Implementation Overlay Zone (CPIOZ) areas—are encouraged to understand, implement, and inform their employees about TDM programs.

Further, Intelligent Transportation Systems, or ITS are developing technologies that have the potential to be incorporated into the proposed projects of the University Community Plan Update. These technologies generally aim to increase safety, decrease congestion, and elevate the current transportation system by integrating data communication strategies into the existing roadway network. Common examples include communication with autonomous and connected vehicles and SMART corridors, which can be integrated into the University Community Plan Update and maintain its relevancy.

2.2 Pedestrian Environment

2.2.1 Identified Pedestrian Needs

The City of San Diego is committed to supporting walking as a form of mobility and recreation. Walking is the oldest and most basic form of transportation. At some point in the day we are all pedestrians, whether we are walking to transit, a store, school, a parked car, a building or for exercise. Most people prefer walking in places where there are sidewalks shaded with trees, lighting, interesting buildings, or scenery to look at, other people outside, neighborhood destinations, and a feeling of safety. Pedestrian improvements in areas with land uses that promote pedestrian access to activities and comfortable connections can help to create a walkable pedestrian environment and increase walking as a means of transportation and recreation. Land Use and street design recommendations that benefit pedestrians also contribute to the overall, vitality, and sense of community within an area. Walkable neighborhoods tend to have higher property values and more amenities within a short distance. Barriers to walking and pedestrian needs identified in University include locations with more frequent pedestrian collisions, missing sidewalk, high existing pedestrian activity and commuting, and areas with high pedestrian priority as identified by the City of San Diego's Pedestrian Priority Model (PPM). Pedestrian needs are identified in **Appendix A**.

2.2.2 Pedestrian Improvements

Pedestrian improvements were identified based upon supporting land uses, proximity to transit, and how the roadway serves the transportation network. These considerations drove an identification of several pedestrian route types such as Districts, Corridors, Connectors, Pathways, and Ancillary Facilities. Each route type garnered the inclusion of supporting improvements that are best suited to their unique characteristics, detailed in the following sections.

Pedestrian Route Types

Pedestrian route types are used to categorize all of the pedestrian facilities provided within the community. As it pertains to pedestrian facilities along roadways, the type of facility is based on adjacent land uses and characteristics of the walking environment. The City of San Diego Pedestrian Master Plan defines route types, each suggesting a level of treatment or features that best supports specific walking environments. District, Corridor, Connector, and Pathways route types are particularly suitable within the University community.

District route types are designated along streets to support heavy pedestrian activity in mixed-use urban areas and major community thoroughfares and intended to include improvements that provide premium comfort and priority for pedestrians that encourage walking, such as median refuge islands, traffic controls at crossings exclusively for pedestrians, wider walkway areas with trees, and street furnishings.

Corridor route types are designated along streets that support businesses and shopping districts with moderate pedestrian activity levels. Corridor roadways consist of features of those identified under Connector route types with the addition of more enhanced treatments to support additional activity, such as pedestrian scale lighting and trees to shade walkways.

Connector route types are designated along streets with lower pedestrian activity levels, thus requiring basic treatments such as planted buffers between the sidewalk and street, and essential features like standard sidewalk widths, curb ramps, and marked crosswalks at signalized intersections with advance stop bars. Connectors also offer key circulation connections that feed more prominent Corridor and District roadways.

Paths are paved facilities with exclusive rights-of-way that act as corridors and have little or no vehicular cross flows. Many of these paths are exclusive to pedestrians and bicycles and are not associated with streets. Paths are often associated with recreational uses.

Ancillary Facilities are facilities away from or crossing over streets such as plazas, paseos, promenades, courtyards or pedestrian bridges and stairways. Many of these ancillary facilities attract local residents and workers and therefore generate moderate to high pedestrian use.

Figure 2-1 displays the Proposed Plan District, Corridors, Connector, Paths, and Ancillary Facility pedestrian route types.

Figure 2-1 Pedestrian Facilities Network Map

Executive Drive Promenade

Executive Drive crosses the core of the community and connects one of the most intense employment areas of the community directly with the UC San Diego campus. Executive Drive has that potential to transform into a walkable street for retail and recreation. To support the vision for a vibrant and walkable employment and residential environment in the University community, a promenade along Executive Drive has been identified in the Proposed Plan. Promenades involve partial or complete street closures to vehicular traffic to facilitate active transportation uses such as walking and biking free from vehicular conflicts. Recreational amenities, outdoor dining and other enjoyable public interactions can facilitate and contribute to the enjoyment of the active transportation experience. It is envisioned that promenades will create places that are sociable, have a variety of uses and activities, are well connected to their surroundings and are comfortable and welcoming to people with all abilities. Compared to more temporary treatments, promenades are intended to produce longer-term or permanent facilities for pedestrians. Promenades will aid in creating a stronger bicycle and pedestrian grid network in the central core of the community as well as in the newly identified mixed-use residential areas.

Intersection Improvements

All crossing points at signalized intersections should be upgraded to current City standards, to include the following:

- ADA compliant pedestrian ramps
- High visibility continental crosswalks
- Advanced stop bar placement
- Pedestrian countdown signal timers

In addition, pedestrian treatments shown in **Figure 2-2** should be considered to strengthen the existing pedestrian network and to maximize the benefit of new connections as they are built.

Figure 2-2 Pedestrian Treatments

Continental Crosswalks improve crosswalk visibility and are known to improve driver yielding compliance.

Pedestrian Countdown Signals provide pedestrians with a clear indication of how many seconds remain to safely cross.

Curb Pop Outs or Curb Extensions shorten pedestrian crossing distances and serve as a traffic calming mechanism.

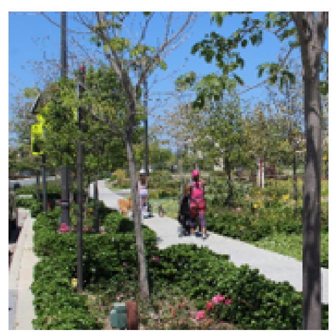
Lead Pedestrian Intervals provide pedestrians a 3-7 second head start when entering an intersection, reinforcing their right-of-way over turning vehicles.

Advance Stop Bars/Limit Lines direct drivers where to stop at intersections and mid-block crossing locations, providing separation between the vehicle and crossing pedestrians.

Pedestrian Hybrid Beacons are traffic control signals that help pedestrians and bicyclists cross mid-block across high traffic roadways.

Pedestrian Scale Lighting increases visibility along walkways, creating a more comfortable and inviting environment for pedestrians.

Wayfinding is used to help orient pedestrians and direct them to destinations. Maps and directional signage are two wayfinding examples.



Landscaped Buffers along roadways provide separation between pedestrians and vehicles, creating a more comfortable environment.

Lead Pedestrian Intervals

Lead Pedestrian Intervals (LPIs) are recommended to improve pedestrian safety and efficiency at signalized intersection locations along District and Corridor pedestrian route types and at signalized intersections with high existing pedestrian volume locations (defined as more than 50 pedestrians during AM and PM peak periods). Intersections with most frequent pedestrian collisions during the 5-year study period were also considered for the benefit of LPIs. Additionally, locations where Lead Bicycle Intervals are recommended can accommodate LPIs without any additional modification to the signal timing. LPIs are recommended at the following intersections where pedestrians crossings are permitted:

- Eastgate Mall and Easter Way
- Eastgate Mall and Towne Centre Drive
- Eastgate Mall and Judicial Drive
- Executive Drive and Regents Park Row
- Executive Drive and Genesee Avenue
- Executive Drive and Executive Way
- Executive Drive and Towne Centre Dr
- Executive Drive and Judicial Drive
- Genesee Avenue and I-5 NB Ramp
- Genesee Avenue and Scripps Hospital Driveway
- Genesee Avenue and Regents Road
- Genesee Avenue and Eastgate Mall
- Genesee Avenue and Executive Square
- Genesee Avenue and La Jolla Village Drive
- Genesee Avenue and Esplanade Court
- Genesee Avenue and Nobel Drive
- Governor Drive and Regents Road
- Governor Drive and Mercer Street
- Governor Drive and Genesee Avenue
- Nobel Drive and La Jolla Village Square Driveway
- Nobel Drive and I-5 SB Ramp
- Nobel Drive and I-5 NB Ramp/University Center Lane
- Nobel Drive and Lebon Drive
- Nobel Drive and Regents Road
- Nobel Drive and Costa Verde Boulevard/Cargill Avenue
- North Torrey Pines Road and La Jolla Shores Drive
- La Jolla Village Drive and Lebon Drive
- La Jolla Village Drive and Executive Way
- La Jolla Village Drive and Towne Centre Drive
- Lebon Drive and Charmant Drive/Palmilla Drive
- Regents Road and Health Sciences Drive
- Regents Road and Eastgate Mall
- Regents Road and Executive Drive/Miramar Street
- Regents Road and Regents Park Row/Miramar Street

- Regents Road and La Jolla Village Drive
- Regents Road and Arriba Street
- Villa La Jolla Drive and La Jolla Village Drive
- Villa La Jolla Drive and Villa Norte/Holiday Court
- Villa La Jolla Drive and Nobel Drive
- Villa La Jolla Drive and Villa La Jolla Driveway
- Villa La Jolla Drive and Villa Mallorca

Curb Extensions (Pop-Outs)

As part of the pedestrian network evaluation, several key intersections were identified as locations where crossings connect with potential high-volume paths of travel and/or a combination of both pedestrian and bicycle facilities. At these locations, enhanced pedestrian crossings should be considered. This could consist of curb extensions for shortened crossing distances.

Further, some priority corridors were evaluated for corridor-wide intersection treatments such as curb extensions, or operational enhancements to achieve a crossing score of 6 or higher. An overview of the inputs and scoring criteria is discussed in **Appendix A.** The following corridors provide on-street parking with long crosswalks, and could benefit from curb extensions to reduce the crossing distance without impacting capacity on the roadway:

- Genesee Avenue and La Jolla Village Drive
- Stadium Street and Eton Avenue

Protected Intersections

Protected/dedicated intersections are typically associated with bicycle improvements, but it is also beneficial for pedestrians. Protected/dedicated intersections are recommended at certain locations to provide safety benefits and improve low stress connectivity through intersections within the community.

A list of potential locations is included below will be discussed in **Section 2.2.4 Bicycle Improvements**.

Intersection Enhancements

Enhanced features to further improve safety, comfort, visibility, and accessibility for pedestrians include, but are not limited to, curb extensions, signal phasing and pavement marking treatments, upgraded traffic signals, and lane modifications at crossings and intersections. Pedestrian Improvements at the following segments:

- Cargill Avenue and Camino Milita
- Genesee Avenue and Nobel Drive
- Governor Drive and Edmonton Avenue
- Governor Drive and Agee Street
- Governor Drive and Edmonton Street
- Governor Drive and Scripps Street
- Governor Drive and Agee Street
- La Jolla Village Drive and Executive Way

- La Jolla Village Drive and Towne Centre Drive
- La Jolla Village Drive and Genesee Avenue
- Nobel Drive and La Jolla Village Square Driveway
- Stadium Street and Eton Avenue
- Shoreline Drive and Toscana Drive
- Villa La Jolla Drive and Villa La Jolla Driveway
- Villa La Jolla Drive and Via Mallorca

New Sidewalks

As part of the existing conditions analysis, missing sidewalks within the University community, which include raised sections of asphalt along roadways, were identified. After a more detailed assessment regarding the feasibility of constructing the missing sidewalk at various locations throughout the community, the following improvements have been identified, within the pedestrian study area: It is important to note that the improvements to the pedestrian network will not only provide quality facilities for people to travel on foot but will improve access to portions of the community where access is currently limited.

- Avenida Navidad between Villa Medalla and Decoro Street (Southbound)
- Bloch Street between Bothe Avenue and East end
- Bothe Avenue between Bloch Street and Curie Place
- Camino Aguila between Arriba Street and Camino Calma (Southbound)
- Camino Calma between Camino Aguila and Camino Lindo (Westbound)
- Camino Glorita between Arriba Street and Camino Ticino
- Camino Huerta between Camino Glorita and Camino Islay
- Camino Islay between Camino Huerta and Camino Kiosco
- Camino Jonata between Camino Islay and Camino Kiosco
- Camino Kiosco between Camino Islay and Camino Jonata
- Camino Lita between Camino Huerta and Camino Glorita
- Camino Ticino between Camino Huerta and Cargill Avenue
- Camino Tranquilo between Arriba Street and Playmor Terrace (Southbound)
- Cray Court between John Jay Hopkins Drive and Cray Court cul-de-sac end (Northbound)
- Curie Place between Bloch Street and Bothe Avenue
- Danica Mae Drive between Nobel Drive and Mahalia Avenue (Northbound)
- Eastgate Mall between I-805 overpass to Operation Boulevard (Eastbound)
- Eastgate Mall on I-805 Overpass (Westbound)
- Gilman Drive between EB and WB Ramps to La Jolla Village Drive (Northbound)
- Gilman Drive between Villa La Jolla Drive and Via Alicante (Southbound)
- Gilman Drive between Via Alicante La Jolla Colony Drive (Northbound)
- Governor Drive between Greenwich Drive and I-805 SB Ramp (Westbound)
- Governor Drive between I-805 SB and NB Ramps
- John Jay Hopkins Drive between Genomics Institute of the Novartis Research Foundation and Cray Court (Westbound)
- La Jolla Colony Drive between I-5 NB Ramp and Rosenda Court (Southbound)
- La Jolla Village Drive between NB and SB Ramps to Gilman Drive (Eastbound)

- La Jolla Village Drive NB Ramp to Gilman Drive
- La Jolla Village Drive between I-5 NB Ramp and Lebon Drive (Westbound)
- Mahalia Avenue between Danica Mae Drive and Crystal Dawn Lane (Eastbound)
- Miramar Road between Eastgate Mall and Miramar Mall (Eastbound)
- Miramar Road between I-805 overpass and Nobel Drive (Eastbound)
- North Torrey Pines Road between Muir College Drive and Pangea Drive (Northbound)
- Playmor Terrace between Camino Tranquilo and Cargill Avenue (Westbound)
- Regents Road between Rose Canyon and Governor Drive (Southbound)
- Roselle Street between Reotemp Instruments and Advanced Nutrisolutions (Northbound)
- Rosenda Court between La Jolla Colony Drive and End (Westbound)
- San Clemente Terrace between Schenley Terrace and Bothe Avenue
- Schenley Terrace between San Clemente Terrace and Bothe Avenue
- Torrey Pines Scenic Drive from Torrey Pines Road to West end (Westbound)
- Via Alicante between Gilman Drive and Via Mallorca (Eastbound)

Non-Contiguous Sidewalk

Non-contiguous sidewalks can improve pedestrian comfort along an area due to an increased separation for pedestrians from motorists. They also provide opportunities for street trees and utility boxes which can provide shade for pedestrians and remove barriers from the walkway for better accessibility. It is important to acknowledge that many bicycle facilities within the community will also provide increased separation from motorists. There are several locations where non-contiguous sidewalks are recommended, these include:

- Eastgate Mall from Regents Road to Towne Centre Drive
- Executive Drive from Regents Road to Cul-De-Sac east of Judicial Drive
- Genesee Avenue from Regents Road to Nobel Drive
- Governor Drive from Regents Road to Edmonton Avenue
- La Jolla Village Drive from Genesee Avenue to Towne Centre Drive
- Nobel Drive from Villa La Jolla Drive to Genesee Avenue
- Regents Road from Genesee Avenue to La Jolla Village Drive
- Towne Centre Drive from Eastgate Mall to Golden Haven Drive
- Villa La Jolla Drive from Via Mallorca to La Jolla Village Drive

Pedestrian Improvements

Within the University community there are two existing pedestrian bridges across Genesee Avenue and two crossing La Jolla Village Drive. These pedestrian bridges are well designed in that bridges serve high demand routes and are well integrated with UTC and neighboring land uses. Enhanced pedestrian at-grade crossings or overcrossings should be thoughtfully designed to provide smooth pedestrian pathways that flow into developments they connect with regard to topography and architecture. Enhanced pedestrian at-grade crossings or overcrossings should serve and connect popular destinations to make walking more feasible and comfortable when crossing major arterials. Existing Active Transportation Bridges and Planned Pedestrian Improvements are identified in **Figure 2-1** Pedestrian Facilities Network Map.

Pedestrian bridges can improve the pedestrian environment by providing additional connections for pedestrians that are free of any conflicts with vehicles. In addition to eliminating pedestrian exposure there are also operational benefits of having a pedestrian bridge. Bridges are most effective where pedestrian activity is very high along higher speed, higher volume roadways. Due to the pedestrian draw to either side of the street and an increased potential for pedestrian collisions, pedestrian bridges can provide the benefit of providing a connection across a roadway without the exposure to vehicles. This being said, rather than having a pedestrian cross multiple travel lanes of vehicles travelling at high speeds, a pedestrian can continue along their path of travel over the intersection to get to the other side. Bridges require space on both sides of the roadway to have landing areas that allow for the vertical elevation to be established and accessibility by people of all abilities. Pedestrian bridges should incorporate elevation changes to minimize usage of stairs, elevators, and ramps at approaches.

Enhanced pedestrian at-grade crossings or overcrossings are recommended at the following locations:

- La Jolla Village Drive & Costa Verde Boulevard
- La Jolla Village Drive between Executive Drive and Towne Centre Drive

Where bridges are considered, bicyclists should be considered as well in design. For example, the Coastal Rail Trail bridge over Genesee Avenue is a local example of a well-designed bridge for bicyclists. Other options to serve bicyclists would be at-grade crossings at signalized intersections with protected intersections, bicycle signals and specialized signing/striping.

2.3 Bicycling

2.3.1 Identified Bicycle Needs

Bicycle infrastructure should provide safe, convenient, and comfortable connections across a community. Safety and comfort are paramount considerations, given that active travelers are more exposed and vulnerable than those inside a vehicle. Unsafe or uncomfortable conditions discourage a person's decision to make a trip by bike. In addition to having safe and comfortable facilities it is also important to ensure that the facilities connect people to their destinations in an easily accessible and convenient way.

Barriers to cycling and bicycle needs identified in the University community were determined in the Existing Conditions Report and include locations with more frequent collisions involving cyclists, the amount of stress likely to be experienced by a bicyclist, gaps in the existing network, and areas with high cycling demand. Bicycle needs are identified in **Appendix A**.

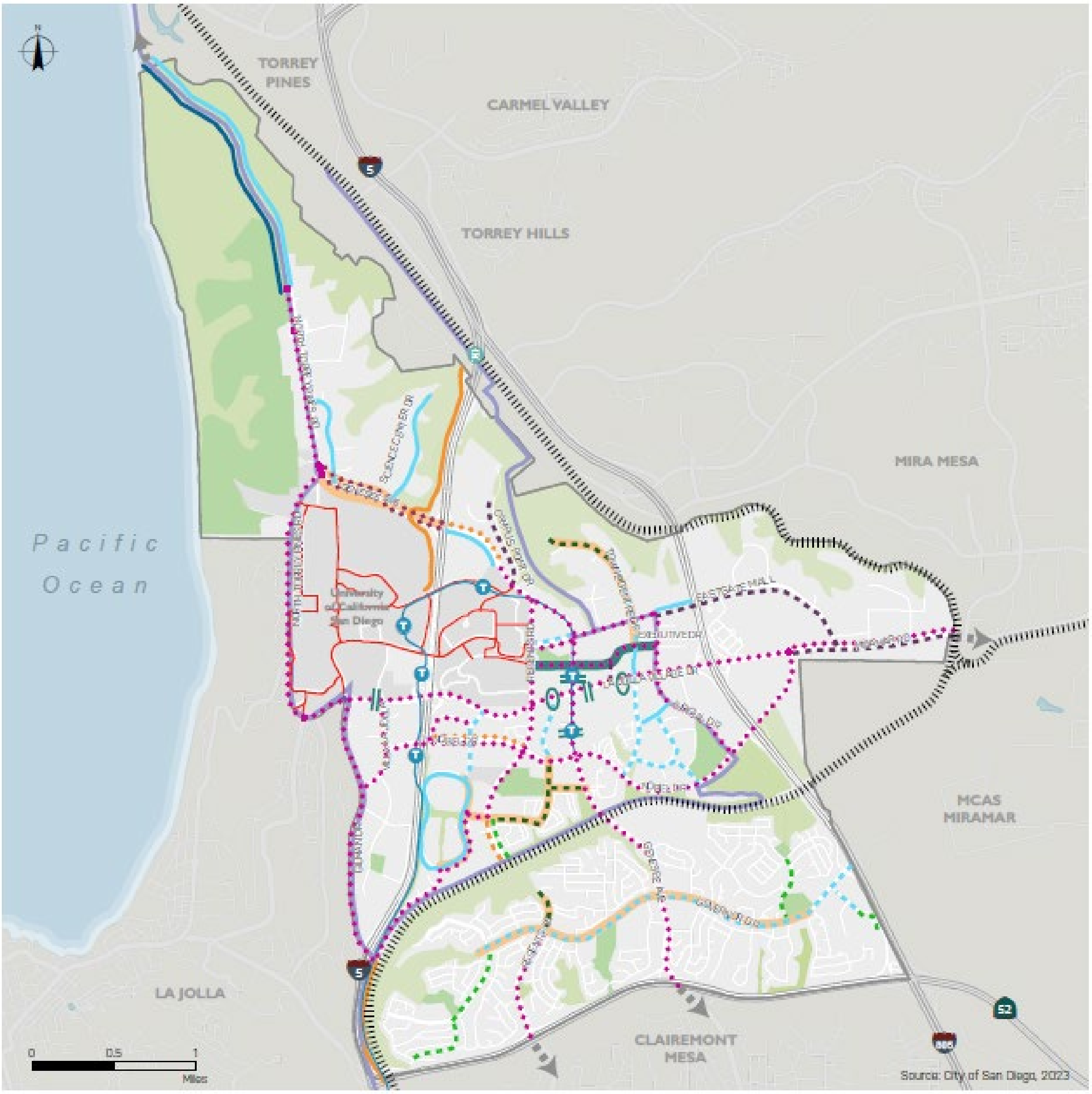
2.3.2 Bicycle Improvements

A network of planned bicycle improvements were developed to address the goals and deficiencies identified through the existing conditions analyses, and also reference recommendations identified in the City of San Diego's Bicycle Master Plan, SANDAG's Regional Bike Plan as well as outreach efforts associated with the University Community Plan Update. Coordination between City departments and other Regional agencies such as Caltrans, SANDAG and MTS helped to identify improvements that would further the goals and policies of the City and region. The Proposed Plan bicycle facilities are listed in this subsection and displayed in **Figure 2-3**. Implementation of these facilities should consider additional treatments at intersections to improve bicyclist's safety and comfort (i.e., Bike boxes, exclusive bicycle signal phasing, protected intersection treatments, and conflict zone paint).

The following section summarizes the proposed changes to the bicycle network in the University community. Changes were made based on the following goals:

- Provide a local bicycle network of low-stress routes across the community with regional connections to adjacent communities for residents, commuters, and visitors
- Increase bicycle trips in the community and improve public health by providing low-stress routes
- Invite all ages and abilities to use bicycling as a form of recreation and commuting
- Improve first-mile/last-mile bicycle connections from residential and employment areas to transit stops
- Address gaps in the bicycle network that were identified in the Existing Conditions Report
- Reduce conflicts with vehicles at large intersections where high bicycle volumes are anticipated
- Address areas where high bicycle-related collisions were documented

Figure 2-3 Bicycle Network Map



Existing Facilities to Remain

- Class I - Bicycle Trail / Multi-Use Path
- Class II - Standard/Buffered Bicycle Lane
- Class II - (One-Way, Two Lanes)
- UC San Diego Bike Network
- Active Transportation Bridge

Planned Improvements

- Class I - One-Way Multi-Use Path
- Class I - Two-Way Bicycle Trail / Multi-Use Path
- Class II - Standard/Buffered Bicycle Lane
- Class III - Bicycle Route
- Class III - Bicycle Boulevard
- Class IV - Cycle Track (One-Way)
- Class IV - Cycle Track (One-Way, Two Lanes)
- Class IV - Cycle Track (Two-Way)
- Pedestrian Improvement
- Traffic Calming Enhancements
- Promenade

- SANDAG 2021 Regional Plan Adopted Regional Bike Network
- Bicycle Facility in or Planned for Adjacent Community

The evaluation for identified bicycle facilities took into consideration parking utilization collected during the existing conditions setting of this community plan update as well as parking availability of adjacent off street parking lots, level of traffic stress experience by cyclists including speeds of vehicles along the roadway segment, traffic control at intersections, connections to public uses, employment and transit within the community as well as a review of existing right of way and consideration for any potential acquisition along the roadway that would provide a mechanism and/or space for the implementation of the identified bicycle facility. Below is a detailed explanation of future bicycle facilities, the purpose as well as how it is envisioned to be implemented at the time of need. At the project level when more information is available, modifications to these recommended classifications may be considered by the City: repurposing existing public right—of-way (ROW), coordinating with abutting property owners, having an Irrevocable Offer of Dedication (IOD) for the City to obtain the right-of-way to implement the proposed bicycle facility, or having developers implement the bicycle facility based on the supplemental development regulations and incentives outlined in Community Plan Implementation Overlay Zone (CPIOZ).

Class I One-way Multi-Use Path

Under circumstances with extremely constrained right-of-way and where bicycle demand is high, the Community Plan has identified the need for a one-directional multi-use path for bicyclists and pedestrians to travel along the same space with bicyclists only able to travel in one direction. High volumes of traffic and speeds in excess of 35 miles per hour along the roadway also led to the identification of the directional multi-use path.

<u>The following Class I One-way Multi-Use Path are proposed for the University Community Plan Update:</u>

- Genesee Avenue between I-5 NB Ramps and Campus Point Drive
  This low stress bicycle facility, implemented on the North side of Genesee Ave for Westbound traffic, will serve as north south connection to UCSD campus. This facility would connect to other planned low stress bicycle facilities that will provide connections to employment areas, UCSD campus as well as residential neighborhoods. The implementation of the multi-use path along the northside of the roadway may require repurposing of existing right of way and potential redevelopment expanding the existing sidewalk in order to provide the necessary width for the multi-use path.

- Nobel Drive between University Center Lane and Regents Road
  This low stress bicycle facility will be implemented on the Westbound side of Nobel Drive and will provide an east west connection through residential areas to commercial area West of the I-5. This facility would connect to other planned low stress bicycle facilities that would serve as a connection to the residential and commercial areas of the community. Implementation of the multi-use path along the north side of the roadway may require the repurposing of the public right-of-way

Class I Two-way Multi-Use Path

Multi-use paths provide a separated space for bicyclists from vehicles. Typically, separate facilities for different user groups are desired; however, under certain instances a shared path between pedestrians and bicyclists is necessary and has been identified in this Proposed Plan. Considerations were given to segments and corridors with: limited right of way (where a buffered bicycle facility and sufficiently wide sidewalk cannot coexist), high volumes of traffic, traffic speeds greater than 35 mile per hour, low pedestrian volumes/demand (where conflict between pedestrians and bicyclists would be minimal), grade exceeding 3% (speed differential between bicyclists and pedestrians in uphill direction is relatively similar and therefore appropriate in shared spaces), and other roadway characteristics that affect the level of traffic stress experienced by bicyclists.

<u>The following Class I Two-way Multi-Use Path are proposed for the University Community Plan Update:</u>

- Regents Road between Arriba Street and Rose Canyon End (northbound)
  This would provide a low stress facility for bicyclist and pedestrians while proving a connection to the Rose Canyon trails. This facility would create a connection to other planned low stress bicycle facilities that connect to residential, commercial, and recreational areas of the community. This segment would require a roadway reduction and may require a substandard width for a shared use pathway along the west side of the roadway with the proposed linear park.

Class II Bike Lanes

Bike lanes provide horizontal separation between the bicyclists and the travel lane, creating an enhanced condition for bicyclists. These are typically installed on low-speed, low-volume roadways where bicycle demand is high. Installation of bike lanes typically requires a lane reduction, lane width narrowing, or reallocation of parking space, unless there is unused pavement width available. It is important to properly design intersections to help bicyclists navigate all the way to and through the intersection. It is also assumed that buffers will be included in the design of the bike lanes unless otherwise noted.

<u>The following Class II bike lanes are proposed for the University Community Plan Update:</u>

- Costa Verde Boulevard between La Jolla Village Drive and Nobel Drive
  This segment will provide a north south connection between La Jolla Village Drive and Nobel Dr. This bicycle facility will provide access to cycle tracks that connect to the entire community as well as alternate route to higher speed roadways. The implementation of this roadway would require the reduction of travel lanes to accommodate the proposed bicycle facility.

- Eastgate Mall between Regents Road and Genesee Avenue (westbound)*
  This segment will serve as a connection to employment area as well as UCSD Campus. The westbound will provide a buffered separation between vehicles and cyclists as well as access to cycle tracks along Regents Road and Genesee Ave that serve the rest of the community. The implementation will require a reconfiguration of the right of way with potential redevelopment.

- Governor Drive between Stresemann Street and I-805 NB Ramps
  This facility would create a buffer between vehicles and bicyclist along the entire extent of Governor drive. This will create an east and westbound connection in the southern part of the community that will connect large residential areas to commercial uses such as schools and shopping areas. It also connects to cycle tracks on Genesee Ave and Regents Road that provide a connection to the northern part of University and a south connection to the Clairemont community. A repurposing of the right of way would be required to accommodate the buffered bicycles lanes in both directions.

- Greenwich Drive between Governor Drive and Shoreham Place*

This segment creates a buffer for cyclist to have access to employment areas along Greenwich Dr. This bicycle facility will connect with buffered bike lanes along Governor Drive and help connect residential areas to a large employment area. Implementation of this facility will require narrowing lane widths and striping a buffer between the travel lane and the bicycle lane.

- Lebon Drive between Palmilla Drive and La Jolla Village Drive
  This facility would provide through access between some of the community's main roadways. The buffered bicycle lane will serve as a north to south bound connection between La Jolla Village Drive, Nobel Drive and Palmilla Drive and their planned cycle tracks.

- Renaissance Avenue between Towne Centre Drive and Golden Haven Drive*
  It is recommended to provide buffered bicycle lanes to connect residential street to main roadways along this segment. This residential street would serve nearby residents with safer buffered bicycle lanes to connect to cycle tracks around the community. The implementation of this facility might require a reconfiguration of the existing right of way.

- Shoreline Drive between Renaissance Avenue to Nobel Drive*
  This facility would repurpose parking on small sections of this segment for a buffered bicycle lane. This would create a north to south connection for residents to the cycle track along Nobel Drive. Bicyclist will be able to access the University community as well as the Mira Mesa community by connecting to the cycle tracks along Nobel Drive.

- Towne Centre Drive between Towne Centre Court and La Jolla Village Drive*
  This facility will create a north south connection by providing a buffered bicycle lane to employment, commercial and residential area. This segment will also create a network access to planned cycle tracks along the community. Implementing this facility will require removing on street parking and striping a buffered bicycle lane on the east and west sides of the roadway.

- Towne Centre Drive between La Jolla Village Drive and Nobel Drive*
  This facility will create a north south connection by providing a buffered bicycle lane to commercial and residential area. This segment will also create a network access to planned cycle tracks along the community. Implementing this facility will require removing on street parking and parking and striping a buffered bicycle lane on the east and west sides of the roadway.

Class III Bike Routes/Bike Boulevards

Class III bike routes are not the preferred facility type for many bicyclists, as sharing the roadway space with vehicles decreases comfort and safety. However, there are circumstances where identifying the roadway as a bike route with signing and pavement markings, paired with traffic calming and volume management strategies, can create a comfortable neighborhood route. These facilities are typically located on residential roadways where traffic volumes and speeds are already low, and where parking removal is not recommended due to the adjacent residential land uses.

The following Class III bike routes are proposed for the University Community Plan Update and are intended to be paired with traffic calming and/or volume management measures along roadways to reduce speeds and vehicle conflicts with bicyclists. These are typically along residential roadways connecting residents to schools and parks:

- Arriba Street between Regents Road and Cargill Avenue
  This facility mainly serves residential areas as well as an elementary school. It is recommended to provide traffic calming measures to reduce the vehicle travel speed for bicycle safety. This route is also intended to serve as a route for school as to also reduce the number of school trips for vehicles. The implementation of traffic calming and speed management measures will require site specific study to determine the best use methods or managing local speeds.

- Bothe Avenue between Blotch Street and Stresemann Street
  This segment is intended to serve the residential street with bicycle access. The facility will help connect residents in the area to the local park and Mission Bay Montessori Academy School. The implementation of this facility will require the installation of sharrows along the street to signal the shared bicycle path.

- Cargill Avenue between Nobel Drive and Arriba Street
  The community plan proposes this segment as a shared bicycle route as a connection between residents and the local park as well as a connection to the Arriba shared bicycle route that provides bicycle access to the neighborhood school. The facility also connects to the cycle track along Nobel Drive that serves as a safter protected bicycle facility that connect to a major part of the community.

- Decoro Street between Cargill Avenue to Genesee Avenue
  This facility will incorporate a bicycle route as a shared path for cyclist and vehicles. This segment serves as an east west connection between the residential areas and cycle tracks along Genesee Ave. It also provides access to the local park and recreation center. The implementation of this facility will require sharrows to denote the shared usage of cyclists.

- Greenwich Drive between Shoreham Place and East End
  This facility would provide a bicycle route to the employment area on Greenwich while also connecting cyclist to bicycle lanes along Governor Dr. This facility serves a small section in the southeast corner of the community as a final connection for residents to the employment areas. The implementation of this facility will require wayfinding sign, traffic signs and pavement markings.

- Gullstrand Street between Florey Street to Governor Drive
  This segment is envisioned as a connection between resident and the local parks. This facility is primarily residential and would create a north to south bound path between the University Village Park and the University Gardens Park. The bicycle route would also connect residents to another planned buffered bicycle lane towards the south on Governor Drive. The implementation of this facility will require wayfinding sign, traffic signs and pavement markings.

- Regents Road between Arriba Street and Rose Canyon End (northbound)

This facility is intended as a connection proving direct access to the local Rose Canyon. This segment will repurpose right of way for a shared use path along the eastern section while the eastern side will include bicycle routes for both the north and southbound roadway lanes. Implementation of this facility will require repurposing of the right of way by reducing the travel lanes and reducing parking to angles parking along the eastern edge.

- Regents Road between Rose Canyon End and Governor Drive
  This facility has residential fronting along the segment and is envisioned as a connection to the local Rose Canyon. A bicycle route is recommended for this segment due to the low traffic volumes on this road end. The implementation of this facility will require wayfinding sign, traffic signs and pavement markings.

- Stresemann Street between Bothe Ave and Governor Drive
  This facility is mainly residential, and it intends to connect residents from the south western part of the community to the rest of the University community. Due to narrow roadway width and the need to maintain parking for single family residences, it is recommended to implement traffic calming and/or volume measures in order to keep speeds at or below 25 mph that would feel more comfortable for bicyclist.

- Towne Centre Drive between North End and Towne Centre Court
  This segment is intended to serve as a connection to employment areas to other protected bicycle facilities that connect to the rest of the community. A bicycle route is recommended for this segment due to the low traffic volumes due to the end of roadway. The implementation of this facility requires traffic calming and/or volume measures in order to keep speeds at or below 25 mph as well as stripped sharrows denoting the shared road use.

Class IV (One-Way Cycle Track)

Class IV bikeways provide horizontal separation between bicyclists and vehicles as well as an element of vertical separation. The type of vertical separation should be decided at the project level during the design phase. Class IV bikeways are typically installed on higher speed, higher volume roadways, with minimal access points or driveways. Bike signals are typically provided at intersections where Class IV bikeways are provided.

<u>The following Class IV (One-Way Cycle Track) are proposed for the University Community Plan Update:</u>

- Arriba Street between Palmilla Drive and Regents Road
  This segment will serve as an east to west connection between Palmilla Drive and Regents Road from a highly residential area to commercial uses and other protected cycle tracks along Regents Road. This facility will require the removal of two travel lanes repurposed as a protected cycle track.

- Eastgate Mall between Regents Road and Genesee Avenue (eastbound)*
  This segment on the south side of Eastgate mall in intended to provide an Eastbound low stress facility while the North side is planned as a Class II. This facility will serve a community high school while providing a through connection to the UCSD campus and large employment

centers. Implementation of this facility will require reconfiguration of the right of way and potential redevelopment on the north end.

- Eastgate Mall between Genesee Avenue and Judicial Drive
  This facility will provide low stress bicycle facilities along Eastgate Mall and will follow SANDAG's adopted regional bike network. This segment provides a connection to large commercial uses and other protected cycle tracks along Genesee Ave and Judicial Dr. The implementation of this facility will maintain the right of way by reducing the travel lane widths with a potential redevelopment on the northern side.

- Genesee Avenue between North Torrey Pines Road and Science Center Drive (One-way, Two Lane)
  This facility is proposed to create cycle tracks on both sides of the roadway with two lanes in each direction. Two lanes are proposed for the higher volume of cyclist connecting to N Torrey Pines cycle tracks while also providing protected cycle tracks on high-speed road. This segment will assist connecting cyclists to a major part of the community to the western entrance of the UCSD campus on N Torrey Pines. The implementation of this facility will require the removal of one travel lane in each direction.

- Genesee Avenue between Science Center Drive and I-5 NB Ramps (northbound) (One-way, Two Lane)
  There is an existing Class II bicycle facility; however, due to higher vehicular speeds, curvature of the roadway and uphill incline, it is recommended to convert the existing facility into a protected cycle track with two lanes in the Northbound direction. The southbound will maintain the existing Class II for this segment. This facility would provide a low stress facility that would connect the larger part of the community to large employment centers along Science Center Drive and other low stress facilities along N Torrey Pines. The implementation of this facility may require repurposing of the right of way and potential redevelopment on the northern side.

- Genesee Avenue between Campus Point Drive and SR-52 WB Ramps (Southbound) *
  There is an existing Class II bicycle facility; however due to higher vehicular speeds, curvature of the roadway and uphill incline, it is recommended to convert the bicycle facility to a separated protected cycle track southbound while the northbound is proposed as a multi-use shared Class I facility. This facility connects to access to UCSD school and employment areas and bicycle facilities that connect to the north and south areas of the community. The implementation of this facility may require repurposing of the right of way and potential redevelopment on the northern side.

- Gilman Drive between La Jolla Village Drive to La Jolla Colony Drive
  There is an existing Class II bicycle facility; however due to higher vehicular speeds, curvature of the roadway and uphill incline, it is recommended to convert the bicycle facility to a separated protected cycle track southbound while the northbound is proposed as a multi-use shared Class I facility. This facility serves mainly residential areas that provides access to UCSD campus, cycle tracks along La Jolla Village Drive as well as an existing multi shared use path at the southern

region of the community as a part of SANDAG's Regional Bike Network. Implementation of this facility will require repurposing of the right of way and potentially narrowing of the travel lanes.

- Judicial Drive between Eastgate Mall and Nobel Drive*
  This segment is along an industrial setting and is part of a connection intended for employees to access their place of employment and residences along the southern part of the segment. This facility would provide a North to South connection connecting to other major cycle tracks that provide a large bicycle access to other parts of the community. Implementing this facility would require parking removal and a repurposing of the right of way.

- La Jolla Village Drive between North Torrey Pines Road and I-805 NB Ramps*
  This facility extends the width of the community and crosses through the center providing access to the majority of the area with connections to major employment centers, industrial areas, residential areas, major retail centers, UCSD campus and numerous bicycle facilities including other cycle tracks. This segment offers an East to West directional connection that would require the removal of parking to install as well as narrowing of the travel lanes. Implementation of this cycle track would repurpose the right of way.

- La Jolla Colony Drive between Gilman Drive and Palmilla Drive
  There is an existing Class II bicycle facility with a painted buffer along this segment. However, due to the higher travel speeds it is recommended to create a vertical separation from motorists to provide a low stress facility for bicyclist. This facility would provide a north south connection to cycle tracks along Gilman Dr, Palmilla and an existing Class I running south parallel to the I-5. Implementation of this facility would require repurposing of the right of way and potentially removing a travel lane in each direction.

- Miramar Road between I-805 NB Ramps and Camino Santa Fe
  There is an existing Class II bicycle facility along this segment that is intended to be upgraded to a Class IV to provide cyclists with a low stress and protective buffer facility. This segment is intended as west to east connection between the University and Miramar communities as well as industrial uses along Miramar Road. The implementation of this facility may require narrowing of the travel lanes and/or repurposing of the right of way.

- Nobel Drive between Villa La Jolla Drive and University Center Lane
  There is an existing Class II bicycle facility; however due to higher vehicle speeds and traffic volume it is recommended to be upgraded to a low stress facility with protective buffer. This segment connects parts of the community across the I-5 interstate to commercial uses along the west side of the community with access to a trolley stop off of Nobel Dr. Implementing this facility may require reducing travel lanes to provide separation from vehicles and vertical treatments.

- Nobel Drive between University Center Lane and Regents Road (eastbound)*
  This facility is intended to serve the Eastbound on Nobel to connect the proposed Class IVs on the East and West side of this segment along Nobel Drive where a multi-use path is proposed on

the Westbound direction. This portion of Nobel mainly serves residential areas that would provide residents with a low stress facility that connects to other Class IV facilities along Nobel Drive and Regents Road that connect to commercial and employment areas in the community. The implementation of this facility will require repurposing of the right of way and special treatments at various driveways.

- Nobel Drive between Regents Road and Miramar Road*
  There are Class II facilities along most this segments that are proposed to be upgraded to Class IV along a large portion of Nobel Drive. This facility would serve as an east-west low stress bicycle facility along central part of the community connecting to many proposed bicycle facilities including other Class IV facilities on Miramar Road, Judicial Drive, Genesee Avenue, and Regents Road. The implementation of this facility would require repurposing of the right of way, vertical treatments, narrowing of the travel lanes, special treatments at various driveways as well as addressing right turn conflicts at signalized intersections.

- North Torrey Pines Road between NU System Driveway to Genesee Avenue
  There are existing class II bicycle facilities along this segment; however due to higher vehicle speeds it is recommended to the convert the bicycle facility into a separated facility as a cycle track providing a low stress bicycle facility. This facility would serve an area with a high volume of cyclist that connects North Torrey Pines to the University Community while also proving access to the UCSD campus. Implementation of this Class IV facility would not require roadway modification to the right of way but would need the installation of vertical treatments.

- Palmilla Drive between Arriba Street and La Jolla Colony Drive (northbound)
  There is an existing class II bicycle facility along Palmilla Drive. The northbound direction of this segment is proposed to be upgraded to a class IV cycle track to create a continuous bicycle facility by connecting it to cycle tracks on La Jolla Colony Drive to Arriba Street while providing a low stress facility. Implementation of this facility will require vertical treatments along with proposed traffic calming measures.

- Regents Road between Genesee Avenue and Arriba Street*
  This segment of Regents Road contains some existing class II bicycle facilities; however, due to higher traffic volumes and travel speeds it is recommended to convert this segment to a separated facility. This facility would extend a large portion of Regents Road and provide a north to southbound connection to a core area of the community while proving a low stress facility. The proposed cycle track will also provide access to many other planned cycle tracks in the community along Genesee Ave, Eastgate Mall, Executive Drive, La Jolla Village Drive and Nobel Drive. The implementation of this facility would require repurposing of the right of way in some sections, narrowing of some of the travel lanes and special vertical treatments.

- Regents Road between Governor Drive and SR-52 WB Ramps
  This segment of Regents Road is proposed as a separated bicycle facility intended to serve as a north to south connection from the southern part of the community to the adjacent community in Clairemont. This facility would provide a low level of stress for cyclists while also providing

access to bike lanes proposed along Governor Dr. The implementation of this facility would require narrowing of the travel lanes and the installation of vertical separation treatments.

- University Center Lane between Nobel Drive and Lebon Drive*
  This segment is envisioned as a connection between Lebon Drive and Nobel Drive through commercial and employment areas. It is recommended as a separated facility to provide a low level of stress for cyclists in the area while also connecting to Class IV cycle tracks along Nobel Drive and Class II bicycle lanes along Lebon Drive. Implementing this facility would require the removal of street parking as repurposing of the right of way along with vertical treatments to serve as a buffer for cyclists.

- Villa La Jolla Drive between La Jolla Village Drive and Gilman Drive*
  This facility is proposed as a Class IV bicycle facility to serve a north to south connection to residential areas, shopping center and the southern entrance to the UCSD campus. Also, this facility connects to other Class IV cycle tracks along Gilman Drive, Nobel Drive and La Jolla Village Dr. The implementation of this facility would require the repurposing of the right of way including the removal of on street parking as well as vertical treatments.

Class IV (Two-Way Cycle Track provided along one side of the roadway, side will be specified)

Class IV (Two-Way Cycle Tracks) are similar to Class IV (One-Way Cycle Tracks) described in the section above. However, a two-way bikeway requires implementation of bike signals to provide guidance for bicyclists at the intersection where they may have different needs from other road users.

<u>The following Class IV (Two-Way Cycle Track) are proposed for the University Community Plan Update:</u>

- Campus Point Drive between North End to Genesee Avenue (southbound)
  There is an existing Class III bicycle facility on this segment that is proposed to be upgraded to a two-way cycle track. The bicycle facility is recommended on the West end of the roadway with one bicycle lane in each direction. This facility would provide a protected low stress facility along Campus Point Drive to employment areas and connecting to protected bicycle facilities along Genesee Ave. Implementing this facility would require the removal of one lane in the southbound direction creating a two-lane roadway, allowing to maintain on street parking.

- Eastgate Mall between Judicial Drive and Miramar Road (eastbound)*
  This segment is intended to serve the eastern part of the community to large commercial and employment areas that have restricted bicycle access. This facility is proposed as a two-way cycle track along the south end of the roadway with one lane in each direction. This cycle track would also connect to cycle tracks along Miramar Road and the west section of Eastgate Mall. This facility would require the removal of on street parking and the narrowing of the travel lanes along with vertical treatments.

- Nobel Drive between Judicial Drive and I-805 NB Ramps (westbound)
  This segment is fronting predominantly This facility is proposed as a two-way cycle track along the south end of the roadway with one lane in each direction. This cycle track would also connect to cycle tracks along Miramar Road and the west section of Eastgate Mall. This facility

would require the removal of on street parking and the narrowing of the travel lanes along with vertical treatments.

Footnote: "*" indicates segments where parking removal is anticipated prior to implementation of identified bicycle facility

Bicycle Signal Phasing

Bicycle signal phasing are recommended to improve safety and compliance at intersections. Bike signal phasing is recommended at the following intersections:

- Genesee Avenue at North Torrey Pines Road
- Genesee Avenue at Campus Point Drive
- Genesee Avenue at Eastgate Mall
- Genesee Avenue at Executive Drive
- Genesee Avenue at Nobel Drive
- Genesee Avenue at Governor Drive
- Gilman Drive at Villa La Jolla Drive
- Gilman Drive at I-5 NB Ramp

Protected Intersections

Protected intersections provide many safety benefits for cyclists at intersections. One of the key features of a protected intersection is a raised corner island that reduces speeds of right turning vehicles, thereby improving visibility and providing a physically separated space for cyclist to wait for a green light to proceed through the intersection. Intersection Concept Renderings are provided in **Appendix C**.

The following intersections should consider protected intersection treatments in order to improve low stress connectivity through intersections within the community:

- Eastgate Mall at Judicial Drive
- Regents Road at Executive Drive
- Regents Road at La Jolla Village Drive
- Genesee Avenue at Governor Drive
- Genesee Avenue at North Torrey Pines Road
- Nobel Drive at Judicial Drive

2.4 Transit

2.4.1 Identified Transit Needs

The City of San Diego's General Plan highlights strategies which focuses growth in mixed-use activity centers that are linked to an improved regional transit system. Focusing development and density near transit will allow more people to live and work within walking distance of transit and will provide the opportunity for more people to use transit rather than single-occupancy vehicle trips. University has several transit routes currently operating within the community and one major transit station.

The Gilman Drive Transit Center (Gilman Dr/Myers Dr) and the UTC Transit Center saw the highest average daily boardings and alightings. These stops are served by SuperLoop Routes 201 and 202 which have significant levels of ridership in the area. The UCSD Transportation Services provides eight shuttle routes that serve the University community. The shuttle routes specifically serve the campus, medical centers, and other key points off campus. The combination of the MTS, NCTD, and UCSD bus routes cover most of the community and provide connections to transfer stations and COASTER/AMTRAK stations that allow users to access other bus routes, trolley lines and regional services.

The University community has a mode share nearly two times that of the City of San Diego and over two times that of San Diego County. This is likely due to the relatively high levels of transit service in the area and transit-supportive land use patterns. The SuperLoop Rapid Buses (Routes 201/202/204) combine to serve about 10,500 daily boardings and alightings. Route 41, which connects to the Fashion Valley Transit Center has about 4,600 daily boardings/alightings in the community. Route 30, with service to La Jolla and downtown San Diego, and Route 150, with service to downtown San Diego, each have over 3,200 daily boardings/alightings.

Not surprisingly, the locations with the highest values are in the high-density areas and locations with transfer points. These are also areas served by multiple transit lines.

Congestion along high bus rider capacity corridors are an issue for transit. Improving transit reliability along key transit corridors through transit lanes and technological improvements where feasible will provide a great benefit to transit riders and can encourage more transit use in University. Also providing adequate bus stop amenities at appropriate locations can improve service reliability. Transit needs in University are primarily stemmed from congestion along major corridors during commute peak periods leading to poor on-time performance as well as safety issues near transit stations. Transit needs are identified in the **Appendix A**.

Transit Reliability

All of University's eleven transit route meet their respective on-time performance goals. (Please note that one transit route did not disclose their on-time performance for the study period and one transit route did not disclose transit goal for the study period.) **Table 2-1** shows the on-time performance (OTP) rates provided by the Fiscal Year 2023 MTS Policy 42 Performance Monitoring Report and the February 2023 NCTD Breeze Monthly On-Time Performance Report. OTP is measured at each bus timepoint for every trip; buses departing timepoints within 0-5 minutes of the scheduled time are considered to be "on-time". MTS' goal for OTP is 85% for Urban Frequent and Rapid bus routes, and 90% for Trolley and all other bus route categories. Since many bus routes serve the community along key corridors, strategic transit priority treatments may increase service reliability and transit frequency making transit a viable option for travel to and from work or school.

Table 2-1 On-time Performance Rates

Bus Route	Goal	On-time Performance
Route 30 - Old town and UTC/ VA Medical Center	85%	79%
Route 31 - UTC and Mira Mesa via Miramar Road	85%	89%
Route 41 - Fashion Valley and UC San Diego via Genesee Avenue	85%	90%
Route 60 - Euclid Transit Center and UTC via I-15 Mid City/Kearny Mesa	90%	83%
NCTD Route 101 - Oceanside to VA/UCSD/UTC via Highway 101		82%
Route 105 - Old Town and UTC via Morena Boulevard/Clairemont Drive	85%	93%
Route 201/202 - UTC Transit Center and UC San Diego via UC San Diego Medical Center or Nobel Drive	85%	92%
Route 204 - UTC East Loop via Executive Drive/Judicial Drive/Nobel Drive	85%	94%
Route 237 - Mira Mesa and UC San Diego via Mira Mesa Boulevard	85%	93%
Route 921/921A - UTC and Mira Mesa via Mira Mesa Boulevard	85%	81%
Route 974 - UC San Diego Sorrento Valley COASTER Station Connection		Not noted in Annual Service Performance Monitoring Report
Route 978 - Torrey Pines Sorrento Valley COASTER Station Connection		Not noted in Annual Service Performance Monitoring Report
Route 979 - University City Sorrento Valley COASTER Station Connection		Not noted in Annual Service Performance Monitoring Report
Route 985 - UC San Diego and North Torrey Pines via North Torrey Pines Road	90%	89%

Note: Red shade indicates route does not meet performance goals.
Source: SD MTS Performance Monitoring Report FY 2023: July 2022 - June 2023
Source: NCTD Breeze Monthly On Time Performance Report: February 2023

2.4.2 Planned Transit Improvements

SANDAG's San Diego Forward: The Regional Plan (2021) identifies the transit improvements listed below as planned implementation by the horizon year of 2050. The following are planned transit projects identified in the RTP to increase mobility connections for the University community and are included in the proposed plan:

- Commuter Rail 582 - Sorrento Mesa to National City via UTC, Kearny Mesa and University Heights
- Rapid Route 41 - Fashion Valley to UTC/UC San Diego via Linda Vista and Clairemont.
- Rapid Route 237 – UC San Diego to Rancho Bernardo via Sorrento Valley and Mira Mesa
- Rapid Route 238 – UC San Diego to Rancho Bernardo via Sorrento Valley and Carroll Canyon
- Rapid Route 473 - Oceanside to Solana Beach to UTC/UC San Diego via Highway 101 Coastal Communities, Carmel Valley
- Trolley Route 561

- Rapid 689
- Rapid Route 870 – El Cajon to UTC via Santee, SR 52, I-805

Relocation of the Sorrento Valley Station has also been considered and recommended in previous planning efforts. The Project Report for *I-5/Sorrento Valley Road Interchange Improvements* recommends relocating the Sorrento Valley Station south, close to the interchange of Mira Mesa Boulevard and I-805. This would modify the transit connections to the community and would need to be evaluated for connections by all modes. The relocation provides an opportunity to explore first- and last-mile pedestrian and bicycle improvements for access to the Sorrento Valley employment center. See **Figure 2-4** for the Planned Transit Network Map and **Figure 2-5** for the Potential Transit Network Map.

SMART Corridors

The Proposed Plan incorporated SMART Corridors to further SANDAG's 5 Big Moves Strategy. The Proposed Plan includes three SMART corridors along University's major east-west roadways. It is anticipated that the following SMART corridors will provide dedicated space for efficient transit and other pooled services improving transit reliability and performance.

- Nobel Drive
- La Jolla Village Drive
- Genesee Avenue

Flexible Lanes

Similar to SMART Corridors there are key north-south roadways where dedicated roadway space for transit can improve transit performance as well as increase the sphere of potential transit riders. This repurposing of roadway space would dedicate space for flexible lanes that may be used by a combination of non-single occupancy vehicles, such as transit, autonomous/connected vehicles, or other emerging mobility concepts and is aimed at improving transit reliability along some of the transit routes that currently are not meeting their on-time performance targets. Although lane configuration and type of use is contingent upon time of need, the following corridors will provide flexible lanes:

- Nobel Drive
- La Jolla Village Drive/Miramar Road
- Genesee Avenue
- Gilman Drive
- Villa La Jolla

Mobility hubs

Mobility hubs are places where different travel options intersect. They are areas surrounding frequent transit that connects transit to shared mobility devices, biking, walking and provide a connection to surrounding services and amenities. The 2021 Regional Plan will include a network of mobility hubs near major activity centers. By 2050, it is anticipated that the mobility hub network could serve nearly half of the region's population and more than two-thirds of the region's jobs. Mobility hubs help expand the transit catchment area and encourage transit riders to walk, bike, and scooter to their final destination. The Proposed Plan includes a mobility hub at the following locations:

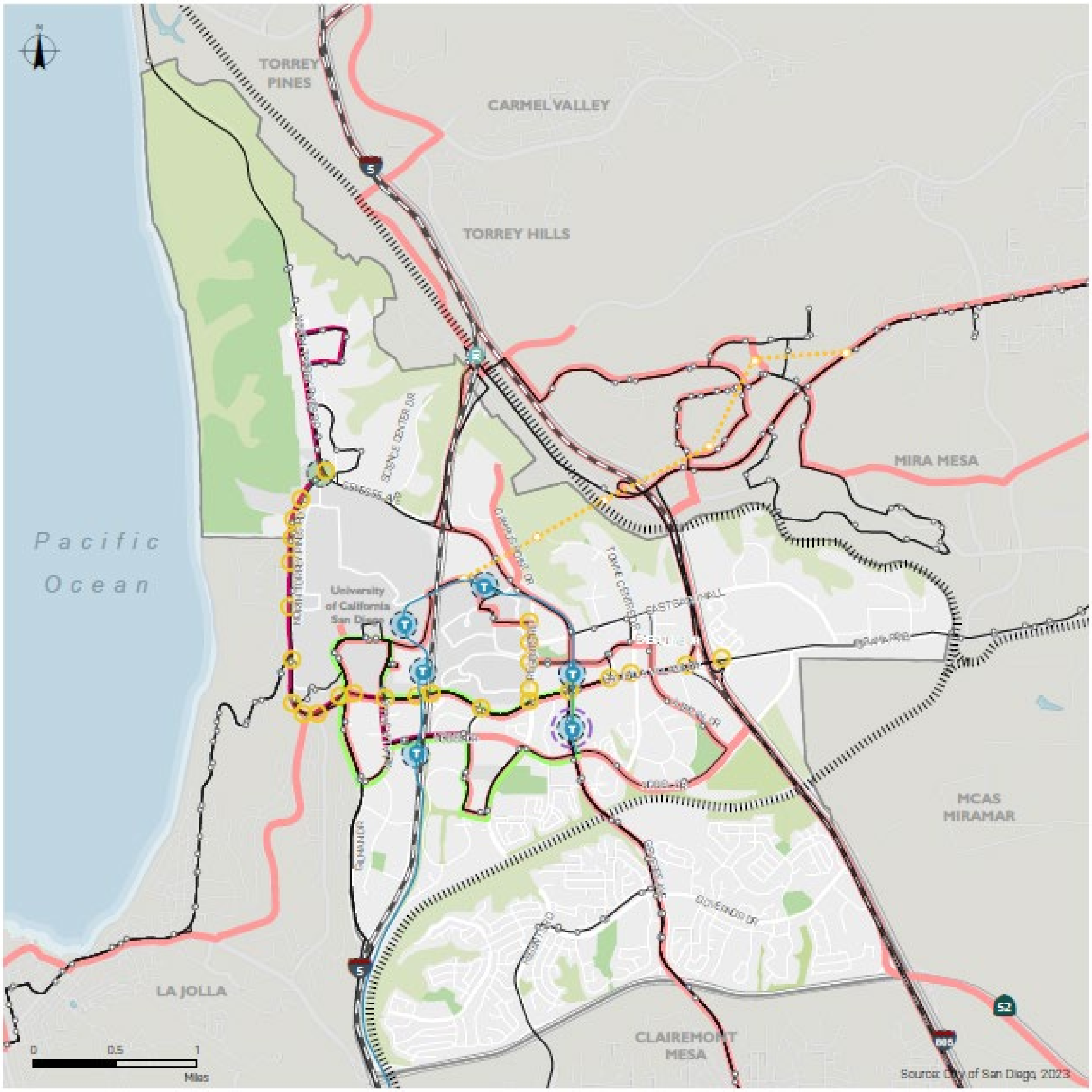
- Genesee Avenue and North Torrey Pines Road

Transit Priority

In the effort to maximize transit route efficiency and on-time performance, transit signal priority, queue jumps lanes, transit lanes, or shared transit/right turn lanes are examples of measures that can be used to give transit priority at intersections and can be implemented as applicable at the project-level. The Proposed Plan includes transit priority measures on the following corridors:

- La Jolla Village Drive
- Regents Road
- North Torrey Pines Road
- Genesee Avenue
- Nobel Drive

Figure 2-4 Planned Transit Network Map



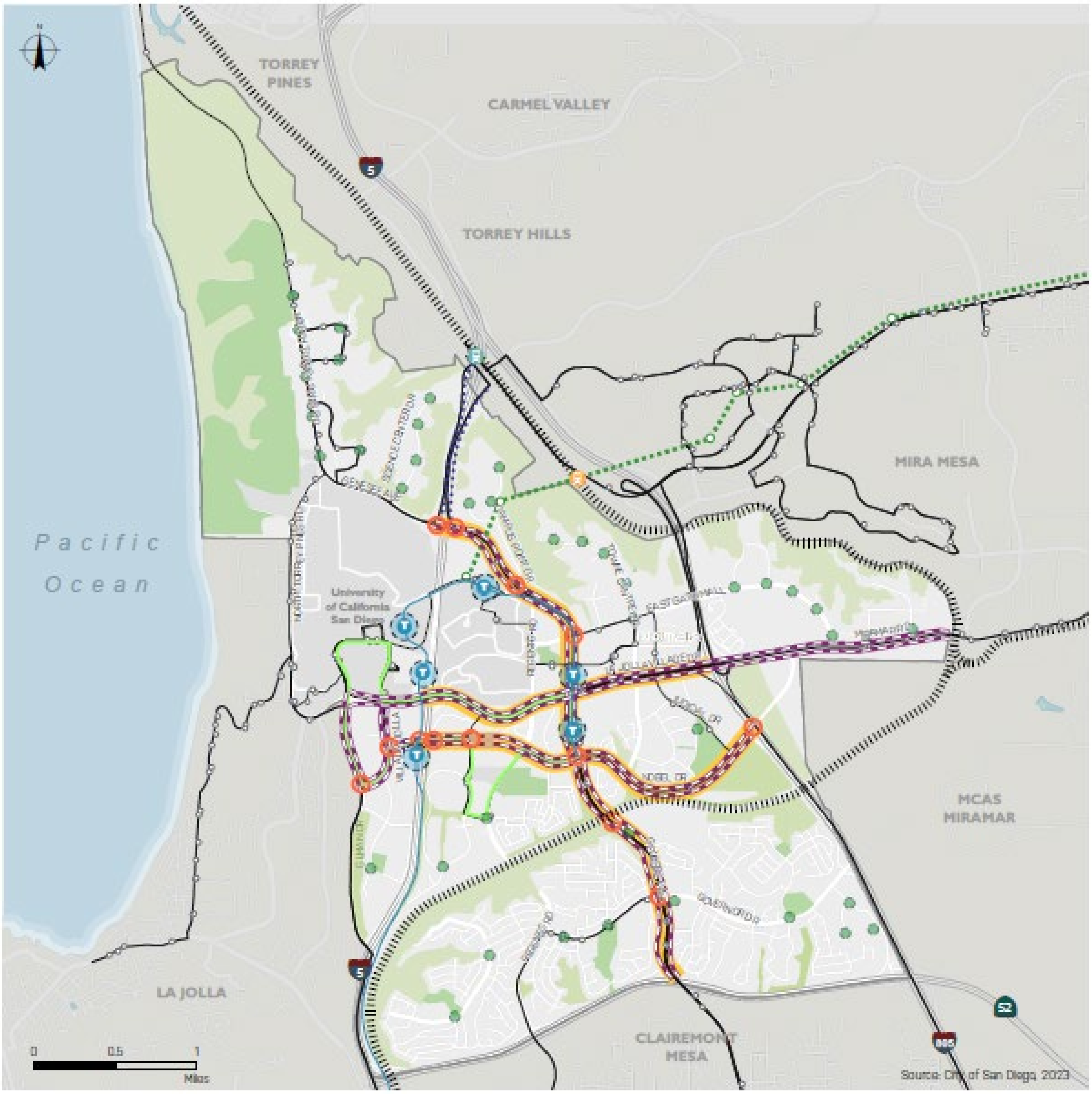
Existing Transit

- Mid-Coast Trolley Extension
- Trolley Station
- Coaster Station
- COASTER/Amtrak
- Existing Transit Route
- Bus Stop
- SuperLoop
- Existing Mobility Hub

Planned Improvements - as currently reflected in the RTP

- Managed Lanes
- Adaptive Signal Timing/Transit Signal Priority
- Next Gen Rapid
- SANDAG Proposed Aerial Skyway Alignment/Skyway Stop
- Rapid Route 870
- Planned Mobility Hub
- Future Purple Line Station

Figure 2-5 Potential Transit Network Map



Existing Transit

- Mid-Coast Trolley Extension
- Trolley Station
- Coaster Station
- COASTER/Amtrak
- Existing Transit Route
- Bus Stop
- SuperLoop
- Existing Mobility Hub

Potential Improvements

- Aerial Skyway Alignment Options/Skyway Stops
- Proposed Coaster Station Relocation
- Micromobility Hub
- Bus On Shoulder
- Flexible Lane
- Adaptive Signal Timing/Transit Signal Priority
- SMART Corridor

2.5 Street System

2.5.1 Identified Vehicular Needs

Streets and freeways comprise the framework of our transportation system and play a major role in shaping community form and quality of life. A street system plagued by congestion can have major impacts on the community. Roadways and intersections experiencing level of service D or worse, and locations with a high concentration of reported collisions are shown in the **Appendix A**.

Connectivity is also very important in a transportation system. Having multiple ways to get to your destination provides better use of the transportation system as traffic is dispersed among several roadways and intersections rather than concentrated along one single roadway and/or intersection.

A series of traffic calming enhancements are needed along residential corridors that serve as connections throughout the community, but which also provide direct access to schools and parks in order to maintain safe vehicular speeds and driving habits near children. Vehicular needs are identified in the **Appendix A**.

2.5.2 Vehicular Improvements

A list of Proposed Plan proposed roadway improvements, new roadways, intersection improvements, new intersections, and freeway improvements are presented throughout this section.

Any planned bicycle facility improvements within the specified roadway extents are also identified, however, the full list of bicycle facility improvements is provided in **Section 3.3.2.** The roadway improvements are predominantly based on the future year traffic volumes that are projected under buildout of the Proposed Plan (displayed in **Figure 2-1**) and to accommodate the multimodal improvements. Full analysis of all Proposed Plan roadways is provided in **Chapter 3**.

Roadway Modifications

SMART corridors with flexible lanes are proposed to increase safety, capacity, and efficiency by providing dedicated space for transit and other pooled services; manage demand in real-time; and maximize use of existing roadway space. The three main arterials that provide access to the University community from the freeways are identified as "SMART" corridors: Nobel Drive, La Jolla Village Drive, Genesee Avenue.

A summary of the roadway modifications involving reclassification that affect vehicle carrying capacity is presented in **Table 2-2**.

Table 2-2 Planned Roadway Classification Modifications

Roadway	Segment	Existing Functional Classification	Planned Classification Designation
Arriba St	Palmilla Dr to Regents Rd	4-Ln Major Arterial	2-Ln Major Arterial
Eastgate Mall	Judicial Dr to I-805 Overpass	4-Ln Major Arterial	3-Ln Collector
Executive Dr	Regents Rd to Judicial Dr	4-Ln Collector w/ TWLTL	2-Ln Major Arterial
Executive Way	Executive Dr to La Jolla Village Dr	4-Ln Collector w/ TWLTL	2-Ln Collector w/ TWLTL
Genesee Ave	N Torrey Pines Rd to I-5 SB Ramp	6-Ln Prime Arterial	4-Ln Prime Arterial
Genesee Ave	I-5 SB Ramps to I-5 NB Ramps	4-Ln Major Arterial	4-Ln Prime Arterial w/ 2 Flex Lanes (SMART) (6)
Genesee Ave	I-5 NB Ramps to Campus Point Dr	6-Ln Prime Arterial	4-Ln Prime Arterial w/ 2 Flex Lanes (SMART) (6)
Genesee Ave	Campus Point Dr to La Jolla Village Dr	6-Ln Major Arterial	4-Ln Prime Arterial w/ 2 Flex Lanes (SMART) (6)
Genesee Ave	La Jolla Village Dr to Esplanade Ct	4-Ln Major Arterial	4-Ln Prime Arterial w/ 2 Flex Lanes (SMART) (6)
Genesee Ave	Esplanade Ct to Nobel Dr	6-Ln Major Arterial	4-Ln Prime Arterial w/ 2 Flex Lanes (SMART) (6)
Genesee Ave	Nobel Dr to SR-52 WB Ramp	4-Ln Major Arterial	4-Ln Major Arterial w/ 2 Flex Lanes (SMART) (6)
Gilman Dr	La Jolla Village Dr to Villa La Jolla Dr	4-Ln Major Arterial	4-Ln Major Arterial w/ 2 Flex Lanes (6)
Governor Dr	Greenwich Dr to Regents Rd	4-Ln Major Arterial	2-Ln Major Arterial
Governor Dr	Regents Rd to Dunant St	4-Ln Major Arterial	2-Lane Collector (w/ TWLTL)
Governor Dr	Dunant St to Stresemann St	4-Ln Major Arterial	2-Ln Major Arterial
La Jolla Village Dr	Torrey Pines Rd to Villa La Jolla Dr	6-Ln Prime Arterial	4-Ln Prime Arterial w/ 2 Flex Lanes (6)
La Jolla Village Dr	Villa La Jolla Dr to I-5 SB Ramps	7-Ln Prime Arterial (4 EB, 3WB + 1 WB aux)	5-Ln Prime Arterial w/ 2 Flex Lanes (7)
La Jolla Village Dr	I-5 SB Ramps to I-5 NB Ramps	6-Ln Prime Arterial (+1 EB aux)	4-Ln Prime Arterial w/ 2 Flex Lanes (SMART) (6)
La Jolla Village Dr	I-5 NB Ramps to Towne Centre Dr	6-Ln Major Arterial	4-Ln Major Arterial w/ 2 Flex Lanes (SMART) (6)
La Jolla Village Dr	Towne Centre Dr to I-805 SB Ramps	7-Ln Major Arterial (4 WB, 3 EB + 1 aux)	4-Ln Major Arterial w/ 2 Flex Lanes (SMART) (6)
Lebon Dr	Palmilla Dr to Nobel Dr	4-Ln Major Arterial	2-Ln Major Arterial
Lebon Dr	Nobel Dr to La Jolla Village Dr	5-Ln Major Arterial	3-Ln Major Arterial
Miramar Rd	I-805 SB Ramps to I-805 NB Ramps	6-Ln Major Arterial	4-Ln Major Arterial w/ 2 Flex Lanes (SMART) (6)
Miramar Rd	I-805 NB Ramps to Nobel Dr	8-Ln Prime Arterial	6-Ln Prime Arterial w/ 2 Flex Lanes (8)
Miramar Rd	Nobel Dr to Eastgate Mall	7-Ln Prime Arterial	5-Ln Prime Arterial w/ 2 Flex Lanes (7)
Miramar Rd	Eastgate Mall to Camino Santa Fe	6-Ln Major Arterial	4-Ln Major Arterial w/ 2 Flex Lanes (6)
Nobel Dr	Villa La Jolla Dr to University Center Ln	4-Ln Major Arterial	2-Ln Major Arterial w/ 2 Flex Lanes (4)
Nobel Dr	University Center Ln to Genesee Ave	6-Ln Major Arterial	4-Ln Major Arterial w/ 2 Flex Lanes (SMART) (6)
Nobel Dr	Genesee Ave to Town Center Dr	4-Ln Major Arterial	2-Ln Major Arterial w/ 2 Flex Lanes (SMART) (4)
Nobel Dr	Towne Centre Dr to Judicial Dr	6-Ln Major Arterial	4-Ln Major Arterial w/ 2 Flex Lanes (SMART) (6)

Nobel Dr	Judicial Dr to Avenue of Flags	5-Ln Prime Arterial	3-Ln Major Arterial w/ 2 Flex Lanes (SMART) (3)
Regents Rd	Genesee Ave to Eastgate Mall	2-Ln Collector w/ TWLTL	4-Ln Major Arterial
Regents Rd	Executive Dr to La Jolla Village Dr	4-Ln Collector w/ TWLTL	4-Ln Major Arterial
Regents Rd	La Jolla Village Dr to Nobel Dr	5-Ln Major Arterial	4-Ln Major Arterial
Regents Rd	Nobel Dr to Arriba St	4-Ln Major Arterial	4-Ln Major Arterial
Regents Rd	Arriba St to Rose Canyon terminus	4-Ln Major Arterial	2-Ln Collector
Villa La Jolla Dr	Gilman Dr to La Jolla Village Dr	4-Ln Major Arterial	2-Ln Major Arterial w/ 2 Flex Lanes (4)

Notes:

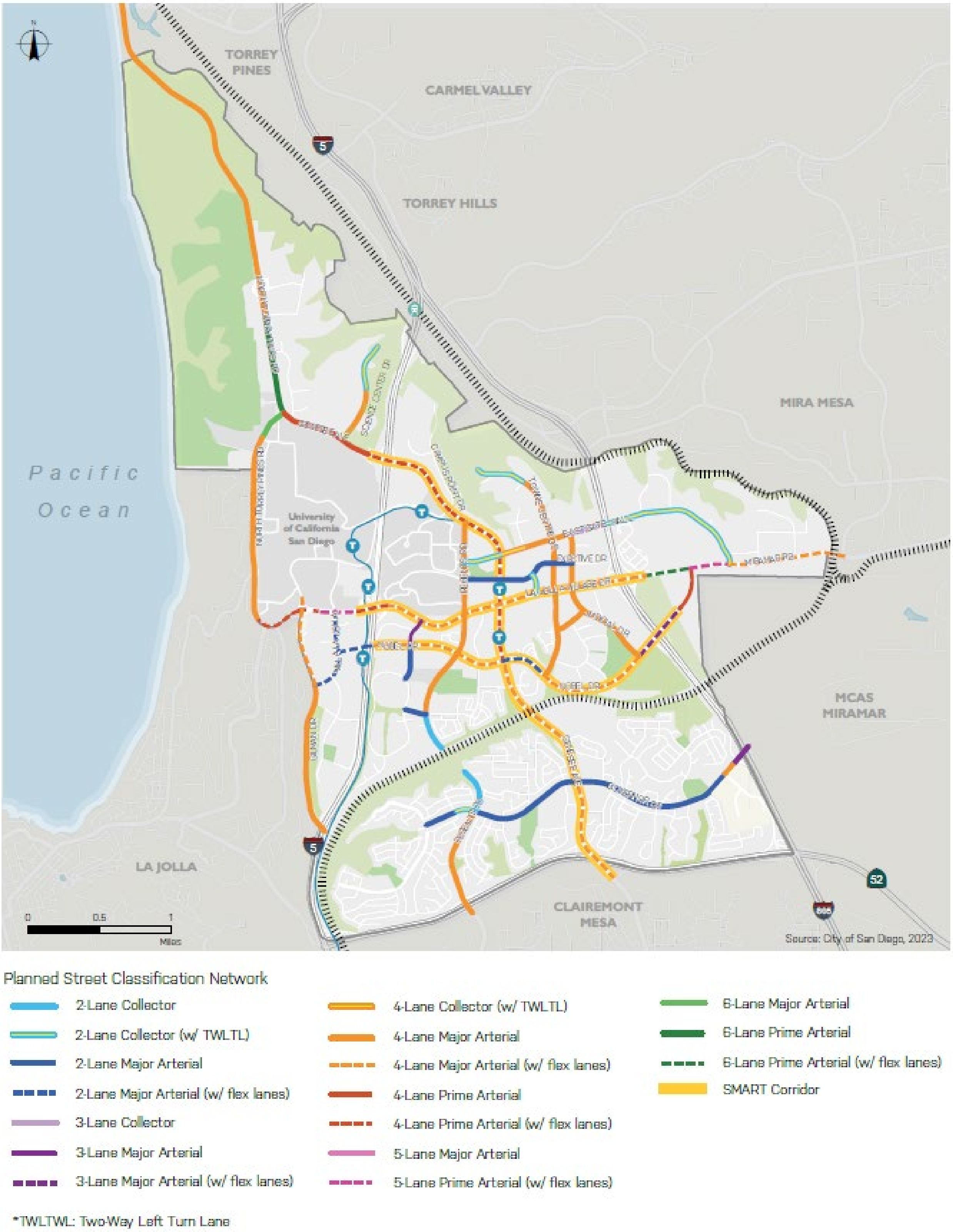
#-Ln = Number of Lanes

SM = Striped Median

TWLTL = Two-Way Left-Turn Lane

A SMART Corridor is a Major Arterial that provides access to or between at least two freeways, whereby mobility improvements are made for transit and other congestion-reducing mobility forms through the repurposing of roadway space.

Figure 2-6 Roadway Network Map



On-street parking removal

Many of the Proposed Plan improvements identified throughout this chapter are intended to be implemented within the existing curb-to-curb roadway widths. As such, the removal of existing on-street parking may be required to aid implementation in some instances.
The Proposed Plan recommendations are intended to improve the transportation network for all modes of travel, including substantial investments in pedestrian, bicycle, and transit access improvements. Combined with the planned transit network expansions and service enhancements, these improvements will provide attractive and competitive alternatives to personal vehicles, potentially alleviating future on-street parking demands.

As noted in the **Section 2.3.2**, on-street parking will be removed at the following locations as network improvements are implemented:

- Eastgate Mall between Regents Road and Genesee Avenue
- Eastgate Mall between Interstate 805 and Olson Drive
- Eastgate Mall between Olson Drive and Miramar Road
- Executive Drive between Regents Road and Judicial Drive
- Genesee Avenue between Campus Point Drive and State Route 52
- Greenwich Drive between Governor Drive and Shoreham Place
- Judicial Drive between Eastgate Mall and Nobel Drive
- La Jolla Village Drive between North Torrey Pines Road and Interstate 805 Ramps
- Nobel Drive between University Center Lane and Regents Road
- Nobel Drive between Genesee Avenue and Towne Centre Drive
- Renaissance Avenue between Towne Centre Drive and Golden Haven Drive
- Shoreline Drive between Renaissance Avenue and Nobel Drive
- Towne Centre Drive between Town Centre Court and Executive Drive
- Towne Centre Drive between La Jolla Village Drive and Nobel Drive
- University Center Lane between Nobel Drive and Lebon Drive
- Villa La Jolla Drive between La Village Drive and Gilman Drive

Intersection Improvements

Intersection modifications to include geometry modification, signal modification, and/or new traffic control at the following locations:

- Governor Drive and Radcliffe Drive
- Governor Drive and Regents Road
- Charmant Drive and Palmilla Drive
- Genesee Avenue and Decoro Street
- Genesee Avenue and N Torrey Pines Road
- Genesee Avenue and Decoro Street
- Genesee Avenue and Esplanade Court
- Nobel Drive and Villa La Jolla Drive
- La Jolla Village Drive and I-805

2.6 Key Corridor Improvements

Based on the improvements identified for each of the four major modes of transportation, ten key corridors were identified that encompass a combination of pedestrian, bicycle, transit, and vehicle mobility issues and recommendations detailed in the previous sections. Key corridors include Nobel Drive, North Torrey Pines Road, Villa La Jolla Drive, Eastgate Mall, La Jolla Village Drive, Genesee Avenue, Executive Drive, Governor Drive, Towne Centre Drive, and Regents Road.

3.0 Proposed Plan Analysis

The Proposed Plan analysis results for the pedestrian, bicycle, transit, and vehicular modes are presented throughout this chapter.

3.1 Pedestrian Assessment Results

This section presents Proposed Plan pedestrian network analysis results, with the implementation of the improvements identified in **Chapter 2**.

3.1.1 Pedestrian Network Quality

Pedestrian Environmental Quality Evaluation (PEQE) provides an assessment of pedestrian facilities. For roadway segments, the evaluation considers horizontal buffer, lighting, a clear pedestrian zone, and posted speed limit. Intersection analyses look at physical features that serve safety mechanisms (enhanced crosswalk, curb bulb out, advanced stop bar), operational features (pedestrian countdown timers, lead pedestrian interval, no-turn on red sign/signal), ADA standard curb ramps, and traffic control. An overview of the inputs and scoring criteria is discussed in **Appendix A.**

The analysis was performed for all pedestrian study area segments depicted in **Figure 2-1**. The PEQE results for Proposed Plan conditions are displayed in **Figure 3-1**. **Table 3-1** presents PEQE scoring for each roadway, while **Table 3-2** shows intersection scoring. Calculation worksheets are provided in **Appendix G - PEQE Calculation Worksheet**.

As shown, intersection and segment scores along pedestrian route types identified as Districts and Corridors (previously shown in **Figure 2-1**) received a score of medium to high due to the additional operational and physical features planned along these roadways. Most of the study area segments received a “medium” score, and there were various roadways that received “low” score due to high speeds on the adjacent roadway. A majority of the intersection crossings received a “medium” or “high” score based on the proposed physical and operational improvements. The roadways and intersections that received “low” PEQE scores are shown in **Table 3-1** and **Table 3-2**, respectively.

Figure 3-1 PEQE – Proposed Plan Conditions

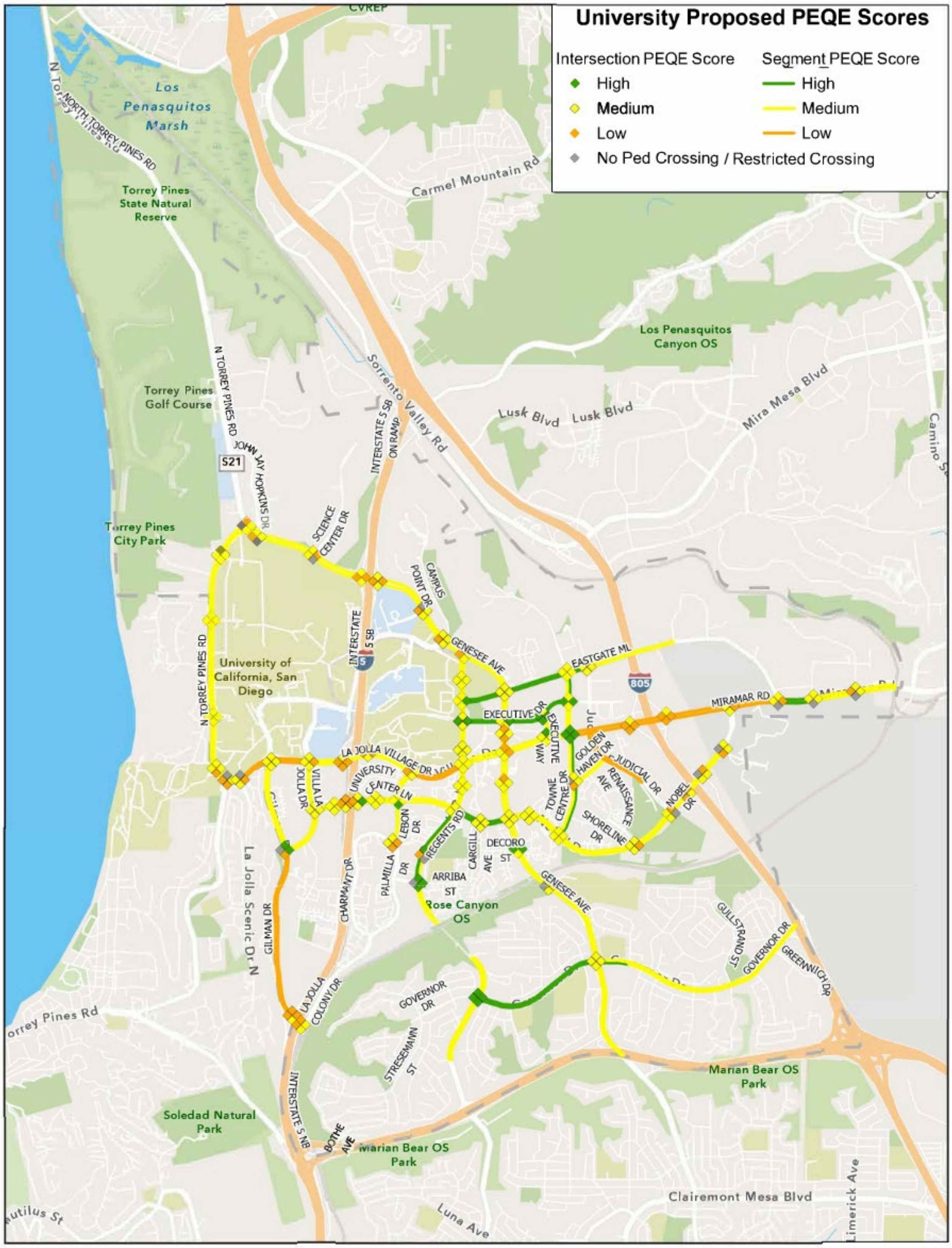


Table 3-1 PEQE Segment Analysis Results – Proposed Plan Conditions

Segment	Proposed Plan Conditions			
	North/East		South/West	
	Score	Grade	Score	Grade
Eastgate Mall				
Regents Rd to Genesee Ave	5	High	5	High
Genesee Ave to Towne Centre Dr	3	High	3	High
Judicial Dr to Eastgate Dr	3	Medium	3	Medium
Executive Drive				
Regents Rd to Genesee Ave	7	High	5	High
Genesee Ave to Executive Wy	7	High	7	High
Executive Wy to Towne Centre Dr	6	High	6	High
Executive Wy				
La Jolla Village Dr to Executive Dr	7	Medium	6	Medium
Genesee Avenue				
SR 52 to Governor Drive	8	Medium	7	Medium
Calgary Avenue to Centurion Square	8	Medium	8	Medium
Centurion Square to Decoro Street	8	Medium	8	Medium
Governor Drive to Calgary Avenue	5	Medium	4	Medium
Decoro Street to Nobel Drive	8	Medium	8	Medium
Nobel Drive to La Jolla Village Drive	4	Medium	4	Medium
La Jolla Village Dr to Executive Dr	4	Medium	4	Medium
I-5 NB Ramps to Scripps Hospital Dwy	5	Medium	5	Medium
Scripps Hospital Dwy to Regents Rd	5	Medium	5	Medium
I-5 NB ramps to N Torrey Pines Rd	5	Medium	5	Medium
Executive Dr to Eastgate Mall	6	Medium	6	Medium
Regents Rd to Eastgate Mall	6	Medium	6	Medium
Gilman Drive				
Via Alicante to La Jolla Colony Dr	6	Low	6	Low
Via Alicante to Villa La Jolla Dr	2	Low	2	Low
Villa La Jolla to La Jolla Village Dr	3	Medium	2	Medium
Golden Haven Dr				
Towne Centre Dr to Judicial Dr	6	Medium	6	Medium
Governor Drive				
Regents Rd to Stadium St	5	High	5	High
Stadium St to Radcliffe Dr	6	High	5	High
Radcliffe Dr to Genesee Ave	5	High	5	High
Genesee Ave to Edmonton Ave	5	High	5	Medium
Edmonton Ave to Agee St	5	Medium	5	Medium
Agee St to Gullstrand St	6	Medium	6	Medium
Gullstrand St to Lakewood St	5	Medium	6	Medium
Lakewood St to Greenwich Dr	6	Medium	5	Medium
Greenwich Dr to I-805 NB ramp	5	Medium	5	Medium
Judicial Drive				
Villa La Jolla Drive to Golden Haven Dr	5	Low	5	Low
Golden Haven Dr to Research Pl	6	Low	6	Low
La Jolla Village Drive				
Gilman Dr to Villa La Jolla	7	Low	7	Low
Lebon Dr to Regents Rd	4	Low	4	Low

I-5 to Lebon Dr	4	Medium	4	Medium
Villa La Jolla to I-5	5	Medium	5	Medium
Regents Rd to Genesee Ave	5	Medium	5	Medium
Genesee Ave to Towne Centre Dr	4	Medium	4	Medium
Towne Centre Dr to Nobel Dr	5	Low	5	Low
Gilman Dr to Torrey Pines Rd	6	Low	6	Low
Lebon Drive				
La Jolla Village Dr to University Center Ln	7	Medium	6	Medium
University Center Ln to Nobel Dr	7	Medium	6	Medium
Nobel Dr to Pamilla Dr	6	Medium	6	Medium
Miramar Rd				
Nobel Dr to Eastgate Mall	5	Low	5	Low
Nobel Drive				
Costa Verde Blvd to Genesee Ave	5	High	5	High
Villa La Jolla to I-5 SB ramp	7	Medium	7	Medium
I-5 SB ramp to Lebon Dr	7	Medium	7	Medium
Lebon Dr to Regents Rd	7	Medium	6	Medium
Regents Rd to Costa Verde Blvd	5	High	4	High
Genesee Ave to Towne Centre Dr	5	Medium	4	Medium
Towne Centre Dr to Shoreline Dr	5	Medium	4	Medium
Shoreline Dr to Judicial Dr	5	Medium	4	Medium
I-805 to Avenue of Flags	3	Medium	3	Medium
Judicial Dr to I-805	4	Medium	4	Medium
North Torrey Pines Road				
La Jolla Village Dr to Genesee Ave	6	Medium	7	Medium
Regents Road				
Pennant Wy to Governor Drive	7	Medium	7	Medium
Governor Dr to Lahitte Ct	6	Medium	6	Medium
Arriba St to Rose Canyon	3	Medium	3	Medium
Arriba St to Nobel Dr	3	Medium	3	High
Nobel Dr to La Jolla Village Dr	4	Medium	4	Medium
La Jolla Village Dr to Executive Dr	4	Medium	4	Medium
Executive Dr to Genesee Ave	3	Medium	3	Medium
Towne Centre Drive				
Nobel Dr to Golden Haven Dr	3	High	3	Medium
Golden Haven Dr to La Jolla Village Dr	7	High	7	Medium
La Jolla Village Dr to Executive Dr	6	Medium	6	Medium
Executive Dr to Eastgate Mall	5	High	6	Medium
Villa La Jolla Drive				
Gilman Dr to Via Mallorca	4	Medium	4	Medium
Via Mallorca to Nobel Dr	4	Medium	5	Medium
Nobel Dr to La Jolla Village Dr	7	Medium	7	Medium

Table 3-2 PEQE Intersection Analysis Results – Proposed Plan Conditions

Intersection			Proposed Plan Conditions	
Northbound/ Southbound	Eastbound/ Westbound	Intersection Leg	Score	Grade
N Torrey Pines Rd	La Jolla Shores Dr	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
Gilman Dr	La Jolla Village Dr	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
Villa La Jolla Dr	Nobel Dr	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
La Jolla Village Square Dwy	Nobel Dr	North	6	Medium
		East	0	Medium
		South	6	Medium
		West	6	Medium
Regents Rd	Plaza De Palmas	North	7	Medium
		East	7	Medium
		South	7	Medium
		West	7	Medium
Regents Rd	La Jolla Village Dr	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
Regents Rd	Regents Park Row	North	6	Medium
		East	6	Medium
		South	0	Medium
		West	6	Medium
Genesee Ave	Eastgate Mall	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
Genesee Ave	Executive Dr	North	7	Medium
		East	7	High
		South	7	Medium
		West	7	Medium
Towne Centre Dr	Executive Dr	North	7	Medium

		East	7	High
		South	7	Medium
		West	7	High
Towne Centre Dr	Eastgate Mall	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
Genesee Ave	Nobel Dr	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
Lombard Place	Nobel Dr	North	7	Medium
		East	7	Medium
		South	7	Medium
		West	7	Medium
Towne Centre Dr	Nobel Dr	North	7	Medium
		East	7	Medium
		South	7	Medium
		West	7	Medium
Genesee Ave	La Jolla Village Dr	North	0	Low
		East	0	Low
		South	6	Medium
		West	6	Medium
Towne Centre Dr	La Jolla Village Dr	North	7	High
		East	7	High
		South	7	High
		West	7	High
Caminito Plaza Centro	Nobel Dr	North	7	Medium
		East	7	Medium
		South	7	Medium
		West	7	Medium
Judicial Dr	Eastgate Mall	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
N Torrey Pines Rd	Pangea Dr	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
N Torrey Pines Rd		North	0	Low
		East	6	Medium

	UCSD Northpoint Dwy	South	6	Medium
		West	6	Medium
N Torrey Pines Rd	Revelle College Dr	North	6	Medium
		East	6	Medium
		South	0	Low
		West	6	Medium
Regents Rd	Arriba St	North	7	High
		East	7	High
		South	7	High
		West	7	No Ped Crossing
Costa Verde Blvd/Cargill Ave	Nobel Dr	North	7	Medium
		East	7	Medium
		South	7	Medium
		West	7	Medium
Lebon Dr	Nobel Dr	North	7	Medium
		East	7	Medium
		South	7	High
		West	7	Medium
Regents Rd	Executive Dr	North	7	Medium
		East	7	High
		South	7	Medium
		West	7	High
Regents Rd	Eastgate Mall	North	7	Medium
		East	7	High
		South	7	Medium
		West	7	Medium
Regents Rd	County Day Ln/Health Science Dr	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	6	Medium
Executive Way	Executive Dr	North	7	Medium
		East	7	High
		South	7	High
		West	7	High
Genesee Ave	Decoro St	North	7	Medium
		East	7	High
		South	7	Medium
		West	7	High
Genesee Ave	Governor Dr	North	6	Medium
		East	6	Medium
		South	6	Medium

		West	6	Medium
Regents Rd	Governor Dr	North	7	High
		East	7	High
		South	7	High
		West	7	High
Regents Rd	Nobel Dr	North	7	Medium
		East	7	Medium
		South	7	Medium
		West	7	Medium
Scripps Hospital	Genesee Ave	North	0	No Ped Crossing
		East	6	Medium
		South	6	Medium
		West	0	Low
Campus Point Dr	Genesee Ave	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	0	Low
I-5 SB Off-Ramps	La Jolla Village Dr	North	6	Medium
		East	0	Low
		South	0	Low
		West	0	Low
I-5 NB Off-Ramps	La Jolla Village Dr	North	0	Low
		East	0	Low
		South	6	Medium
		West	0	Low
Lebon Dr	La Jolla Village Dr	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	0	Low
Lebon Dr	Palmilla Dr	North	7	Medium
		East	0	Low
		South	0	Low
		West	7	Medium
Regents Rd	Berino Ct	North	7	High
		East	7	Medium
		South	7	No Ped Crossing
		West	0	Low
Genesee Ave	Centurion Square	North	6	Medium
		East	6	Medium
		South	6	Medium
		West	0	No Ped Crossing

Miramar Mall	Miramar Rd	North	6	Medium
		East	6	Medium
		South	0	No Ped Crossing
		West	6	Medium
Nobel Dr	Miramar Rd	North	0	No Ped Crossing
		East	0	Low
		South	6	Medium
		West	6	Medium
Nobel Dr	Judicial Dr	North	0	Low
		East	0	No Ped Crossing
		South	6	Medium
		West	6	Medium
Executive Way	La Jolla Village Dr	North	7	High
		East	7	Medium
		South	7	Medium
		West	0	Medium
Miramar Place	Miramar Rd	North	6	Medium
		East	6	Medium
		South	0	No Ped Crossing
		West	0	Low
Science Center Dr	Genesee Ave	North	6	Medium
		East	0	Low
		South	0	No Ped Crossing
		West	6	Medium
Regents Rd	Genesee Ave	North	0	No Ped Crossing
		East	6	Medium
		South	6	Medium
		West	0	Low
Towne Centre Dr	Golden Haven Dr	North	7	Medium
		East	7	Medium
		South	0	Low
		West	0	No Ped Crossing
I-5 NB Ramps	Gilman Dr	North	0	Low
		East	6	Medium
		South	6	Medium
		West	0	Low
Nobel Dr	Avenue of Flags	North	6	Medium
		East	6	Medium
		South	0	Low
		West	0	No Ped Crossing
I-5 SB Ramps		North	6	Medium

	Genesee Ave	East	0	Low
		South	6	Medium
		West	0	Low
I-805 SB Ramps	La Jolla Village Dr	North	6	Medium
		East	0	Low
		South	0	Low
		West	0	Low
I-805 NB Ramps	La Jolla Village Dr	North	6	Medium
		East	6	Low
		South	0	Low
		West	0	Low
Genesee Ave	Esplanade Ct	North	0	Low
		East	6	Medium
		South	6	Medium
		West	6	Medium
Genesee Ave	Executive Square	North	0	Low
		East	6	Medium
		South	0	Low
		West	6	Medium
John J Hopkins Dr	Genesee Ave	North	6	Medium
		East	6	Medium
		South	0	No Ped Crossing
		West	0	Low
N Torrey Pines Rd	Genesee Ave	North	0	Low
		East	6	Medium
		South	6	Medium
		West	0	No Ped Crossing
Torrey Pines Rd	La Jolla Village Dr	North	0	No Ped Crossing
		East	6	Medium
		South	6	Low
		West	0	Low
La Jolla Scenic Dr	La Jolla Village Dr	North	0	No Ped Crossing
		East	0	Low
		South	7	Medium
		West	7	Medium
Villa La Jolla Dr	La Jolla Village Dr	North	7	Medium
		East	0	Low
		South	7	Medium
		West	7	Medium
Gilman Dr	Villa La Jolla Dr	North	7	High
		East	7	High

		South	0	Low
		West	0	No Ped Crossing
I-5 NB Ramps	Genesee Ave	North	6	Medium
		East	0	Low
		South	6	Medium
		West	0	Low
I-5 SB On Ramp	Nobel Dr	North	0	Low
		East	0	Low
		South	8	Medium
		West	0	Low
I-5 NB Off-Ramps/University Center Ln	Nobel Dr	North	7	Medium
		East	7	High
		South	7	Medium
		West	0	Low
Shoreline Dr	Nobel Dr	North	6	Medium
		East	0	Low
		South	6	Medium
		West	6	Medium
Eastgate Mall	Miramar Rd	North	6	Medium
		East	0	Low
		South	0	No Ped Crossing
		West	6	Medium
I-5 SB Ramps	Gilman Dr	North	0	Low
		East	0	Low
		South	6	Medium
		West	0	Low
Nobel Dr	I-805 SB On-Ramp	North	0	Low
		East	6	Medium
		South	0	Low
		West	0	No Ped Crossing
Nobel Dr	I-805 NB Off-Ramp	North	0	Low
		East	6	Medium
		South	0	Medium
		West	0	No Ped Crossing

Table 3-3 summarizes the PEQE analysis results by mile for each of the three pedestrian environment grade categories. Under Proposed Plan conditions, 85 percent of the Pedestrian Study Area would be considered to have “Medium” or “High” quality pedestrian environments, compared to 67 percent of the Pedestrian Study Area under existing conditions. This can be attributed to proposed improvements including increased horizontal distance between pedestrians and vehicles, clearing pedestrian zones, and reducing speed limits on adjacent roadways.

Table 3-3 PEQE Segment Results by Grade Mileage – Proposed Plan Conditions

Grade	Mileage	Percent
High	7	15%
Medium	33	70%
Low	7	15%
Total	47	100%

Table 3-4 summarizes the PEQE analysis results by the number of intersection approaches identified for each pedestrian environment grade category. 78 percent of the intersection legs exhibit "Medium" or "High" PEQE scores under the Proposed Plan. This is an increase in quality crossings when compared to existing conditions, which found 84 percent of intersection legs to consist of Medium PEQE score characteristics and less than 1 percent of High PEQE score characteristics. Similar to the segments, many intersections along pedestrian route types identified as District and Corridors (previously shown in **Figure 2-1**) received a score of High due to the additional operational features, such as lead pedestrian intervals, planned along these high pedestrian activity roadways. The increase to medium scores can be attributed to standardizing features like high-visibility crosswalks, advanced stop bars, and pedestrian countdown timers at all signalized intersections in the future, as well as proposing enhanced features such as curb extensions and lead pedestrian intervals.

Table 3-4 PEQE Intersection Results by Grade – Proposed Plan Conditions

Grade	Number of Approaches	Percent
High	28	11%
Medium	171	67%
Low	57	22%
Total	256	100%

3.2 Bicycling Assessment Results

This section presents Proposed Plan bicycle network analysis results, with the implementation of the improvements identified in **Chapter 2**.

A map of proposed bicycle facilities can be found in **Figure 2-3. Table 3-5** summarizes the Proposed Plan bicycle facilities by network mileage. The overall network increased by 30 percent when compared to existing conditions. This growth is largely attributed to the increase in protected bicycle facilities, including Class I and Class IV facilities along most of the major roadways within University. Approximately 76 percent of the Proposed Plan bicycle network will be comprised of these separated bicycle facilities (28.15 miles), compared to 3 percent of the existing network.

Table 3-5 Bicycle Facilities by Network Mileage - Proposed Plan Conditions

	Existing Conditions		Proposed Plan	
Facility Type	Mileage (Lane Miles)	Percent	Mileage (Lane Miles)	Percent
Class I - One-Way Multi-Use Path	0	0%	1.20	2%
Class I - Two-Way Bicycle Path	0.8	3%	0.20	0%
Class II - Bike Lane	24	84%	18.70	28%
Class III - Bike Route	3.7	13%	1.70	3%
Class IV - Bikeway (One-Way)	0	0%	39.70	59%
Class IV - Bikeway (Two-Way)	0	0%	5.60	8%
Total	28.5	100%	67.1	100%

3.2.1 Bicycle Network Quality

Bicycle Level of Traffic Stress (LTS) evaluates the level of stress the street network environment causes bicyclists. An overview of the inputs and scoring criteria for this methodology is provided in **Appendix A**. **Figure 3-2** displays the Bicycle Level of Traffic Stress (LTS) analysis results for all bikeable roadways in University with implementation of the improvements indicated in **Section 2.3.2**. **Table 3-6** summarizes the LTS analysis results by linear miles for each of the four LTS categories.

Table 3-6 Bicycle LTS by Network Mileage – Proposed Plan Conditions

Level of Traffic Stress	Mileage	Percent
LTS 1	49	73%
LTS 2	15	22%
LTS 3	3	4%
LTS 4	0	0%
Total	67	100%

The proposed bicycle network identifies protected facilities along many of the higher speed roadways within University. Protected facilities, such as Class I Multi-use Paths and Class IV Cycle Tracks provide physical separation from vehicular traffic resulting in the lower traffic stress for cyclists, LTS 1. 95 percent of the study area would be considered to have a low-stress bicycling environment (LTS 1 or 2). With the implementation of the proposed bicycle network and associated improvements identified in this plan, there are no longer any LTS 4 high-stress environments anticipated.

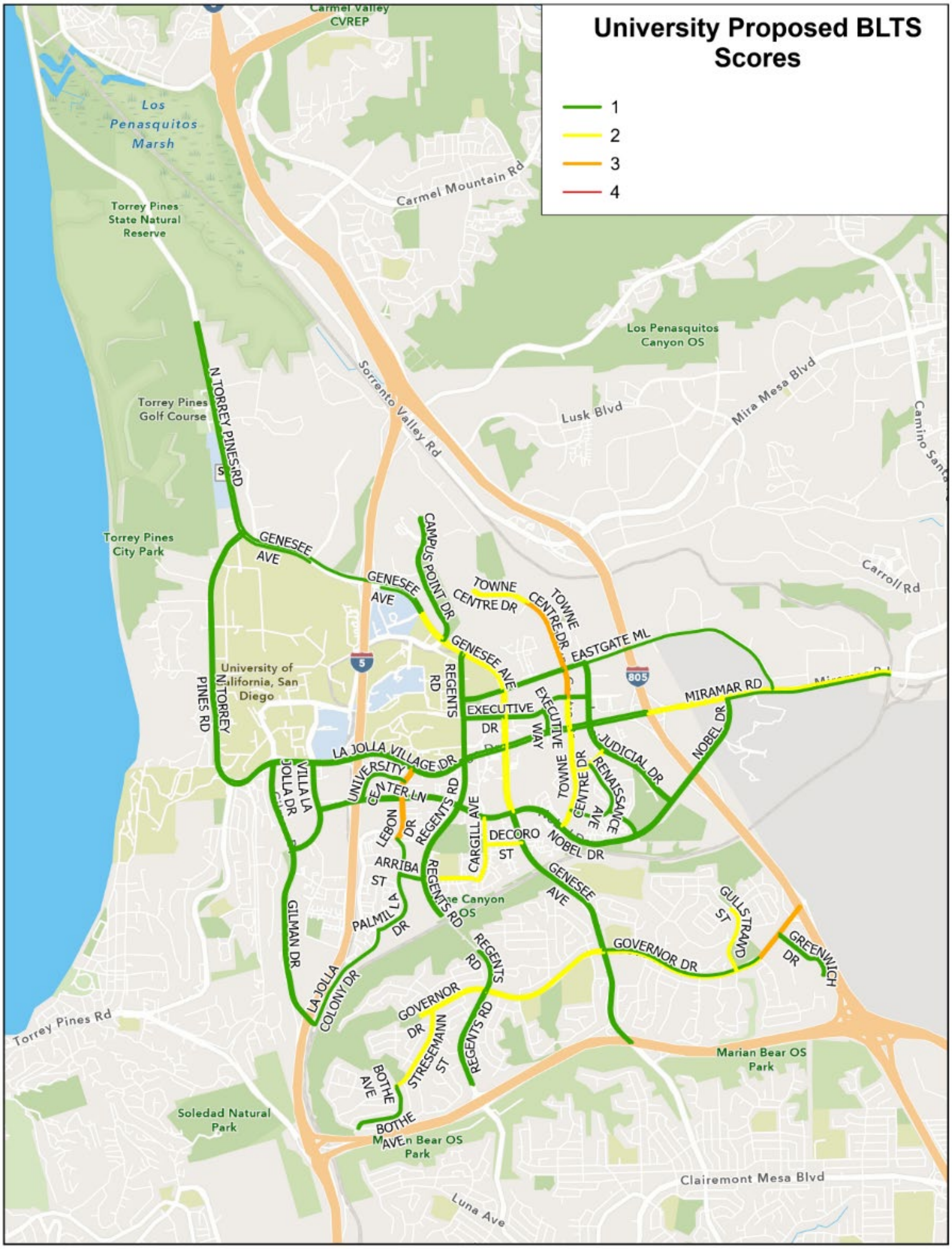
Table 3-7 Planned Bicycle Classification Modifications

Roadway	Segment	Existing Functional Classification	Planned Classification Designation	Implementation Category
Arriba St	Palmilla Dr to Regents Rd	Class II	Class IV (One Way)	Repurposing of public right-of-way
Arriba St	Regents Rd to Cargill Ave	N/A	Class III	Repurposing of public right-of-way
Bothe Av	Rose Canyon End to Stresemann St	N/A	Class III	Repurposing of public right-of-way
Campus Point Dr	North End to Genesee Ave	N/A	Class IV (Two Way)	Repurposing of public right-of-way
Cargill Ave	Nobel Dr to Arriba St	N/A	Class III	Repurposing of public right-of-way
Costa Verde Blvd	La Jolla Village Dr to Nobel Dr	N/A	Class II (Buffered)	Repurposing of public right-of-way
Decoro St	Cargill Ave to Genesee Av	N/A	Class III	Repurposing of public right-of-way
Eastgate Ml	Regents Rd to Genesee Ave	N/A	Class II (WB) / Class IV (One-Way) (EB)	Repurposing of public right-of-way
Eastgate Ml	Genesee Ave to Judicial Dr	Class II	Class IV (One Way)	Dedication of 2 ft
Eastgate Ml	Judicial Dr to I-805 Overpass	Class II	Class II (WB) / Class IV (Two-Way) (EB)	Repurposing of public right-of-way
Eastgate Ml	I-805 Overpass to Olson Dr	Class II	Class IV (Two Way) (EB)	Repurposing of public right-of-way
Eastgate Ml	Olson Dr to Miramar Rd	N/A	Class IV (Two Way) (EB)	Repurposing of public right-of-way
Executive Dr	Regents Rd to Judicial Dr	N/A	Class IV (One-Way)	Dedication of 10 ft
Executive Wy	Executive Dr to La Jolla Village Dr	N/A	Class IV (Two-Way)	Repurposing of public right-of-way
Genesee Ave	N Torrey Pines Rd to I-5 NB Ramps	Class II	Class IV (One Way, Two Lanes)	Repurposing of public right-of-way
Genesee Ave	I-5 NB Ramps to Scripps Hospital Drwy	Class II	Class II (SB) / Class I (One Way) (NB)	Coordination with abutting property owners and repurposing of public right-of-way
Genesee Ave	Scripps Hospital Drwy to SR-52 EB Ramps	Class II	Class IV (One-Way)	Repurposing of public right-of-way
Gilman Dr	La Jolla Village Dr to La Jolla Colony Dr	Class II	Class IV (One-Way)	Repurposing of public right-of-way
Governor Dr	Stresemann St to Genesee Ave	N/A	Class II (Buffered)	Repurposing of public right-of-way
Governor Dr	Genesee Ave to Kantor St	Class II	Class II (Buffered)	Repurposing of public right-of-way
Governor Dr	Kantor St to I-805 NB Ramps	Class III	Class II (Buffered)	Coordination with abutting property owners and repurposing of public right-of-way
Greenwich Dr	Governor Dr to Shoreham Pl	N/A	Class II (Buffered)	Repurposing of public right-of-way
Greenwich Dr	Shoreham Pl to East End	N/A	Class III	Repurposing of public right-of-way
Gullstrand St	Florey St to Governor Dr	N/A	Class III	Repurposing of public right-of-way
Judicial Dr	Eastgate Ml to Nobel Dr	Class II	Class IV (One Way)	Repurposing of public right-of-way
La Jolla Colony Dr	Gilman Dr to Palmilla Dr	Class II	Class IV (One Way)	Repurposing of public right-of-way

La Jolla Village Dr	N Torrey Pines Rd to I-805 NB Ramps	N/A	Class IV (One Way)	Coordination with abutting property owners and repurposing of public right-of-way
Lebon Dr	Nobel Dr to La Jolla Village Dr	N/A	Class II (Buffered)	Repurposing of public right-of-way
Lebon Dr	Palmilla Dr to Nobel Dr	Class III	Class II (Buffered)	Repurposing of public right-of-way
Miramar Rd	I-805 NB Ramps to Nobel Dr	Class II	Class IV (One-Way)	Repurposing of public right-of-way
Miramar Rd	Nobel Dr to Camino Santa Fe	Class II	Class IV (One-Way) (WB) / Class IV (Two-Way) (EB)	Repurposing of public right-of-way
Nobel Dr	Villa La Jolla Dr to University Center Ln	Class II	Class IV (One Way)	Dedication of 10 ft
Nobel Dr	University Center Ln to Lebon Dr	Class III	Class I (One Way) (WB) / Class IV (One Way) (EB)	Coordination with abutting property owners and repurposing of public right-of-way
Nobel Dr	Lebon Dr to Danica Mae Dr	Class II	Class I (One Way) (WB) / Class IV (One Way) (EB)	Coordination with abutting property owners and repurposing of public right-of-way
Nobel Dr	Danica Mae Dr to Regents Rd	Class III	Class I (One Way) (WB) / Class IV (One Way) (EB)	Dedication of 3 ft
Nobel Dr	Regents Rd to Genesee Ave	Class II	Class IV (One Way)	Repurposing of public right-of-way
Nobel Dr	Genesee Ave to Towne Centre Dr	Class III	Class IV (One Way)	Repurposing of public right-of-way
Nobel Dr	Towne Centre Dr to Miramar Rd	Class II	Class IV (One Way)	Repurposing of public right-of-way
North Torrey Pines Rd	NU System Drwy to Genesee Av	Class II	Class IV (One Way)	Repurposing of public right-of-way
Palmilla Dr	Arriba St to La Jolla Colony Dr	Class II	Class II (SB) / Class IV (One Way) (NB)	Repurposing of public right-of-way
Regents Rd	Genesee Ave to Mahaila Ave/Plaza de Palmas	Class II	Class IV (One Way)	Repurposing of public right-of-way
Regents Rd	Mahaila Ave/Plaza de Palmas to Nobel Dr	N/A	Class IV (One Way)	Repurposing of public right-of-way
Regents Rd	Nobel Dr to Arriba St	N/A	Class IV (One Way)	Repurposing of public right-of-way
Regents Rd	Arriba St to Rose Canyon End	N/A	Class I (Two Way) (SB) / Class III (NB)	Repurposing of public right-of-way
Regents Rd	Rose Canyon End to Governor Dr	N/A	Class III	Repurposing of public right-of-way
Regents Rd	Governor Dr to SR-52 WB Ramps	Class II	Class IV (One Way)	Repurposing of public right-of-way
Renaissance Ave	Towne Centre Dr to Golden Haven Dr	N/A	Class II (Buffered)	Repurposing of public right-of-way
Shoreline Dr	Renaissance Ave to Nobel Dr	N/A	Class II (Buffered)	Repurposing of public right-of-way
Stresemann St	Governor Dr to Bothe Av	N/A	Class III	Repurposing of public right-of-way
Towne Centre Dr	North End to Towne Centre Ct	N/A	Class III	Repurposing of public right-of-way
Towne Centre Dr	Towne Centre Ct to Nobel Dr	N/A	Class II (Buffered)	Repurposing of public right-of-way

University Center Ln	Nobel Dr to Lebon Dr	N/A	Class IV (One Way)	Dedication of 14 ft
Villa La Jolla Dr	La Jolla Village Dr to Gilman Dr	Class III	Class IV (One Way)	Repurposing of public right-of-way

Figure 3-2 Bicycle Level of Traffic Stress (LTS) – Proposed Plan Conditions



3.3 Transit Assessment

Public Transit services and facilities under the Proposed Plan conditions assume the implementation of the 2050 transit improvements and routes in the SANDAG's San Diego Forward: The Regional Plan (2021). An update to the 2021 Regional Plan is currently underway in which SANDAG is currently developing and identifying specific regional improvements. Planned Transit Improvements are discussed in **Section 2.4.2** of this report.

The main goal for the Proposed Plan transit network was to make transit a reliable and competitive option, to encourage more people to consider using transit for their commute trips. In order to do so, transit prioritization is necessary so that buses can avoid vehicle congestion and allow people to get to places faster than taking their own vehicle. Therefore, a network of flexible lanes is proposed, that can be dedicated to buses, high occupancy personal vehicles, community shuttles, or other emerging mobility options that may achieve the same goals.

Transit was analyzed taking into account the new proposed flexible lanes and Rapid Transit routes. Although not all of the projects that are currently proposed in the 2021 Regional Plan was accounted for the analysis presented in this section can serve as worst case scenario and additional transit ridership can be realized in the future with implementation of all identified improvements in the 2021 Regional Plan.

Frequent high-quality transit services are located along major community corridors, such as Genesee Avenue and La Jolla Village Drive. Genesee Avenue is anticipated to have a new rapid route that runs service the existing local Route 41 service. Rapid Route 41 will run from University to Mission Valley, primarily connecting other communities in Clairemont Mesa and Linda Vista to point-of-interest such as, University Town Center (UTC) Mall, Fashion Valley Mall, UCSD, and Veterans Administration Medical Center. It will also run adjacent to San Diego Mesa Community College. Future concepts for Rapid Route 41 include extensions of the existing route to Hillcrest to connect UCSD's La Jolla Campus and Hillcrest Medical Center Campus. In addition, the Proposed Plan identifies transit improvements such as an aerial skyway from the Voigt Drive Blue Line Trolley station to a relocated Sorrento valley Coaster Station and into two major destination points within Mira Mesa, the Sorrento Mesa employment area and the community core located at Camino Ruiz and Mira Mesa Boulevard. To build upon the transit improvements within the community, the Proposed Plan Transit Network recommends prioritization for transit by way of flexible lanes along several corridors: La Jolla Village Drive, Genesee Avenue, Nobel Drive, Gilman Drive, and Villa La Jolla Drive. Proposed Mobility Hub is proposed for Genesee Avenue and North Torrey Pines Rd. Potential Transit Improvements are shown on **Figure 2-5**.

3.3.1 Transit Stop/Station Average Daily Boardings/Alightings and Amenities

Table 3-8 displays the projected transit ridership per bus route within University under Proposed Plan conditions, rounded to the nearest hundred. Implementation of the planned transit network expansions, operational enhancements and Proposed Plan improvements are forecast to result in a large increase in transit ridership throughout University.

Table 3-8 Daily Transit Ridership – Proposed Conditions

Bus Route	Proposed Plan Daily Ridership
Route 30	8700
Route 31	6000
Route 41	20300
NCTD Route 101	9100
Route 105	8600
Route 201/202	4300
Route 204	2000
Route 237	12100
Route 921/921A	5600
Route 985	700

Source: SANDAG Series 14 Model Run, ABM 2+ Version 14.3.0, Scenario 320 (City of SD Blueprint MR 2)

Based on future ridership levels projected at each transit stop/station, specific amenities are required per MTS Designing for Transit Manual. **Table 3-9** indicates additional amenities that will be required based on future ridership.

Table 3-9 Bus Amenity Standards by Ridership Levels

Amenity	Daily Passenger Boardings by Stop/Station				
	< 50	50-100	101-200	200-500	> 500
Sign and Pole	S	S	S	S	O
Built-in Sign	–	–	–	O	S
Expanded Sidewalk	O	O	S	S	S
Accessible	S	S	S	S	S
Seating	O	S	S	S	S
Passenger Shelter	O	O	S	S	S
Route Designations	S	S	S	S	S
Schedule Display	O	O	O	S	S
Route Map	O	O	O	S	S
System Map	–	–	O	O	S
Trash/Recycle Receptacle	O	O	O	S	S
Real Time Digital Display	–	–	O	O	O
Bus Pads (Street)*	*	*	*	*	S
Red Curbs	S	S	S	S	S

S = Standard Features
O = Optional Features
* = Required for stop with four or more buses per hour. Bus pads (street) are a specification of the jurisdiction that controls the right-of-way.
– = Not applicable
Note: Some features may be provided by others. Actual deployment of features depends upon individual site conditions and constraints.

Source: Designing for Transit, MTS (2018)

3.3.2 Transit Service Quality/Arterial Performance

Many transit routes within University utilize major community arterials. Many of the flexible lanes in the Proposed Plan transit network were assumed to be dedicated as transit only lanes in the future based on the number of transit routes on each roadway and the level of anticipated ridership. Without dedicated transit lanes, transit riders would experience the same peak hour congestion experienced by motorists. In order to make transit more reliable and competitive to the automobile, the Proposed Plan identified dedicated lanes for transit along several corridors serving transit such as: Genesee Avenue, Nobel Drive, Miramar Road/La Jolla Village Drive, Villa La Jolla Drive, and Gilman Drive. See **Figure 2-4** for the Planned Transit Network Map and **Figure 2-5** for the Potential Transit Network Map.

Table 3-10 summarizes future transit travel time along Genesee Avenue, Nobel Drive, Miramar Road/La Jolla Village Drive, Villa La Jolla Drive, and Gilman Drive compared to the travel time for vehicles in the general-purpose travel lanes on the same corridor. The transit travel time shown in the table also includes a calculated wait time anticipated based on the bus headways as well as an average vehicle dwelling time for each bus route for each corridor. The wait time was developed based on the route headways, assuming travelers plan ahead more for bus routes with longer headways.

Table 3-10 Transit/Vehicle Travel Time – Proposed Plan Conditions

			Horizon Year 2050	Horizon Year 2050 - Transit	Δ
Corridor	**Peak**	**Direction**	**Travel Time (min)**	**Travel Time (min)**	**Travel Time (min)**
Genesee Ave					
SR-52 Ramps to N Torrey Pines Rd	AM	NB	33.4	7.7	-25.8
		SB	13.6	7.4	-6.2
	PM	NB	15.3	7.7	-7.5
		SB	33.7	9.8	-23.9
La Jolla Village Dr					
N Torrey Pines Rd to Camino Santa Fe	AM	EB	13.8	8.7	-5.1
		WB	26.9	11.1	-15.8
	PM	EB	35.0	15.2	-19.9
		WB	19.0	7.4	-11.6
Nobel Dr					
La Jolla Village Sq to Miramar Rd	AM	EB	15.9	7.3	-8.6
		WB	12.1	6.2	-5.9
	PM	EB	14.1	8.7	-5.4
		WB	20.5	6.4	-14.1
Regents Rd (Northern Section)					
Arriba St to Genesee Ave	AM	NB	6.7	5.4	-1.3
		SB	6.2	5.5	-0.8
	PM	NB	5.7	4.8	-0.8
		SB	7.1	6.2	-0.9
Regents Rd (Southern Section)					

Luna Ave to Governor Dr	AM	NB	5.1	4.7	-0.4
		SB	3.9	3.7	-0.3
	PM	NB	4.0	3.7	-0.4
		SB	4.8	4.5	-0.3
Governor Dr					
Regents Rd to Greenwich Dr	AM	EB	19.3	18.1	-1.3
		WB	17.7	17.0	-0.7
	PM	EB	20.9	21.2	0.2
		WB	25.3	25.6	0.2

Notes:
The travel times are reported from the **Appendix E and F Horizon Year Synchro Arterial Reports** for vehicles and transit, respectively.

Genesee Avenue: It can take anywhere from 13.6 to 33.7 minutes to travel by vehicle across the length of the corridor. The best-case scenario for transit indicates the future BRT route would be expected to take 7.4 to 9.8 minutes across the corridor in either direction during either peak hour period. Route 41 and Route 105 would be anticipated to take between 7.4 and 9.8 minutes. The results indicate taking transit is not only more reliable, but also a competitive option to taking a vehicle based on travel time.

La Jolla Village Drive: It can take anywhere from 13.8 to 35.0 minutes to travel by vehicle across the length of the corridor. The best-case scenario for transit indicates the future BRT route would be expected to take 7.4 to 15.2 minutes across the corridor in either direction during either peak hour period. Route 237 and Route 921/921A would be anticipated to take between 7.4 and 15.2 minutes. The results indicate taking transit is not only more reliable, but also a competitive option to taking a vehicle based on travel time.

Nobel Drive: It can take anywhere from 12.1 to 20.5 minutes to travel by vehicle across the length of the corridor. The best-case scenario for transit indicates the future BRT route would be expected to take 6.2 to 8.7 minutes across the corridor in either direction during either peak hour period. Route 204 and Route 201/202 would be anticipated to take between 6.2 and 8.7 minutes. The results indicate taking transit is not only more reliable, but also a competitive option to taking a vehicle based on travel time.

Regents Road: It can take anywhere from 3.9 to 7.1 minutes to travel by vehicle across the length of the corridor. Route 201/202 would be anticipated to take between 4.8 and 6.2 minutes and Route 105 would be anticipated to take between 3.7 and 4.7 minutes. There are no proposed transit improvements along Regents Road such as flexible lanes, therefore bus routes would need to utilize the general purpose lanes with other vehicles. The results indicate that taking transit is a comparable option to driving a vehicle based on travel time.

Governor Drive: It can take anywhere from 17.7 to 25.3 minutes to travel by vehicle across the length of the corridor. Route 105 would be anticipated to take between 17 and 25.6 minutes. There are no proposed transit improvements along Governor Drive such as flexible lanes, therefore bus routes would need to utilize the general purpose lanes with other vehicles. The results indicate that taking transit is a comparable option to driving a vehicle based on travel time when connecting University to the adjacent southern communities of Clairemont Mesa and Linda Vista.

3.4 Street Assessment and Results

The local street system in University was evaluated under Proposed Plan roadway classifications, which assumes implementation of the improvements identified in **Chapter 2**. The assessment includes projected daily roadway segment level of service, peak hour intersection level of service, and arterial analysis. Calibrated traffic volumes from the transportation model outputs and existing traffic counts were used in this analysis. Methodology on how traffic volumes were calibrated is found in **Appendix H – Mobility Adjustment Tool**. Roadway classifications under the Proposed Plan are presented in **Figure 3-3**.

3.4.1 Roadway Segment Analysis

The roadway segment analysis was conducted for the Proposed Plan roadway classifications displayed in **Figure 3-3**. **Table 3-11** display the roadway LOS under Proposed Plan conditions.

68 Mobility Element roadway segments of the University study area were analyzed under Proposed Plan conditions. 44 of those segments are projected to operate at an acceptable LOS D or better, while 24 segments are projected to operate at LOS E or F (35%). Of the segments that would operate at LOS E or F, approximately one third of them are located along one of the major corridors within the community, including Genesee Avenue, Noble Drive, La Jolla Village Drive, and Regents Road. Many of these have flexible lanes and high-quality bicycle facilities proposed, which incentivize people to use alternative modes of transportation and decrease single-occupancy vehicle demand.

Under the Proposed Plan, SMART corridors, although carrying six-lanes, were analyzed as four-lane roadways, whereby two lanes were omitted from the single occupancy vehicle (SOV) LOS capacity analysis. No increase in capacity was applied to these roadway segments.

Figure 3-3 Roadway Classifications – Proposed Plan Conditions

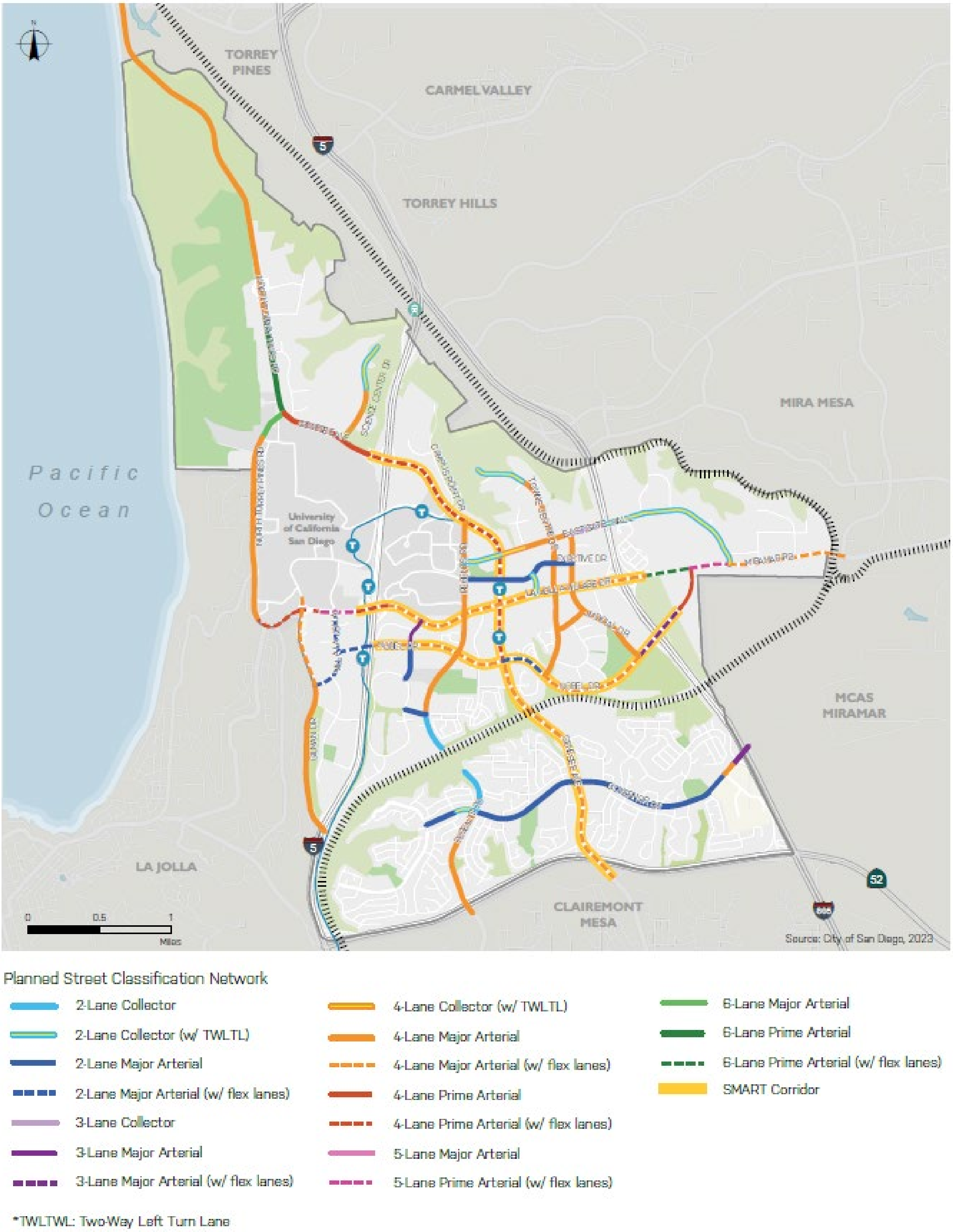


Table 3-11 Roadway Segment Analysis – Proposed Plan Conditions

ROADWAY SEGMENT	ROADWAY CLASSIFICATION (a)	LOS E CAPACITY	ADT (b)	V/C RATIO (c)	LOS
Eastgate Mall					
Regents Rd to Genesee Ave	2 Lane Collector (with two-way left-turn Lane)	15,000	7,545	0.503	C
Genesee Ave to Easter Way	4 Lane Collector (with two-way left-turn Lane)	30,000	18,626	0.621	C
Easter Way to Judicial Dr	4 Lane Major Arterial	40,000	17,000	0.425	B
Judicial Drive to Eastgate Dr (Freeway Overpass)	3 Lane Collector	11,000	11,131	1.012	**F**
Eastgate Dr to Miramar Rd	2 Lane Collector (with two-way left-turn Lane)	15,000	15,388	1.026	**F**
Executive Drive					
Regents Rd to Genesee Ave	2 Lane Major Arterial	20,000	6,228	0.311	A
Genesee Ave to Judicial Dr	2 Lane Major Arterial	20,000	7,954	0.398	B
Executive Way					
Executive Dr to La Jolla Village Dr	2 Lane Collector (with two-way left-turn Lane)	15,000	11,842	0.789	D
Genesee Avenue					
N. Torrey Pines Rd to I-5 SB Ramps	4 Lane Prime Arterial	45,000	37,510	0.834	D
I-5 SB Ramps to I-5 NB Ramps	4 Lane Prime Arterial (with 2 flexible lanes) (SMART)	51,300	59,730	1.164	**F**
I-5 NB Ramps to Regents Rd	4 Lane Prime Arterial (with 2 flexible lanes) (SMART)	51,300	36,250	0.707	C
Regents Rd to La Jolla Village Dr	4 Lane Prime Arterial (with 2 flexible lanes) (SMART)	51,300	34,354	0.670	C
La Jolla Village to Esplande Ct	4 Lane Prime Arterial (with 2 flexible lanes) (SMART)	51,300	30,954	0.603	C
Esplande Ct to Nobel Dr	4 Lane Prime Arterial (with 2 flexible lanes) (SMART)	51,300	38,096	0.743	C
Nobel Dr to Centurion Square	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	37,320	0.818	D
Centurion Square to Governor Dr	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	38,360	0.841	D
Governor Dr to SR-52 WB Ramps	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	38,360	0.841	D

SR-52 WB Ramps to SR-52 EB Ramps	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	37,630	0.825	D
SR-52 EB Ramps to Lehrer Dr	4 Lane Major Arterial (with 2 flexible lanes)	40,000	64,583	1.615	**F**
Gilman Drive					
UCSD Campus to La Jolla Village Dr	4 Lane Major Arterial (with 2 flexible lanes)	40,000			
La Jolla Village Dr to Via Alicante	4 Lane Major Arterial	40,000	18,693	0.467	B
Via Alicante to I-5 SB Ramps	4 Lane Major Arterial	40,000	20,465	0.512	B
I-5 SB Ramps to I-5 NB Ramps	4 Lane Major Arterial	40,000	14,674	0.367	A
Golden Haven Drive					
Towne Center Dr to Judicial Dr	4 Lane Major Arterial	40,000	8,807	0.220	A
Governor Drive					
Regents Road to Genesee Ave	2 Lane Major Arterial	20,000	22,480	1.124	**F**
Genesee Ave to I-805 SB Ramps	2 Lane Major Arterial	20,000	32,140	1.607	**F**
I-805 SB Ramps to I-805 NB Ramps	3 Lane Major Arterial	30,000	18,486	0.616	C
Judicial Drive					
Eastgate Mall to La Jolla Village Dr	4 Lane Major Arterial	40,000	8,233	0.206	A
La Jolla Village Dr to Nobel Drive	4 Lane Major Arterial	40,000	10,215	0.255	A
La Jolla Scenic Drive					
La Jolla Village Drive to South	4 Lane Major Arterial	40,000	8,587	0.215	A
La Jolla Village Drive					
Revelle College Drive to Villa La Jolla	4 Lane Prime Arterial (with 2 flexible lanes)	45,000	52,540	1.168	**F**
Villa La Jolla Drive to I-5 SB Ramps	5 Lane Prime Arterial (with 2 flexible lanes)	50,000	69,136	1.383	**F**
I-5 SB Ramps to I-5 NB Ramps	4 Lane Prime Arterial (with 2 flexible lanes) (SMART)	51,300	58,026	1.131	**F**
I-5 NB Ramps to Lebon Dr	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	52,138	1.143	**F**
Lebon Dr to Regents Road	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	49,981	1.096	**F**
Regents Road to Genesee Ave	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	45,324	0.994	**E**
Genesee Ave to Executive Way	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	51,338	1.126	**F**
Executive Way to Towne Center Dr	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	51,338	1.126	**F**
Towne Center Dr to I-805 SB Ramps	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	69,430	1.523	**F**

Lebon Drive					
Palmilla Drive to Nobel Drive	2 Lane Major Arterial	20,000	12,242	0.612	C
Nobel Drive to La Jolla Village Drive	3 Lane Major Arterial	30,000	11,962	0.399	B
Miramar Road					
I-805 SB Ramps to I-805 NB Ramps	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	76,523	1.678	**F**
I-805 NB Ramps to Nobel Dr	6 Lane Prime Arterial (with 2 flexible lanes)	60,000	54,321	0.905	D
Nobel Dr to Eastgate Mall	5 Lane Prime Arterial (with 2 flexible lanes)	50,000	72,992	1.460	**F**
Eastgate Mall to Miramar Mall	4 Lane Major Arterial (with 2 flexible lanes)	40,000	77,089	1.927	**F**
Miramar Mall to Camino Santa Fe	4 Lane Major Arterial (with 2 flexible lanes)	40,000	77,089	1.927	**F**
North Torrey Pines Road					
Science Park Rd to Genesee Ave	6 Lane Prime Arterial	60,000	31,121	0.519	B
Genesee Ave to UCSD Northpoint Dwy	6 Lane Major Arterial	50,000	24,217	0.484	B
UCSD Northpoint Dwy to Revelle College Dr	4 Lane Major Arterial	40,000	24,217	0.605	C
Nobel Drive					
Villa La Jolla Dr to I-5 SB On Ramp	2 Lane Major Arterial (with 2 flexible lanes)	20,000	36,080	1.804	**F**
I-5 SB On Ramp to I-5 NB Off Ramp/University Center Lane	2 Lane Major Arterial (with 2 flexible lanes)	20,000	36,976	1.849	**F**
I-5 NB Off Ramp/University Center Lane to Lebon Dr	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	28,267	0.620	C
Lebon Dr to Regents Rd	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	27,217	0.597	C
Regents Rd to Genesee Ave	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	26,770	0.587	C
Genesee Ave to Towne Center Dr	2 Lane Major Arterial (with 2 flexible lanes) (SMART)	22,800	25,370	1.113	**F**
Towne Center Dr to Judicial Dr	4 Lane Major Arterial (with 2 flexible lanes) (SMART)	45,600	22,685	0.497	B
Judicial Dr to Avenue of Flags	3 Lane Major Arterial (with 2 flexible lanes) (SMART)	34,200	32,537	0.951	**E**
Avenue of Flags to Miramar Rd	4 Lane Prime Arterial	45,000	23,796	0.529	B
Regents Road					
Genesee Ave to Eastgate Mall	4 Lane Major Arterial	40,000	8,213	0.205	A
Eastgate Mall to La Jolla Village Dr	4 Lane Major Arterial	40,000	19,430	0.486	B
La Jolla Village Dr to Nobel Dr	4 Lane Major Arterial	40,000	18,250	0.456	B

Nobel Dr to Rose Canyon	4 Lane Major Arterial	40,000	11,946	0.299	A
Rose Canyon to Governor Dr	2 Lane Collector (without two-way left-turn lane)	8,000	2,903	0.363	B
Governor Dr to SR-52 WB Ramps	4 Lane Major Arterial	40,000	20,388	0.510	B
SR-52 WB Ramps to SR-52 EB Ramps	4 Lane Major Arterial	40,000	28,855	0.721	C
SR-52 EB Ramps to Luna Ave	4 Lane Major Arterial	40,000	33,929	0.848	D
Torrey Pines Road					
La Jolla Village Drive to South	4 Lane Major Arterial	40,000	28,438	0.711	C
Towne Center Drive					
End to La Jolla Village Dr	4 Lane Major Arterial	40,000	23,077	0.577	C
La Jolla Village Dr to Nobel Dr	4 Lane Major Arterial	40,000	20,487	0.512	B
Villa La Jolla Drive					
Gilman Dr (South) to Nobel Dr	2 Lane Major Arterial (with 2 flexible lanes)	20,000	9,410	0.471	B
Nobel Dr to La Jolla Village Dr	2 Lane Major Arterial (with 2 flexible lanes)	20,000	21,830	1.092	**F**
La Jolla Village Dr to VA Medical Center	2 Lane Major Arterial (with 2 flexible lanes)	20,000	21,830	1.092	**F**

Notes:
Bold values indicate roadway segments operating at LOS E or F.
(a) Road classifications are based on Table Appendix F-1 of the City of San Diego Transportation Study Manual
(b) Average Daily Traffic (ADT) volumes for the roadway segments were determined from SANDAG's model data
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

3.4.2 Peak Hour Arterial Analysis

Average arterial travel speed is strongly influenced by the number of signals per mile and the average intersection delay. On a given facility, factors such as inappropriate signal timing, poor progression, and increasing traffic flow can substantially degrade the arterial level of service.

The arterial speed analysis was performed utilizing Synchro SimTraffic. Synchro is a macroscopic analysis tool that has limitations by nature. Therefore, Synchro's microscopic counterpart SimTraffic was used to determine the arterial speeds for the study corridors. SimTraffic utilizes the data input into Synchro to build a model that measures the full impact of intersection queuing and blocking.

Peak hour arterial analyses were conducted along the following corridors:

- Genesee Avenue
- La Jolla Village Drive
- Nobel Drive
- Regents Road
- Governor Drive

Table 3-12 Peak Hour Arterial Analysis – Proposed Plan Conditions

Corridor	Peak	Direction	Speed (mph)	Speed - Transit (mph)
Genesee Ave				
SR-52 Ramps to N Torrey Pines Rd	AM	NB	8.0	34.1
		SB	20.4	30.3
	PM	NB	17.6	33.8
		SB	8.2	27.6
La Jolla Village Dr				
N Torrey Pines Rd to Camino Santa Fe	AM	EB	13.9	22.1
		WB	7.1	17.2
	PM	EB	5.5	12.6
		WB	10.1	26.0
Nobel Dr				
La Jolla Village Sq to Miramar Rd	AM	EB	11.7	23.1
		WB	15.2	29.6
	PM	EB	13.1	23.7
		WB	8.9	28.5
Regents Rd (Northern Section)				
Arriba St to Genesee Ave	AM	NB	14.5	18.1
		SB	13.7	15.7
	PM	NB	17.3	20.3
		SB	12.1	13.9
Regents Rd (Southern Section)				
Luna Ave to Governor Dr	AM	NB	19.5	21.2
		SB	24.5	26.2
	PM	NB	24.6	27.1
		SB	20.0	21.3
Governor Dr				
Regents Rd to Greenwich Dr	AM	EB	6.4	6.8
		WB	7.5	7.8
	PM	EB	5.9	5.8
		WB	5.2	5.2

Notes:
Peak Hour Arterial Analysis are reported from the **Appendix E and G Horizon Year Synchro Arterial Reports** for vehicles and transit, respectively.

3.4.3 Peak Hour Intersection Analysis

Intersection analysis results are provided for a total of 87 intersections. As shown in the **Table 3-13**, 50 unique intersections were found to operate at a substandard LOS E or F during the AM or PM peak hour under Proposed Plan conditions. Approximately 34 percent of the substandard intersections are located along corridors where one general-purpose travel lane in each direction was converted to accommodate a flexible/transit-only lane or bicycle facilities. This was a conservative approach where the vehicle demand for the major corridors would remain, with the exception of the percentage of vehicles that are anticipated to shift to other modes, but the number of lanes would be reduced. If, in the future, this flexible lane is anticipated to serve all high-occupancy vehicles, rather than transit only, intersection operations could potentially improve. Before implementation consideration and analysis should determine whether the flexible lane should be fully dedicated to transit at all hours of the day or during certain peak periods. In addition, the flexible lane could serve connected and autonomous vehicles and/or high occupancy vehicles and this should also be considered. Proposed Plan intersection geometrics and forecast AM and PM peak hour turning movements are presented in **Appendix D – Horizon Year Synchro Reports**.

Table 3-13 Peak Hour Intersection Analysis – Proposed Plan Conditions

#	Intersection	Traffic Control	Peak Hour	Future Year 2050	
				Delay[1]	LOS[2]
1	N. Torrey Pines Rd. & Genesee Ave	Signal	AM	24.3	C
			PM	**96.7**	**F**
2	Genesee Ave & John Hopkins Drive	Signal	AM	16.7	B
			PM	19.3	B
3	Genesee Ave & Science Center Drive	Signal	AM	18.1	B
			PM	19.9	B
4	Genesee Ave & I-5 SB Ramps	Signal	AM	48.7	D
			PM	**71.5**	**E**
5	I-5 NB Ramps & Genesee Ave	Signal	AM	39.6	D
			PM	44.7	D
6	Genesee Ave & Scripps Hospital	Signal	AM	29.6	C
			PM	39.5	D
7	Genesee Ave & Campus Point Drive	Signal	AM	35.4	D
			PM	**76.3**	**E**
8	Regents Road & Genesee Ave	Signal	AM	37.8	D
			PM	16.5	B
9	Genesee Ave & Eastgate Mall	Signal	AM	**71.7**	**E**
			PM	**60.1**	**E**
10	Genesee Ave & Executive Drive	Signal	AM	19.9	B
			PM	39.6	D
11	Genesee Ave & Executive Square	Signal	AM	27.0	C
			PM	28.9	C
12	Genesee Ave & La Jolla Village Drive	Signal	AM	47.3	D
			PM	35.4	D
13	Genesee Ave & Esplanade Court	Signal	AM	21.2	C
			PM	51.3	D
14	Genesee Ave & Nobel Drive	Signal	AM	**133.3**	**F**

			PM	**76.9**	**E**
15	Genesee Ave & Decoro Street	Signal	AM	**259.4**	**F**
			PM	**258.2**	**F**
16	Genesee Ave & Centurion Square	Signal	AM	**159.5**	**F**
			PM	**143.1**	**F**
17	Genesee Ave & Governor Drive	Signal	AM	**209.1**	**F**
			PM	**134.2**	**F**
18	Genesee Ave & SR-52 Ramp	OWSC	AM	15.5	C
			PM	**86.9**	**F**
19	Genesee Ave & SR-52 EB Ramps	Signal	AM	**140.5**	**F**
			PM	**333.0**	**F**
21	Torrey Pines Road & La Jolla Village Drive	Signal	AM	15.5	B
			PM	**85.4**	**F**
22	La Jolla Scenic Drive & La Jolla Village Drive	Signal	AM	26.7	C
			PM	**75.5**	**E**
23	Gilman Drive & La Jolla Village Drive WB Off	Signal	AM	29.6	C
			PM	20.6	C
24	Villa La Jolla Drive & La Jolla Village Drive	Signal	AM	**78.9**	**E**
			PM	**189.0**	**F**
25	I-5 SB Off-Ramps & La Jolla Village Drive	Signal	AM	53.4	D
			PM	20.1	C
26	I-5 NB Ramps & La Jolla Village Drive	Signal	AM	**120.6**	**F**
			PM	44.8	D
27	Lebon Drive & La Jolla Village Drive	Signal	AM	36.6	D
			PM	**135.5**	**F**
28	Regents Road & La Jolla Village Drive	Signal	AM	**65.4**	**E**
			PM	**199.1**	**F**
29	Executive Way & La Jolla Village Drive	Signal	AM	**56.7**	**E**
			PM	**114.1**	**F**
30	Towne Center Drive & La Jolla Village Drive	Signal	AM	**128.7**	**F**
			PM	**79.3**	**E**
31	I-805 SB Ramps & La Jolla Village Drive	Signal	AM	**204.0**	**F**
			PM	**97.5**	**F**
32	I-805 NB Ramps & La Jolla Village Drive	Signal	AM	28.3	C
			PM	32.1	C
33	Nobel Drive & La Jolla Village Drive/Miramar Road	Signal	AM	**67.1**	**E**
			PM	28.1	C
39	La Jolla Village Square Dwy & Nobel Drive	Signal	AM	21.2	C
			PM	47.4	D
40	I-5 SB Ramps & Nobel Drive	Signal	AM	4.9	A
			PM	16.1	B
41	I-5 NB Ramps & Nobel Drive	Signal	AM	17.5	B
			PM	**96.7**	**F**
42	Caminito Plaza Centro & Nobel Drive	Signal	AM	19.1	B
			PM	30.8	C
43	Lebon Drive & Nobel Drive	Signal	AM	24.2	C
			PM	29.0	C
44	Regents Road & Nobel Drive	Signal	AM	40.4	D
			PM	**77.5**	**E**
45		Signal	AM	41.1	D

	Cargill Ave/Costa Verde Boulevard & Nobel Drive		PM	**58.4**	**E**
46	Lombard Place & Nobel Drive	Signal	AM	18.5	B
			PM	**110.1**	**F**
47	Towne Center Drive & Nobel Drive	Signal	AM	**71.2**	**E**
			PM	**71.9**	**E**
48	Nobel Drive & Shoreline Drive	Signal	AM	33.2	C
			PM	22.9	C
49	Nobel Drive & Judicial Drive	Signal	AM	**64.4**	**E**
			PM	19.7	B
50	Nobel Drive & I-805 SB On-ramp	Signal	AM	4.5	A
			PM	4.3	A
51	Nobel Drive & I-805 N Off-ramps	Signal	AM	20.0	B
			PM	14.4	B
52	Nobel Drive & Avenue of Flags	Signal	AM	13.1	B
			PM	7.7	A
53	Regents Road & Health Science Drive	Signal	AM	25.6	C
			PM	39.4	D
54	Regents Road & Eastgate Mall	Signal	AM	13.4	B
			PM	20.1	C
55	Regents Road & Executive Drive	Signal	AM	13.5	B
			PM	32.9	C
56	Regents Road & Miramar Street/Regents Park Row	Signal	AM	21.7	C
			PM	49.3	D
57	Regents Road & Plaza De Palmas	Signal	AM	12.1	B
			PM	15.0	B
58	Regents Road & Berino Court	Signal	AM	22.9	C
			PM	7.0	A
59	Regents Road & Ariba Street	Signal	AM	22.0	C
			PM	19.4	B
60	Regents Road & Governor Drive	Signal	AM	49.4	D
			PM	**63.7**	**E**
61	Regents Road & SR-52 WB On/SR-52 WB OFF	Signal	AM	36.4	D
			PM	46.8	D
62	Regents Road & SR-52 EB Off/SR-52 EB On	Signal	AM	52.3	D
			PM	41.3	D
63	Clairemont Mesa Blvd/Regents Road & Luna Ave	Signal	AM	**307.3**	**F**
			PM	**195.9**	**F**
80	Scripps St & Governor Dr	Signal	AM	**56.9**	**E**
			PM	**160.0**	**F**
81	Stadium St & Governor Dr	Signal	AM	**75.1**	**E**
			PM	**69.6**	**E**
82	Mercer St & Governor Dr	Signal	AM	19.2	B
			PM	**97.0**	**F**
83	Radcliffe Dr & Governor Dr	Signal	AM	53.7	D
			PM	**115.0**	**F**
84	Edmonton Ave & Governor Dr	Signal	AM	**249.2**	**F**
			PM	**122.5**	**F**
85	Agee St & Governor Dr	Signal	AM	46.3	D
			PM	**164.2**	**F**

86	Gullstrand St & Governor Dr	Signal	AM	**160.2**	**F**
			PM	**195.2**	**F**
87	Greenwich Dr & Governor Dr	Signal	AM	**126.9**	**F**
			PM	**155.4**	**F**

Notes:

Bold values indicate roadway segments operating at LOS E or F.

ECL: Exceeds Calculable Limits. Reported when delay exceeds 180 seconds.

1. Delays are reported as the average control delay for the entire intersection at signalized intersections and the worst movement at unsignalized intersections.
2. LOS calculations for Intersections #1 to 79 are based on the methodology outlined in the 2000 Highway Capacity Manual 6th Edition (2000 HCM) and performed using Synchro 9. LOS calculations for Intersections #80 to 87 are based on the methodology outlined in the *Highway Capacity Manual 6th Edition (HCM6)* and performed using Synchro 11.

3.5 Complete Streets

"Complete Streets" describes a comprehensive, integrated transportation street network with space, infrastructure, and design approach that accommodates and facilitates convenient travel and mobility for all users, including pedestrians, bicyclists, users and operators of public transit, paratransit and persons with disabilities, seniors, children, motorists, and movers of commercial goods. This design approach prioritizes vulnerable road users making it easier to cross the street, walk to daily needs, jobs, and schools, bicycle to work, and use public transportation. Complete Streets increase equitable connectivity, improve safety and public health while reducing transportation costs, and can reduce traffic collisions as well as benefit the environment. It considers the entire right-of-way, not just the area between the curbs. Complete Streets changes the focus of transportation improvements from primarily serving motor vehicles to developing improvements that will serve the needs of all users.

The City's 2022 Climate Action Plan (CAP) sets ambitious citywide goal of net zero emissions by 2035. The CAP includes targets and strategies to encourage walking, biking, and taking transit, and to transition from combustion vehicles to zero emissions vehicles. The City has also committed to Vision Zero and the goal of eliminating traffic fatalities and severe injuries with the adoption of the 2020 Vision Zero Strategic Plan. The City adopted the Complete Streets Policy (R-315264) on December 22, 2023 to further the attainment of a balanced, multimodal mobility system with increased mobility options and safe, equitable infrastructure. This policy establishes a framework for the planning, design, and implementation of multimodal facilities that provide safety, comfort, and access to destinations for all users such as pedestrians, persons with disabilities, bicyclists, transit riders, and motorists.

3.5.1 Governor Drive Complete Street

Existing Conditions

Governor Drive functions as a two-way east-west, 4-lane Major Arterial with raised medians and a curb-to-curb width of approximately 68-80 feet. Governor Drive is lined with sidewalks and curbs on both sides of the street for the entire length of the street. Parallel parking is available on both sides of the street along most segments of the roadway west of Gullstrand Street. Class II bike lanes (no buffer) are partially present on both sides of the street between Genesee Avenue and Gullstrand Street. The posted speed limit is 35 mph. Access to I-805 is provided at the eastern terminus of Governor Drive.
The 2013 City of San Diego Bicycle Master Plan proposes Governor Drive west of Genesee Avenue as a Class II (Bike Lane) or III (Bike Route). Governor Drive is served by Bus Route 105: Old Town Transit Center – UTC Transit Center and Route 41: Fashion Valley – UCSD/VA Medical Center.

The southern portion of the community is primarily residential and has a high number of low-stress roadways, but lacks connections to the destinations in the northern portion of the community as Governor Drive and Genesee Avenue create high stress barriers. Governor Drive is currently a high-stress bicycle facility due to high speeds and traffic volumes and minimal infrastructure for cyclists.

Between October 2012 and September 2017, there were a total of 3 reported collisions involving pedestrians at the intersection of Genesee Avenue and Governor Drive. There were also 2 reported bicycle related collisions within 500 feet of the transit stops at the same intersection. It is important to note that some pedestrian and bicyclist incidents may go unreported and therefore, were not included in the collision analysis.

Planned Mobility Improvements

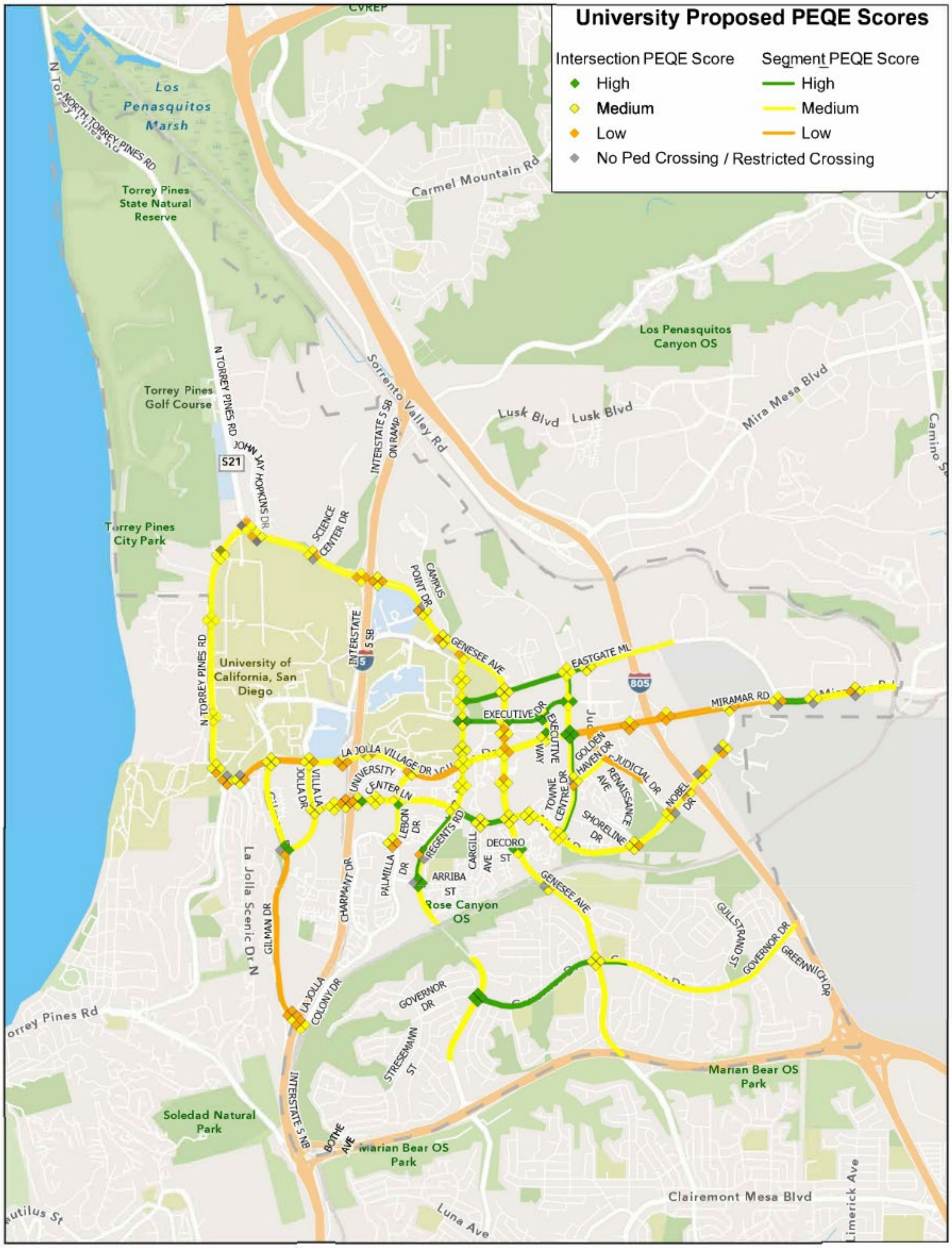
The University CPU plans to reduce the number of travel lanes from a 4-lane Major Arterial to a 2-lane Major Arterial on Governor Drive (West End to Greenwich Drive) to create a Complete Street consistent with City goals in the General Plan, CAP, Vision Zero, and Complete Streets Policy to encourage walking, biking, and taking transit. The plan includes continuous buffered bike lanes along Governor Drive, enhanced pedestrian and intersection treatments, and traffic calming measures, while maintaining on-street parking. Other improvements include a protected intersection at Genesee Avenue and Governor Drive.

Analysis Summary

The following analysis summary for the pedestrian, bicycle, transit, and vehicular modes is based on implementation of future land uses and planned mobility network in the Proposed Plan.

<u>Pedestrian Analysis:</u> Governor Drive from Regents Road to Edmonton Avenue is designated a Pedestrian Corridor in **Figure 2-1** Pedestrian Facilities Network Map. Corridors are designated along roadways that support businesses and shopping districts with moderate pedestrian activity levels. Corridor route types consist of more enhanced treatments to support additional activity, such as wider sidewalks, visual and audible pedestrian signal heads, lead pedestrian intervals, high visibility crosswalks, pedestrian lighting, and trees to shade walkways. As shown in **Figure 3-1**, Governor Drive received a “medium” or “high” score at all intersection crossings based on the planned physical and operational improvements.

Figure 3-1

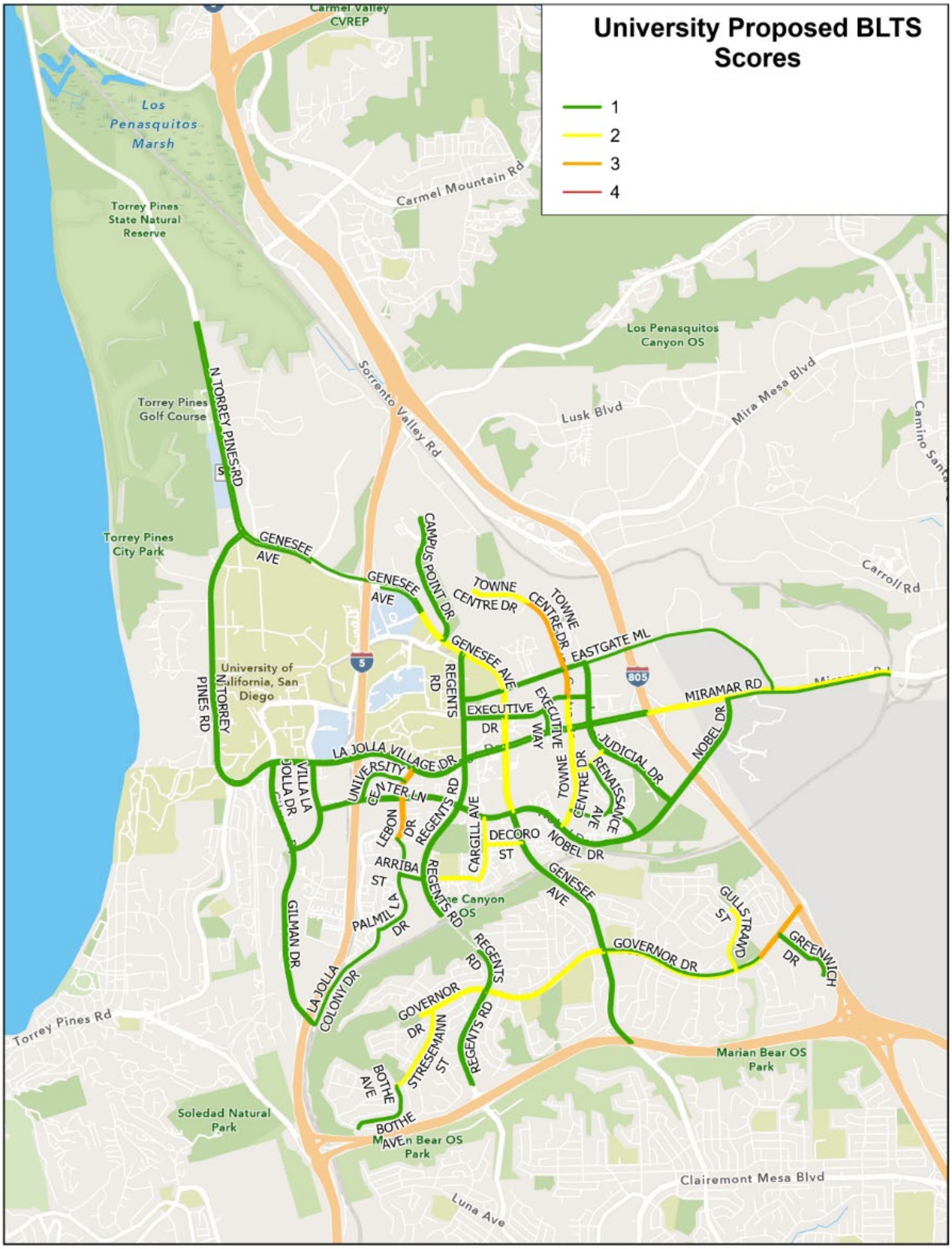

University Proposed PEQE Scores
Intersection PEQE Score
High
Medium
Low
No Ped Crossing / Restricted Crossing
Segment PEQE Score
High
Medium
Low
Los Penasquitos Marsh
Torrey Pines State Natural Reserve
Torrey Pines Golf Course
Torrey Pines City Park
University of California, San Diego
Los Penasquitos Canyon OS
Carmel Mountain Rd
Sorrento Valley Rd
Lusk Blvd
Mira Mesa Blvd
N TORREY PINES RD
JOHN JAY HOPKINS DR
SCIENCE CENTER DR
CAMPUS POINT DR
GENESEE AVE
EASTGATE ML
MIRAMAR RD
EXECUTIVE DR
EXECUTIVE WAY
TOWNE CENTRE DR
GOLDEN HAVEN DR
JUDICIAL DR
RENAISSANCE AVE
NOBEL DR
SHORELINE DR
LA JOLLA VILLAGE DR
UNIVERSITY CENTER LN
VILLA LA JOLLA DR
LEBON DR
REGENTS RD
CARGILL AVE
DECORO ST
ARRIBA ST
PALMILLA DR
CHARMANT DR
GILMAN DR
LA JOLLA COLONY DR
GOVERNOR DR
STRESEMANN ST
GULLSTRAND ST
GREENWICH DR
Rose Canyon OS
La Jolla Scenic Dr N
Torrey Pines Rd
Soledad Natural Park
Marian Bear OS Park
BOTHE AVE
INTERSTATE 5 NB
Clairemont Mesa Blvd
Limerick Ave
Luna Ave

Bicycle Analysis: A map of planned bicycle facilities throughout the community can be found in **Chapter 2**. As discussed in **Chapter 3.2**, implementation of the Class II buffered bike lanes and traffic calming enhancements along Governor Dr would reduce Bicycle Levels of Traffic Stress from 4 (high stress) to 1-2 (low-medium stress). See **Appendix A Figure 5-8** and **Figure 3-2** below:

FIGURE 5-8

Existing Bicycle Level of Traffic Stress

Figure 3-2



Transit Analysis: The main goal for the Proposed Plan transit networks is to make transit a reliable and competitive option, and to encourage more people to consider using transit for their commute trips. As discussed in **Chapter 3.3,** future transit travel time along Governor Drive was compared to the travel time for vehicles in the general-purpose travel lanes on the same corridor. There are no proposed transit improvements along Governor Drive such as flexible lanes, therefore bus routes would need to utilize the general purpose lanes with other vehicles. The results in **Table 3-10** indicate that taking transit is a comparable option to driving a vehicle based on travel time when connecting University to the adjacent southern communities of Clairemont Mesa and Linda Vista.

Vehicular Analysis: **Chapter 3.4** contains the vehicular Roadway Segment Analysis, Peak Hour Arterial Analysis and Peak Hour Intersection Analysis for Governor Drive. With full buildout of the plan, it is anticipated that decreased levels of service for both roadway segments and intersections, and increased vehicular travel times along Governor Drive will occur. It should be noted that the analysis presents a "worst case scenario" since full buildout of future land uses is not guaranteed.

Implementation of the Governor Drive Complete Street will help create a safer and more inviting environment for pedestrian, bicyclists, and transit riders. In addition, these complete street improvements will have a positive impact on mode shift, and reductions in vehicle miles traveled and greenhouse gas emissions consistent with CAP goals.

Conclusion

The University Community Plan emphasizes a balanced, multimodal transportation network with convenient connections to complement proposed higher density, mixed use developments, encouraging people to shift from driving their personal vehicle to using alternative modes. It is projected that full buildout of the transportation network will increase communitywide active transportation and transit peak commute mode share, further steering the community and the City in the right direction of reaching commuter mode share targets.

Appendix A

Existing Conditions Report

UNIVERSITY COMMUNITY PLAN UPDATE

Existing Conditions Summary

APRIL 2018

Prepared By:

EXECUTIVE SUMMARY

This study documents analysis and observations of the existing mobility network in the University community.

Pedestrian Evaluation

The University community has a mode share relatively close to that of the City of San Diego and San Diego County. This is likely due to the relatively urban, mixed-use nature of the area. Pedestrian facilities are provided for most of the community, but distances between points of interest can be long. Specifically, Rose Canyon, I-805, I-5, and SR-52 act as barriers for pedestrian connectivity through the community. There are pedestrian bridges at certain locations that provide important pedestrian connections, but otherwise the community's pedestrian travel is challenging with the currently wide street configurations. A 0.25-mile walkshed was calculated from each intersection, allowing the simulated pedestrian to only utilize available sidewalks and crossings. It was found that the central areas within the community along Regents Road and Genesee Avenue provide high pedestrian connectivity, however, the outer areas are not well served due to freeway interchange constraints.

Pedestrian demand is highest in the denser, central part of the community. Demand is closely correlated with the commercial (both retail and office space uses) core of the community. The areas of highest demand also have the best-connected street grid and are less impacted by the topographic and freeway barriers that affect the southern and northern ends of the community. Demand is predictably lower in areas that are largely residential, including areas to the west of Regents Road, south of Rose Canyon and east of Genesee Avenue.

Between October 2012 and September 2017, there were a total of 69 reported collisions involving pedestrians within the University community. The vast majority (72 percent) of pedestrian-involved collisions occurred at intersections. Intersections in the community have wide crossings and are heavily travelled by motorists with frequent delay, making both drivers and pedestrians more aggressive in their decision-making.

Multiple roadway segments within the community are either missing sidewalks or have sidewalks that are less than 5 feet in width. Many sub-standard sidewalks are adjacent to City-owned right-of-way that is currently used for landscaping. Both the provision of sidewalks as well as increasing sidewalk widths would likely improve the pedestrian experience.

Pedestrian connections are an important part of this community to serve transit users and those traveling between retail, residential, and employment areas. Connections along the higher speed, wider roadways in the community should consider alternatives to standard at-grade crossings. Providing efficient pedestrian connections internal to large private developments also helps improve the pedestrian experience.

Bicycle Evaluation

The University community has a mode share over two times that of the City of San Diego and San Diego County. This is likely due to the relatively urban, mixed-use nature of the area.

Overall, the community is primarily a high-stress bicycle environment along the major roadways. Pockets of low stress local roadways are often isolated from adjacent areas by these high stress circulation element roads. In the northern part of the community, high speeds and traffic volumes on most roadways create a stress barrier for cyclists. Pockets of low stress roadways in the UCSD area and residential areas in the community can travel around their immediate area with low-stress, but have minimal low-stress options to get to other parts of the community. The southern portion of the community is primarily residential and has a high number of low-stress roadways, but lacks connections to the destinations in the northern portion of the community.

The greatest connectivity is seen along the major roadways in the central part of the community. This is likely due to the lack of barriers (canyons and freeways) in that part of the community, as well as the slightly more grid-like street network connecting to Regents Road, Genesee Avenue, and La Jolla Village Drive. Freeway barriers (I-5 and I-805) significantly reduce the bike connectivity at adjacent intersections.

Between October 2012 and September 2017, there were a total of 70 reported collisions involving bicycles within the University community. Just as with pedestrian-involved collisions, almost three-quarters of all bicycle-involved collisions occurred at intersections.

To increase bicycle commuter mode share, it is important to create a low-stress bicycle network which can connect places of employment, residences, and commercial centers. Major arterials are the only roads that connect those elements in the University community; thus, low-stress facilities would need to be implemented along the major arterials, such as those listed above, to increase the low-stress bicycle connectivity of the community. On or adjacent to these major arterials, routes that are separated from cars should be provided to attract more users.

Public Transit

Areas that are well served by transit have transit use similar to or better than the City-wide average. South of Rose Canyon has low transit ridership; this result is not surprising given the limited transit service and long walking distances to bus stops in this area.

The University community has three major transit stations: UTC Transit Center, Gilman Transit Center, and the Gilman Drive & Eucalyptus Grove Lane bus stop. Of the three, only the UTC Transit Center has access to low or medium stress pedestrian facilities immediately adjacent to the three major transit stops. Conversely, the major transit stops along Gilman have access to low-stress bicycle facilities. Improved pedestrian and bicycle connections from the transit stations may further increase ridership.

The success of the SuperLoop demonstrates how connecting high-density residential with employment, retail, commercial, and educational uses with frequent transit service can attract riders who otherwise may have used a car. Over time, with future planned transit service, people may choose to live where they can take transit and thereby own fewer cars. Transit demand for work commuters may focus on providing access to the businesses in the northern areas of the community and along La Jolla Village Drive, whereas resident-focused service may be in greater demand in the central and southern ends of the community.

Key chokepoints were identified that cause delays for buses in the community.

- *The on-ramp from eastbound La Jolla Village Drive to southbound I-805 backs up during the PM peak and there isn't an HOV lane to allow buses to bypass the queues.*
- *The southbound I-805 off ramp to La Jolla Village Drive congestion during the PM peak.*
- *The right lane on Gilman Drive leading to the on-ramp to southbound I-5 backs up during the PM peak and there is not an HOV lane to allow buses to bypass the queues.*
- *The left turn from northbound Genesee Avenue to westbound La Jolla Village Drive does not provide enough green time to clear the queue and creates abnormal delays for buses making this left turn movement.*
- *Delays occur frequently during peak periods along Genesee Avenue between Nobel Drive and Governor Drive and there is no alternative route to cross Rose Canyon.*
- *Heavy through movement demand on La Jolla Village Drive approaching I-5 leads to large queue development on all approaches*

Street Network

Between October 2012 and September 2017, there were a total of 1,196 reported vehicular collisions (excluding pedestrian and bicycle involved collisions) within the University community.

A total of 79 intersections throughout the community were analyzed to determine the operations during morning and afternoon peak periods. Roadway segment travel times and midday intersection analyses were performed for intersections along Genesee Avenue, La Jolla Village Drive, Nobel Drive, and Regents Road.

The Genesee Avenue corridor is approximately 4.5 miles and has 20 signalized intersections between North Torrey Pines Road and Appleton Street/Lehrer Drive; 13 intersections operate at LOS E or F during at least one peak hour. In the AM and PM peaks, congestion is shown from Eastgate Mall to Lehrer Drive/Appleton Street and at the I-5 ramps.

The La Jolla Village Drive/Miramar Road corridor is approximately 4.2 miles and has 19 signalized intersections between Torrey Pines Road and Camino Santa Fe; 9 intersections operate at LOS E or F during at least one peak period. In the AM peak, the westbound direction has major congestion between the I-805 ramps and Genesee Avenue, and again near the I-5 ramps and the eastbound direction has noticeable congestion between the I-5 ramps and Genesee Avenue. In the PM peak, congestion at a couple key intersections significantly reduce travel speeds on the corridor. In the eastbound direction, the Towne Centre Drive intersection shows extreme congestion; in the westbound direction, Miramar Mall shows extreme congestion.

The Nobel Drive corridor is approximately 3.0 miles and has 17 signalized intersections between Villa La Jolla Drive and Miramar Road; 2 intersections operate at LOS E or F during at least one peak period. Congestion is shown near the I-5 interchange and from Regents Road to Towne Centre Drive during both peak periods.

Regents Road has 10 signalized intersections between Genesee Avenue and Arriba Street and 4 signalized intersections between Governor Drive and Luna Avenue; 4 intersections operate at LOS E or F during at least one peak period. Congestion is shown from La Jolla Village Drive to Nobel Drive and from SR-52 ramps to Luna Avenue during both peak periods.

North Torrey Pines Road has 5 signalized intersections between UCSD Northpoint Driveway and Genesee Avenue; 3 intersections operate at LOS E or F during the PM peak period. Congestion is shown at Genesee Avenue and south of La Jolla Shores Drive.

Gilman Drive has 4 signalized intersections and 1 unsignalized intersection between La Jolla Village Drive Ramps and I-5 Ramps; the unsignalized intersection at La Jolla Village Drive EB Ramp operates at LOS F during the PM peak period.

Governor Drive has 2 signalized intersections and 2 unsignalized intersections between Regents Road and I-805 Ramps; 2 intersections operate at LOS E or F during at least one peak period. Congestion is shown at Genesee Avenue and at I-805 NB Ramps.

As part of the SuperLoop rapid bus route, a total of 40 intersection have transit signal priority. This includes 31 City operated intersections, 7 UCSD operated intersections, and 2 Caltrans operated intersections.

Freeways

Freeway operations for the adjacent Interstate 5, Interstate 805, and State Route 52 facilities were analyzed to determine the operations and capacity of the mainline and ramp connections.

- *There are 18 intersections that provide a connection to the adjacent freeway facilities.*
  - *7 of the 18 intersections experience poor operations during at least one peak period, and*
  - *3 of the 18 intersections experience poor operations during more than one peak period.*
- *The freeway mainlines adjacent to the community area are currently operating at capacity during the peak periods. As a result, the ramp connections from the community to get on the freeway are not able to allow more vehicles onto the freeway. With the current capacity restraints, vehicles will either wait longer, spread into a longer peak period, or choose other modes of travel.*
- *High-occupancy vehicle (HOV) lanes are under construction on Interstate 805 and are planned for future implementation along Interstate 5. Direct access ramps are proposed at Voigt Drive (via Interstate 5) and Nobel Drive (via Interstate 805). These lanes should encourage more carpool, vanpool, and transit use.*

Overall, access points to the freeways are at or above capacity and many of the major corridors in the community experience congestion.

Parking

Parking in the University community is primarily off-street parking. In the commercial areas, off-street parking lots are provided for the adjacent uses. In residential areas, off-street parking is mostly provided as well, with on-street parking sparingly used as overflow parking for residents and visitors. For on-street parking in the community, there are no permit parking areas and time-restricted and metered parking is used infrequently.

Portions of some of the key corridors in the community currently provide on-street parking:

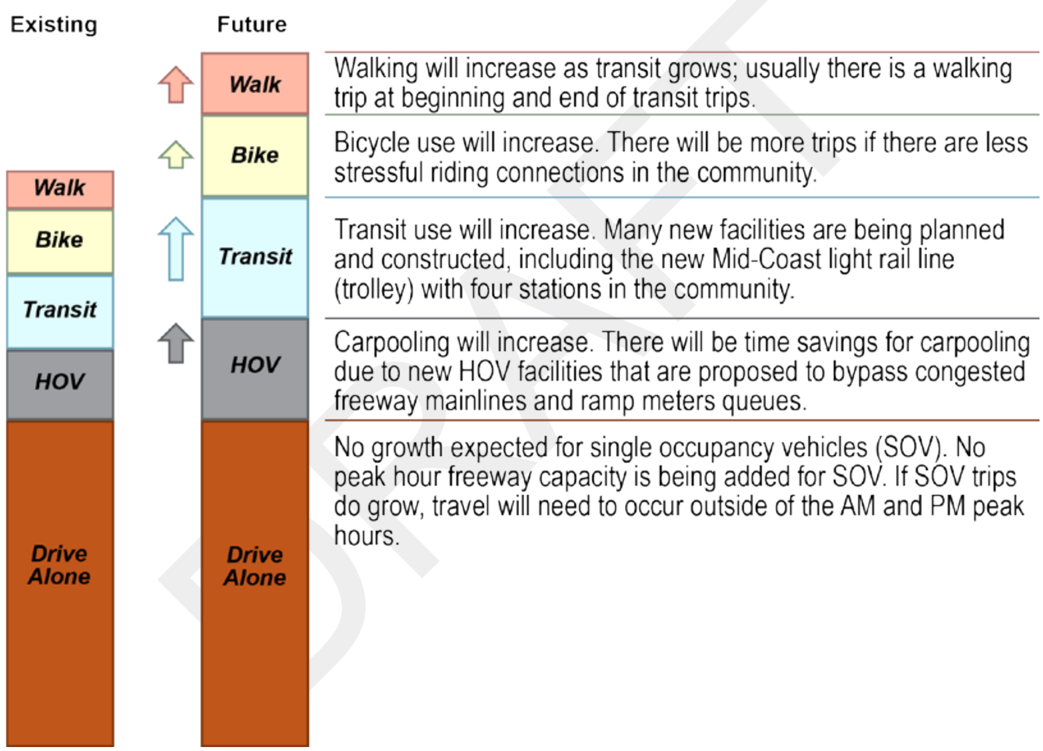
- *La Jolla Village Drive*
- *Governor Drive*

- *Regents Road*
- *Nobel Drive*

Connectivity in the community may benefit from the conversion of on-street parking to transit or bicycle facilities. Providing enough off-street parking to accommodate the adjacent land uses and repurposing the roadways to accommodate other modes of travel may be needed to capture future growth. The effect of removing on-street parking will need to be considered on an individual project basis.

How will travel in the University community grow?

Based on the information gathered in this report, growth in the University community is contingent on providing opportunities for modes of travel other than single occupancy vehicles. The following graphic summarizes the vision of the community growth by mode of travel:



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1 INTRODUCTION

The following section introduces the Existing Conditions Report of the University Community Plan Update.

BACKGROUND

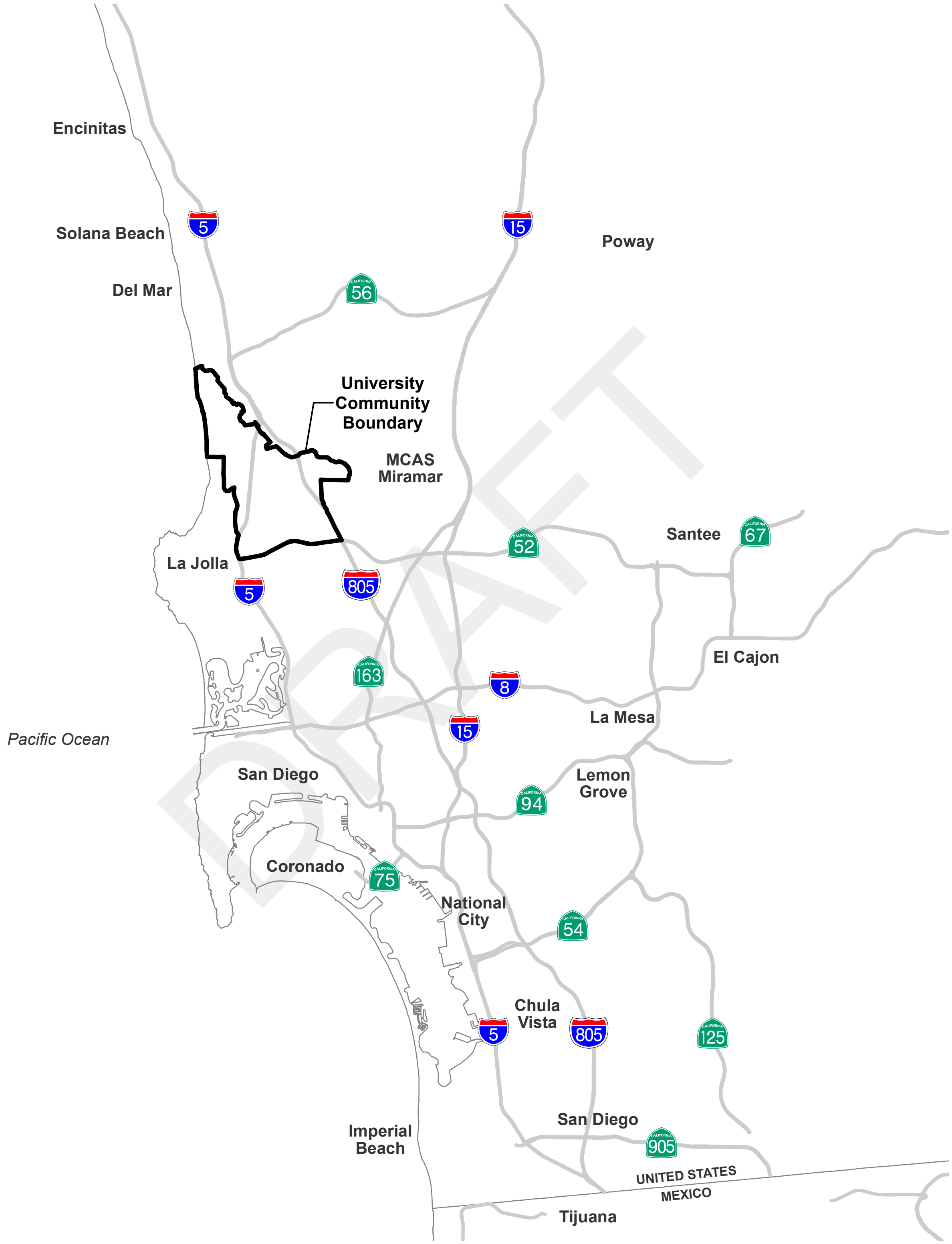
The University community is located at the northern border of the City of San Diego, encompassing the University Town Center, Torrey Pines, and the University of California San Diego (UCSD). The area commonly referred to as the "golden triangle", bounded by I-5, I-805, and SR-52, is within the University community. **Figure 1-1** depicts the location of the University community in a regional context and **Figure 1-2** shows the community boundary in a localized context.

REPORT PURPOSE AND APPLICABILITY

The purpose of the Community Plan Existing Conditions Mobility Report is to summarize the existing conditions within the community for all modes of transportation and to identify potential deficiencies and conflicts that could be addressed through future changes in the transportation network. The existing conditions report is a critical building block in the preparation of the land use plan and future mobility network. Key purposes of the existing conditions report include:

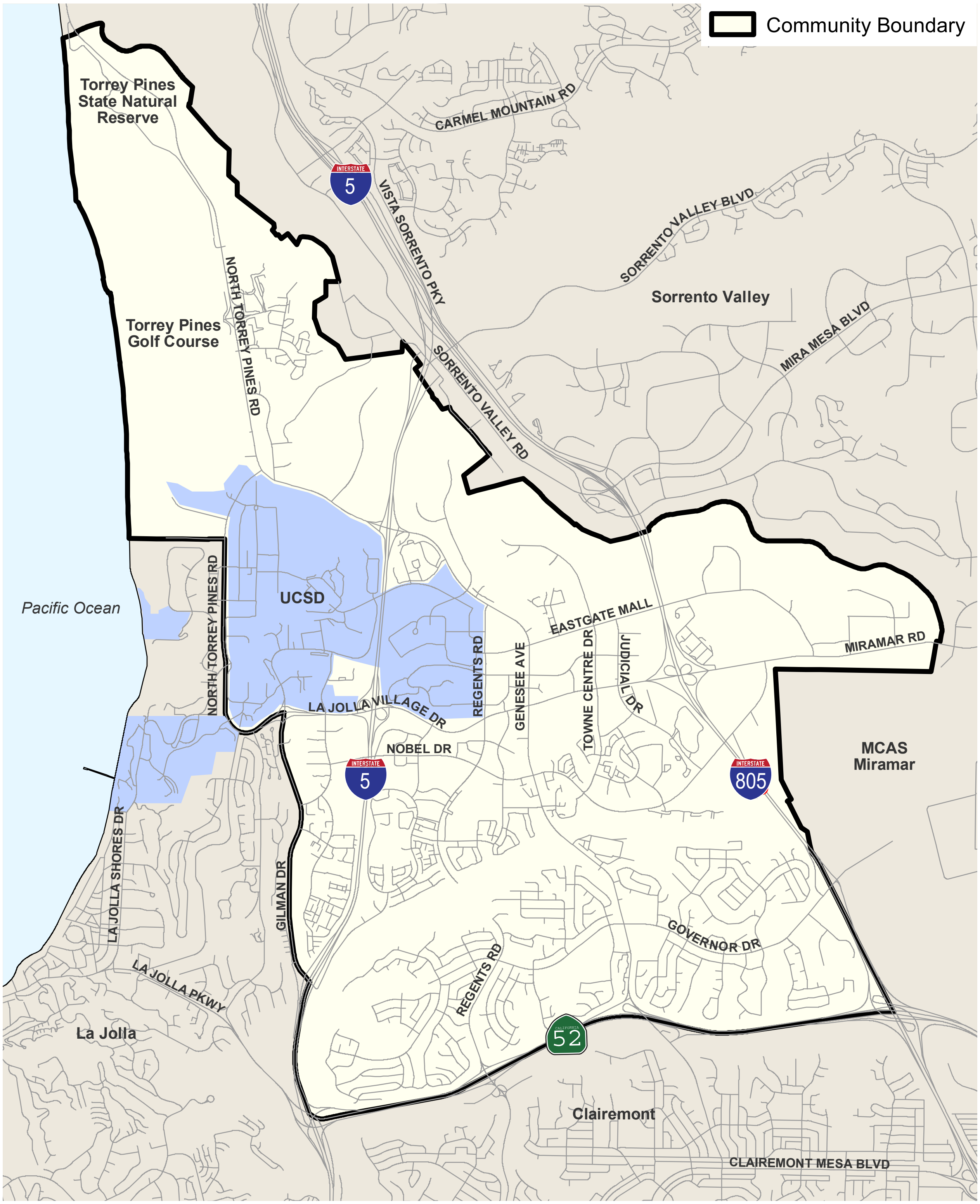
- Summarizing traffic volume and collisions data collected,
- Describing the analysis methods and techniques,
- Evaluating existing mobility conditions,
- Establishing a baseline condition for the environmental documents, and
- Educating the stakeholders and plan preparers of current conditions.

FIGURE 1-1



Regional Vicinity Map

FIGURE 1-2



Community Boundary

2 ANALYSIS STUDY AREA AND METHODOLOGY

The following section describes the methodology used to determine the study area and evaluate existing conditions of the mobility network within the University community.

STUDY AREA

ANALYSIS METHODOLOGY

The existing conditions evaluation process includes the following analyses:

- Pedestrian network connectivity and barriers
- Pedestrian demand based upon the Pedestrian Priority Model and mode share
- Pedestrian Safety
- Pedestrian route typology
- Pedestrian Environment Quality Evaluation (PEQE)
- Pedestrian Connectivity
- Determination of walkable area within 1/4-mile distance to each transit stop within the community
- Bicycle level of traffic stress
- Bicycle demand based upon the Bicycle Demand Model and mode share
- Bicycle Safety
- Bicycle connectivity (all facilities and low-stress facilities)
- Transit demand and connections
- Safety Near a Transit Stop/Station
- Levels of service at all study intersections for the AM and PM peak-hours during a typical weekday
- Levels of service for study intersections along Genesee Avenue, La Jolla Village Drive, Nobel Drive, and Regents Road during the midday peak-hour during a typical weekday
- Levels of service for roadway segments within the community based on average daily traffic and theoretical capacity based on the roadway classification
- Levels of service along corridors within the community based on average speed
- Levels of service along freeway segments adjacent to the community based on density
- Length of queues and delays at freeway entrance ramps that have ramp meter operations
- Vehicular Safety

PEDESTRIAN METHODOLOGY

PEDESTRIAN DEMAND

The City of San Diego's Pedestrian Priority Model (PPM) was used to evaluate the relative pedestrian demand within the University community. The PPM evaluates pedestrian demand based on existing land use and other characteristics within the built environment. The PPM determines demand based on three types of amenities: pedestrian trip attractors, trip generators, and trip detractors. A summary of land uses and other amenities in each category is shown below in **Table 2-11**.

Table 2-1 Pedestrian Demand Factors

Category	Pedestrian Demand Factors
Attractors	Schools, Universities, Neighborhood Civic Facilities, Neighborhood and Community Retail, Parks and Recreation Facilities, Proximity to and Ridership at Transit Stops/Stations
Generators	Population and Employment Density, Age, Income, Disability Density, Mixed Land Density
Detractors	Collisions, Traffic Volumes, Traffic Speeds, Lack of Street Lighting, Barriers

Source: Active Travel Assessments, Integrating Bicycle, Pedestrian and Transit Evaluation in Long Range Planning (City of San Diego, 2017)

Using the above factors, the PPM identifies pedestrian propensity land uses and population concentrations. The PPM also considers factors indicating potential pedestrian barriers or safety issues.

The PPM was also used to determine the Pedestrian Study Area, which was used in the pedestrian quality and connectivity assessments.

PEDESTRIAN SAFETY

In order to further understand existing pedestrian safety issues, a safety assessment was performed. Safety was evaluated using collision data obtained from the City of San Diego Police Department's Crossroads software (SDPD) for the period from October 2012 through September 2017. Collisions from SDPD were geocoded and mapped to display the locations of collisions within the University community.

The location and concentration of pedestrian-involved collisions was taken into consideration when developing the Pedestrian Study Area, as locations with three or more collisions between 2012 and 2017 were included in the pedestrian quality and connectivity assessments. A map showing the spatial distribution of pedestrian-involved collisions is also included.

Several tables were also created to further understand safety issues and trends within the community. These include: high-frequency collision locations, cause of collisions, party at fault, and collision location types. The collision location types are differentiated between intersection, midblock, and approaching/departing. Collisions that occurred within 100 feet of the center of the intersection, to account for vehicles that are queued at the intersection control, were identified as intersection collisions. Collisions that occurred between 100 feet and 350 feet from the center of the intersection were identified as approaching/departing collisions. This net 250 feet is reflective of the stopping sight distance of a vehicle travelling at 35 mph. Collisions that occurred at a distance over 350 feet away from the center of the intersection were identified as mid-block collisions.

PEDESTRIAN NETWORK CONNECTIVITY AND BARRIERS

An existing sidewalk inventory was provided by City staff in Geographic Information System (GIS) format of the study area for review and analysis in the ArcGIS software. This information was used to provide an overview of where pedestrian connections currently are provided, areas that have missing pedestrian facilities, and barriers that may impede pedestrian connectivity.

PEDESTRIAN ROUTE TYPOLOGY

Pedestrian route typology methodology was established in in Appendix B[1] of the City's Pedestrian Master Plan effort. The methodology establishes criteria for defining pedestrian route types and ultimately developing priority pedestrian improvements. Pedestrian route type criteria and data sources are identified in **Table 2-2**.

Table 2-2 Pedestrian Route Type Criteria

Phase I Pedestrian Route Type Criteria	Phase 2 & 3 Operationalization of Route Type Criteria	Data Sources
Street Design Manual Classification	Circulation Element Roadway Classification	General_Plan_Road_Network.shp (City of San Diego, 2008)
Strategic Framework Element Village Type	Village Propensity Model	Villagepropensity_vpMay30.img (City of San Diego, 2008)
Land Uses	Pedestrian Priority Attractor Model and existing adjacent land uses and intensities	Updated PPM 2015 (City of San Diego 2015) and 2007 lu.shp (SANDAG)

Source: City of San Diego Pedestrian Master Plan Volume 1, Appendix B (2015)

[1] https://www.sandiego.gov/sites/default/files/legacy/planning/programs/transportation/mobility/pdf/sdpmp_volume_1_appendix_b.pdf

PEDESTRIAN ENVIRONMENT QUALITY EVALUATION (PEQE)

A pedestrian quality assessment was performed to understand the overall quality of existing pedestrian facilities within the Pedestrian Study Area[2]. The Pedestrian Study Area includes areas which meet one or more of the following criteria:

- Existing Pedestrian Demand: PPM score that is one standard deviation above the community mean
- Pedestrian Safety: locations with two or more pedestrian collisions over the analyzed five-year period
- Proximity to Transit: areas within a half-mile of a major transit stop[3]

The quality of all existing pedestrian facilities (roadway segments, intersection crossings, and mid-block crossings) within the Pedestrian Study Area were evaluated using the Pedestrian Environment Quality Evaluation (PEQE) tool. Pedestrian facilities were assessed using the criteria described below in **Table 2-3**, and given a score of High, Medium, or Low, based upon the following scoring system:

- *Low:* < 4 points
- *Medium:* = 4 – 6 points
- *High:* > 6 points

Table 2-3 PEQE Scoring Criteria

Facility Type	Measure	Description/Feature	Scoring
Segment between two intersections	Horizontal Buffer	Between the edge of auto travel way and the clear pedestrian zone	0 point: < 6 feet 1 point: 6 - 14 feet 2 points: > 14 feet
	Lighting		0 point: below standard/requirement 1 point: meet standard/requirement 2 points: exceed standard/requirement
	Clear Pedestrian Zone	5' minimum	0 point: has obstructions 2 points: no obstruction
	Posted Speed Limit		0 point: > 40 mph 1 point: 30 - 40 mph 2 points: < 30 mph

[2] Active Travel Assessments, Integrating Bicycle, Pedestrian and Transit Evaluation in Long Range Planning (City of San Diego, 2017)

[3] Major transit stop (CEQA Section 21064.3) is a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the AM and PM peak commute periods

Facility Type	Measure	Description/Feature	Scoring
Maximum			**8 points**
Intersection – Individual Crossing	Physical Feature	Enhanced/High Visibility Crosswalk Raised Crosswalk/Speed Table Advanced Stop Bar Bulb out/Curb Extension	0 point: < 1 feature per ped crossing 1 point: 1 – 2 features per ped crossing 2 points: > 2 features per ped crossing
	Operational Feature	Pedestrian Countdown Signal Pedestrian Lead Interval No-Turn On Red Sign/Signal Additional Pedestrian Signage	0 point: < 1 feature per ped crossing 1 point: 1 – 2 features per ped crossing 2 points: > 2 features per ped crossing
	ADA Curb Ramp		0 point: no existing curb ramp 1 point: existing curb ramp is below standard/requirement 2 points: curb ramp meets standard/requirement
	Traffic Control		0 point: No control 1 point: Stop sign controlled 2 points: Signal/ Roundabout/Traffic Circle
Maximum			**8 points**
Mid-block Crossing	Visibility		0 point: w/o high visibility crosswalk 2 points: with high visibility crosswalk
	Crossing Distance		0 point: no treatment 2 points: with bulb out or median pedestrian refuge
	ADA		0 point: no existing curb ramp 1 point: existing curb ramp is below standard/requirement 2 points: curb ramp meets standard/requirement
	Traffic Control		0 point: No control 1 point: Pedestrian Activated Warning Device (In-pavement, Pedestrian Activated Flashing Beacons etc.) 2 points: Signal/Pedestrian Hybrid Beacon (HAWK)
Maximum			**8 points**

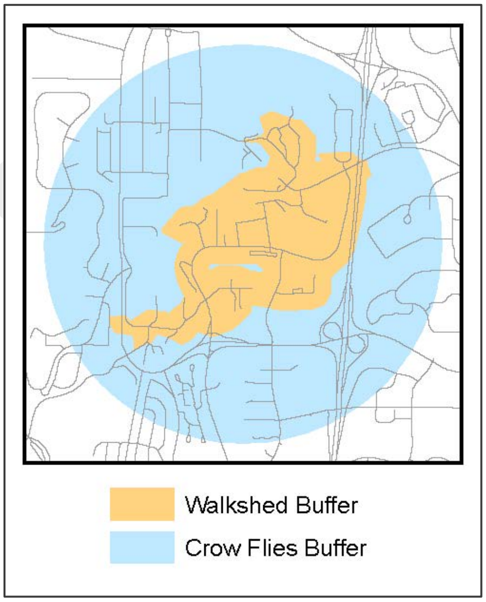
Source: Active Travel Assessments, Integrating Bicycle, Pedestrian and Transit Evaluation in Long Range Planning (City of San Diego, 2017)

PEDESTRIAN NETWORK CONNECTIVITY

Pedestrian network connectivity was evaluated within the Pedestrian Study Area as described above. The Walkshed Ratio is calculated using the approach as described below.

Walkshed Ratio

Before assessing pedestrian network connectivity within the Pedestrian Study Area, the pedestrian network itself was developed. The most current roadway GIS data, provided by SanGIS, was used as a base for developing the network. Additionally, segments without pedestrian connections were manually removed.



Using the pedestrian network, a Walkshed Ratio was calculated for study intersections within the Pedestrian Study Area. The Walkshed Ratio assesses the level of connectivity provided at each of the studied intersections within the Pedestrian Study Area. The Walkshed Ratio was calculated by comparing the land area accessible within a ½-mile pedestrian network buffer to the land areas accessible within a ½-mile as-the-crow-flies buffer. The higher the Walkshed Ratio, the better the overall connectivity is at the intersection[4]. The Walkshed Ratio utilizes the following formula:

$$\frac{\text{Land Area Accessible within a 0.5 mile walkshed (acres)}}{\text{Land Area Accessible within a 0.5 mile crow flies buffer (acres)}}$$

An illustration of the variables that are used to compute a Walkshed Ratio is included to the right. An overview of the existing Walkshed Ratio analysis for existing conditions at intersections within the Pedestrian Study Area is provided in **Table 4-9** and **Figure 4-11**.

[4] *65% is typically the highest Walkshed Ratio that can be achieved in even the most ideal communities (i.e. urban downtown settings with tight grid networks). Therefore, any community with a connectivity ratio over 50% may be considered ideal.*

BICYCLE METHODOLOGY

BICYCLE LEVEL OF TRAFFIC STRESS

The Mineta Transportation Institute published Low-Stress Bicycling and Network Connectivity which establishes a methodology for evaluating the level of stress for bicyclists riding on a designated bicycle facility associated with specific factors. The Mineta Transportation Institute document used the City of San Jose as a test case to apply the methodology. This methodology applies a level of traffic stress (LTS) on a scale of LTS 1 (lowest stress) to LTS 4 (highest stress) for the following criteria:

- Roadway Classifications
- Roadway Speeds
- Bicycle Facility Type
- Bike Lane and Buffer Widths
- Intersection Control
- Bike Lane configuration at Intersections
- Parking Lane width
- Existing Transit Routes

LTS 1 facilities present little traffic stress and demand little attention from cyclists. They are suitable for almost all cyclists and attractive enough for a relaxing bike ride. LTS 2 facilities are suitable to most adult cyclists but demand more attention than might be expected from children. LTS 3 starts to introduce a stress level that not all adult cyclists feel comfortable with. LTS 4 is the highest level of stress and may be used by experienced bicyclists or not used at all.

Per the methodology guidance, both directions of a roadway segment are independently assigned a score between LTS 1 and LTS 4 based on several criteria shown in **Table 2-4** through **Table 2-10**. The resulting directional roadway level of traffic stress is the worst level of stress assigned to a segment from the several individual criteria scores. Where a table cell shows a result of "(no effect)", the resulting LTS for that situation is equal to the lower adjacent LTS.

Data on roadway classifications, speeds, bicycle facility type, and intersection control were compiled using field observations of roadway segments and intersections for classified roadways in the University community. This information was supplemented with measurement estimates and documentation of bike lane configurations at intersections taken from aerial imagery.

Table 2-4 Criteria for Bike Lanes Alongside a Parking Lane

	LTS ≥ 1	**LTS ≥ 2**	**LTS ≥ 3**	**LTS ≥ 4**
Street Width** (through lanes per direction)	1	(no effect)	2 or more	(no effect)
Sum of bike lane and parking lane width	15 ft. or more	14 or 14.5 ft.*	13.5 ft or less	(no effect)
Speed Limit or prevailing speed	25 mph or less	30 mph	35 mph	40 mph
Bike Lane Blockage	Rare	(no effect)	Frequent	(no effect)

Note: (no effect) =factor does not trigger an increase to this level of traffic stress.

* If speed limit < 25 mph or Class= residential, then any width is acceptable for LTS 2.

Table 2-5 Criteria for Bike Lanes Not Alongside a Parking Lane

	LTS ≥ 1	**LTS ≥ 2**	**LTS ≥ 3**	**LTS ≥ 4**
Street Width (through lanes per direction)	1	2, if separated by a raised median	More than 2 or 2 without a separating median	(no effect)
Bike Lane width (includes marked buffer and paved gutter)	6 ft. or more	5.5 ft or less	(no effect)	(no effect)
Speed Limit or prevailing speed	30 mph or less	(no effect)	35 mph	40 mph or more
Bike Lane Blockage	Rare	(no effect)	Frequent	(no effect)

Note: (no effect) =factor does not trigger an increase to this level of traffic stress.

Table 2-6 Criteria for Level of Traffic Stress in Mixed Traffic

Speed Limits	**Street Width**		
	2-3 Lanes	**4-5 Lanes**	**6+ Lanes**
Up to 25 mph	LTS 1* or 2*	LTS 3	LTS 4
30 mph	LTS 2* or 3*	LTS 4	LTS 4
35+ mph	LTS 4	LTS 4	LTS 4

Note: *Use lower value for streets without marked centerlines or classified as residential and with fewer than 3 lanes; use higher values otherwise.

Table 2-7 Level of Traffic Stress Criteria for Pocket Bike Lanes

Configuration	**Level of Traffic Stress**
Single right-turn lane up to 150 ft. long, starting abruptly while the bike lane continues straight, and having intersection angle and curb radius such that turning speed ≤ 15 mph.	LTS ≥ 2
Single right-turn lane up to 150 ft. long, starting abruptly while the bike lane continues straight, and having intersection angle and curb radius such that turning speed ≤ 20 mph.	LTS ≥ 3
Single right-turn lane in which the bike lane shifts to the left but the intersection angle and curb radius are such that turning speed is ≤ 15 mph.	LTS ≥ 3
Single right-turn lane with any other configuration; dual right-turn lanes; or right-turn lane along with an option (through-right) lane.	LTS ≥ 4

Table 2-8 Level of Traffic Stress Criteria for Mixed Traffic in the Presence of a Right-turn Lane

Configuration	Level of Traffic Stress
Single right-turn lane with length ≤ 75 ft. and intersection angle and curb radius limit turning speed to 15 mph.	(No effect on LTS)
Single right-turn lane with length between 75 ft. and 150 ft., and intersection angle and curb radius limit turning speed to 15 mph.	LTS ≥ 3
Otherwise	LTS = 4

Table 2-9 Level of Traffic Stress Criteria for Unsignalized Crossings Without a Median Refuge

Speed Limit of Street Being Crossed	Width of Street Being Crossed		
	Up to 3 lanes	4-5 lanes	6+ lanes
Up to 25 mph	LTS 1	LTS 2	LTS 4
30 mph	LTS 1	LTS 2	LTS 4
35 mph	LTS 2	LTS 3	LTS 4
40 mph	LTS 3	LTS 4	LTS 4

Table 2-10 Level of Traffic Stress Criteria for Unsignalized Crossings with a Median Refuge at Least Six Feet Wide

Speed Limit of Street Being Crossed	Width of Street Being Crossed		
	Up to 3 lanes	4-5 lanes	6+ lanes
Up to 25 mph	LTS 1	LTS 1	LTS 2
30 mph	LTS 1	LTS 2	LTS 3
35 mph	LTS 2	LTS 3	LTS 4
40 mph	LTS 3	LTS 4	LTS 4

BICYCLE DEMAND

The City of San Diego's Bicycle Demand Model (BDM) was used to evaluate facilities with high cycling demand or places warranting relatively higher considerations for bicycle infrastructure improvements within the University community. The BDM analyzes two components of demand: intra-community travel and inter-community travel. The Intra-community demand submodel is based on population characteristics combined with bicycle trip attractors and generators within the community. The inter-community demand model is based on higher intensity areas and their proximity to land uses typically associated with higher rates of cycling activity. A summary of land uses and other amenities in each category is shown below in **Table 2-**.

Table 2-11 Bicycle Demand Factors

Category	Bicycle Demand Factors
Attractors	Schools, Universities, Neighborhood Civic Facilities, Neighborhood and Community Retail, Parks and Recreation Facilities, Proximity to and Ridership at Transit Stops/Stations
Generators	Population and Employment Density, Age, Income, Disability Density, Mixed Land Density

Source: City of San Diego (2017)

BICYCLE SAFETY

Similar to pedestrian safety issues, to understand existing bicycle safety issues, a safety assessment was performed. Safety was evaluated using collision data obtained from the City of San Diego Police Department's Crossroads software (SDPD) for the period from October 2012 through September 2017. Collisions from SDPD were geocoded and mapped to display the locations of collisions within the University community.

The location and concentration of bicycle-involved collisions were taken into consideration when developing the Bicycle Study Area, as locations with three or more collisions between October 2012 and September 2017 were included in the pedestrian quality and connectivity assessments. A map showing the spatial distribution of pedestrian-related collisions is also included.

Several tables were also created to further understand safety issues and trends within the community. These include: high-frequency collision locations, cause of collisions, party at fault, and collision location types. The collision location types are differentiated between intersection, midblock, and approaching/departing. Collisions that occurred within 100 feet of the center of the intersection, to account for vehicles that are queued at the intersection control, were identified as intersection collisions. Collisions that occurred between 100 feet and 350 feet from the center of the intersection were identified as approaching/departing collisions. This net 250 feet is reflective of the stopping sight distance of a vehicle travelling at 35 mph. Collisions that occurred at a distance over 350 feet away from the center of the intersection were identified as mid-block collisions.

BICYCLE CONNECTIVITY

The overall connectivity of the bicycle network measures the accessibility it provides to the community, particularly to and from bicycle-oriented land uses. This is measured in two ways, both using the ArcGIS Network Analyst tool:

1) Bikeshed Ratio
2) Low-Stress Bicycle Connectivity

The first step is identifying the community's bicycle land uses in order to develop a bicycle study area within the community. **Table 2-12** identifies land use types associated with bicycle trip generators and attractors, as well as land uses that should not be considered in this evaluation. These land uses are consistent with the BDM's Intra-community submodel, except where noted.

This analysis identified bicycle land uses in each of the community's 82 Traffic Analysis Zones (TAZs), making the bicycle study area the entire community.

Table 2-12 Bicycle Land Use Categories

Generators	Attractors	Not Included as Bicycle Land Uses
Residential Land Uses[5]	Retail Office[6] Class I Bike Path Access Points Transit Stations Parks/Recreational Uses/Beaches Schools/College/ Universities Neighborhood Civic Uses Inter-community Access Points[7]	Retail Catering to Automobiles/Automobile Services (car dealers, service stations, etc.) Passive or Low-Intensity Recreation (Golf Courses, etc.)/Open Space/Preserves Communications/Utilities Infrastructure Industrial/Warehousing/Junkyards/Landfills Agricultural Police/Fire Stations Military Base

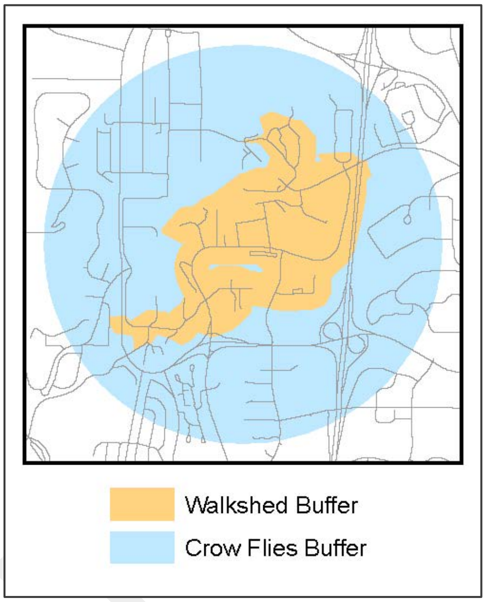
Source: City of San Diego (2017)

Bikeshed Ratio

The Bikeshed Ratio measures overall bicycle connectivity from any given point, by comparing the area reachable via the bike network within a given travel distance (the "bikeshed") to the area of an "as the crow flies" circle covering the same travel distance:

[5] The Intra-community BDM submodel includes population densities by various types, such as youth, bicycle commuters, and zero-vehicle households. This input has been simplified as "residential land use" for the purposes of the connectivity assessment since having all inputs by TAZs will facilitate GIS analysis processes.
[6] Office land uses were not included in the PPM or the BDM, but were deemed as possibly important at the community level.
[7] Inter-community Access Points were not included in the Intra-Community submodel since that facet of travel was modeled via the Inter-community submodel. These connection points just outside the community were deemed as important attractions for this community-level connectivity assessment.

$$\frac{\text{Area accessible via the bicycle network by traveling distance X}}{\text{Area accessible "as the crow flies" by traveling distance X}}$$



A higher Bikeshed Ratio at a given point indicates that the network provides better overall bicycle connectivity from that location.[8]

This analysis examined over 1,300 points in the community's bicycle network—including intersections between segments, as well as key inflection points along segments—to provide a comprehensive picture of the community bicycle connectivity. The analysis focused specifically on the area reachable between 0.25 miles and 1.0 mile from each point. (The inner area within 0.25 miles from each point was removed, as it is assumed to be dominated by pedestrian trips.)

The ArcGIS Network Analyst tool conducted the core analysis using the Service Area function, by generating a doughnut-shaped (0.25-1.0 mile) "service area" for each point that is reachable via the bicycle network. Dividing that land area by the land area of a 0.25-1.0 "as the crow flies" doughnut (1,884.95 acres) yields the Bikeshed Ratio for each point.

Low-Stress Bicycle Connectivity

The Low-Stress Bicycle Connectivity analysis evaluates each TAZ's connectivity to the rest of the community via low-stress routes, characterized as LTS 1 or 2. The analysis assigns each TAZ a connectivity score based on the following ratio:

$$\frac{\text{Number of TAZs accessible via low-stress routes (LTS 1/2 only)}}{\text{Number of TAZs accessible via all routes}}$$

The ArcGIS Network Analyst tool conducted the core analysis in two parts using the Closest Facility function, which creates the shortest available paths to/from each TAZ. The first analysis—producing the numerator of the ratio above—constrained the network to low-stress routes only (classified as LTS 1 or 2), with LTS 3 and 4 routes not only removed as potential pathways, but also acting as barriers to crossing. The second analysis—producing the denominator of the ratio above—analyzed paths between TAZs using the entire bicycle network, with potential routes unconstrained by high-stress paths.

This results in each TAZ with bicycle land uses being assigned a percentage reflecting its level of connectivity to other TAZ's with bicycle land uses in the community.

[8] *Due to the presence of natural features and other constraints, 65% is typically the highest Bikeshed Ratio that can be achieved in even the most ideal communities. In general, any score over 50% is considered ideal.*

TRANSIT METHODOLOGY

TRANSIT QUALITY

Transit stations and stops were reviewed to identify the presence or absence of the following amenities:

- Shelters
- Benches
- Trash Receptacles
- Station Signs
- Maps/Wayfinding
- Lighting
- ADA compliancy

Table 2- outlines the standard amenities that should be provided at transit stations/stops based on the projected daily passenger boardings (across all routes), according to MTS bus stop features guidelines[9].

Table 2-13 Transit Amenity Standards by Ridership Levels

Amenity	Daily Passenger Boardings by Station/Stop				
	< 50	50 -100	101 -200	201 – 500	> 500
Sign and Pole	X	X	X	X	
Built-in Sign					X
Expanded Sidewalk			X	X	X
Bench		X	X	X	X
Shelter			X	X	X
Route Designations	X	X	X	X	X
Time Table				X	X
Route Map			X	X	X
System Map					X
Trash Receptacle				X	X
Lighting			X	X	X
ADA Compliant	X	X	X	X	X

Source: Designing for Transit, MTS (1993)

[9] *Designing for Transit: A Manual for Integrating Public Transportation and Land Development in the San Diego Metropolitan Area*. San Diego Metropolitan Transit Development Board (MTDB). 1993.

QUALITY CONNECTIONS TO TRANSIT

The latent demand evaluation described under "Transit Demand" indicates the number of potential transit users (residents and employees) within the vicinity of each major stop/station, using a 0.25 mile pedestrian network walkshed and a 0.75 mile bicycle network travelshed.

The quality connections assessment draws from the quality walking analysis and quality cycling analysis results (using only "high and medium" quality networks based on the bicycle and pedestrian analysis) to identify quality 0.25 mile pedestrian and 0.75 mile bicycle networks surrounding major transit stations/stops. These distances were defined and based upon information in the San Diego Forward: The Regional Plan, Appendix U4 – SANDAG Regional Transit Oriented Development Strategy, and represent a five-minute travel distance for pedestrians and cyclists.

A Quality Walk Ratio and a Quality Bicycle Ratio were then developed for each major transit station/stop and presented on a map using the following equations:

$$\text{Quality Walk Ratio from Transit} = \frac{\text{Quality Walking Distance from Transit}}{\text{Crow Flies Buffer from Transit}}$$

$$\text{Quality Bike Ratio from Transit} = \frac{\text{Quality Bike Distance from Transit}}{\text{Crow Flies Buffer from Transit}}$$

The resulting Quality Walk Ratio from Transit and Quality Bicycle Ratio from Transit are presented on separate maps, for each major transit station/stop.

SAFETY NEAR TRANSIT STOP/STATION

To understand existing pedestrian and bicycle safety issues near transit stations/stops, a safety assessment was performed. Safety was evaluated using collision data obtained from the City of San Diego Police Department's Crossroads software (SDPD) for the period from October 2012 through September 2017. Collisions from SDPD were geocoded and mapped to display the locations of collisions within the University community.

A 500 foot buffer around transit stations within the community was applied to select the relevant bicycle- and pedestrian-involved collisions. A map showing the spatial distribution of three or more pedestrian- and bicycle-involved collisions near a transit stop or station is also included.

Several tables were also created to further understand safety issues and trends within the community. These include: high-frequency collision locations, cause of collisions, party at fault, and collision location types. The collision location types are differentiated between intersection, midblock, and approaching/departing. Collisions that occurred within 100 feet of the center of the intersection, to account for vehicles that are queued at the intersection control, were identified as intersection collisions. Collisions that occurred between 100 feet and 350 feet from the center of the intersection were identified as approaching/departing collisions. This net 250 feet is reflective of the stopping sight distance of a vehicle travelling at 35 mph. Collisions that occurred at a distance over 350 feet away from the center of the intersection were identified as mid-block collisions.

VEHICLE METHODOLOGY

INTERSECTIONS

Intersections to be studied were selected based on several factors, which included the following:

- Existing Circulation Element roadways intersecting with other existing Circulation Element roadways where both roadways function or are classified as a collector or higher
- Anticipated Circulation Element roadways intersecting with other existing and/or anticipated Circulation Element roadways where both roadways function or are classified as a collector or higher
- Key intersections where both intersecting streets meet one of the following conditions:
  - 4-lanes (or greater)
  - 3-lanes and carries over 15,000 Average Daily Traffic (ADT)
  - 2-lanes and carries over 10,000 ADT
- Intersections that provide access to/from freeways located within the University community
- Signalized intersections along corridors where travel time analysis is performed

It should be noted that some intersections selected for the study area fall just outside the University community boundary. However, these intersections were included in the analysis because they may influence or impact the flow of transportation within the community.

Based on the criteria listed above, a total of 79 intersections were selected for inclusion in the analysis study area. **Table 2-14** provides a list of the intersections, identifies the type of control currently present at each location, and assigns an identification number to each intersection for use in this study. **Figure 2-1** graphically displays the location of each of the study intersections.

As shown in the table, 76 of the 79 intersections evaluated in the University community are signalized. The other 3 intersections are unsignalized with vehicles required to stop on two legs of the intersection. Most of the intersections include at least one of the major corridors within the community, which are Genesee Avenue, La Jolla Village Drive, Nobel Drive, and Regents Road.

ROADWAY SEGMENTS AND CORRIDORS

Roadway segments to be studied were selected based on several factors, which included the following:

- Existing Circulation Element roadways functioning or classified as a collector or higher
- Anticipated Circulation Element roadways functioning or classified as a collector or higher
- Roadways providing access to/from freeways

Based on the criteria listed above, a total of 66 roadway segments were selected for analyses. **Figure 2-2** graphically displays the location of each of the roadway segments in the community selected for analyses.

Four corridors were selected to have travel time analysis performed to understand the flow of traffic through the community: La Jolla Village Drive, Genesee Avenue, Nobel Drive, and Regents Road.

FREEWAY SEGMENTS AND RAMPS

Freeway segments adjacent to the community and freeway entrance ramps that are controlled by ramp meters are included in the study area. **Figure 2-3** graphically displays the location of each of the freeway segments and entrance ramps included in the analysis study area. This includes facilities along I-5, I-805, and SR-52.

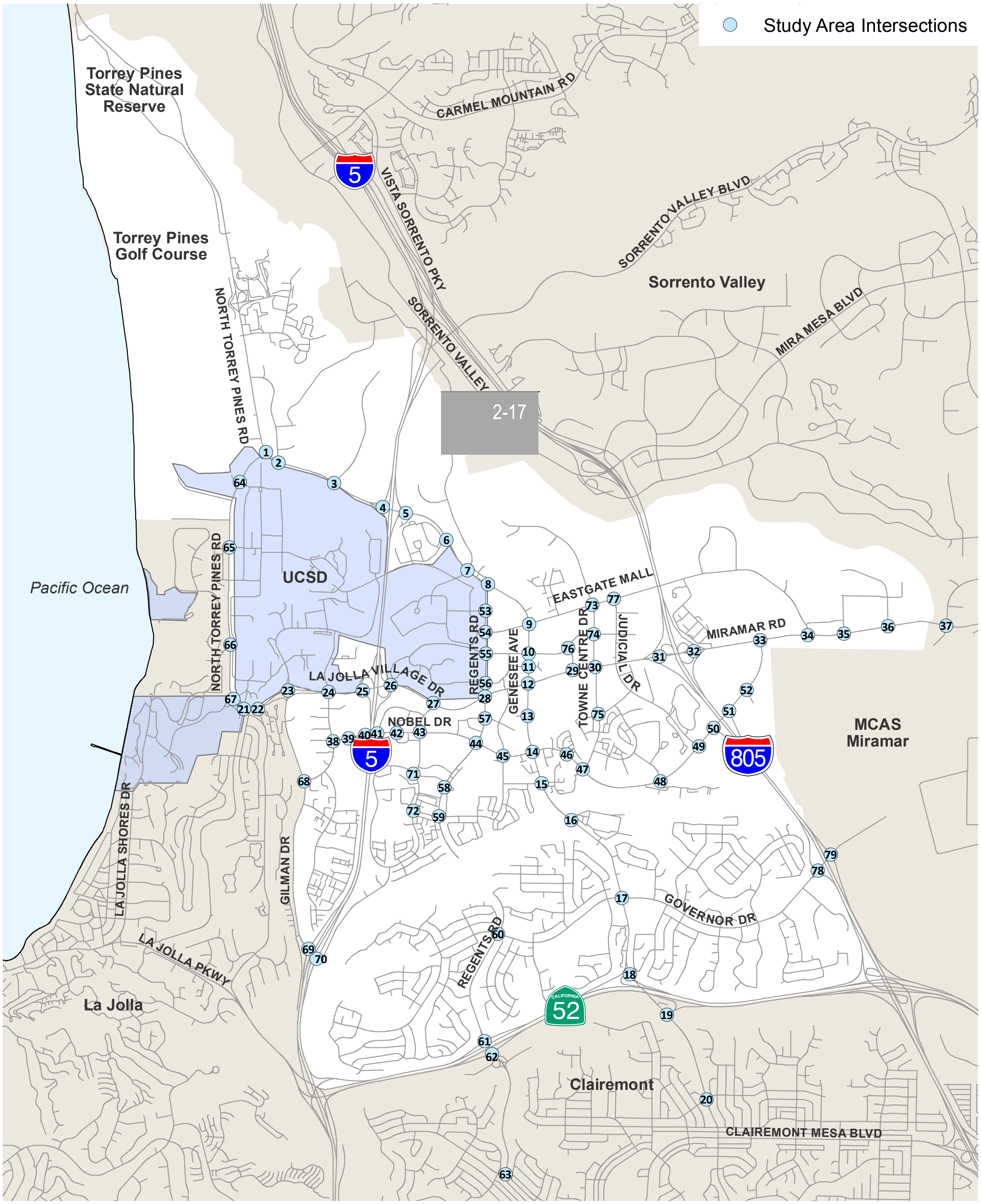
Table 2-14 Study Intersections

ID	Intersection
1	Genesee Ave & N. Torrey Pines Rd
2	Genesee Ave & John Hopkins Dr (S)
3	Genesee Ave & Science Center Dr
4	Genesee Ave & I-5 SB Ramps
5	Genesee Ave & I-5 NB Ramps
6	Genesee Ave & Scripps Hospital
7	Genesee Ave & Campus Point Dr
8	Genesee Ave & Regents Rd
9	Genesee Ave & Eastgate Mall
10	Genesee Ave & Executive Dr
11	Genesee Ave & Executive Square
12	Genesee Ave & La Jolla Village Dr
13	Genesee Ave & Esplanade Ct
14	Genesee Ave & Nobel Dr
15	Genesee Ave & Decoro St
16	Genesee Ave & Centurion Square
17	Genesee Ave & Governor Dr
18	Genesee Ave & SR-52 WB Ramps
19	Genesee Ave & SR-52 EB Ramps
20	Genesee Ave & Appleton St/Lehrer Dr
21	La Jolla Village Dr & Torrey Pines Rd
22	La Jolla Village Dr & La Jolla Scenic Dr
23a	La Jolla Village Dr WB & Gilman Dr
23b	La Jolla Village Dr EB & Gilman Dr (unsignalized; side-street stop controlled)
24	La Jolla Village Dr & Villa La Jolla Dr
25	La Jolla Village Dr & I-5 SB Off-Ramps
26	La Jolla Village Dr & I-5 NB Off-Ramps
27	La Jolla Village Dr & Lebon Dr
28	La Jolla Village Dr & Regents Rd
29	La Jolla Village Dr & Executive Way
30	La Jolla Village Dr & Towne Centre Dr
31	La Jolla Village Dr & I-805 SB Ramps
32	La Jolla Village Dr & I-805 NB Ramps
33	Miramar Rd & Nobel Dr
34	Miramar Rd & Eastgate Mall
35	Miramar Rd & Miramar Mall
36	Miramar Rd & Miramar Place
37	Miramar Rd & Camino Santa Fe
38	Nobel Dr & Villa La Jolla Dr
39	Nobel Dr & La Jolla Village Square Dwy
40	Nobel Dr & I-5 SB On Ramp
41	Nobel Dr & I-5 NB Off-Ramp/University Center Ln
42	Nobel Dr & Caminito Plaza Centro
43	Nobel Dr & Lebon Dr
44	Nobel Dr & Regents Rd
45	Nobel Dr & Costa Verde Blvd/Cargill Ave
46	Nobel Dr & Lombard Place

47	Nobel Dr & Towne Centre Dr
48	Nobel Dr & Shoreline Dr
49	Nobel Dr & Judicial Dr
50	Nobel Dr & I-805 SB On-Ramp
51	Nobel Dr & I-805 NB Off-Ramp
52	Nobel Dr & Avenue of Flags
53	Regents Rd & County Day Ln/ Health Science Dr
54	Regents Rd & Eastgate Mall
55	Regents Rd & Executive Dr
56	Regents Rd & Regents Park Row
57	Regents Rd & Plaza De Palmas
58	Regents Rd & Berino Ct
59	Regents Rd & Arriba St
60	Regents Rd & Governor Dr
61	Regents Rd & SR-52 WB Ramps
62	Regents Rd & SR-52 EB Ramps
63	Regents Rd & Luna Ave

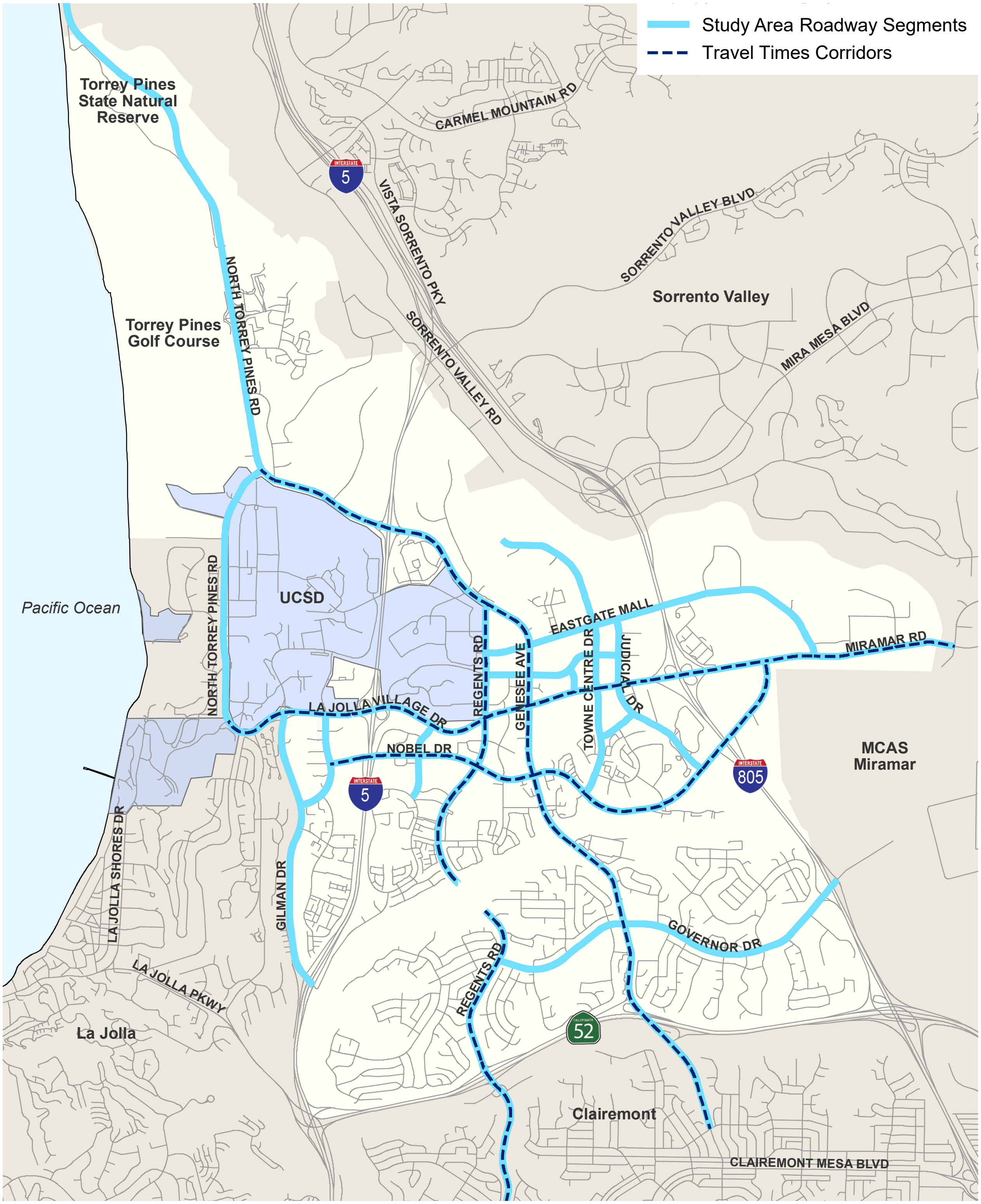
64	N. Torrey Pines Rd & UCSD Northpoint Dwy
65	N. Torrey Pines Rd & Pangea Dr
66	N. Torrey Pines Rd & La Jolla Shores Dr
67	N. Torrey Pines Rd & Revelle College Dr
68	Gilman Dr & Villa La Jolla Dr
69	Gilman Dr & I-5 SB Ramps
70	Gilman Dr & I-5 NB Ramps
71	Palmilla Dr & Lebon Dr
72	Palmilla Dr & Ariba St
73	Towne Centre Dr & Eastgate Mall
74	Towne Centre Dr & Executive Dr
75	Towne Centre Dr & Golden Haven Dr
76	Executive Way & Executive Dr
77	Judicial Dr & Eastgate Mall
78	Governor Dr & I-805 SB Ramps *(unsignalized; side-street stop controlled)*
79	Governor Dr & I-805 NB Ramps *(unsignalized; side-street stop controlled)*

FIGURE 2-1



Study Area: Intersections

FIGURE 2-2



Study Area: Roadways

FIGURE 2-3

Study Area: Freeways and Ramps

SIGNALIZED AND UNSIGNALIZED INTERSECTION LEVEL OF SERVICE

The 2010 Highway Capacity Manual (*HCM)* published by the Transportation Research Board establishes procedures to evaluate highway facilities and rate their ability to process traffic volumes. The terminology "level of service" is used to provide a qualitative evaluation based on certain quantitative calculations, which are related to empirical values. The criteria for the various levels of service designations for intersections are given in **Table 2-15**.

Level of service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. Specifically, LOS criteria are stated in terms of the average control delay per vehicle for the peak 15-minute period within the hour analyzed. The average control delay includes initial deceleration delay, queue move-up time, and final acceleration time in addition to the stop delay.

LOS for unsignalized intersections is determined by the computed or measured control delay and is defined for each movement. At an all-way stop control intersection, the delay reported is the average control delay of all movements at the intersection. At a one-way or two-way stop control intersection, the delay reported represents the worst movement, which is typically the left-turn from the minor street approach.

Synchro 9 (Trafficware) software was used to analyze the operations of both signalized and unsignalized intersections.

Some analysis limitations are present in HCM 2010 methodology that include:

- Exclusive pedestrian phases
- Exclusive U-turn phases
- Right turn overlaps with through movements
- Permissive left turns yielding to pedestrians at a T-intersection
- Custom/Non-NEMA phasing

To provide HCM 2010 results for some of the study intersections, applicable existing signal timings, phasings, and/or geometries were modified to produce approximately equivalent intersection operations. More detail on modifications used to address HCM 2010 limitations are included in **Appendix J**.

The following list contains the assumptions used for the existing conditions intersection analyses:

- HCM 2010 methodology
- Peak-hour factor (PHF) = Measured in field PHFs were used for the analysis
- Percent of heavy vehicle (PHV) = 2 percent
- Pedestrians & Bicycles = Volumes measured in field
- Signal Timing = Existing signal timing was used for all existing signalized intersections

The acceptable Level of Service (LOS) standard for intersections in the City of San Diego is LOS D.

Table 2-15 LOS Criteria for Intersections

LOS	Control Delay (sec/veh)		Description
	Signalized Intersections (a)	Unsignalized Intersections (b)	
A	≤10.0	≤10.0	Operations with very low delay and most vehicles do not stop.
B	>10.0 and ≤20.0	>10.0 and ≤15.0	Operations with good progression but with some restricted movement.
C	>20.0 and ≤35.0	>15.0 and ≤25.0	Operations where a significant number of vehicles are stopping with some backup and light congestion.
D	>35.0 and ≤55.0	>25.0 and ≤35.0	Operations where congestion is noticeable, longer delays occur, and many vehicles stop. The proportion of vehicles not stopping declines
E	>55.0 and ≤80.0	>35.0 and ≤50.0	Operations where there is significant delay, extensive queuing, and poor progression.
F	>80.0	>50.0	Operations that is unacceptable to most drivers, when the arrival rates exceed the capacity of the intersection.

Notes:

(a) 2010 Highway Capacity Manual, Chapter 18, Page 6, Exhibit 18-4

(b) 2010 Highway Capacity Manual, Chapter 19, Page 2, Exhibit 19-1 and Chapter 20, Page 3, Exhibit 20-2

ROADWAY SEGMENT CAPACITY LEVEL OF SERVICE ANALYSIS

To determine the operations along the study area roadway segments, capacity thresholds and associated LOS have been developed by the City of San Diego and is used as a reference. **Table 2-** presents this information. The segment traffic volumes under LOS E as shown in this table are considered to be the capacity of the roadway. It should be noted that the values listed in the table are planning-level estimates only. The actual operations of a roadway segment would be affected by the type and frequency of traffic control, terrain, lane width, percent of heavy vehicles, and other factors.

Table 2-16 City of San Diego Roadway Segment Capacity and LOS Summary

Road Class	Lanes	A	B	C	D	E
Freeway	8	60,000	84,000	120,000	140,000	150,000
Freeway	6	45,000	63,000	90,000	110,000	120,000
Freeway	4	30,000	42,000	60,000	70,000	80,000
Expressway	6	30,000	42,000	60,000	70,000	80,000
Prime Arterial*	8	35,000	50,000	70,000	75,000	80,000
Prime Arterial*	7	30,000	42,500	60,000	65,000	70,000
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Prime Arterial*	4	17,500	24,500	35,000	40,000	45,000
Major Arterial*	7	22,500	31,500	45,000	50,000	55,000
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial*	5	17,500	24,500	35,000	40,000	45,000
Major Arterial	4	15,000	21,000	30,000	35,000	40,000
Major Arterial*	2	7,500	10,500	15,000	17,500	20,000
Collector (w/ two-way left-turn lane)	4	10,000	14,000	20,000	25,000	30,000
Collector (w/o two-way left-turn lane) Collector (w/ two-way left-turn lane)	4 2	5,000	7,000	10,000	13,000	15,000
Collector (No fronting property)	2	4,000	5,500	7,500	9,000	10,000
Collector (w/o two-way left-turn lane)	2	2,500	3,500	5,000	6,500	8,000
Sub-Collector (single-family)	2	---	---	2,200	---	---

Notes:

The volumes and the average daily level of service listed above are only intended as a general planning guideline.

Levels of service are not applied to residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Levels of service normally apply to roads carrying through traffic between major trip generators and attractors.

[1]Cross Section: Curb to Curb width (feet)/Right-of-way width (feet)

Sources:

City of San Diego Traffic Impact Study Manual, Table 2, Page 8, July 1998.

*City of San Diego Planning Department Mobility Staff Input

CORRIDOR SPEED ANALYSIS

Four corridors within the community were selected for analysis of travel time during the peak hours in addition to the estimated daily capacity; these corridors include Genesee Avenue, La Jolla Village Drive, Nobel Drive, and Regents Road. Genesee Avenue and La Jolla Village Drive are the primary arterials serving the community. Nobel Drive and Regents Road are major roads that provide alternative routes. The corridor analysis consisted of two procedures: travel time runs performed under actual conditions and simulated travel time using software.

Travel time runs were performed using the floating car method. A minimum of 5 runs in each direction per peak hour were collected to arrive at an average value. This method simulates average travel speed along a corridor by maintaining a similar position within vehicle progression bands.

Software analysis was performed using the 2000 HCM methodology which provides a computation of LOS using average vehicle travel speed. This average speed is computed by adding the running time between signalized intersections assuming free flow speed along the corridor and the control delay associated with each signalized intersection. **Table 2-** presents the arterial LOS criteria based on the urban street class and average travel speed.

Table 2-17 HCM 2000 Urban Street LOS Criteria

Urban Street Class	I	II	III	IV
Range of free-flow speeds (FFS)	55 to 45 mi/h	45 to 35 mi/h	35 to 30 mi/h	35 to 25 mi/h
Typical FFS	50 mi/h	40 mi/h	35 mi/h	30 mi/h
LOS	**Average Travel Speed (mi/h)**			
A	> 42	> 35	> 30	> 25
B	>34 – 42	> 28 – 35	> 24 – 30	> 19 – 25
C	> 27 – 34	> 22 – 28	> 18 – 24	> 13 – 19
D	> 21 – 27	> 17 – 22	> 14 – 18	> 9 – 13
E	> 16 – 21	> 13 – 17	> 10 – 14	> 7 -9
F	≤ 16	≤ 13	≤ 10	≤ 7

Source: HCM 2000, Exhibit 15-2

FREEWAY SEGMENTS

Freeway segments were analyzed during the AM and PM peak hours based on the methodologies outlined in Chapters 10 and 11 of the 2010 HCM. The free-flow speed of each freeway segment was calculated based on a base free-flow speed of 75.4 mph. Factors affecting the free-flow speed of each segment include the lane width, lateral clearance, number of lanes, interchange density, and geometric design. Based on each segment's free-flow speed, the density was calculated, which is the primary factor for determining the segment's LOS. **Table 2-** presents the freeway segment criteria based on density.

Table 2-18 HCM 2010 Freeway Segment LOS Criteria

LOS	Density Range (pc/mi/ln)*
A	0 – 11
B	> 11 – 18
C	> 18 – 26
D	> 26 – 35
E	> 35 – 45
F	>45

Source: HCM 2010, Page 10-9
* passenger car per mile per lane

FREEWAY RAMP METERS

Ramp metering is a means of controlling the volume of traffic entering the freeway with the goal of improving the safety, traffic operations, and flow on the freeway main lanes. Freeway ramp meter analysis estimates the peak hour queues and delays at freeway ramps by comparing existing volumes to the meter rate at the given location. The fixed rate and uniform 15-minute maximum delay approaches are two approaches that are currently accepted by the City. The fixed rate approach is based solely on the specific time intervals that ramp meters are programmed to release traffic. The uniform 15-minute approach is based on the assumption that any demand exceeding 15-minutes will seek an alternate route or will choose to use the ramp during other time periods when the traffic demand is lower. The fixed rate approach was utilized in this study to analyze freeway ramp meters.

The excess demand at a freeway ramp forms the basis for calculating the maximum queues and maximum delays anticipated at each location. Substantial queues and delays can form where demand significantly exceeds the meter rate. This approach assumes a static rate throughout the course of the peak hour; however, Caltrans has indicated that the meter rates operate in a traffic responsive mode and based on the level of traffic using the on-ramp. To the extent possible, the meter rate in the field is set such that the queue length does not exceed the available storage, smooth flows on the freeway mainline are maintained, and there is no interference to arterial traffic.

Meter rates were provided by Caltrans and include a range between the least and most restrictive rates. Since many of the freeways currently operate at or above its capacity during the peak hours, the most restrictive rate was used for the analysis. Some rates were adjusted within the range of rates provided to better reflect queue lengths consistent with field observations. The field observations were completed at each ramp meter location.

The following list contains the assumptions used for the existing conditions ramp meter analyses based on field observations:

- Storage length measured from recent aerials of the area
- 20% High Occupancy Vehicle (HOV)
- 80% Single Occupancy Vehicle (SOV) and evenly distributed between the SOV lanes
- 25-foot vehicle length

VEHICLE SAFETY

Vehicle Safety was evaluated using collision data obtained from the City of San Diego Police Department's Crossroads software (SDPD) for the period from October 2012 through September 2017. Vehicle collisions, excluding pedestrian- and bicycle-involved collisions, from SDPD were geocoded and mapped to display the locations of collisions within the University community.

Several tables were also created to further understand safety issues and trends within the community. These include: high-frequency collision locations, cause of collisions, party at fault, and collision location types. The collision location types are differentiated between intersection, midblock, and approaching/departing. Collisions that occurred within 100 feet of the center of the intersection, to account for vehicles that are queued at the intersection control, were identified as intersection collisions. Collisions that occurred between 100 feet and 350 feet from the center of the intersection were identified as approaching/departing collisions. This net 250 feet is reflective of the stopping sight distance of a vehicle travelling at 35 mph. Collisions that occurred at a distance over 350 feet away from the center of the intersection were identified as mid-block collisions.

3 REVIEW OF RELEVANT PLANNING DOCUMENTS

This chapter summarizes the planning documents used to guide and inform the development of future year circulation element alternatives for the University CPU. Where appropriate, projects and policies which are identified in the following planning documents will be considered as proposed improvements in the CPU.

The documents researched include City of San Diego plans and programs, regional planning documents, and local plans and projects as summarized below:

- City of San Diego General Plan – Mobility Element (Last Amended June 2015)
- University Community Plan (1987)
- North (2012) and South (2013) University Public Facilities Financing Plans
- City of San Diego Capital Improvement Program (2015)
- City of San Diego Climate Action Plan (2015)
- City of San Diego Bicycle Master Plan (2013)
- City of San Diego Pedestrian Planning Effort (2006)
- UCSD Master Plan (Ongoing)
- City of San Diego Traffic Unfunded Needs List (2018)
- SANDAG San Diego Forward: The Regional Plan (2015)
- SANDAG San Diego Regional Bike Plan: Riding to 2050 (2010)
- Caltrans I-5 (2017), I-805 (2017) and SR-52 (2015) Transportation Concept Reports
- Transit Optimization Plan (2016)
- Local Private Development Projects

CITY OF SAN DIEGO PLANS, PROGRAMS, AND PROJECTS

CITY OF SAN DIEGO GENERAL PLAN – MOBILITY ELEMENT

Adopted in 2008 and amended in 2015, the City of San Diego's General Plan Mobility Element identifies the proposed transportation network and strategies that have been designed to meet the future transportation needs generated by planned land uses in the General Plan. The purpose of the Mobility Element is to *improve mobility through development of a balanced, multi-modal transportation network*. The Mobility Element includes several programs, including but not limited:

- Walkable Communities
- Transit
- Street and Freeway System
- Intelligent Transportation Systems
- Transportation Demand Management
- Bicycling
- Parking management
- Goods Movement/Freight
- Regional Coordination/Financing
- Passenger Rail

Within each of the above programs is a series of policies designed to help achieve the goals of the program itself.

CURRENT UNIVERSITY COMMUNITY PLAN

Adopted in 1987, the University Community Plan includes a series of goals and recommendations that guided development in the community for the subsequent years. The University Community Plan contains a series of goals and objectives established with input by the residents, property owners, and business owners of the University Community, and were also consistent with citywide policies at the time of its adoption. The objectives for transportation include:

- Develop a transportation system designed to move people and goods safely and efficiently within the community, including linkages with other communities, and with consideration for energy conservation.
- Encourage the adequate provision of public transit between major activity areas such as the University of California San Diego, the University Towne Centre and La Jolla Village Square.
- Provide pedestrian paths and bikeways to accommodate the community and complement the citywide systems.
- Encourage alternative modes of transportation by requiring developer participation in transit facility improvements, the Intra-Community Shuttle Loop and the Light Rail Transit (LRT) system.
- Ensure implementation of City Council Policy 600-34, Transit Planning and Development.

In December 2016, the City Council adopted an amendment to the Transportation Element of the University Community Plan to remove the widening of Genesee Avenue from Nobel Drive to State Route 52, and the connection of Regents Road over Rose Canyon. The current Community Plan includes recommended changes to the arterial roadway and public transit within the University community. The following project is a listed as a recommendation in the current community plan, but funding has not been identified or collected for completion:

- **Nobel Drive:** Construct a full (rather than partial) interchange on I-805 and widen to six lanes from Genesee Avenue to Town Centre Drive

NORTH AND SOUTH UNIVERSITY PUBLIC FACILITIES FINANCING PLANS (PFFP)

The North University PFFP (2012) and South University PFFP (2013) set forth the major public facility needs in several areas of transportation, including roadways, storm drains, traffic signals, and other facilities for the University community.

The facilities included in the PFFPs were anticipated to be needed to accommodate the ultimate build-out of the University community. The PFFPs inventory the existing and needed facilities within the community, and the potential financing mechanisms to fund these facilities.

These projects, their potential implications, and the funding mechanisms that enable their construction is important to consider when developing proposed improvements as part of the University Community Plan Update.

CITY OF SAN DIEGO CAPITAL IMPROVEMENTS PROGRAM (CIP)

The City of San Diego Capital Improvements Program (CIP) is the plan for all individual capital improvement projects and funding sources. CIP projects are unique construction projects that provide improvements or additions such as land, buildings, and infrastructure.

The CIP helps enhance the overall quality of life in the City by improving the physical structures, systems, and facilities that provide services to the community. CIP projects are generally large and expensive, and the assets they install, replace, or rehabilitate will likely be required for decades of public use.

The following projects within the University community are identified in the CIP as being within the design, bid and award, or construction phase:

- **Miramar Road between I-805 and 300' east of Eastgate Mall:** Widen the segment to 8 lanes and add dual left turn lanes at Eastgate Mall.
- **Regents Road between Genesee Avenue and Executive Drive:** Widen the roadway to a modified 4 lane Major Arterial and relocate the intersection at Genesee Avenue to the east to add Class II bike lanes.
- **Genesee Avenue Overcrossing at I-5:** Widen the overcrossing to 6 lanes with dual left turn lanes at I-5 ramps with a 26' median.
- **North University Fire Station No. 50:** Construct a new fire station including apparatus bay, dorm rooms, kitchen, watch room, ready room, station alerting system, and training classroom.
- **Gilman Drive from La Jolla Village Drive to La Jolla Colony Drive:** Install 1.8 miles of improved bicycle facilities
- **Citywide Street Lights**: involves installing new street lights to City of San Diego standards to enhance safety along existing roadways.

CITY OF SAN DIEGO CLIMATE ACTION PLAN

Adopted in December 2015 and amended in July 2016, the City of San Diego's Climate Action Plan (CAP) aims to reduce greenhouse gas (GHG) emissions to specific targets in the year 2020 and 2035. The CAP aims to reduce emissions in part through a variety of improvements to existing vehicular, pedestrian, bicycling, and transit networks. It includes goals to create walkable and pedestrian-friendly neighborhoods and to promote active transportation and rapid transit systems.

Several of the targets included in the CAP are related to performance within transit priority areas. Per California Senate Bill 743 (SB 743), "Transit priority area" means "an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations." A Major Transit Stop, as defined in the California Public Resources Code (CPRC) Section 21064.3, means: a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes each having a frequency of service of 15 minutes or less during the morning and afternoon peak commute periods.

Among others, the CAP specifically identifies the following actions as targets which would reduce overall GHG emissions:

- Achieve mass transit mode share of 12% by 2020 and 25% by 2035 in Transit Priority Areas.

- Achieve walking commuter mode share of 4% by 2020 and 7% by 2035 in Transit Priority Areas.
- Achieve 6% bicycle commuter mode share by 2020 and 18% mode share by 2035 in Transit Priority Areas.
- Retime 200 traffic signals by 2020.
- Install roundabouts at 15 intersections by 2020 and an additional 20 intersections by 2035.
- Reduce average vehicle commute distance by two miles through implementation of the General Plan City of Villages Strategy by 2035.

The CAP also identifies the following supporting measures for walking, biking, and transit:

- Implement bicycle improvements concurrent with street re-surfacing projects, including lane diets, green bike lanes, sharrows, and buffered bike lanes.
- Implement a bicycle sharing program with DecoBikes. Reduce the "1 mile" barrier gap by ensuring that further expansion of the bike share program is designed and implemented to reduce the distance needed to travel between transit stops and destinations.
- Identify and address gaps in the City's pedestrian network and opportunities for improved pedestrian crossings, using the City's Pedestrian Planning Effort and the City's sidewalk assessment.
- Adopt City portions of SANDAG's forthcoming first mile/last mile initiative and incorporate Safe Routes to Transit strategies in Transit Priority Areas.
- Coordinate pedestrian counting programs with SANDAG and SDSU Active Transportation Research Programs.
- Develop a Parking Plan to include measures such as "unbundled parking" for nonresidential and residential sectors in urban areas.
- Prepare a Commuter Report with measures to increase commuting by transit for City employees.
- Achieve better walkability and transit-supportive densities by locating a majority of all new residential development within Transit Priority Areas.
- Develop a new priority ranking for capital improvement projects in Transit Priority Areas that will be integrated into Council Policy 800-14, Community Development Block Grant and other grant opportunities, and Public Facilities Financing Plans.
- In addition to commuting, implement infrastructure improvements including "complete streets" to facilitate alternative transportation modes for all travel trips.
- The most recent version of the California Office of Environmental Health Hazard Assessment (OEHHA) CalEnviroScreen tool will be used as one method to identify and help prioritize, when possible, underserved communities in census tracts ranking in the top 30% of CalEnviroScreen scores, which may be locally normalized, for transit-related infrastructure improvements and capital improvements.

CITY OF SAN DIEGO BICYCLE MASTER PLAN

Adopted in December 2013, the City of San Diego's Bicycle Master Plan (BMP) presents a vision for bicycle transportation, recreation, and quality of life in San Diego. The vision is closely aligned with the 2008 General Plan's mobility, sustainability, health, economic, and social goals. The bicycle network, projects, policies, and programs included in the Bicycle Master Plan provide the City with a strong framework for improving bicycling through 2030 and beyond.

The goals of the BMP are to create:

- A city where bicycling is a viable travel choice, particularly for trips of less than five miles
- A safe and comprehensive local and regional bikeway network
- Environmental quality, public health, recreation and mobility benefits through increased bicycling

The BMP proposes the following key bicycle facilities within the University community planning area:

- Class II bicycle facility along La Jolla Village Drive from Villa La Jolla Drive to I-805
- Class II bicycle facility along Nobel Drive from I-5 to Regents Road and Genesee Avenue to Towne Centre Drive
- Class II bicycle facility along Judicial Drive from Eastgate Mall to Golden Haven Drive
- Class II bicycle facility along Lebon Drive from La Jolla Village Drive to Palmilla Drive
- Class II bicycle facility along Governor Drive from Kantor Street to I-805
- Class III bicycle facility along Executive Drive from Regents Road to Judicial Drive
- Class II or III bicycle facility along Eastgate Mall from Regents Road to Genesee Avenue
- Class II or III bicycle facility along Towne Centre Drive from Eastgate Mall to Nobel Drive
- Class II or III bicycle facility along Governor Drive from Regents Road to Genesee Avenue
- Class II or III bicycle facility along Regents Road from Nobel Drive to Rose Canyon and from Rose Canyon to Governor Drive.

Bicycle facilities which have not been implemented to any extent will be considered as proposed improvements in the University Community Plan Update.

CITY OF SAN DIEGO PEDESTRIAN PLANNING EFFORT

Adopted in 2006, the City of San Diego's Framework Report for the Pedestrian Master Plan guides the way the City plans and implements new or enhanced pedestrian projects. The Pedestrian Master Plan is intended to be a complementary document to the City of San Diego General Plan, the Transit Oriented Development Guidelines, the San Diego Association of Government's (SANDAG) Planning and Designing for Pedestrians, the City of San Diego Street Design Manual and more specifically, the Mobility Element of the City's General Plan.

The vision statement for the Pedestrian Planning Effort is: "To create a safe, accessible, connected and walkable pedestrian environment that enhances neighborhood quality and promotes walking as a practical and attractive means of transportation in a cost-effective manner." The goals which both support the vision statement and serve as project prioritization criteria are:

- Safety: Create a safe pedestrian network free of barriers and tripping hazards that has sufficient street crossings, buffer pedestrians from vehicles and has facilities wide enough to accommodate peak pedestrian use.
- Accessibility: Make facilities accessible to pedestrians of all abilities and meet all local, state, and federal requirements.
- Connectivity: Develop a complete pedestrian network that provides direct and convenient connections for neighborhoods, employment centers, transit stations, public places, and community destinations.
- Walkability: Create pedestrian facilities that offer amenities to encourage usage and to enhance the pedestrian experience.

The Pedestrian Planning Effort provided guidance in establishing consistency among how improvements are shaped and prioritized, taking into account the context of an area within the community as well as understanding different levels of pedestrian interaction and needs. The Effort included Pedestrian Master Plan Volumes 1 and 2 in 2015 which created pedestrian plans for the following communities:

- **Volume 1:** Greater North park, Southeastern San Diego, Greater Golden Hill, Uptown, Normal Heights, and Barrio Logan
- **Volume 2:** College, Kensington-Talmadge, Midway-Pacific Highway, Old Town, Ocean Beach, Pacific Beach, and San Ysidro

UNIVERSITY OF CALIFORNIA, SAN DIEGO (UCSD) LONG RANGE DEVELOPMENT PLAN (LRDP)

As UCSD evolves and grows in light of increasing student enrollment, the campus is currently updating its Long-Range Development Plan (LRDP), which was last updated in 2004. The LRDP is a general land use plan that guides the physical development of the campus. The LRDP will enable the campus to continue planning in a thoughtful and sustainable manner and includes the following:

- Principles that will guide planning for future development.
- Projections of enrollments and campus population.
- Estimates of the additional academic and ancillary space, including housing, clinical, research and lab space needed to achieve the delineated program goals.

CITY OF SAN DIEGO TRANSPORTATION UNFUNDED NEEDS LIST (TUNL) PROJECTS

As noted previously, the City of San Diego Capital Improvements Program (CIP) identifies projects that help enhance the overall quality of life in the City by improving, among other things, transportation infrastructure. Projects included in the CIP are funded via a variety of sources, including bonds, development impact fees, and City general funds, among others. Projects included in the TUNL may or may not be identified in other planning documents.

Often times, sufficient funding does not exist for all mobility projects that are identified in the CIP. As such, projects without identified funding are included in the Transportation Unfunded Needs List (TUNL). The TUNL is maintained by the City to keep an inventory of projects which can be implemented should sufficient funding become available. **Table 3-1** provides a brief description, location, type, and status of current TUNL projects within the University Community Plan area.

Table 3-1 Transportation Unfunded Needs List (TUNL) Projects

Type	TUNL ID	Location	Description
Intersection	1300	Genesee Ave & SR-52 WB On Ramp	Install a new traffic signal.
Intersection	1136	Governor Dr & Lakewood St	Install a new traffic signal
Intersection	1276	Pennant Wy & Regents Rd	Install a new traffic signal.

Type	TUNL ID	Location	Description
Intersection	5595	Gilman Dr & La Jolla Village Dr EB Ramp	Install a new traffic signal
Roadway Segment	1194	Towne Centre Dr & Excalibur Wy	This project will install a raised median on the south leg of the intersection
Pedestrian	5960	10675 John Jay Hopkins Dr	This project will install crosswalk with two pedestrian access ramps, street lighting, and median modification.
Pedestrian	7576	Via Mallorca & Via Marin	Install new crosswalk with Pedestrian Activated Flashing Beacons and curb ramps.
Pedestrian	4999	Executive Dr - Midblock east of Judicial Dr	This project will install one Pedestrian Hybrid Beacon (HAWK)
Pedestrian	4814	Stadium St - Governor Dr to Stadium Pl	This project will install one (1) electronic V-Calm sign facing northbound traffic
Pedestrian	656	Gilman Dr - Gilman Ct to Via Alicante	This project will install two (2) electronic V-Calm Signs
Pedestrian	4763	Lakewood St - Corlita Ct to Lakewood Ct	This project will install one (1) electronic V-Calm sign
Pedestrian	4776	Mercer St - Governor Dr to Mercer Ln	This project will install two (2) electronic V-Calm signs, one sign per direction
Pedestrian	4797	Radcliffe Dr - Governor Dr to Dennison St	This project will install one (1) electronic V-Calm sign
Pedestrian	4798	Radcliffe Dr - Radcliffe Ln to Syracuse Ave	This project will install one (1) electronic V-Calm sign
Pedestrian	4801	Renaissance Ave - Towne Centre Dr to Golden Haven Dr	This project will install two (2) electronic V-Calm sign, one sign per direction.
Pedestrian	4813	Soderblom Ave/Stresemann St - Lamas St to Barkla St	This project will install two (2) electronic V-Calm signs, one sign per direction
Pedestrian	6142	Stresemann St - Pennant Wy to Bragg St	This project will install two (2) electronic V-Calm Signs
Pedestrian	6156	Governor Dr - Radcliffe Dr to Stadium St	This project will install two (2) electronic V-Calm Signs, one sign per direction.

Type	TUNL ID	Location	Description
Pedestrian	7748	Arriba St - Regents Rd to Camino Tranquilo	This project will install two (2) electronic V-Calm Signs
Pedestrian	1201	Radcliffe Dr - Governor Dr to Dennison St	This project will install two (2) electronic V-Calm Signs
Pedestrian	5403	Stadium St & Eton Ave	This project will install two (2) pop outs and a new school crosswalk on the north leg of the intersection
Pedestrian	7449	Via Alicante - Gilman Dr to Via Malorca	This project will install two (2) electronic V-Calm Signs
Intersection	1320	Governor Dr & Scripps St	Install additional signal heads for NB and SB approaches and install new street light pole in the SW corner.
Pedestrian	6138	Governor Dr & Mercer St	Add 8 pedestrian countdown timers
Intersection	878	Genesee Ave & N Torrey Pines Rd	Install longer mast arm for NB/EB traffic on Genesee (2008)
Pedestrian	2463	La Jolla Village Dr & Towne Centre Dr	Install Polara APS
Pedestrian	6342	Governor Dr & Gullstrand St	Install 8 pedestrian count down timers.
Pedestrian	6343	Governor Dr & Agee St	Install pedestrian countdown timers
Pedestrian	6344	Governor Dr & Edmonton St	Install 8 pedestrian countdown timers.
Pedestrian	7863	Genesee Ave & Esplanade Ct	Polara APS for all legs
Pedestrian	2462	Executive Wy & La Jolla Village Dr	Upgrade existing APS to Polara system. Upgrade 1 pedestrian ramp to ADA.
Pedestrian	1006	La Jolla Shores Dr & N Torrey Pines Rd	Upgrade signal heads to 12" (2000)
Pedestrian	3392	La Jolla Shores Dr & North Torrey Pines Rd	Replace (1) pedestrian head and install (7) pedestrian countdown timers.

Type	TUNL ID	Location	Description
Pedestrian	4098	Genesee Ave & La Jolla Village Dr	Install pedestrian crossings on north and east legs and install (8) pedestrian countdown timers.
Pedestrian	4601	Governor Dr & Radcliffe Dr	Install new signal mast-arm for NB/SB Radcliffe Dr, install pedestrian countdown timers and upgrade pedestrian ramps
Pedestrian	4610	Governor Dr & Regents Rd	Install right turn overlap (5-section signal head) for NB Regents Rd., and install pedestrian countdown timers.
Pedestrian	4981	Genesee Ave & Nobel Dr	Install pedestrian countdown timers for all directions.
Pedestrian	5080	Governor Dr & Scripps St	Install pedestrian count down timers and ADA Ped ramps
Pedestrian	5913	Genesee Ave & Decoro St	One Signal head require for SW corner and another signal head require for NE signal post
Pedestrian	5937	Governor Dr & Agee St	Install (2) Pedestrian Push Button (PPB) posts/foundations on north side
Pedestrian	Missing Sidewalk Inventory	Circulation Element Roadways	This project will provide 40,700 linear feet of sidewalk located along Circulation Element roadways within the community
Bicycle	1114	Nobel Dr - I-5 to Regents Rd	Class II Bike Lanes
Bicycle	1116	Eastgate Mall - Olson Dr to Miramar Rd	Class II Bike Lanes. This project will remove several on-street parking or may widen the street.
Bicycle	4050	La Jolla Village Dr - Gilman Dr to Regents Rd	Install Class II Bike Lanes
Bicycle	640	Coastal Rail Trail - University to Rose Canyon connection	This project would provide a segment of the multi-jurisdictional Coastal Rail Trail, connecting University to the existing Rose Canyon bike path at Gilman Dr. The project is being managed by SANDAG.
Bicycle	4081	Campus Point Dr - Campus Point Ct to Genesee Ave	Install Sharrows

REGIONAL PLANS

SAN DIEGO FORWARD: THE REGIONAL PLAN

Adopted in October 2015 by SANDAG, the San Diego Forward: The Regional Plan (RTP) is an overarching blueprint for a more sustainable future. It combines a big-picture vision for how the region will grow over the next 35 years (through the year 2050) with an implementation program to help make that vision a reality. At its core, it relies on creating a transportation network that will provide more choices to people in the region, which in turn will protect the environment, create healthy communities, and stimulate economic growth.

The Regional Plan builds upon local planning efforts by emphasizing the link between land use planning and transportation planning. Closer integration of the two will result in more compact and sustainable communities, helping the region meet greenhouse gas (GHG) reduction targets. As it is implemented, the Plan will enhance the movement of both people and goods, as well as break new ground by incorporating components aimed at enhancing public health.

The vision statement for this long-range blueprint – which will carry the region through 2050 – is "to provide innovative mobility choices and planning to support a sustainable and healthy region, a vibrant economy, and an outstanding quality of life for all."

The majority of land within the University community planning area is identified as a potential transit priority project area. As such, several arterial roadways and highways within the University community are identified in the Regional Plan as focus corridors for high quality transit. Several high-capacity transit routes and other enhancements are identified in the 2050 RTP within University, including:

- **Trolley Route 510 (Mid-Coast Trolley Blue Line Extension):** Scheduled to open in 2021, the Mid-Coast Trolley will extend the existing Blue Line service from America Plaza to the University Towne Centre (UTC) Transit Center. The trolley is planned to run along I-5, Voigt Drive, and Genesee Avenue within the University community. This includes six new trolley stations within the University community.
- **Trolley Route 561:** The proposed trolley route will provide a COASTER connection from the UTC Transit Center via the Sorrento Valley station. The San Diego Forward year for completion of this improvement is 2035.
- **Trolley Route 562:** The proposed trolley route will provide a connection from Kearny Mesa to Carmel Valley. The expected year for completion of this improvement is 2050.
- **Rapid Bus Route 30:** Conversion of existing MTS Route 30 to a rapid bus route would connect Old Town to Sorrento Mesa via Pacific Beach, La Jolla and UTC/University. The service would run along La Jolla Village Drive within the University community. The San Diego Forward year for completion of this improvement is 2035.
- **Rapid Bus Route 41**: Conversion of existing MTS Route 41 to a rapid bus route would connect Fashion Valley to UTC/UC San Diego via Linda Vista and Clairemont. The service would run along Genesee Avenue and La Jolla Village Drive within the University community. The San Diego Forward year for completion of this improvement is 2035.
- **Rapid Bus Route 473**: The proposed rapid bus route would connect Solana Beach to UTC/UC San Diego via Hwy 101 Coastal Communities and Carmel Valley. The service would run along La Jolla Village Drive within the University community. The San Diego Forward year for completion of this improvement is 2035.

- **Rapid Bus Route 689**: The proposed rapid bus route would connect Otay Mesa Port of Entry (POE) to UTC/Torrey Pines via Otay Ranch/Millennia and I-805 Corridor (Peak Only). The service would run along Genesee Avenue and La Jolla Village Drive within the University community. The San Diego Forward year for completion of this improvement is 2035.
- **Rapid Bus Route 870:** The proposed rapid bus route would connect El Cajon to UTC via Santee, SR-52 & I-805. The service would run along La Jolla Village Drive within the University community. The San Diego Forward year for completion of this improvement is 2050.

The Regional Plan is updated every four years. SANDAG is in the process of developing transportation scenarios to incorporate into a comprehensive update of the Regional Transportation Plan. Completion of the new Transportation Plan is expected in 2021. At this time, it is too early to determine which, if any, changes will be made to transportation projects within the community. With the exception of the Mid-Coast Trolley, which is currently under construction, all other transit enhancements indicated will undergo further evaluation to determine the reasonable expectancy and need and will be consider for incorporation into the new regional Transportation Plan. SANDAG is pursuing its *5 Big Moves* (Complete Corridors, Transit Leap, Mobility Hubs, Flexible Fleets, and Next Operating System (OS)) as part of a new transportation vision for the region.

In 2017, the Sorrento Valley Skyway Feasibility Study was conducted for SANDAG to evaluate the feasibility of an aerial cableway or "skyway" connecting the Mid-Coast Light Rail Transit line and the Sorrento Valley/Sorrento Mesa employment areas. The study included relocating the existing Coaster commuter rail service in Sorrento Valley and provided overall cost and ridership analysis and developed alignment concepts for SANDAG to consider (along with other feasible transit technologies) as it continues to develop their future transportation system for the region.

SAN DIEGO REGIONAL BIKE PLAN: RIDING TO 2050

Adopted in April 2010 by SANDAG, Regional Bike Plan identifies a vision for a regional bicycle system of interconnected bicycle corridors, support facilities, and programs to make cycling more appealing to a broader range of the population. The document includes recommendations and goals that strive to increase bicycle ridership for all purposes. It also encourages the development of Complete Streets, to improve safety for bicyclists, and to increase public awareness and support for bicycling in the region. The following planned regional corridor alignments are within the University community:

- **Coastal Rail Trail – Roselle Canyon:** Install a Class I Bikeway along Roselle Canyon connecting Sorrento to UTC. This project is included in the Early Action Program (EAP).
- **Coastal Rail Trail – UTC:** Install a Class II bicycle facility along Eastgate Mall from Genesee Avenue to Judicial Drive, and along Judicial Drive from Eastgate Mall to Nobel Drive. Portions of this project have already been completed and it is included in the EAP.
- **Coastal Rail Trail – Rose Canyon:** Install a Class I Bikeway along Rose Canyon from Nobel Drive trail entrance to San Clemente Canyon. This project is included in the EAP.
- **SR-52 Bikeway:** Install a Class I Bikeway along SR-52 from I-5 to Santo Road. The expected year of completion of this improvement is 2050.

CALTRANS I-5, I-805, SR-52 TRANSPORTATION CONCEPT REPORT

The purpose of the Transportation Concept Report (TCR) is to evaluate current and projected conditions along the State Highway System (SHS) route and communicate the vision for the development of each route in each Caltrans District during a 20 to 25 year planning horizon. The following goals of the report will be achieved through integrated management of the transportation network, including highway, transit, pedestrian, bicycle, freight, and operational improvements, as well as travel demand management components of the corridor.

- Safety: Provide a safe transportation system for workers and users, and promote health through active transportation and reduced pollution in communities.
- Stewardship and Efficiency: Responsibly manage California's transportation-related assets
- System Performance: Utilize leadership, collaboration and strategic partnerships to develop an integrated transportation system that provides reliable and accessible mobility for travelers.
- Organization/Excellence: Be a national leader in delivering quality service through excellent employee performance, public communication, and accountability.

I-5 and I-805 TCRs were updated in 2017 and the SR-52 TCR was updated in 2015.

TRANSIT OPTIMIZATION PLAN (2016)

San Diego Metropolitan Transit System (MTS) launched the Transit Optimization Plan (TOP) in 2016. The project was a comprehensive evaluation, including extensive customer outreach effort, to ensure that MTS services are efficient and effective for the region's travel needs.

Among the goals of the TOP was to create a network of services that would attract more riders to the system and to reverse a two-year decline in ridership and fare revenue. The TOP process included nearly 6,000 surveys, more than 50 outreach events across the region and a public hearing. Using rider input in conjunction with system performance data and ridership patterns, proposals were made for adjustments to over 60% of MTS' bus services.

MTS is implementing TOP changes in phases, beginning January 2018. The following changes will occur in the University Community:

- **Route 50 Downtown to UTC Express:** Adjust in Clairemont and University to use Regents Road and Governor Drive. Midday service would be discontinued between approx. 10 a.m. and 2 p.m. (but remain available on Route 41 on Genesee Avenue and Route 105 on Clairemont Drive).
- **Route 105 Old Town to UTC:** Segment between Clairemont Square and UTC would be replaced during weekday peak hours by a realigned Route 50.
- **Route 204 UTC East Loop:** Weekday midday service would be reduced to a 30-minute frequency, and weekend service would be discontinued.
- **Route 237 Rancho Bernardo to UCSD:** All trips would terminate on the east end at the Miramar College Transit Station. Connecting service to/from Sabre Springs/Peñasquitos and Rancho Bernardo Transit Stations would remain available on Route 235.

LOCAL PRIVATE DEVELOPMENT PROJECTS

Several proposed private developments have been identified within University, including the following:

- 10300 Campus Point Drive (Campus Point Master Plan)
- UCSD Center for Novel Therapeutics
- 9791 Towne Centre Drive (Eastgate Tech Park)
- 4655 Executive Drive (La Jolla Centre III)
- 10308, 10590, and 10640 John Jay Hopkins Drive and 3528 General Atomics Court (The Scripps Research Institute)
- 5811 Gullstrand Street (La Jolla Del Rey)
- 9333 Genesee Avenue (Genesee Executive Plaza)
- 9455 Towne Centre Drive
- 9501-9539 Genesee Avenue (La Jolla Canyon Gardens)
- North University City Fire Station 50
- Costa Verde Revitalization
- 4545 La Jolla Village Drive (UTC Residential)
- 5200 Illumina Way (ARE/Illumina Campus)
- 5007 Eastgate Mall (Pure Water North City)
- 3777 La Jolla Village Drive (The Sporting Club)
- 9775 Towne Centre Drive
- UCSD Mesa Nueva Graduate and Professional Student Housing
- 4727 Executive Drive (La Jolla Commons III)
- 9880 Campus Point Drive
- Scripps Institute of Oceanography Marine Conservation Facility
- 3115 Merryfield Row (Spectrum III & IV)
- 11099 North Torrey Pines (Touchstone)
- 8440-80 Eastgate Court
- 8390 Miramar Place

Any new developments will need to be identified during the model calibration process to ensure the correct land use is assumed in the Series 13 (ABM) model. Additionally, any project impact mitigation measures that are identified in the traffic impact analysis for the above developments will be considered in the future year model network.

4 ACTIVE TRANSPORTATION: WALKABLE COMMUNITY

The City of San Diego collects and maintains an inventory of the sidewalks within and adjacent to the University community. This information was used to create a baseline pedestrian network and to help determine existing pedestrian facilities, missing facilities and connections within the community. The data is not all-inclusive, but has the necessary information to determine the adequacy of pedestrian connections. **Figure 4-1** presents an overview of the sidewalk inventory within the community. It is important to note that the sidewalk inventory available does not include separated trails, such as those within Rose Canyon.

PEDESTRIAN BARRIERS AND MISSING FACILITIES

As shown in **Figure 4-1**, sidewalks are provided along many of the roadways within the community. There are a few areas within the community that have missing facilities or barriers for pedestrian connectivity. **Figure 4-2** shows the pedestrian barriers identified in the community that are described below:

- *Rose Canyon*: There are several trails through Rose Canyon that pedestrians can use to travel east-west across the community or across the canyon. These trails are primarily used for recreation purposes. For a pedestrian on a non-recreation trip, the canyon can act as a barrier between the northern and southern portion of the community. Crossing the canyon requires traversing steep slopes and railroad tracks that can be limiting to certain users and be less time-efficient than other modes of travel. Genesee Avenue currently provides the only paved crossing across the canyon, providing sidewalks on both sides of the roadway.

- *Interstate 805*: In general, the interstate acts as a barrier between land uses located east and west due to the limited crossing locations and undesirable crossings near high volumes of vehicles. This is typical with freeways as there are limited roadways that cross or intersect with freeways. There are only two existing roadways providing connections across Interstate 805, La Jolla Village Drive and Nobel Drive. The following roadways intersect with I-805; however, not all of these roadways provide a facility for pedestrians to cross, some provide sidewalks on only one side of the roadway:
  - Nobel Drive provides pedestrian facilities on both sides of the bridge crossing over I-805. The sidewalks have little separation from high speed vehicles and no crossing opportunities are available across Nobel Drive at the I-805 ramps.
  - La Jolla Village Drive provides pedestrian facilities on the north side of the bridge only. There are uncontrolled crossings at freeway ramps along this roadway.
  - Eastgate Mall does not provide any pedestrian facilities on the bridge crossing over I-805. This would be the communities northernmost crossing; however lack of facilities along this roadway present a barrier for east-west connectivity in the area.
  - Governor Drive does not provide any pedestrian facilities on the roadway crossing under I-805. In addition, freeway ramps are uncontrolled presenting an additional barrier in the area.
  - Rose Canyon provides trails that go under I-805. These trails are for recreation and can be limiting for certain users.

- *Interstate 5*: While the number of locations where pedestrians can cross Interstate 5 is limited, there are pedestrian connections along each roadway crossing the freeway. The impact the freeway barrier has on pedestrians has been minimized by providing sidewalks on each intersecting roadway crossing, however sidewalks at certain locations are only found along one side of the roadway and have little separation from traffic.

- Genesee Avenue is currently under construction but will have a pedestrian bridge crossing over Interstate 5 when construction is completed.
- Voigt Drive provides pedestrian facilities on both sides of the bridge crossing over I-5. This connection falls within the UCSD Campus but is available to pedestrians in the area.
- La Jolla Village Drive provides pedestrian facilities on both sides of the bridge crossing over I-5; however uncontrolled freeway ramps make the area challenging for pedestrians.
- Nobel Drive provides pedestrian facilities on both sides of the bridge crossing over I-5.
- Gilman Drive provides pedestrian facilities along the south side, although sidewalk is narrow with little separation from high speed, high volume traffic.

- *State Route 52*: There are only two roads that cross SR-52 connecting the University and Clairemont communities. Both roadways provide sidewalks.
  - Regents Road provides pedestrian facilities on the east side crossing under SR-52. There are no sidewalks nor crossing opportunities provided along the west side of the roadway along this segment. Uncontrolled freeway ramps make the area challenging for pedestrians.
  - Genesee Avenue provides pedestrian facilities on the east side crossing under SR-52. There are no sidewalks nor crossing opportunities provided along the west side of the roadway along this segment. Uncontrolled freeway ramps make the area challenging for pedestrians and lack of pedestrian ramps can be limiting for certain users.

Pedestrian facilities within the UCSD campus are illustrated in **Figure 4-1** and **Figure 4-2**; however, there is an overarching assumption that the UCSD campus is walkable. Pedestrian trails and connections through large private development sites are not shown as part of this community-level evaluation. These sites may provide additional and quicker paths of travel for pedestrians.

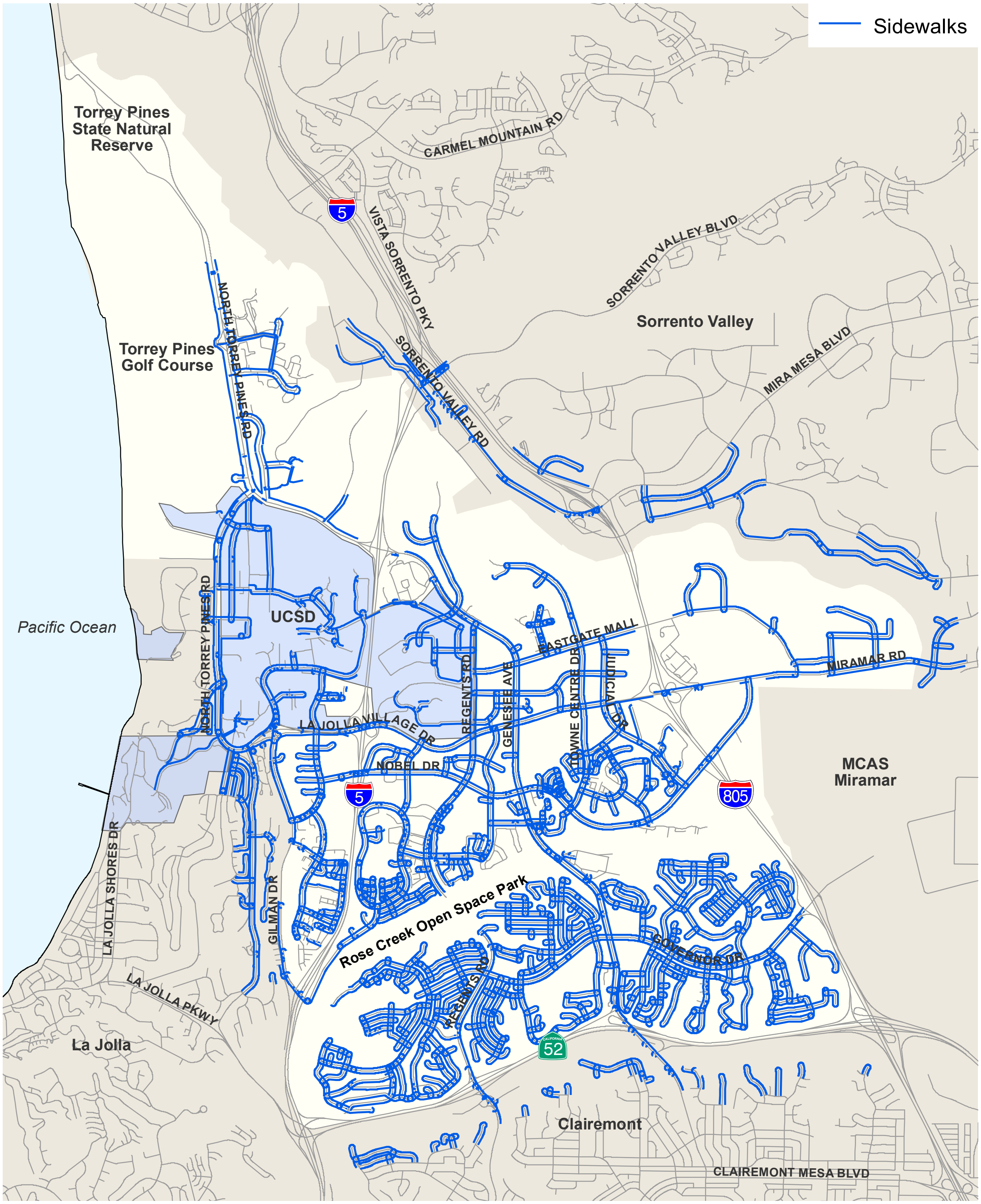
The inventory provided did not have the level of detail to identify if pedestrian ramps are provided at each corner of each intersection. Missing pedestrian ramps at intersections can be a barrier for some users and limit the connectivity.

The University community consists of many wide roadways, carrying six or more travel lanes. These roadways also allow for higher speeds of travel and more vehicle capacity. These factors limit pedestrian crossing locations to be at signalized locations only and make pedestrian crossing times and distances longer. Pedestrian trips that require crossing multiple legs of large intersections are less desirable. Pedestrian bridges are more common in this community than most others to minimize the need for pedestrians to cross these wide, busy streets. Pedestrian bridges are currently built across La Jolla Village Drive, east of Genesee Avenue and west of Villa La Jolla Drive. The following locations in the urban core of the community previously had pedestrian bridges that will be replaced with Mid-Coast trolley stations:

- Genesee Ave near Executive Square (Executive Square Station)
- Genesee Avenue between La Jolla Village Drive and Esplanade Court (UTC Station)

The Executive Square Station and the La Jolla Village Drive bridge will be connected by a walkway through the property located at the northeast corner of La Jolla Village Drive and Genesee Avenue. This walkway will allow pedestrians from the Executive Square areas to travel to the Westfield UTC shopping center and have high pedestrian traffic during the typical work week. The construction of the transit center at the southeast corner of this intersection will further attract pedestrian traffic across these walkways. Similarly, the UTC Station platform located between La Jolla Village Drive and Esplanade Court along Genesee Avenue, will allow pedestrians to cross Genesee Avenue to access additional shopping centers and residential areas located on the west side of the roadway. The pedestrian bridge across La Jolla Village Drive, near Villa La Jolla Drive, provides a connection from the souths side of La Jolla Village Drive to UCSD.

FIGURE 4-1



Existing Pedestrian Network

FIGURE 4-2

Existing Pedestrian Barriers

PEDESTRIAN DEMAND

Pedestrian demand was evaluated using the City of San Diego Pedestrian Priority Model (PPM). The PPM was created to identify areas within the City where there is relatively high demand or propensity for walking. This is combined with an analysis of trip detractors or deficiencies to assess where both existing and latent demand for walking may exist. **Figure 4-3** presents the pedestrian demand in the University community based on the results of the Pedestrian Priority Model.

As seen in the figure, pedestrian demand is highest in the denser, central part of the community. Demand is closely correlated with the commercial (both retail and office space uses) core of the community. The areas of highest demand also have the best-connected street grid within the community and are less impacted by the topographic and freeway barriers that affect the southern and northern ends of the community. Demand is highest along La Jolla Village Drive and Genesee Avenue. Demand is predictably lower in areas that are largely residential, including areas to the west of Regents Road, south of Rose Creek and the area to the east of Genesee Avenue, north of Governor Drive.

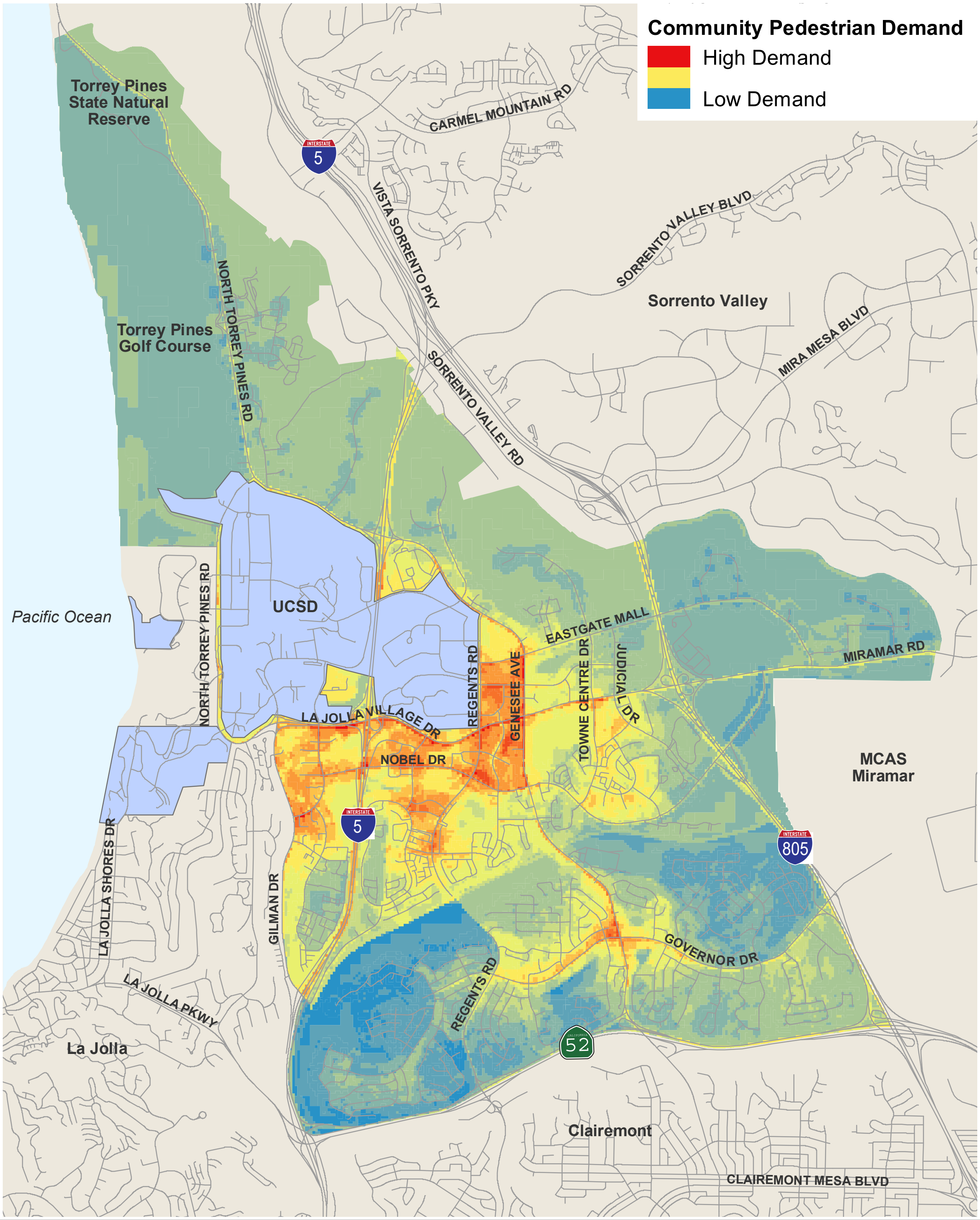
Pedestrian commute mode share is another measure of where demand exists for pedestrian infrastructure or where existing facilities are successfully facilitating some pedestrian commutes. American Community Survey data, 2015 5-year estimates, were used to determine how the commute mode share in the University community compares to both the City of San Diego and the County of San Diego. **Table 4-1** and **Figure 4-4** present the pedestrian commute mode share comparison. The University community has a mode share relatively close to that of the City of San Diego and San Diego County. This is likely due to the relatively urban, mixed-use nature of the area.

Table 4-1 Pedestrian Commute Mode Share Comparison

	University	**City of San Diego**	**San Diego County**
Total Pedestrian Commutes	920	20,196	42,968
Total Workers	35,740	668,643	1,503,987
Pedestrian Commute Mode Share	***2.6%***	***3.0%***	***2.9%***

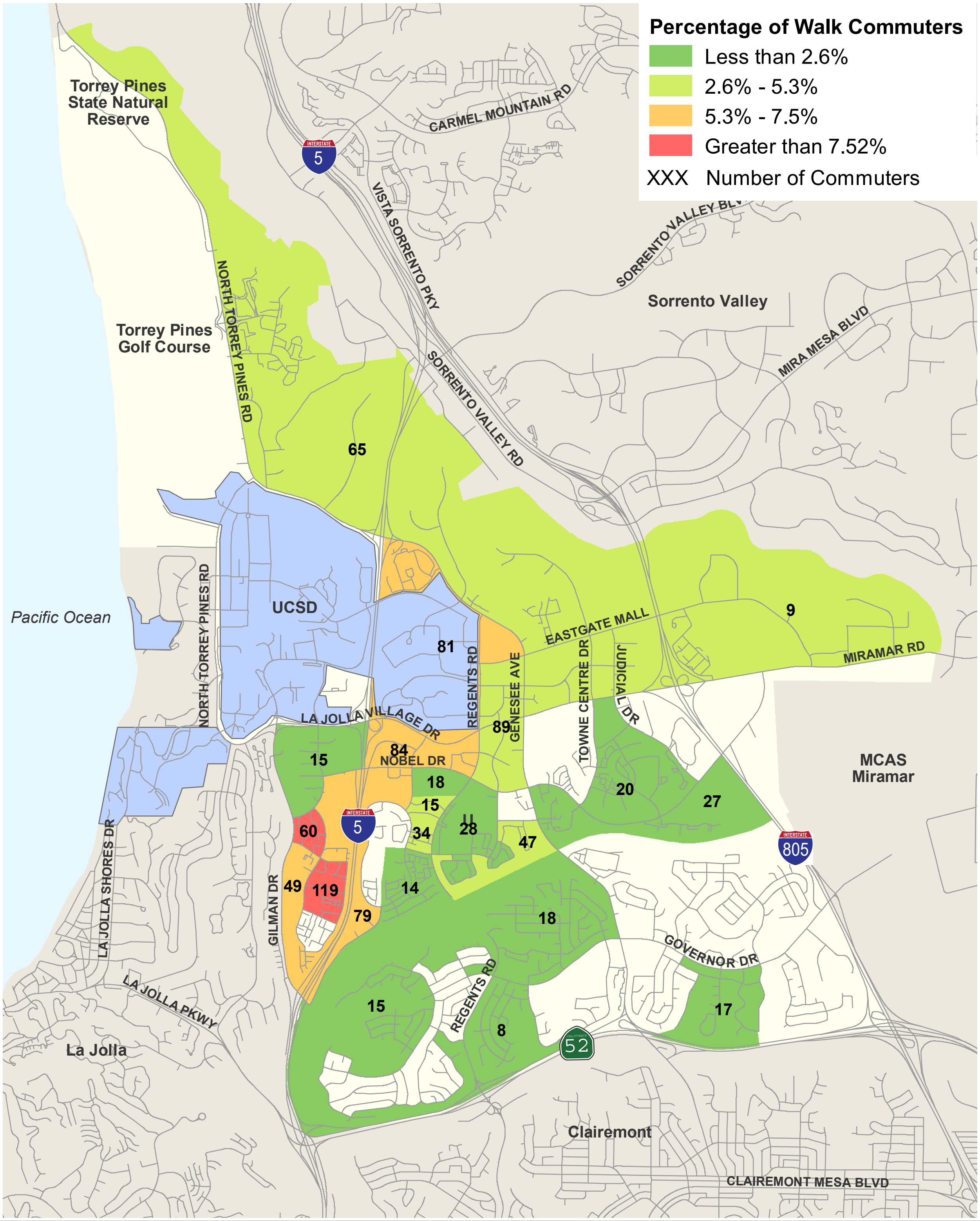
Pedestrian counts were collected and are presented in **Figure 4-5** through **Figure 4-7**.

FIGURE 4-3



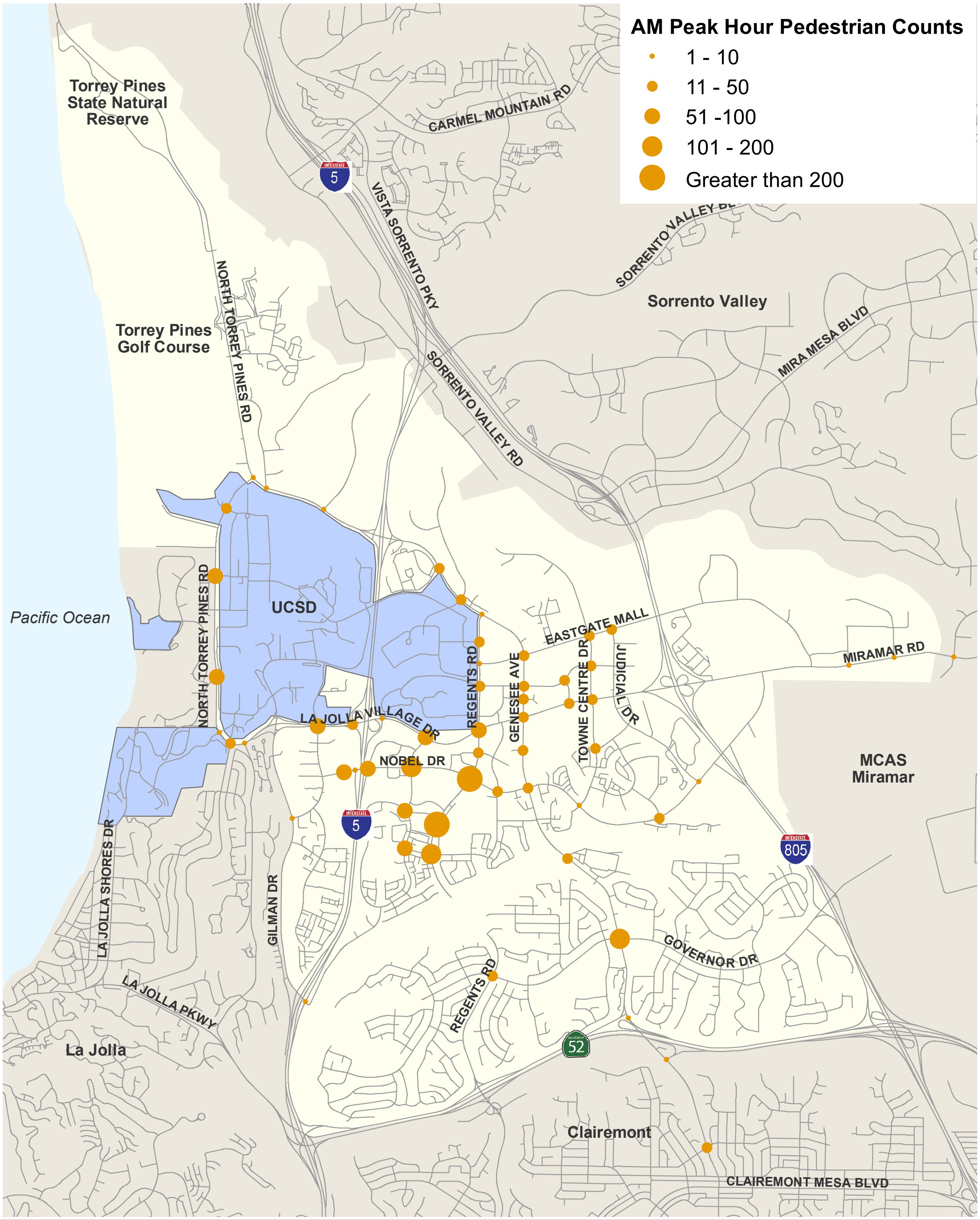
Pedestrian Demand

FIGURE 4-4



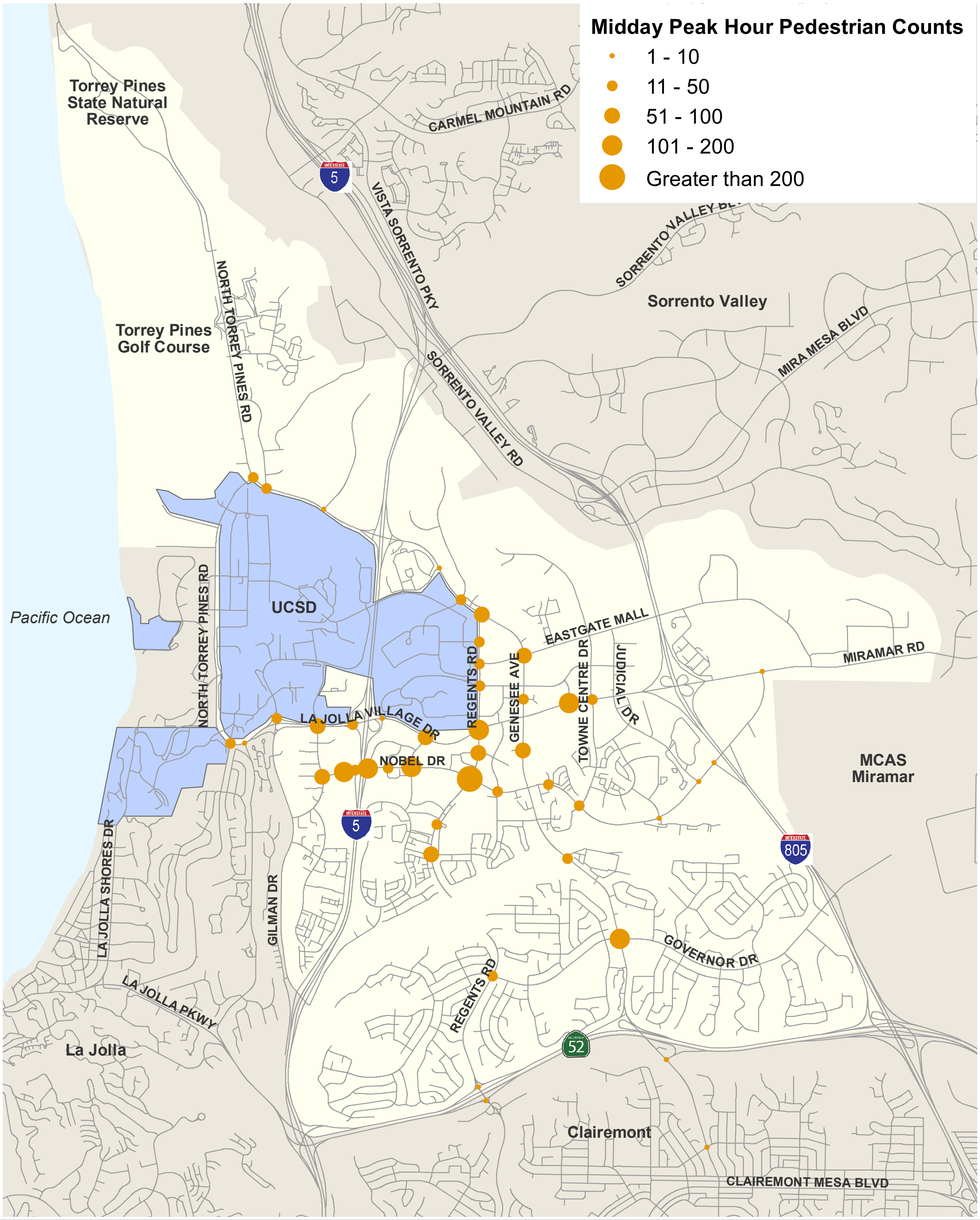
Pedestrian Commute Mode Share by Census Block Group

FIGURE 4-5



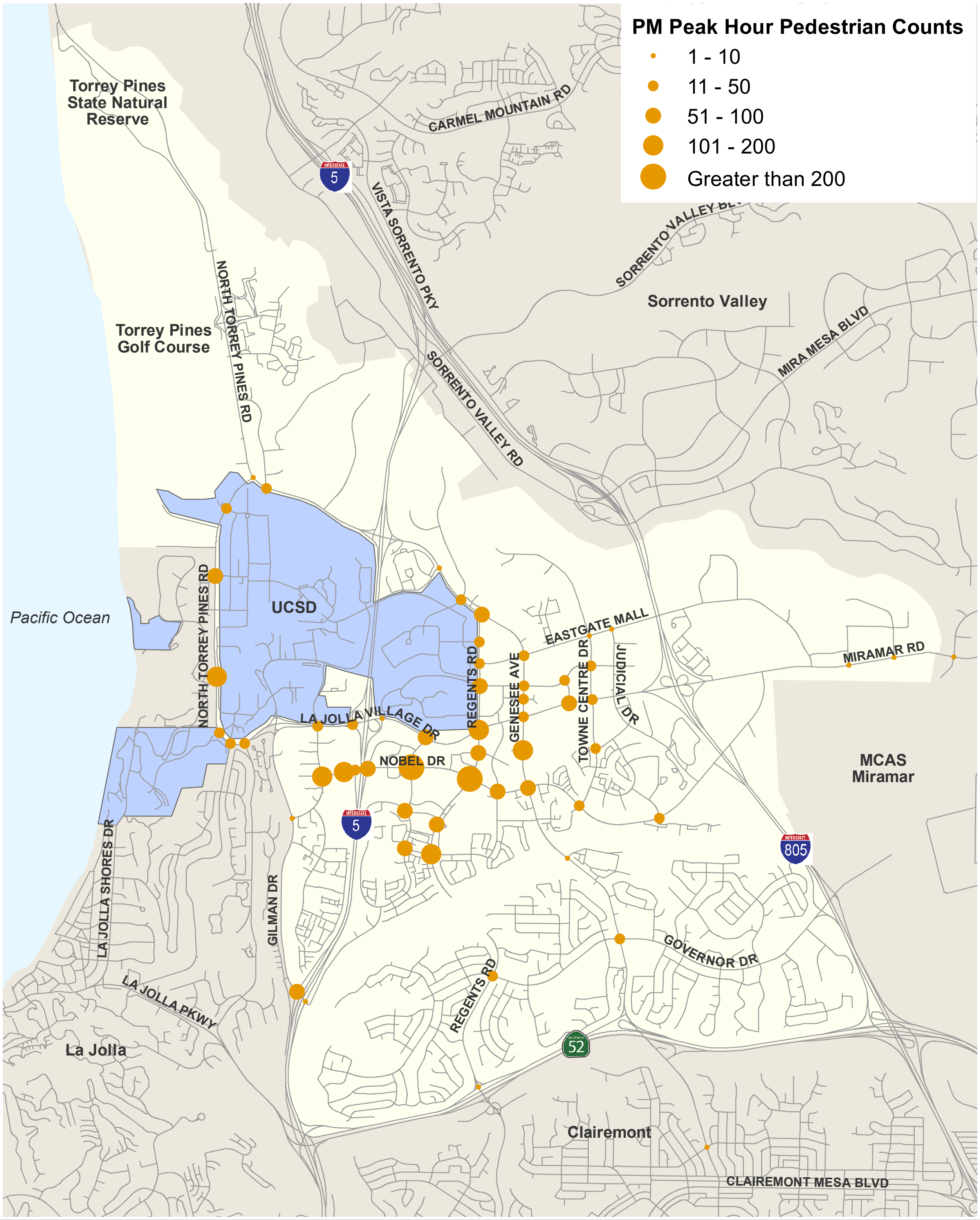
Pedestrian Counts (AM Peak Hour)

FIGURE 4-6



Pedestrian Counts (Mid-day)

FIGURE 4-7



Pedestrian Counts (PM Peak Hour)

PEDESTRIAN COLLISION HISTORY

Between October 2012 and September 2017, there were a total of 69 reported collisions involving pedestrians within the University community. In the State of California, collision reports must be generated for any collision where property damage equals or exceeds 750 dollars, involves city property, someone is injured, a fatality occurs, a pedestrian or cyclist is involved, or it is a hit-and-run and DUI collision. It is important to note some pedestrian incidents may go unreported and therefore, cannot be included in this analysis. Reported pedestrian-involved collision data within the vicinity of the community planning area is provided in **Appendix A** and illustrated in **Figure 4-8**.

Most locations have isolated incidents. A few locations have a history of multiple collisions. **Table 4-2** identifies those intersections with three or more collisions within the five-year period. A more in depth look at the causes of these collision will help to identify improvements needed at these locations.

Table 4-2 Most Frequent Pedestrian Collision Locations

Rank	Intersections	Collisions
1	Executive Way & La Jolla Village Drive	4
1	Genesee Avenue & La Jolla Village Drive	4
2	Genesee Avenue & Governor Drive	3
2	La Jolla Village Drive & Town Centre Drive	3
2	La Jolla Village Drive & Lebon Drive	3
2	Regents Road & Nobel Drive	3

Table 4-3 summarizes the location types for pedestrian-involved collisions, differentiating between intersection, mid-block, and approaching/departing locations. The vast majority (73 percent) of pedestrian-involved collisions occurred at intersections.

Table 4-3 Pedestrian Collisions by Location Types

Collision Location Type	Collisions	Percent of Total
Mid-Block	9	13%
Intersection	50	73%
Approaching/Departing	10	14%
Total	***69***	***100%***

Table 4-4 identifies the party-at-fault for each reported pedestrian-involved collision. Drivers were reported as at-fault for over one-quarter of all collisions. Pedestrians were reported at-fault for nearly one-third of all collisions. Approximately 40 percent of recorded collisions do not identify a party at-fault, or state “other” as the party at fault.

Table 4-4 Pedestrian Collisions by Party at Fault

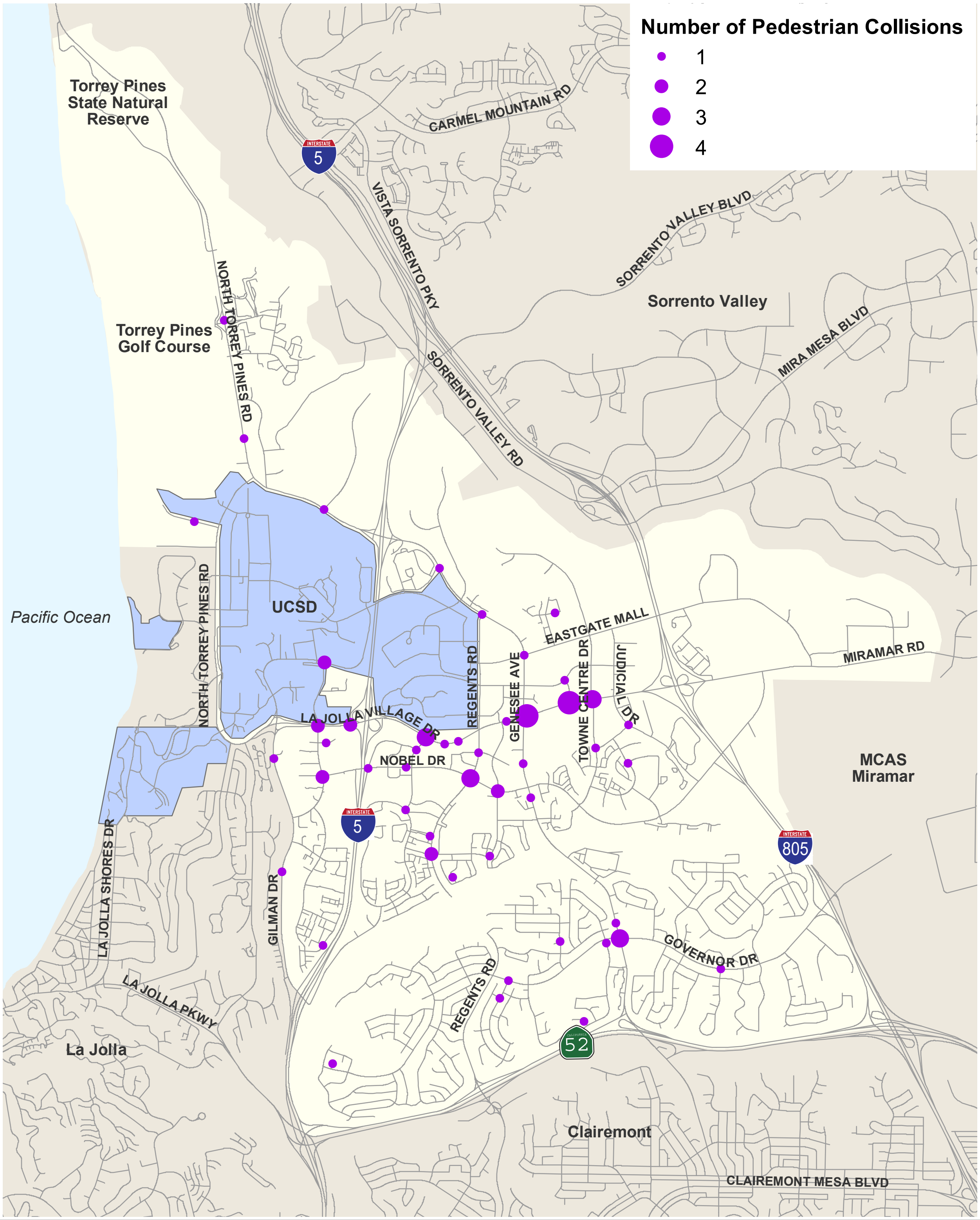
Party at Fault	Collisions	Percent of Total
Driver	20	29%
Pedestrian	22	32%
Not Stated	26	38%
Bicyclist	0	0%
Other	1	1%
Total	***69***	***100%***

Table 4-5 identifies the primary collision cause reported for the reported pedestrian-involved collisions. The leading cause was attributed to pedestrian right-of-way violations, which occurred in approximately 22 percent of pedestrian-involved collisions. The second-most frequent cause of collision was "pedestrian violation", followed by "auto right-of-way violation" and "other hazardous movement".

Table 4-5 Primary Pedestrian Collision Cause

Primary Collision Cause	Collisions	Percent of Total
Auto R/W Violation	9	13%
Improper Passing	0	0%
Improper Turning	6	9%
Not Stated	4	6%
Other	1	1%
Other Hazardous Movement	9	13%
Ped R/W Violation	15	22%
Pedestrian Violation	11	16%
Traffic Signals and Signs	2	3%
Unknown	3	4%
Unsafe Lane Change	2	3%
Unsafe Speed	3	4%
Unsafe Starting or Backing	4	6%
Total	***69***	***100%***

FIGURE 4-8



Pedestrian Collision History (2012-2017)

PEDESTRIAN ENVIRONMENT QUALITY EVALUATION (PEQE)

The Pedestrian Environment Quality Evaluation (PEQE) represents a data-driven methodology for assessing pedestrian facilities. Elements which are evaluated include roadway segments, intersections, and mid-block crossings where present.

For roadway segments, data inputs include horizontal buffer, lighting, a clear pedestrian zone, and the posted speed limit. For the intersection analysis, physical features that serve as safety mechanisms, operational features, curb ramps which meet standards for the Americans with Disabilities Act (ADA), and intersection traffic control are identified and evaluated for their contribution to the pedestrian environment. An overview of the methodology used to calculate PEQE scores, including required inputs and scoring used, is provided in **Section 2. Appendix B** includes the existing inputs used for PEQE analysis.

Table 4-6 summarizes the PEQE analysis results for sidewalks along roadway segments within the Pedestrian Study Area. As shown, 67 percent of these pedestrian facilities currently score as medium-quality. Low-quality scores were observed along 33 percent of facilities. No facilities scored as high-quality within the community; however, the analysis did not account for the four pedestrian bridges that would offer an alternative to cross major roadways within the community with no vehicular conflicts.

Many of the roadway segments within the Pedestrian Study Area are either missing sidewalks altogether, or have sidewalks that are less than 5 feet in width. Many sub-standard sidewalks are adjacent to City-owned right-of-way that is currently used for landscaping. Both the provision of sidewalks as well as increasing sidewalk widths to provide a clear pedestrian zone of 5 feet or more would likely improve the PEQE score along several Study Area roadways.

Several roadways have street lighting that does not meet minimum spacing requirements (e.g. one light every 150-300 feet). Adding street lights along key roadway segments to achieve minimum requirements would likely improve the PEQE score along several study area roadways.

Additionally, several intersections have curb ramps that do not meet ADA requirements. Upgrading curb ramps to meet ADA standards would likely improve the PEQE score at several Study Area intersections.

Table 4-6 Summary of PEQE Analysis for Segments within Pedestrian Study Area

PEQE Score	Total Length (feet)	Percent of Study Area Facilities
High	0	0%
Medium	169,488	67%
Low	84,022	33%
Total	***253,510***	***100%***

Table 4-7 summarizes the PEQE analysis results for intersections within the study area. The evaluation found that 84 percent of intersections exhibited medium-quality conditions, 15 percent of intersection crossings were observed to have low-quality conditions, and only 1% (one intersection) exhibited high-quality conditions.

Table 4-7 Summary of PEQE Analysis for Intersections within Pedestrian Study Area

PEQE Score	Number of Intersections	Percent of Study Area Facilities
High	1	1%
Medium	58	84%
Low	10	15%
Total	***69***	***100%***

Table 4-8 summarizes the length (in feet) of the missing sidewalks along roadway segments which provide access to the pedestrian study area. No curb ramps were found to be missing, although not all are ADA-accessible compliant.

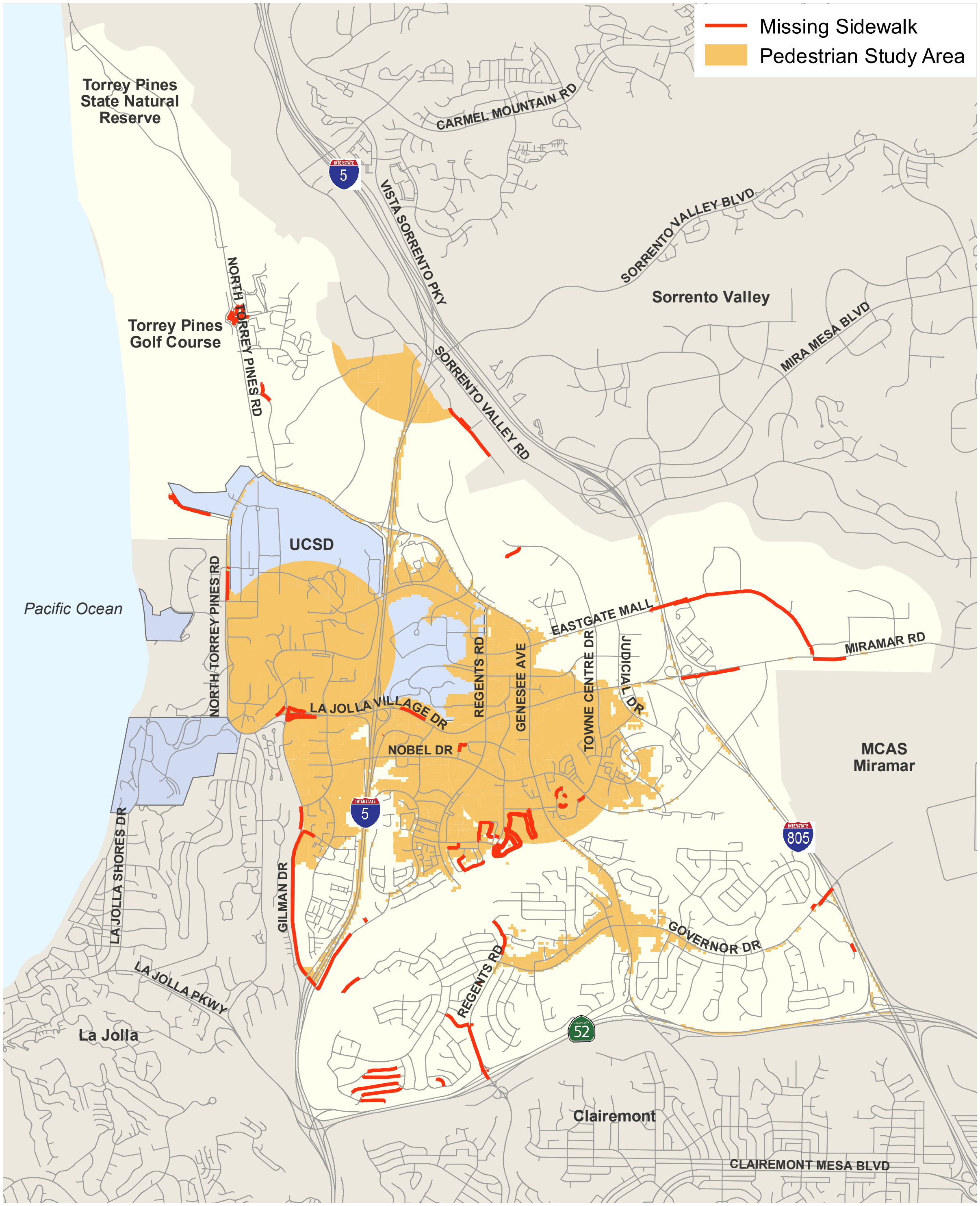
Table 4-8 Summary of Missing Curb Ramps and Sidewalks within or Providing Access to the Pedestrian Study Area

Item	Quantity	Length (feet)
Missing Sidewalk	NA	58,456
Missing Curb Ramps	*0*	NA

The locations of missing sidewalks within the community are shown in **Figure 4-9**.

The results of the PEQE are presented in **Figure 4-5**. As shown, roadway segments exhibiting low-quality pedestrian conditions are generally shown along major arterial roadways that have little or no adjacent development. Roadways exhibiting medium-quality conditions are generally found along roadways with adjacent residential and commercial activity. There are no high-quality segments on study area roadways within the pedestrian study area. The only high-quality intersection is at La Jolla Village Drive and Town Center Drive.

FIGURE 4-9



Missing Sidewalks

FIGURE 4-10

Existing Pedestrian Environmental Quality Evaluation (PEQE) Rating

PEDESTRIAN NETWORK CONNECTIVITY

The level of connectivity at each pedestrian study intersection was assessed using a travelshed analysis. The methodology for calculating the Pedestrian Connectivity Ratio is described in detail in **Section 2**, and utilizes the formula shown below. Note that a higher ratio is associated with better overall connectivity at the intersection.

$$\frac{\text{Land Area Accessible within a 0.5 mile walkshed (acres)}}{\text{Land Area Accessible within a 0.5 mile crow flies buffer (acres)}}$$

The pedestrian connectivity ratio for each intersection within the pedestrian study area is shown in **Table 4-9.**

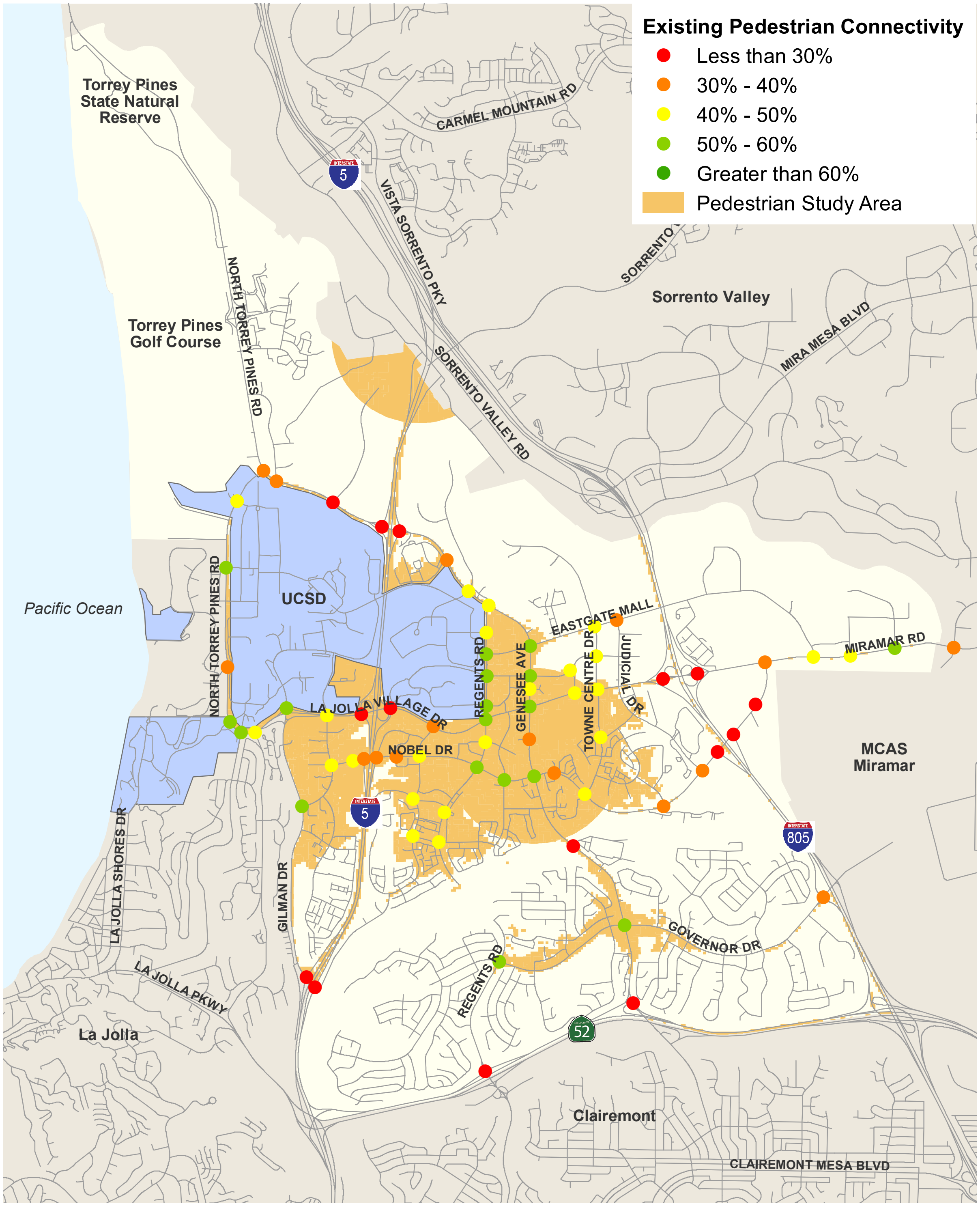
As shown in **Figure 4-6**, higher pedestrian connectivity ratios are found along the major arterials in the community. This represents the wide access to secondary roads that these major roadways provide. By contrast, intersections near barriers (canyons or freeways) show limited connectivity available. In fact, the majority of intersections with a pedestrian connectivity ratio of lower than 30 percent are those adjacent to I-5. The freeway presents a major barrier to pedestrian connectivity between the eastern and western portions of the community. Improving connectivity within the University community could have the greatest impact by focusing on areas of high pedestrian demand, including the pedestrian study area. Raising the connectivity ratios within the pedestrian study area would greatly increase the land area coverage of pedestrians in the community.

Table 4-9 Pedestrian Connectivity Ratio at Pedestrian Study Intersections

Intersection ID	Intersection Name	Pedestrian Connectivity Ratio
1	Genesee Ave & N. Torrey Pines Rd	37%
2	Genesee Ave & John Hopkins Dr (S)	34%
3	Genesee Ave & Science Center Dr	22%
4	Genesee Ave & I-5 SB Ramps	16%
5	Genesee Ave & I-5 NB Ramps	17%
6	Genesee Ave & Scripps Hospital	36%
7	Genesee Ave & Campus Point Dr	46%
8	Genesee Ave & Regents Rd	44%
9	Genesee Ave & Eastgate Mall	52%
10	Genesee Ave & Executive Dr	52%
11	Genesee Ave & Executive Square	50%
12	Genesee Ave & La Jolla Village Dr	52%
13	Genesee Ave & Esplanade Ct	36%
14	Genesee Ave & Nobel Dr	51%
15	Genesee Ave & Decoro St	43%
16	Genesee Ave & Centurion Square	28%
17	Genesee Ave & Governor Dr	51%
18	Genesee Ave & SR-52 WB Ramps	17%
19	Genesee Ave & SR-52 EB Ramps	Outside of Study Area
20	Genesee Ave & Appleton St/Lehrer Dr	Outside of Study Area
21	La Jolla Village Dr & Torrey Pines Rd	52%
22	La Jolla Village Dr & La Jolla Scenic Dr	44%
23	La Jolla Village Dr & Gilman Dr	52%
24	La Jolla Village Dr & Villa La Jolla Dr	46%
25	La Jolla Village Dr & I-5 SB Off-Ramps	24%
26	La Jolla Village Dr & I-5 NB Off-Ramps	20%
27	La Jolla Village Dr & Lebon Dr	37%
28	La Jolla Village Dr & Regents Rd	56%
29	La Jolla Village Dr & Executive Way	40%
30	La Jolla Village Dr & Towne Centre Dr	48%
31	La Jolla Village Dr & I-805 SB Ramps	23%
32	La Jolla Village Dr & I-805 NB Ramps	22%
33	Miramar Rd & Nobel Dr	35%
34	Miramar Rd & Eastgate Mall	42%
35	Miramar Rd & Miramar Mall	49%
36	Miramar Rd & Miramar Place	58%
37	Miramar Rd & Camino Santa Fe	32%
38	Nobel Dr & Villa La Jolla Dr	46%
39	Nobel Dr & La Jolla Village Square Dwy	40%

Intersection ID	Intersection Name	Pedestrian Connectivity Ratio
40	Nobel Dr & I-5 SB On Ramp	33%
41	Nobel Dr & I-5 NB Off-Ramp/University Center Ln	31%
42	Nobel Dr & Caminito Plaza Centro	33%
43	Nobel Dr & Lebon Dr	48%
44	Nobel Dr & Regents Rd	52%
45	Nobel Dr & Costa Verde Blvd/Cargill Ave	53%
46	Nobel Dr & Lombard Place	39%
47	Nobel Dr & Towne Centre Dr	48%
48	Nobel Dr & Shoreline Dr	37%
49	Nobel Dr & Judicial Dr	33%
50	Nobel Dr & I-805 SB On-Ramp	23%
51	Nobel Dr & I-805 NB Off-Ramp	20%
52	Nobel Dr & Avenue of Flags	24%
53	Regents Rd & County Day Ln/ Health Science Dr	47%
54	Regents Rd & Eastgate Mall	53%
55	Regents Rd & Executive Dr	55%
56	Regents Rd & Regents Park Row	58%
57	Regents Rd & Plaza De Palmas	49%
58	Regents Rd & Berino Ct	42%
59	Regents Rd & Arriba St	42%
60	Regents Rd & Governor Dr	50%
61	Regents Rd & SR-52 WB Ramps	15%
62	Regents Rd & SR-52 EB Ramps	Outside of Study Area
63	Regents Rd & Luna Ave	Outside of Study Area
64	N. Torrey Pines Rd & UCSD Northpoint Dwy	43%
65	N. Torrey Pines Rd & Pangea Dr	54%
66	N. Torrey Pines Rd & La Jolla Shores Dr	36%
67	N. Torrey Pines Rd & Revelle College Dr	52%
68	Gilman Dr & Villa La Jolla Dr	51%
69	Gilman Dr & I-5 SB Ramps	25%
70	Gilman Dr & I-5 NB Ramps	25%
71	Palmilla Dr & Lebon Dr	44%
72	Palmilla Dr & Ariba St	44%
73	Towne Centre Dr & Eastgate Mall	50%
74	Towne Centre Dr & Executive Dr	46%
75	Towne Centre Dr & Golden Haven Dr	45%
76	Executive Way & Executive Dr	43%
77	Judicial Dr & Eastgate Mall	38%
78	Governor Dr & I-805 SB Ramps	30%
79	Governor Dr & I-805 NB Ramps	Outside of Study Area

FIGURE 4-11

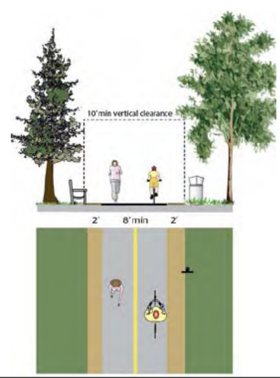
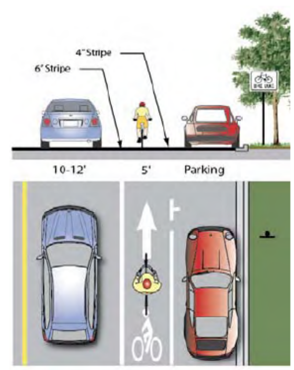


Existing Pedestrian Connectivity Ratio

5 ACTIVE TRANSPORTATION: BICYCLING

The City of San Diego has developed a network of designated Class I, II, and III bikeways as part of their Bicycle Master Plan efforts. A Class I facility is a bike path that provides for bicycles to travel on a paved right-of-way completely separated from any street or highway. A Class II facility is a bike lane that provides bicycles an exclusive lane of travel on a roadway separated by a painted line. This facility can also include a painted buffer which may provide a separation from cyclists and vehicles. A Class III facility is a bike route that provides for a shared use motor vehicle traffic and is typically identified by signage and/or pavement markings. **Table 5-1** provides more description and illustrates the types of bikeway identified in the City of San Diego Bicycle Master Plan (BMP).

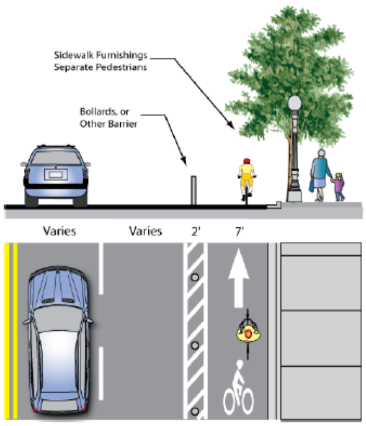
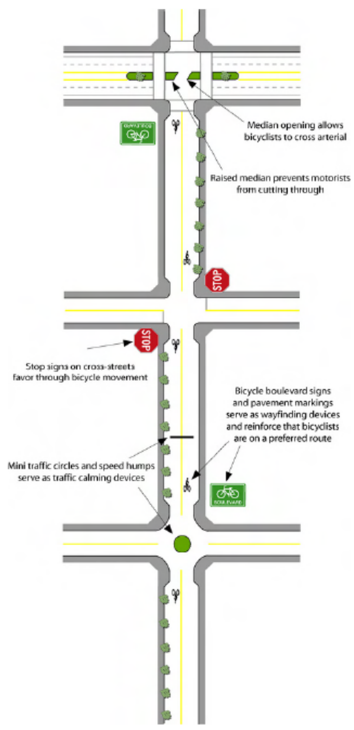
Table 5-1 Regional Bicycle Facility Classifications

Class I – Bike Path Bike paths are bikeways that are physically separated from vehicular traffic. Also termed shared-use paths, bike paths accommodate bicycle, pedestrian, and other non-motorized travel. Paths can be constructed in roadway right-of-way or independent right-of-way. Bike paths provide critical connections in the region where roadways are absent or are not conducive to bicycle travel.	
Class II - Bike Lanes Bike lanes are defined by pavement markings and signage used to allocate a portion of a roadway for exclusive or preferential bicycle travel. Within the regional corridor system, bike lanes should be enhanced with treatments that improve safety and connectivity by addressing site-specific issues. Such treatments include innovative signage, intersection treatments, and bicycle loop detectors.	
Class III - Bike Routes Bike routes are located on shared roadways that accommodate vehicles and bicycles in the same travel lane. Established by signs, bike routes provide continuity to other bike facilities or designate preferred routes through corridors with high demand. Within the regional corridor system, bike routes should be enhanced with treatments that improve safety and connectivity by addressing site-specific issues.	

Source: *SANDAG Regional Bicycle Plan*, dated April 2010 (ALTA Planning)

Two additional bicycle facilities, Cycle Track and Bicycle Boulevard, have been adopted into the SANDAG Regional Bike Plan (RBP). A Cycle Track is a bicycle facility that is located within the roadway right-of-way with a physical separation from vehicular traffic. Bicycle Boulevards are roadways where physical improvements such as traffic calming and diversions are intended to provide priority to bicyclists. Bicycle Boulevards are typically installed on local roads with a low volume of vehicles and residential speeds. **Table 5-2** further explains the two new bicycle facilities.

Table 5-2 Additional Bicycle Facilities

Cycle Tracks A cycle track is a hybrid type bicycle facility that combines the experience of a separated path with the on-street infrastructure of a conventional bike lane. Cycle tracks are bikeways located in roadway right-of-way but separated from vehicle lanes by physical barriers or buffers. Cycle tracks provide for one-way bicycle travel in each direction adjacent to vehicular travel lanes and are exclusively for bicycle use. Cycle tracks are not recognized by Caltrans Highway Design Manual as a bikeway facility. Development of cycle track on segments of the regional corridor system is proposed through experimental, pilot projects.	
Bicycle Boulevards Bicycle boulevards are local roads or residential streets that have been enhanced with traffic calming and other treatments to facilitate safe and convenient bicycle travel. Bicycle boulevards accommodate bicyclists and motorists in the same travel lanes, typically without specific vehicle or bicycle lane delineation. These roadway designations prioritize bicycle travel above vehicular travel. The treatments applied to create a bike boulevard heighten motorists' awareness of bicyclists and slow vehicle traffic, making the boulevard more conducive to safe bicycle and pedestrian activity. Bicycle boulevard treatments include signage, pavement markings, intersection treatments, traffic calming measures and can include traffic diversions. Bicycle boulevards are not defined as bikeways by Caltrans Highway Design Manual; however, the basic design features of bicycle boulevards comply with Caltrans standards.	

Source: *SANDAG Regional Bicycle Plan*, dated April 2010 (ALTA Planning)

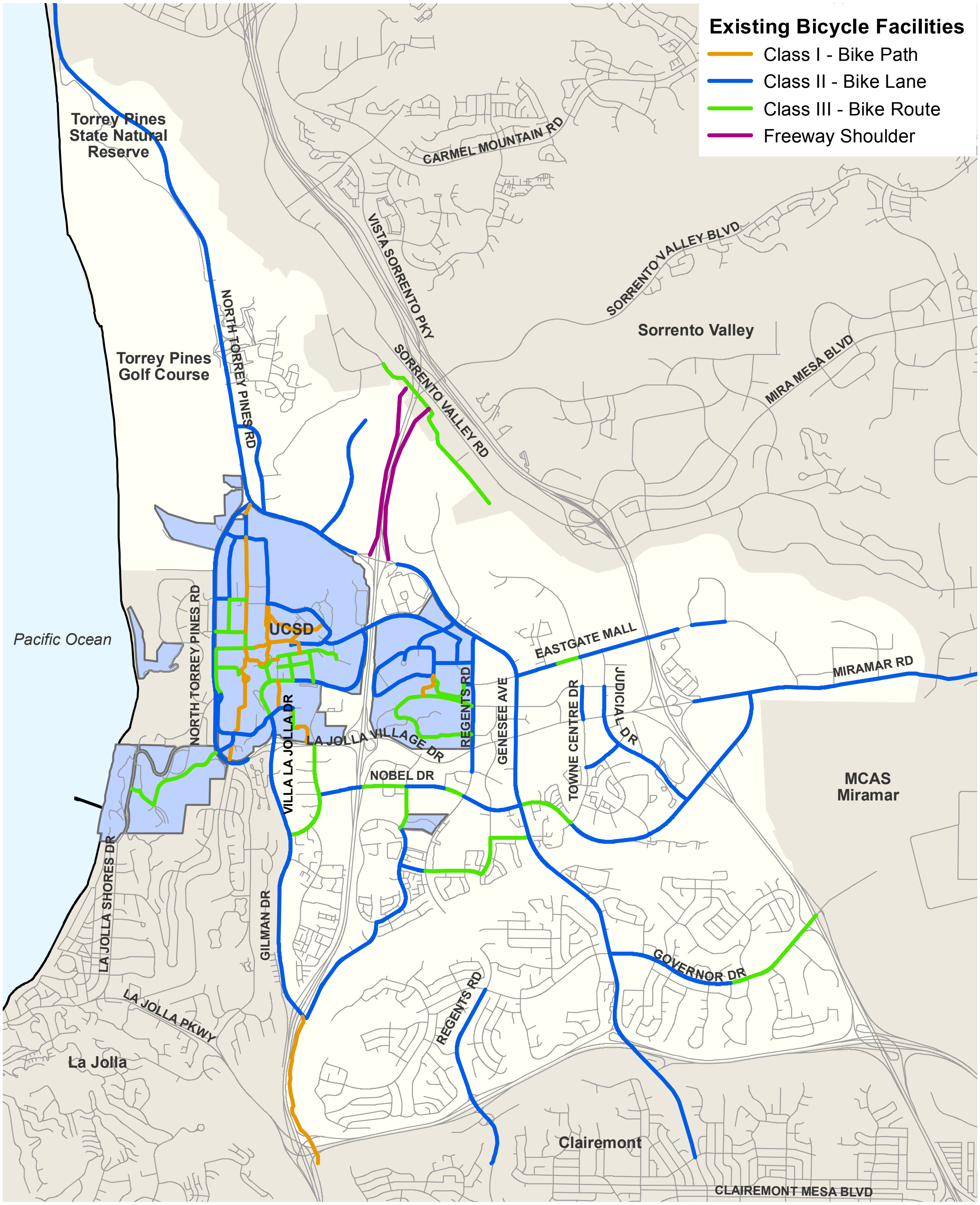
A unique feature of the San Diego bicycle network is the five freeway segments (totaling 16.1 miles) which permit bicyclists to ride on the freeway shoulder. These bicycle facilities are deemed necessary to provide connections between areas with no viable alternative within the existing bicycle network. The image below displays a bicyclist riding along a freeway shoulder.

Source: TransNet North Coast Corridor webpage, retrieved November 2015

The University community contains one of the five freeway shoulder facilities within Caltrans District 11 currently designated as a bicycle facility: a segment of Interstate 5 between Sorrento Valley Road and Genesee Avenue. As part of the North Coast Corridor (NCC) Program, a Class I bicycle facility will be constructed adjacent to Interstate 5 to connect the Sorrento Valley Coaster Station and the UCSD Campus. The use of the freeway shoulder along Interstate 5 as a bicycle facility will be prohibited upon completion of the Class I facility bicycle that is currently under construction.

Figure 5-1 displays the location of the existing bicycle facilities within the University community. As shown, the existing bicycle network lacks continuity of bicycle facility classifications and has gaps along certain roadways. Bicycle facility consistency is prevalent along north-south roadways and are primarily located north of Rose Canyon.

FIGURE 5-1



Existing Bicycle Facilities

BICYCLE DEMAND

Bicycle demand was evaluated using the City of San Diego Bicycle Demand Model (BDM). The BDM has two demand components: intra-community and inter-community travel. Among the inputs into the model are: population characteristics; bicycle trip attractors and generators; and, proximity to land uses that are typically associated with higher rates of cycling activity. The BDM process is described in more detail in Section 2. **Figure 5-3** displays the Bicycle Demand Model results for the University community relative to the City of San Diego as a whole.

Bicycle demand is concentrated along the major arterials in the community. These roadways help to connect the attractors and generators and are usually the closest roadways to commercial land uses and mixed-use development. Bicycle demand is lowest in the largely residential, lower-density neighborhoods at the periphery of the community particularly to the south of Rose Canyon.

Bicycle commute mode share is another measure of where demand exists for bicycle infrastructure or where existing facilities are successfully facilitating some bicycle commutes. American Community Survey data, 2015 5-year estimates, were used to determine how the commute mode share in the University community compares to both the City of San Diego and the County of San Diego. **Table 5-3** presents the bicycle commute mode share comparison. The University community has a mode share over two times that of the City of San Diego and San Diego County. This is likely due to the relatively urban, mixed-use nature of the area.

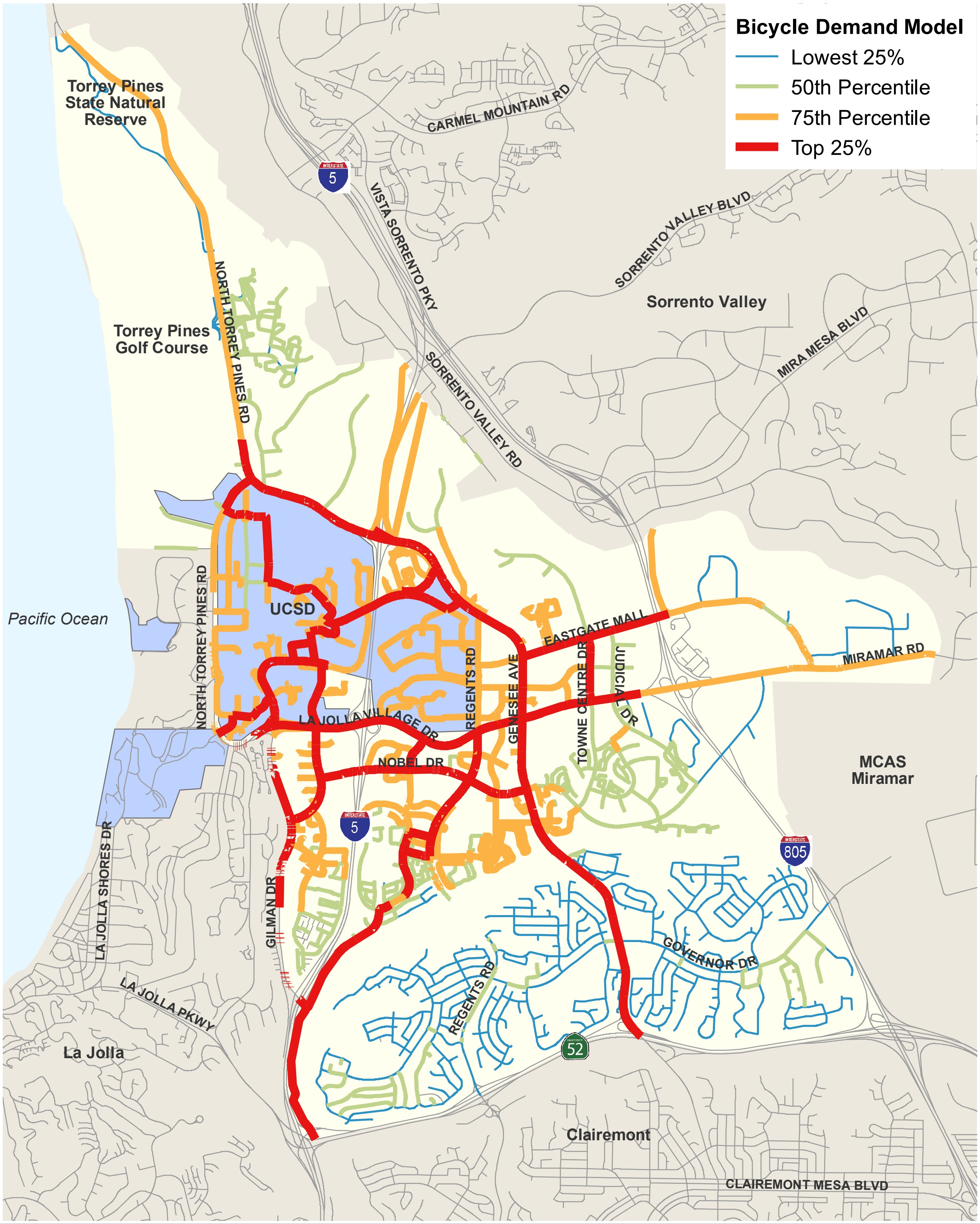
Table 5-3 Bicycle Commute Mode Share Comparison

	University	**City of San Diego**	**San Diego County**
Total Bicycle Commutes	709	6,256	10,027
Total Workers	35,740	668,643	1,503,987
Bicycle Commute Mode Share	***2.0%***	***0.9%***	***0.7%***

Figure 5-3 displays bicycle commute rates and the total number of bicycle commuters by census block group throughout the University community. As shown, bicycle commute mode share is highest in the northern portion of the community.

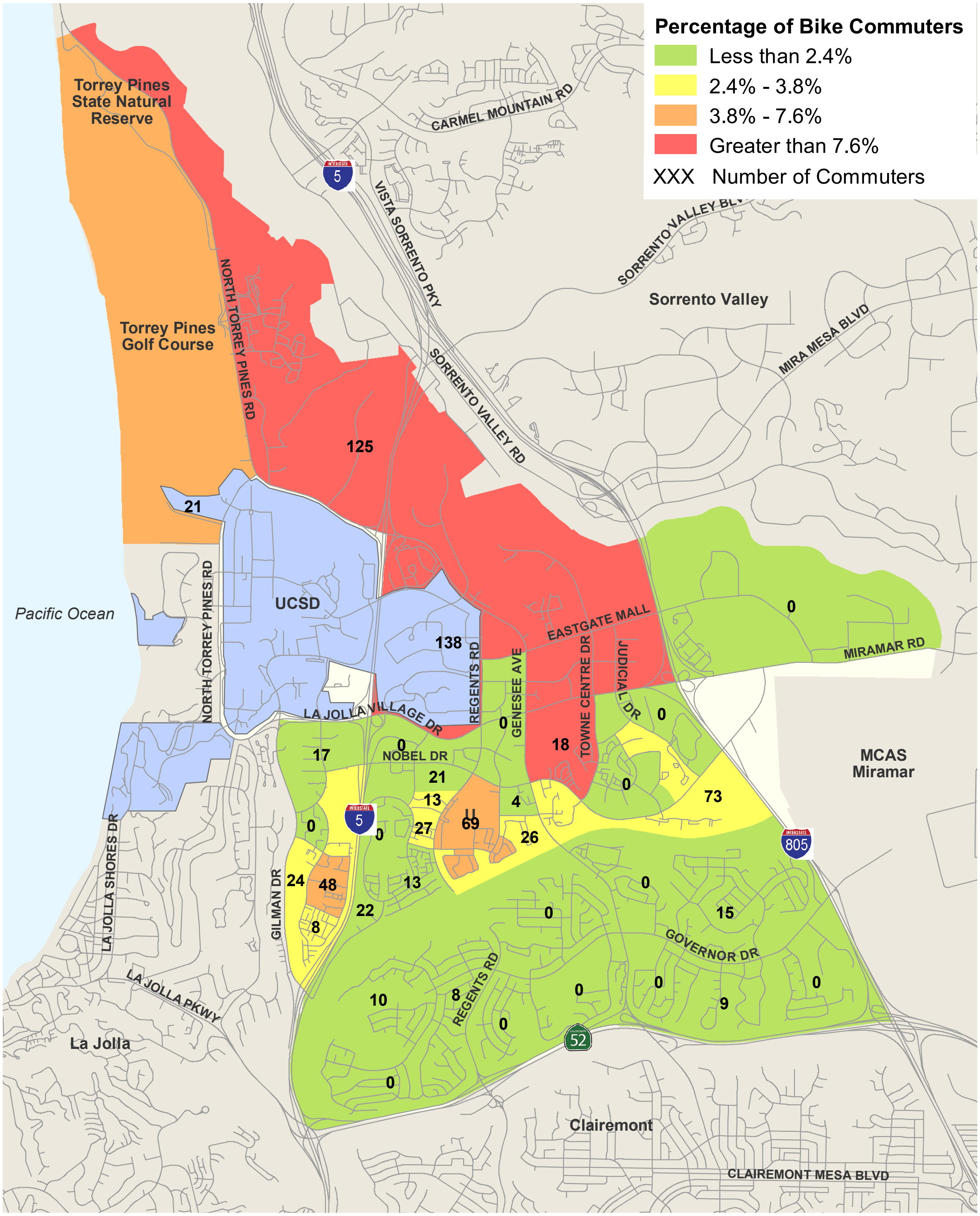
Bicycle counts were performed at study intersections during the AM, mid-day, and PM peak hours and are displayed in **Figure 5-4** through **Figure 5-6**. Overall, observed bicycle volumes were higher along the northern portion of the community along North Torrey Pines Road and Regents Road in the AM peak. Volumes along these two roadways reduce in the PM peak. Throughout the study intersections, bicycle volumes remain consistent for both the AM and PM peak hours. Fewer bicyclists are found near freeway ramps with the exception of Gilman Drive and Genesee Avenue and Interstate 5.

FIGURE 5-2



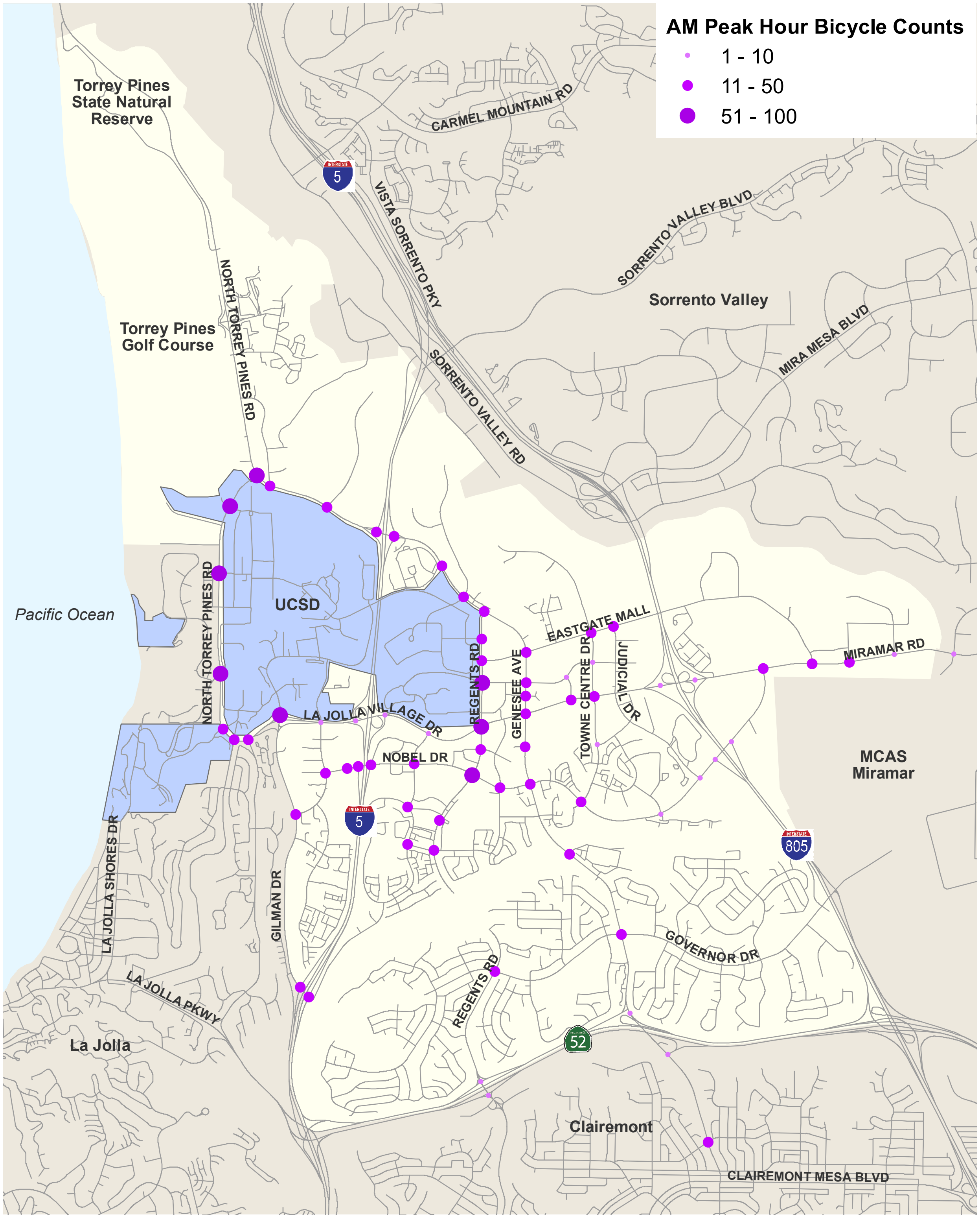
Bicycle Demand

FIGURE 5-3



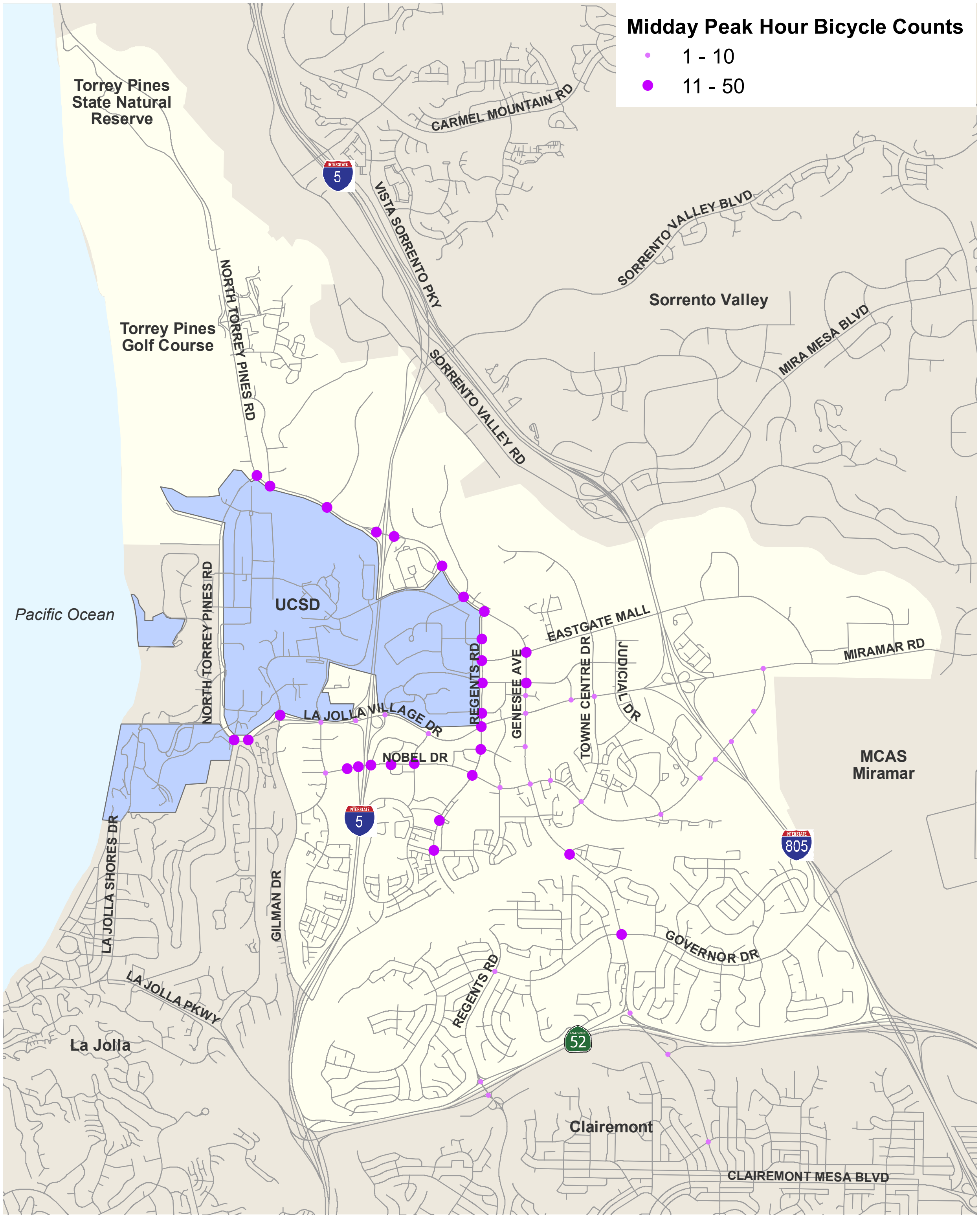
Bicycle Commute Mode Share by Census Block Group

FIGURE 5-4



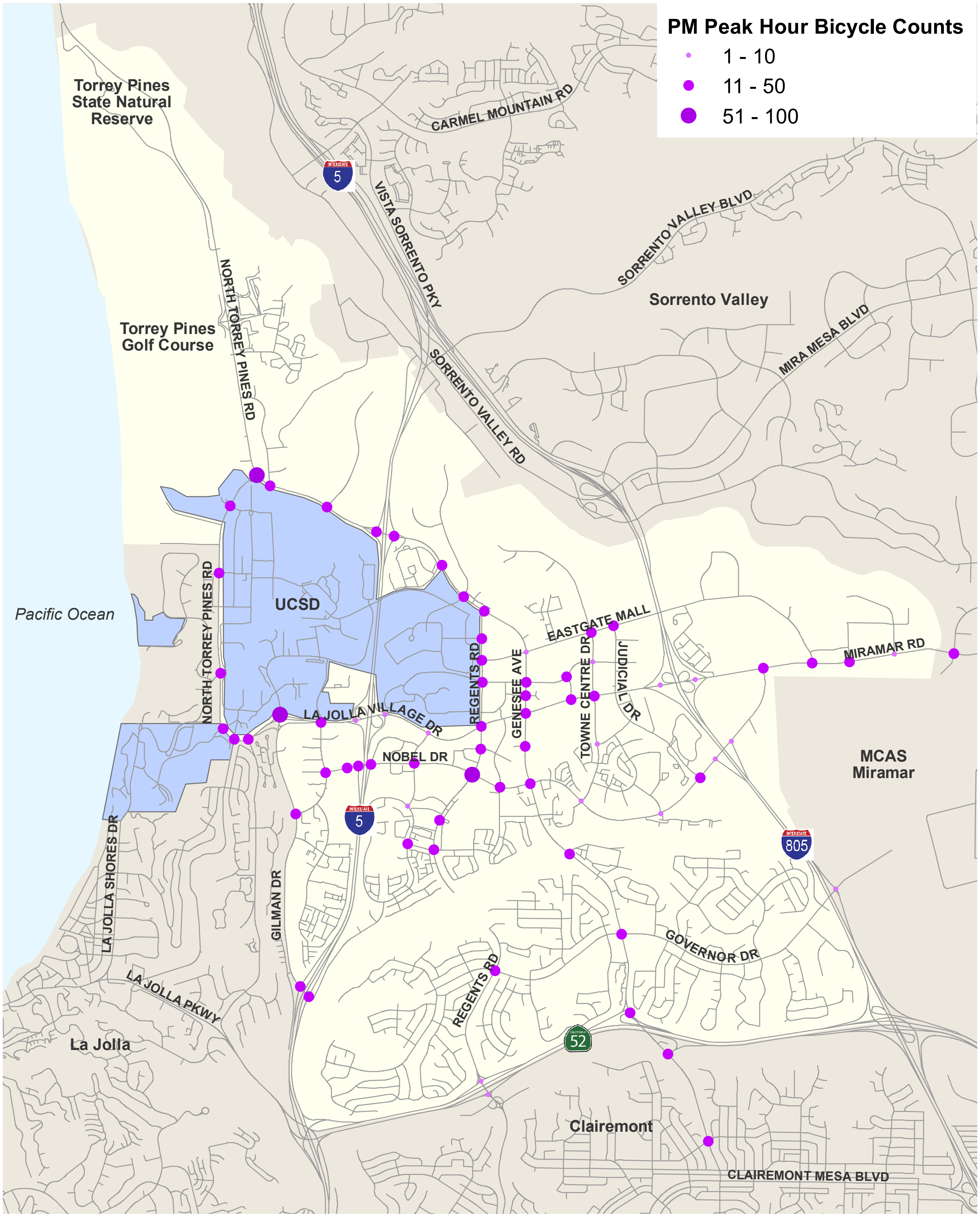
Bicycle Counts (AM Peak Hour)

FIGURE 5-5



Bicycle Counts (Mid-Day)

FIGURE 5-6



Bicycle Counts (PM Peak Hour)

BICYCLE COLLISION HISTORY

Between October 2012 and September 2017, there were a total of 70 reported collisions involving bicycles within the University community. In the State of California, collision reports must be generated for any collision where property equals or exceed 750 dollars or involves city property, someone is injured, or killed fatality occurs, a pedestrian or cyclist is involved, or it is a hit-and-run and DUI collision. It is important to note some bicycle collisions may go unreported. **Figure 5-7**Figure 5-7 displays the reported collisions involving bicycles across the community, as included in **Appendix A**, symbolized by the number of collisions at a given location. Most locations have isolated collisions, but some intersections experienced three or more collisions in the five-year period. These collision locations are identified in **Table 5-4**.Table 5-4

Table 5-4 Most Frequent Bicycle Collision Locations

Rank	Intersections	Collisions
1	La Jolla Village Drive & Regents Road	4
2	Nobel Drive & Regents Road	3
3	North Torrey Pines Road & John Jay Hopkins Drive	3
4	Villa La Jolla Drive & La Jolla Village Drive	3

The location types of the reported bicycle-involved collisions are summarized in **Table 5-5**.Table 5-5 Types include intersection, mid-block, and approaching/departing locations. Just as with pedestrian-involved collisions, almost three-quarters of all bicycle-involved collisions occurred at intersections.

Table 5-5 Bicycle Collisions by Location Types

Collision Location Type	Collisions	Percent of Total
Mid-Block	10	14%
Intersection	50	71%
Approaching/Departing	10	14%
Total	***70***	***100%***

Table 5-6 Table 5-6 summarizes the collisions by the party at fault, as reported for the collision. Drivers and bicyclists were each reported as “at-fault” in 29 percent of all collisions.

Table 5-6 Bicycle Collisions by Party at Fault

Party at Fault	Collisions	Percent of Total
Driver	20	29%
Pedestrian	0	0%
Not Stated	30	43%
Bicyclist	20	29%
Other	0	0%

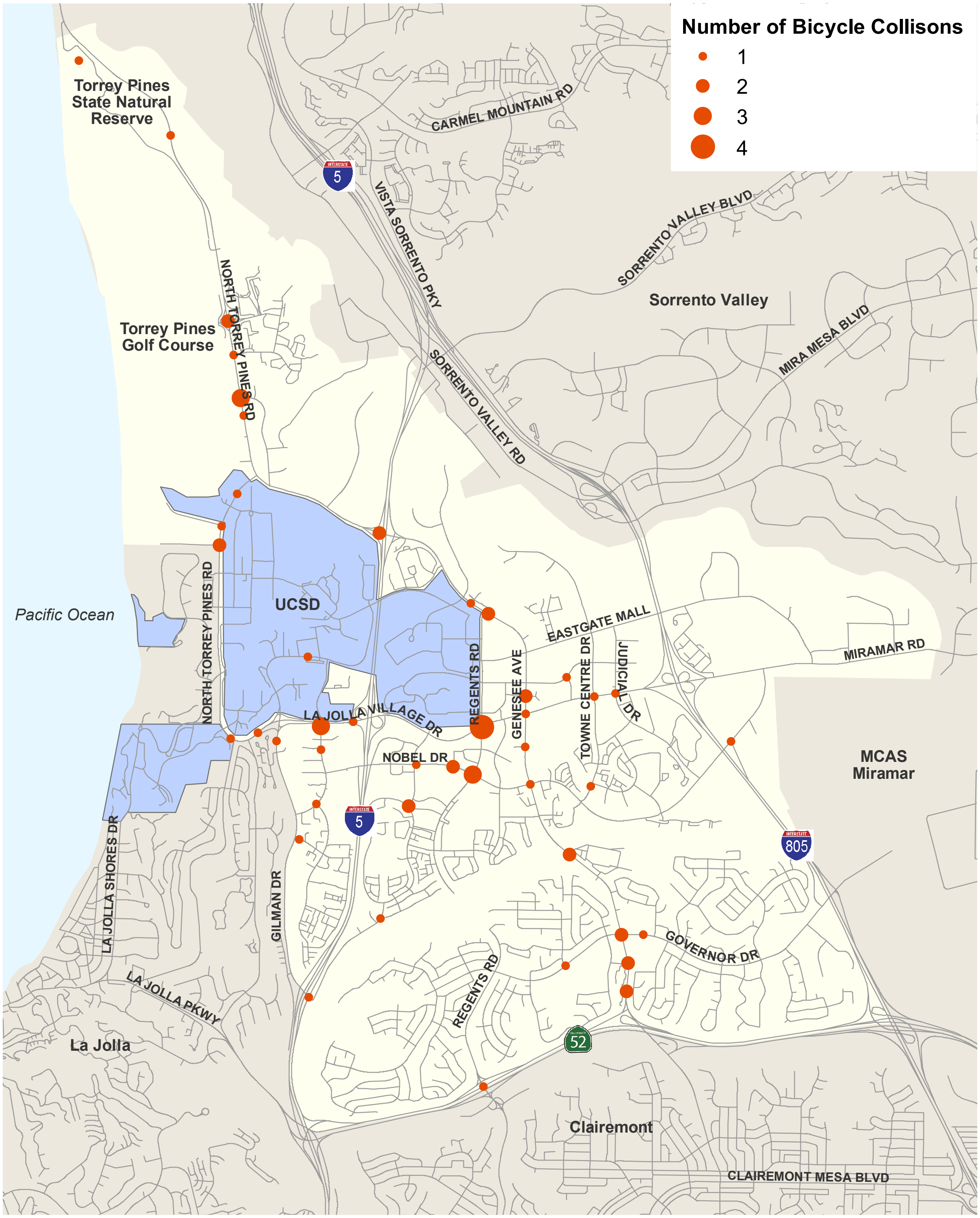
Total	***70***	***100%***

Table 5-7 Table 5-7 displays the primary causes for bicycle involved collisions. As shown in the table, the top cause for bicycle-involved collisions was broadside, followed by other causes.

Table 5-7 Primary Bicycle-Involved Collision Cause (2012-2017)

Primary Collision Cause	Number of Collisions	Percent of Total Bicycle Collisions
Broadside	19	27%
Hit Object	2	3%
Not Stated	2	3%
Other	18	26%
Overturned	4	6%
Rear-End	11	16%
Sideswipe	13	19%
Vehicle-Pedestrian	1	1%
Total	***70***	***100%***

FIGURE 5-7



Bicycle Collision History (2012-2017)

LEVEL OF TRAFFIC STRESS ANALYSIS

The Bicycle Level of Traffic Stress (BLTS) analysis was completed to summarize the quality of bicycle facilities in the community. **Appendix C** includes the existing inputs used for BLTS analysis. **Figure 5-8** shows the LTS score for each direction of the study roadway segments. A score of 1 represents the lowest level of stress/highest suitability, while a score of 4 represents the highest level of stress/least suitability.

Increased number of travel lanes and higher speeds result in a more stressful experience and is shown in the BLTS scoring. As seen in **Figure 5-8**, pockets of low stress local roadways are often isolated from adjacent areas by high stress circulation element roadways. In the northern and central part of the community, high speeds and traffic volumes on the majority of roadways create a stress barrier for cyclists. Pockets of low stress roadways in the UCSD area and residential areas have minimal low-stress options to get to other parts of the community. The southern portion of the community is primarily residential and has a high number of low-stress roadways, but lacks connections to the destinations in the northern portion of the community as Governor Drive and Genesee Avenue create high stress barriers. Overall, the community is currently a high-stress bicycle community due to high speeds and traffic volumes and lack of physical separation for cyclists.

FIGURE 5-8

Existing Bicycle Level of Traffic Stress

BICYCLE NETWORK CONNECTIVITY

Bicycle network connectivity can be measured by the Bikeshed Ratio. This is a metric which compares the area reachable via the bike network within a given distance, often known as the bikeshed, to the "as the crow flies" area, which is a circle with a radius of the same given distance. This measure indicates how connected and accessible a given area is with the bicycle network. Constraints on connectivity include natural features and street grid inefficiencies – a score of 65 percent is considered to be a near maximum score, while a score over 50% is considered ideal.

The methodology for the Bikeshed Ratio is described in **Section 2**. The analysis focuses on the area between 0.25 miles and 1.0 mile from the point being assessed. Results from the analysis are displayed in **Figure 5-9**. The greatest connectivity is seen along the major roadways in the central part of the community. This is likely due to the lack of barriers (canyons and freeways) in that part of the community, as well as the slightly more grid-like street network connecting to Regents Road, Genesee Avenue, and La Jolla Village Drive. Freeway barriers (I-5 and I-805) significantly reduce the bike connectivity at adjacent intersections. The bicycle connectivity ratio for each intersection within the study area is shown in **Table 5-8.**

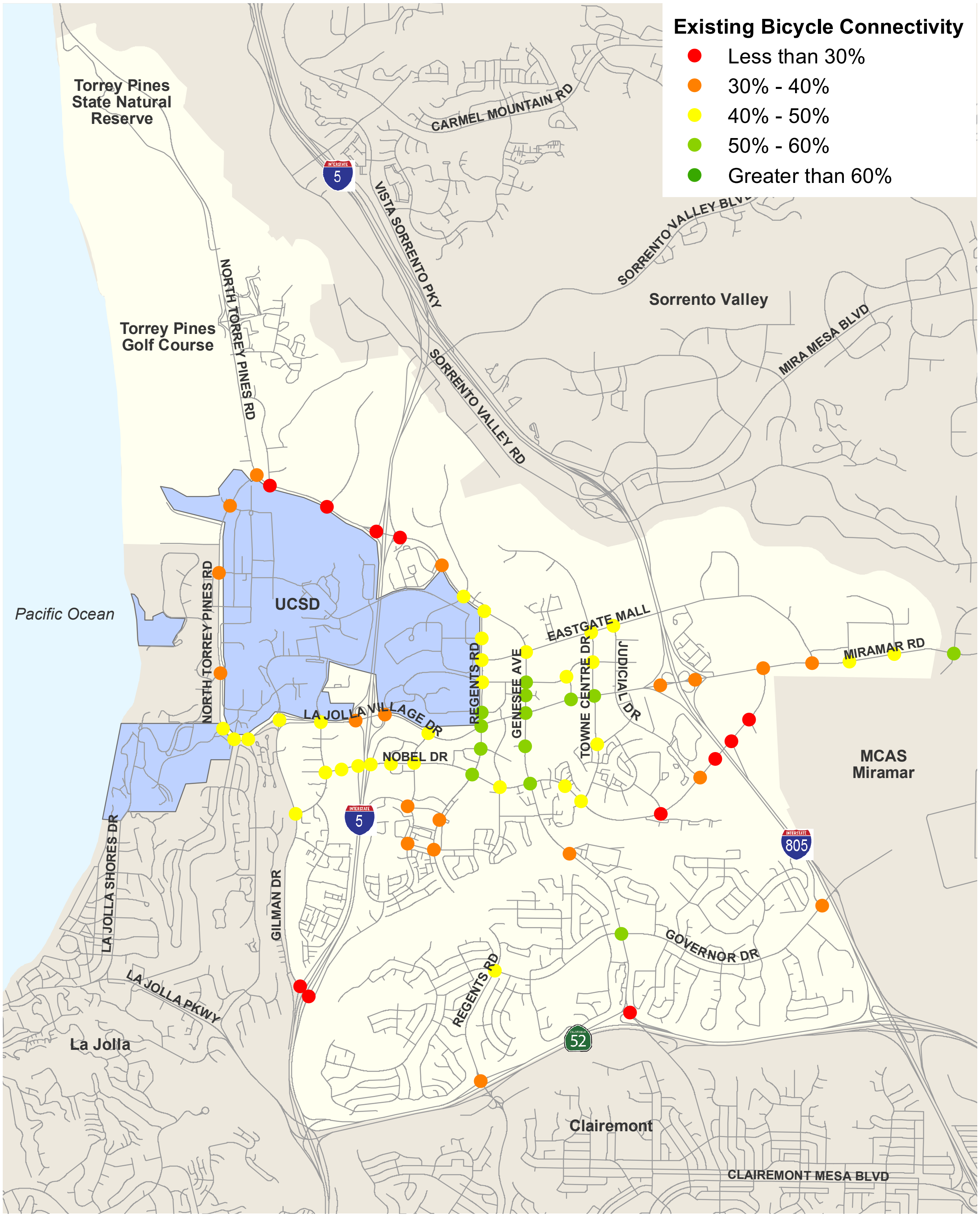
Table 5-8 Bicycle Connectivity Ratio at Pedestrian Study Intersections

Intersection ID	Intersection Name	Bicycle Connectivity Ratio
1	Genesee Ave & N. Torrey Pines Rd	31%
2	Genesee Ave & John Hopkins Dr (S)	29%
3	Genesee Ave & Science Center Dr	21%
4	Genesee Ave & I-5 SB Ramps	20%
5	Genesee Ave & I-5 NB Ramps	23%
6	Genesee Ave & Scripps Hospital	36%
7	Genesee Ave & Campus Point Dr	42%
8	Genesee Ave & Regents Rd	48%
9	Genesee Ave & Eastgate Mall	49%
10	Genesee Ave & Executive Dr	52%
11	Genesee Ave & Executive Square	55%
12	Genesee Ave & La Jolla Village Dr	59%
13	Genesee Ave & Esplanade Ct	50%
14	Genesee Ave & Nobel Dr	53%
15	Genesee Ave & Decoro St	45%
16	Genesee Ave & Centurion Square	31%
17	Genesee Ave & Governor Dr	55%
18	Genesee Ave & SR-52 WB Ramps	28%
19	Genesee Ave & SR-52 EB Ramps	Outside of Study Area
20	Genesee Ave & Appleton St/Lehrer Dr	Outside of Study Area
21	La Jolla Village Dr & Torrey Pines Rd	48%
22	La Jolla Village Dr & La Jolla Scenic Dr	46%
23	La Jolla Village Dr & Gilman Dr	42%

Intersection ID	Intersection Name	Bicycle Connectivity Ratio
24	La Jolla Village Dr & Villa La Jolla Dr	43%
25	La Jolla Village Dr & I-5 SB Off-Ramps	36%
26	La Jolla Village Dr & I-5 NB Off-Ramps	37%
27	La Jolla Village Dr & Lebon Dr	43%
28	La Jolla Village Dr & Regents Rd	55%
29	La Jolla Village Dr & Executive Way	51%
30	La Jolla Village Dr & Towne Centre Dr	53%
31	La Jolla Village Dr & I-805 SB Ramps	36%
32	La Jolla Village Dr & I-805 NB Ramps	32%
33	Miramar Rd & Nobel Dr	30%
34	Miramar Rd & Eastgate Mall	40%
35	Miramar Rd & Miramar Mall	40%
36	Miramar Rd & Miramar Place	41%
37	Miramar Rd & Camino Santa Fe	50%
38	Nobel Dr & Villa La Jolla Dr	48%
39	Nobel Dr & La Jolla Village Square Dwy	44%
40	Nobel Dr & I-5 SB On Ramp	42%
41	Nobel Dr & I-5 NB Off-Ramp/University Center Ln	40%
42	Nobel Dr & Caminito Plaza Centro	41%
43	Nobel Dr & Lebon Dr	48%
44	Nobel Dr & Regents Rd	50%
45	Nobel Dr & Costa Verde Blvd/Cargill Ave	50%
46	Nobel Dr & Lombard Place	43%
47	Nobel Dr & Towne Centre Dr	43%
48	Nobel Dr & Shoreline Dr	27%
49	Nobel Dr & Judicial Dr	30%
50	Nobel Dr & I-805 SB On-Ramp	28%
51	Nobel Dr & I-805 NB Off-Ramp	27%
52	Nobel Dr & Avenue of Flags	26%
53	Regents Rd & County Day Ln/ Health Science Dr	46%
54	Regents Rd & Eastgate Mall	49%
55	Regents Rd & Executive Dr	50%
56	Regents Rd & Regents Park Row	51%
57	Regents Rd & Plaza De Palmas	53%
58	Regents Rd & Berino Ct	39%
59	Regents Rd & Arriba St	36%
60	Regents Rd & Governor Dr	42%
61	Regents Rd & SR-52 WB Ramps	36%
62	Regents Rd & SR-52 EB Ramps	Outside of Study Area
63	Regents Rd & Luna Ave	Outside of Study Area

Intersection ID	Intersection Name	Bicycle Connectivity Ratio
64	N. Torrey Pines Rd & UCSD Northpoint Dwy	31%
65	N. Torrey Pines Rd & Pangea Dr	33%
66	N. Torrey Pines Rd & La Jolla Shores Dr	36%
67	N. Torrey Pines Rd & Revelle College Dr	47%
68	Gilman Dr & Villa La Jolla Dr	43%
69	Gilman Dr & I-5 SB Ramps	17%
70	Gilman Dr & I-5 NB Ramps	19%
71	Palmilla Dr & Lebon Dr	39%
72	Palmilla Dr & Ariba St	35%
73	Towne Centre Dr & Eastgate Mall	46%
74	Towne Centre Dr & Executive Dr	46%
75	Towne Centre Dr & Golden Haven Dr	43%
76	Executive Way & Executive Dr	48%
77	Judicial Dr & Eastgate Mall	46%
78	Governor Dr & I-805 SB Ramps	37%
79	Governor Dr & I-805 NB Ramps	Outside of Study Area

FIGURE 5-9



Existing Bicycle Network Connectivity (Bikeshed Ratio)

LOW-STRESS BICYCLE CONNECTIVITY

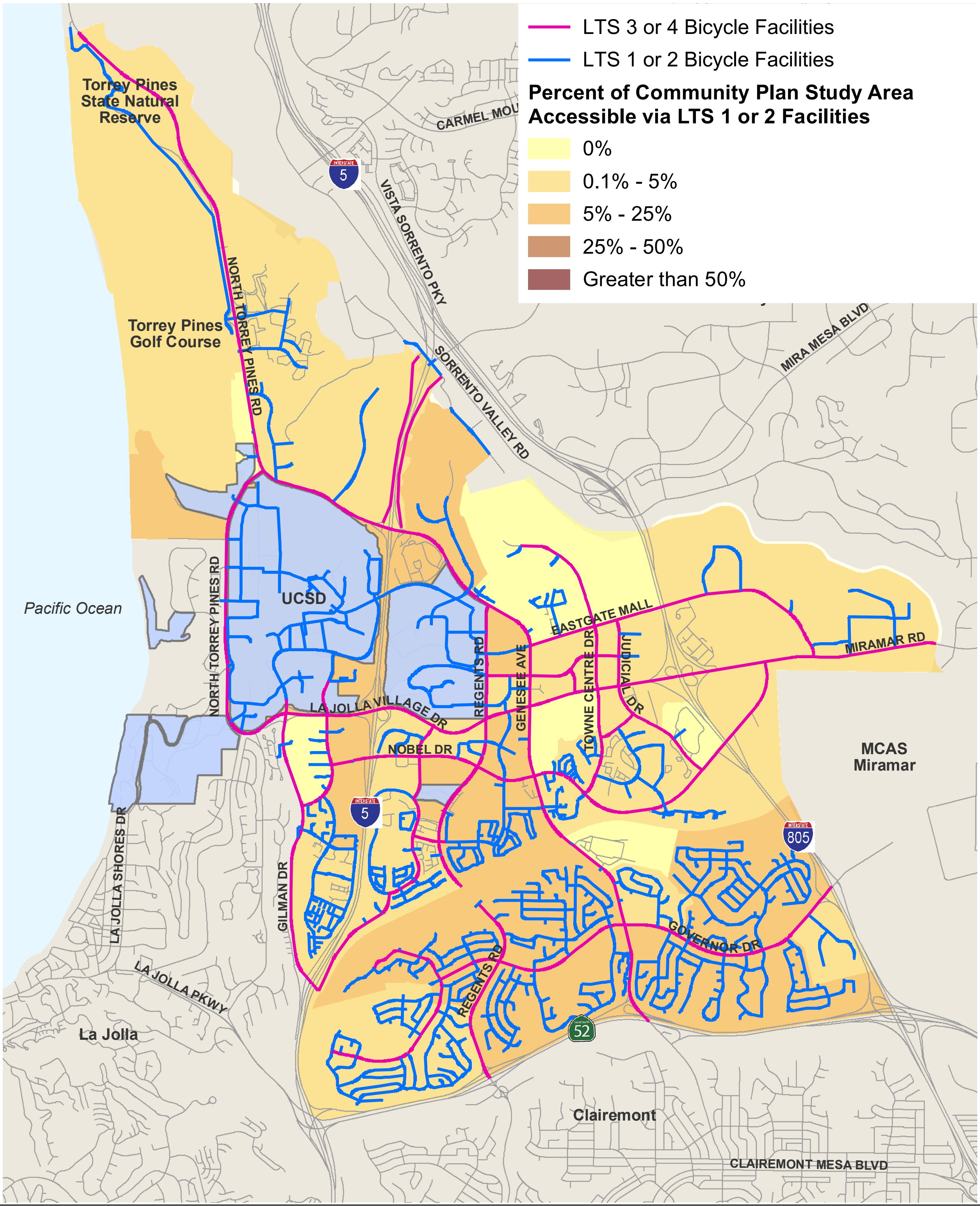
Bicycle connectivity can also be assessed by the ability for connections to be made on low stress routes, which are those characterized as LTS 1 or LTS 2. The analysis determined how each TAZ in the community is connected via the low stress routes. The equation below represents the ratio's calculation:

$$\frac{\text{Number of TAZs accessible via low-stress routes (LTS 1 and 2 only)}}{\text{Number of TAZs accessible via all routes}}$$

The results of the analysis are shown in **Figure 5-10**. As seen, there are a number of TAZs where there is no accessibility via low-stress bicycle facilities. These areas are completely isolated due to adjacency to high-stress facilities along Genesee Avenue, La Jolla Village Drive, Regents Road, Nobel Drive, and North Torrey Pines Road significantly reduce the connectivity of the study area.

The barriers created by the high-stress facilities means that residents could potentially bike around their neighborhoods, as seen in the areas just north of SR 52, but cannot connect to the remainder of the community via the low-stress bike network. To increase bicycle commuter mode share, it is important to create a low-stress bicycle network which can connect places of employment, residences, and commercial centers. Major arterials are the only roads that connect those elements in the University community; thus, low-stress facilities would need to be implemented along the major arterials, such as those listed above, to increase the low-stress bicycle connectivity of the community.

FIGURE 5-10



Existing Bicycle Network Connectivity (Low-Stress Connectivity)

6 PUBLIC TRANSIT

There are several types of transit currently serving the University community. **Figure 6-1** shows an overview of the roadways and separated facilities where transit is available within the community.

BUS ROUTES

There are 14 Metropolitan Transit Service (MTS) routes that serve the University community including the SuperLoop (201/202 and 204), Rapid Route 237, and Coaster Connection Routes 978 and 979. There is also one North County Transit District (NCTD) Breeze Route (Route 101). A description and map of each of the bus routes within the community is provided in **Appendix D**. The combination of the MTS, NCTD, and UCSD bus routes cover most of the community and provide connections to transfer stations and COASTER/AMTRAK stations that allow users to access other bus routes, trolley lines and regional services.

Bus routes within the University community include;

- MTS Route 30: Downtown – UTC/VA Medical Center
- MTS Routes 31 and 921: UTC – Mira Mesa
- MTS Route 41: Fashion Valley – UCSD/VA Medical Center
- MTS Route 50: Downtown - UTC Express
- MTS Route 150: Downtown – UTC/ VA Hospital Express
- MTS Route 60: Euclid Transit Center – UTC
- NCTD Route 101: Oceanside – VA/UCSD
- MTS Route 105: Old Town – UTC
- MTS SuperLoop 201/202: UTC Transit Center – UCSD
- MTS SuperLoop 204: UTC East Loop
- MTS Rapid Route 237: Rancho Bernardo – UCSD
- MTS Coaster Connection Route 978: Torrey Pines
- MTS Coaster Connection Route 979: North University City

SHUTTLE SERVICES

The UCSD Transportation Services provides eight shuttle routes that serve the University community. The shuttle routes specifically serve the campus, medical centers, and other key points off campus. Students, faculty, and staff can ride the shuttles for free. All shuttles operate during academic quarters with some shuttles operating year-round.).

RAIL SERVICES

There are two rail lines that travel through the University community: the NCTD COASTER and the AMTRAK Pacific Surfliner. The closest COASTER/AMTRAK station is located in Sorrento Valley, one exit north of the community on Interstate 5. Access to this station is provided by shuttle service to limited portions of the University community. The rail services provide connections north and south of the community and connect to other regional rail services. Both the COASTER and the Pacific Surfliner services are part of the 351-mile Los Angeles-San Diego-San Luis Obispo Rail Corridor that travels through a six-county coastal region in Southern California.

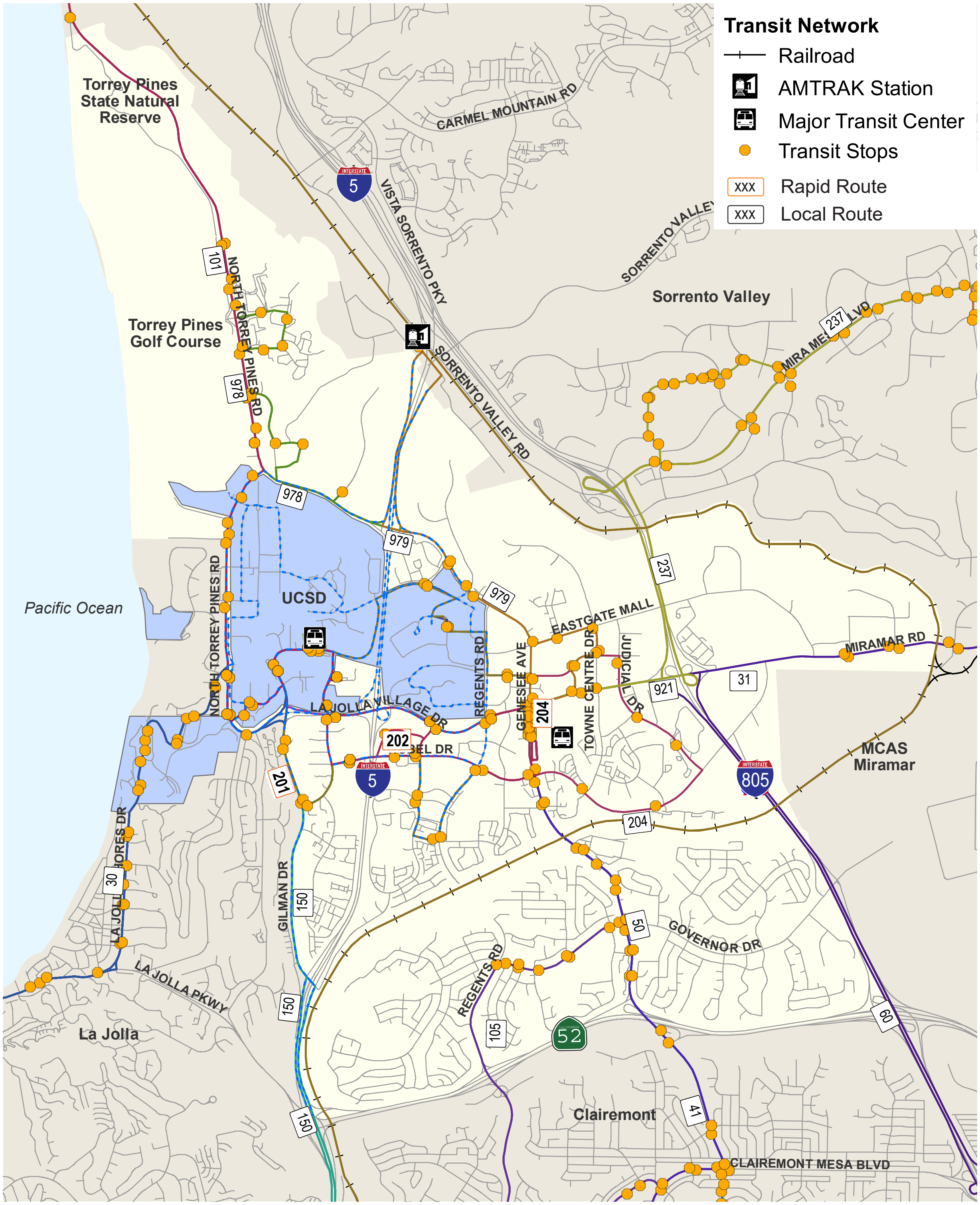
NCTD COASTER

The COASTER is a commuter rail line operated by NCTD that runs north to south from Oceanside to downtown San Diego through the University community. The COASTER serves eight stations including Santa Fe Depot, Old Town, Sorrento Valley, Solana Beach, Encinitas, Carlsbad Poinsettia, Carlsbad Village, and Oceanside. It takes about an hour to travel the entire route from downtown San Diego (Santa Fe Depot) to the Oceanside Transit Center. The rail line provides 11 daily round-trip services Monday through Thursday, 13 round-trip services on Fridays, six round-trip services on Saturdays, and four round-trip services on Sundays and Holidays. The COASTER also provides expanded service in the spring and summer and additional trains scheduled for special events as needed (such as a Padres games). The fare varies depending on the number of zones traveled.

AMTRAK Pacific Surfliner

The Pacific Surfliner is a passenger rail line operated by AMTRAK that runs north to south from San Luis Obispo to downtown San Diego through the University community. The Pacific Surfliner serves thirty stations including the eight COASTER stations stated above, as well as Anaheim, Santa Barbara, and Los Angeles. The rail line offers 12 daily round-trip services between San Diego and Los Angeles, and between Santa Barbara and San Diego. Commuters with COASTER passes can use AMTRAK trains that are not full.

FIGURE 6-1



Existing Transit Routes

TRANSIT DEMAND

Transit demand was assessed through a combination of stop-level ridership data and the demographics of the University community – specifically population and employment density.

Stop-level ridership is presented in **Appendix I**. The Gilman Drive Transit Center (Gilman Dr/Myers Dr) and the UTC Transit Center saw the highest average daily boardings and alightings. These stops are served by SuperLoop Routes 201 and 202 which have significant levels of ridership in the area.

Transit commute mode share is another measure of where demand exists for safe transit infrastructure or where existing facilities are successfully facilitating some transit commutes. American Community Survey data, 2015 5-year estimates, were used to determine how the commute mode share in the University community compares to both the City of San Diego and the County of San Diego. **Table 6-1** presents the transit commute mode share comparison. The University community has a mode share nearly two times that of the City of San Diego and over two times that of San Diego County. This is likely due to the relatively high levels of transit service in the area and transit-supportive land use patterns. The commute mode share by block group is shown in. **Figure 6-2**.

Table 6-1 Transit Commute Mode Share Comparison

	University	**City of San Diego**	**San Diego County**
Total Transit Commutes	2,708	6,256	10,027
Total Workers	35,740	668,643	1,503,987
Transit Commute Mode Share	*7.6%*	*4.0%*	*3.0%*

Table 6-2 presents transit boardings (getting on the vehicle) and alightings (getting off the vehicle) for MTS routes serving the University Community using ridership numbers provided by SANDAG representing fiscal year 2017 data. The SuperLoop Rapid Buses (Routes 201/202/204) combine to serve about 10,500 daily boardings and alightings. Route 41, which connects to the Fashion Valley Transit Center has about 4,600 daily boardings/alightings in the community. Route 30, with service to La Jolla and downtown San Diego, and Route 150, with service to downtown San Diego, each have over 3,200 daily boardings/alightings. **Appendix I** contains the SANDAG boardings and alightings for 2017.

Table 6-3 depicts the transit stops or stations within the University Community that have the most transit boardings and alightings. Not surprisingly, the locations with the highest values are in the high-density areas and locations with transfer points. These are also areas served by multiple transit lines.

A summary of the existing ridership is illustrated in **Figure 6-3**. The ridership values shown on the figure represent the total use of a stop, combining boardings and alightings.

Table 6-2 University Community Ridership by Route

Route	Daily Boardings and Alightings within Community
202	8,519
201	8,308
41	4,000
150	3,601
30	2,697
237	1,078
921	512
105	250
50	249
31	198
60	153
204	129
978	97
979	77

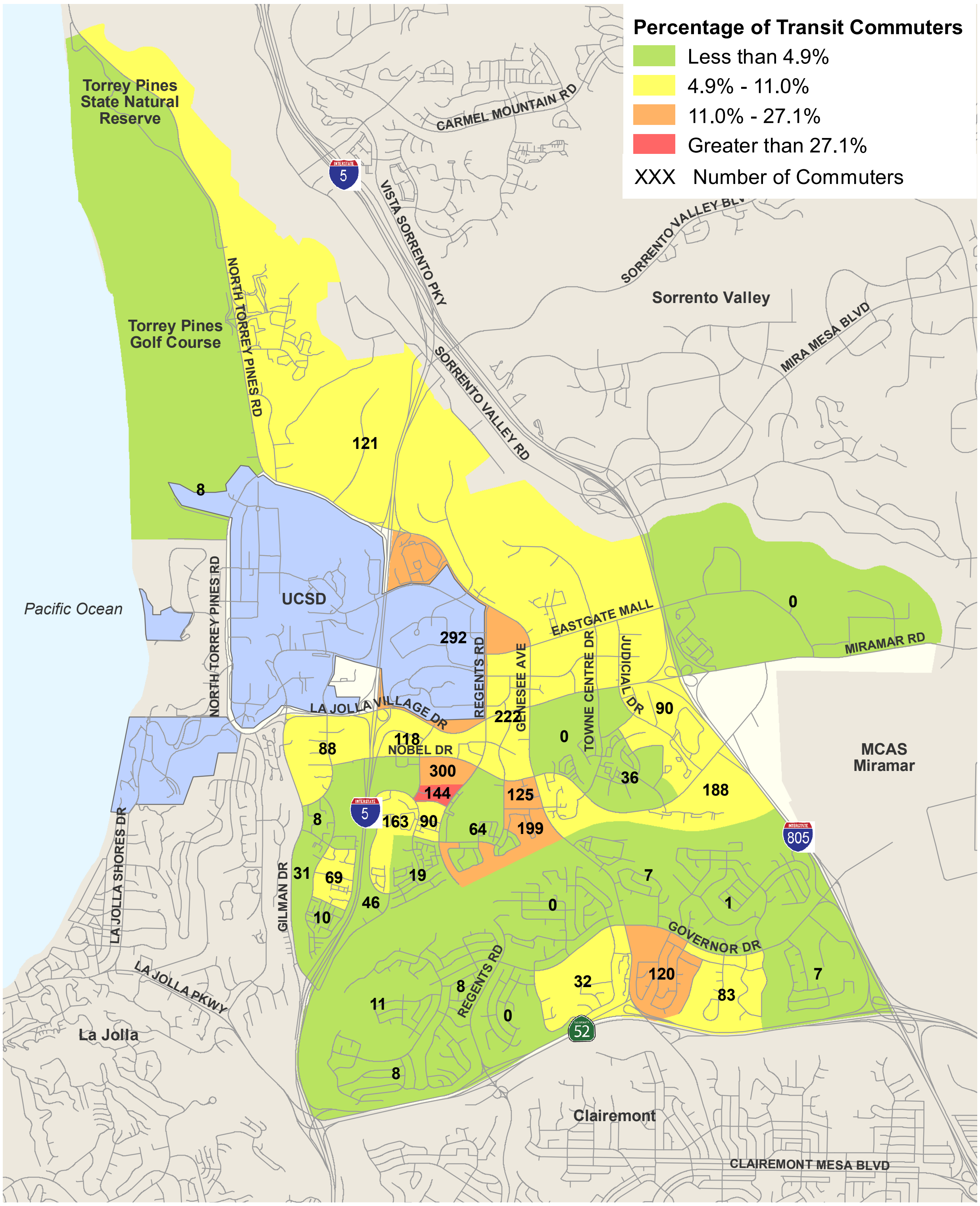
*FY2017 Spring Ridership
Source: SANDAG

Table 6-3 University Community Transit Stops with Most Passengers

Transit Stops with Most Passengers	Boardings and Alightings
Westbound Gilman Dr/Myers Dr	5,321
Eastbound Gilman Dr/Myers Dr	3,696
Northbound Gilman Dr/Eucalyptus Grove Ln	2,369
Southbound Genesee Av/La Jolla Village Dr	1,403
Southbound Gilman Dr/Eucalyptus Grove Ln	1,348
Eastbound La Jolla Village Dr/Regents Rd	951
Southbound Palmilla Dr/Lebon Dr	904
Southbound Regents Rd/Nobel Dr	862
Westbound La Jolla Village Dr/Regents Rd	855
Westbound Arriba/Regents Rd	805

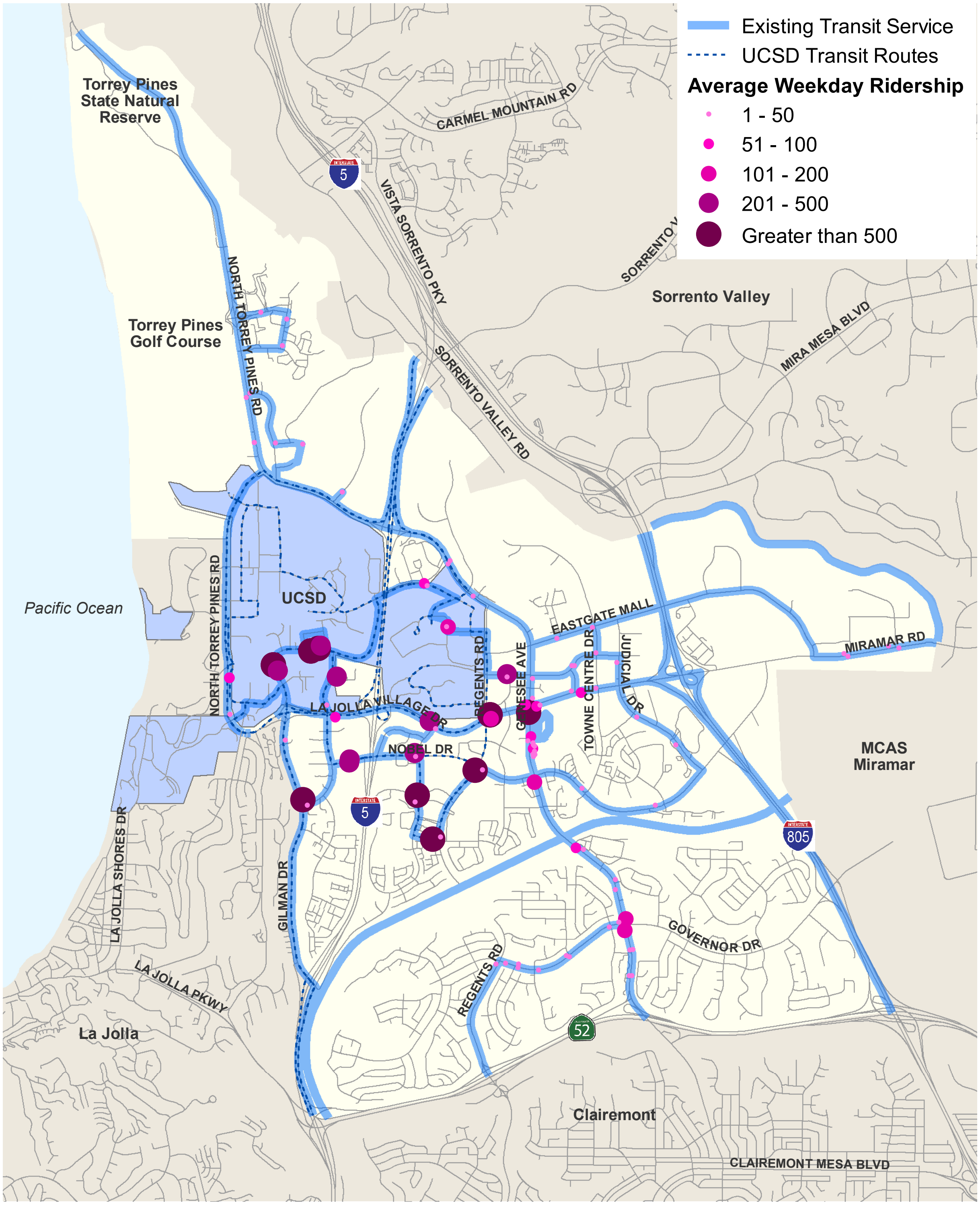
*FY2017 Spring Ridership
Source: SANDAG

FIGURE 6-2



Transit Commute Mode Share by Census Block Group

FIGURE 6-3



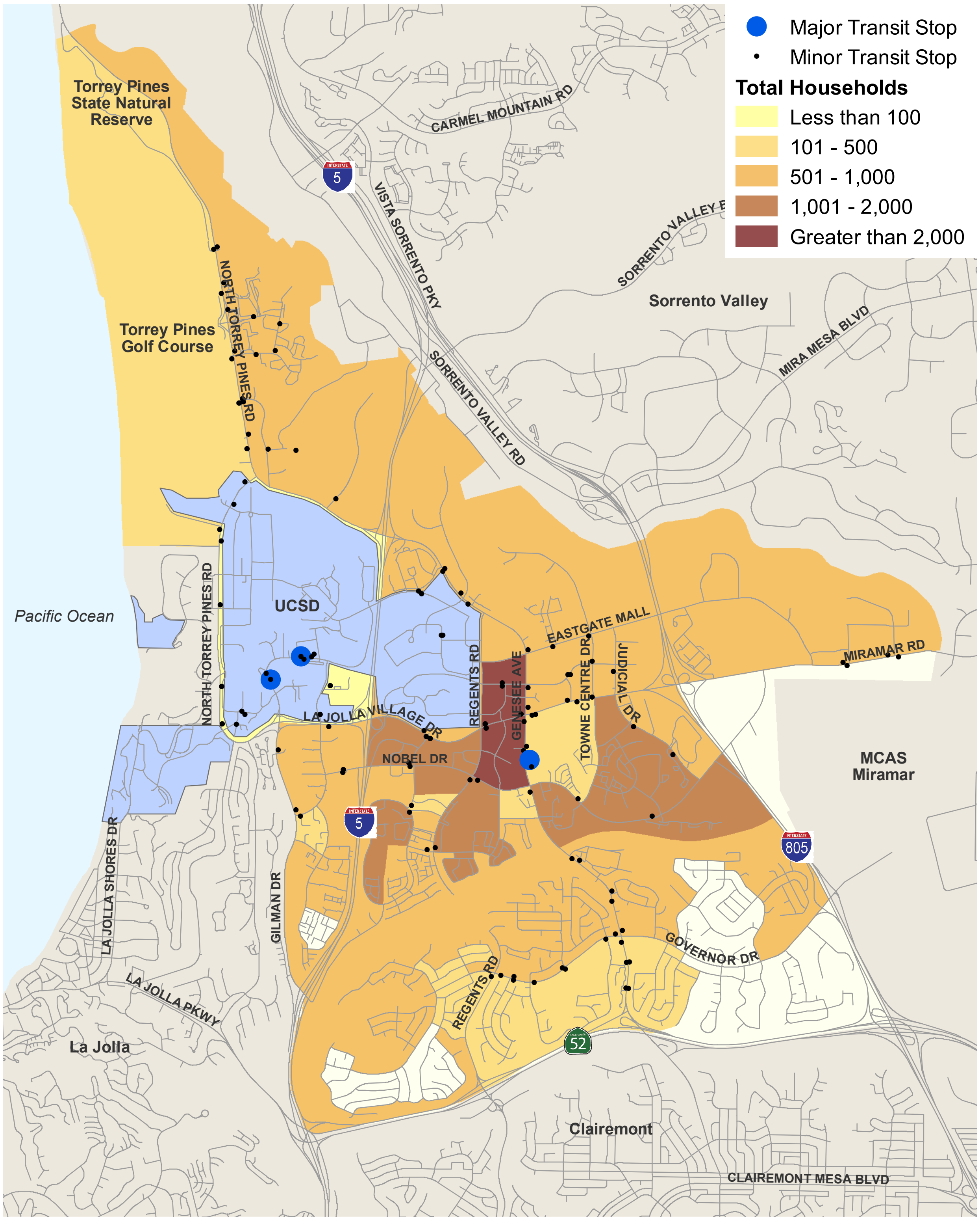
Transit Ridership by Stop

Housing units are concentrated towards the center of the community, largely between Regents Road and Genesee Avenue, between Eastgate Mall and Nobel Drive. Housing units are also found south of La Jolla Village Drive, but in generally slightly lower densities. By contrast, employment density is focused on the northern ends of the community. Jobs are largely concentrated north of Genesee Avenue as well as on the UCSD campus. A significant number of office towards are also located along La Jolla Village Drive, largely between Towne Centre Drive and I-5. Thus, transit demand for work commuters may focus on providing access to the businesses in the northern areas of the community and along La Jolla Village Drive, whereas resident-focused service may be in greater demand in the central and southern ends of the community. Housing and employment density are shown in **Figure 6-44** and **Figure 6-5**, respectively.

Table 6-4 Housing and Employment near Transit

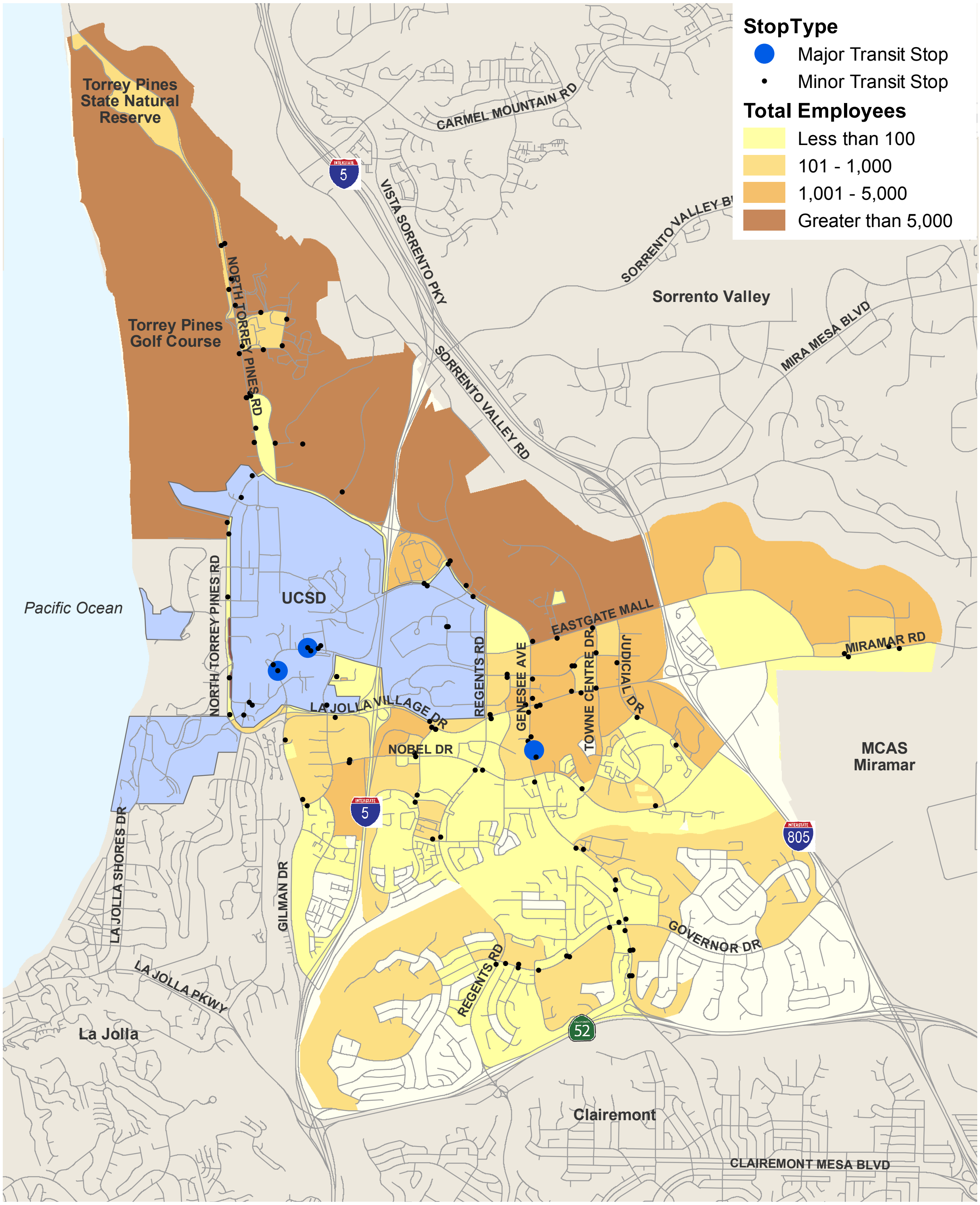
Demographic Unit	Total in University Community
Housing Units	22,854
Jobs	*78,727*

FIGURE 6-4



Housing Density near Transit

FIGURE 6-5



Employment Density near Transit

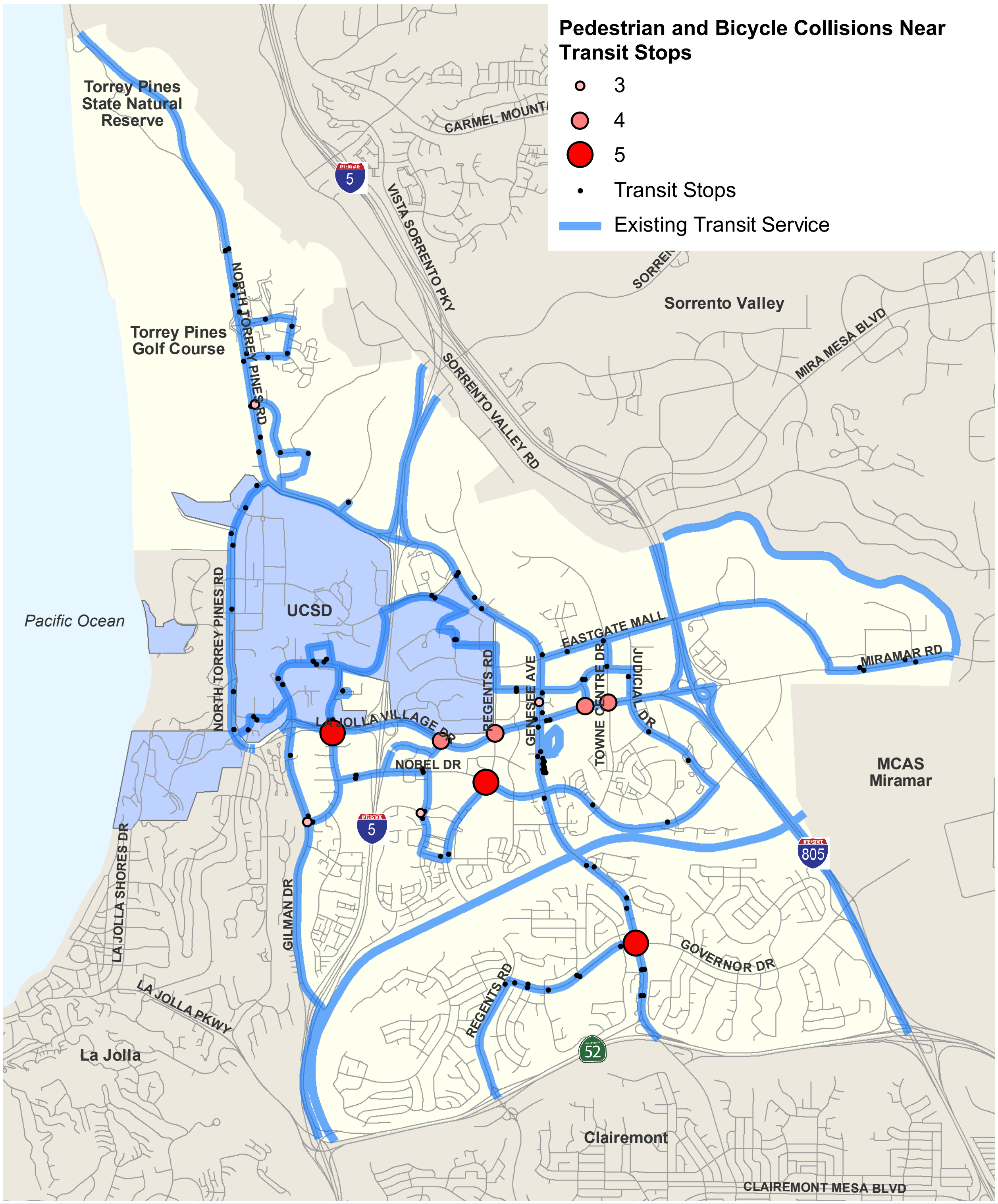
SAFETY NEAR A TRANSIT STOP/STATION

Between October 2012 and September 2017, there were a total of 92 reported pedestrian- and bicycle-related collisions within 500 feet of a transit stop within the University community. In the State of California, collision reports must be generated for any collision where property damage totals 750 dollars or more, someone is injured or someone is killed. As a result, it is important to note some bicycle incidents may go unreported for failing to meet one of these criteria. **Figure 6-6** displays the pedestrian- and bicycle-involved collision locations near transit stops across the community, as included in **Appendix A**. These collision locations are identified in **Table 6-5.**

Table 6-5 Most Frequent Collision Locations near Transit Stops

Rank	Intersections	Collisions
1	La Jolla Village Drive & Villa La Jolla Drive	5
1	Nobel Drive & Regents Road	5
1	Genesee Avenue & Governor Drive	5
2	Executive Way & La Jolla Village Drive	4
2	La Jolla Village Drive & Regents Road	4
2	La Jolla Village Drive & Town Centre Drive	4
2	La Jolla Village Drive & Lebon Drive	4
3	Charmant Drive/Palmilla Drive & Lebon Drive	3
3	Genesee Avenue & Executive Square	3
3	Gilman Drive (South) & Villa La Jolla Drive (South)	3
3	John Jay Hopkins Drive & North Torrey Pines Road	3

FIGURE 6-6



Bicycle and Pedestrian Collisions within 500 feet of Transit (2012-2017)

TRANSIT STATION QUALITY

The rider amenities provided at each stop are presented in **Table 6-6**. For each stop, the amenities present are compared against the standard suite of amenities as identified in the MTS Designing for Transit Manual. Of particular interest are stations which do not meet ADA standards. ADA-accessible stations must have sidewalks with sufficient width, a landing area for a bus ramp, and space for seating underneath a shelter (where present). The MTS stops listed below did not meet ADA requirements; *italics* represent stops serving more than one route. Of the 104 stops assessed, 37 were found to have ADA deficiencies.

Route 30
10391 - La Jolla Village Dr/Lebon Dr
11548 - Gilman Dr/Eucalyptus Grove Ln
11923 - La Jolla Village Dr/Genesee Av
12634 - N Torrey Pines Rd/Revelle College Dr

Route 31
10074 - Miramar Rd/Miramar Mall
11210 - Miramar Rd/Miramar Mall
12348 - Genesee Av/Executive Dr
13387 - Genesee Av/La Jolla Village Dr
99075 - Executive Dr/Executive Wy
99159 - Towne Center Dr/Executive Dr

Route 41
10391 - La Jolla Village Dr/Lebon Dr
11921 - Genesee Av/Esplanade Ct
11923 - La Jolla Village Dr/Genesee Av
12354 - Genesee Av/Calgary Dr
12355 - Genesee Av/April Ct
12668 - Genesee Av/Decoro St
12678 - Genesee Av/Radcliffe Ln
13133 - Genesee Av/Centurion Sq
13143 - Genesee Av/Centurion Sq
99185 - Genesee Av/Esplanade Ct

Route 50
12354 - Genesee Av/Calgary Dr
12668 - Genesee Av/Decoro St
12678 - Genesee Av/Radcliffe Ln
13133 - Genesee Av/Centurion Sq
13143 - Genesee Av/Centurion Sq

Route 60
99197 - La Jolla Village Dr/Towne Center Dr

Route 105
12354 - Genesee Av/Calgary Dr
12668 - Genesee Av/Decoro St
13133 - Genesee Av/Centurion Sq
13143 - Genesee Av/Centurion Sq

Route 150
10391 - La Jolla Village Dr/Lebon Dr
11548 - Gilman Dr/Eucalyptus Grove Ln
11923 - La Jolla Village Dr/Genesee Av

Route 201
11548 - Gilman Dr/Eucalyptus Grove Ln
11909 - Palmilla Dr/Lebon Dr
12662 - Regents Rd/Arriba St

Route 202
11154 - Arriba St/Regents Rd
11915 - Regents Rd/Nobel Dr
99932 - Lebon Dr/Palmilla Dr

Route 204
99075 - Executive Dr/Executive Wy

Route 237
11923 - La Jolla Village Dr/Genesee Av

Route 921
99197 - La Jolla Village Dr/Towne Center Dr

Route 978
11882 - N Torrey Pines Rd/Scripps Clinic Drwy
98544 - 10240 Science Center Dr
98545 - John Hopkins Ct/General Atomics
98546 - 3033 Science Park Rd
98547 - Torreyana Rd/ Science Park Rd
98548 - 11099 Callan Rd
98562 - General Atomics Ct/John Hopkins Dr
98563 - John Hopkins Dr/N Torrey Pines Rd
98564 - Torreyana Rd/Callan Rd

Route 979
11913 - Genesee Av/Campus Point Dr
12348 - Genesee Av/Executive Dr
13387 - Genesee Av/La Jolla Village Dr
21706 - Genesee Av/Eastgate Mall
21787 - Genesee Av/Scripps Hospital
99159 - Towne Center Dr/Executive Dr
99184 - Eastgate Mall/Towne Centre Dr

Table 6-6 Transit Stop Amenities

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
Route #30												
10374	Yes	Gilman Dr/Myers Dr	430	X	X	X	X	X	X	X	X	X
10378	Yes	La Jolla Village Dr/Villa La Jolla Dr	15	X	X	X	X	X	X	X	X	X
10391	No	La Jolla Village Dr/Lebon Dr	7	X	X		X					
10400	No	La Jolla Village Dr/Regents Rd	8	X	X	X	X		X	X	X	X
10772	No	Gilman Dr/Myers Dr	157	X	X	X	X	X	X		X	X
10793	No	La Jolla Village Dr/Regents Rd	319	X	X	X	X		X	X	X	X
11153	No	La Jolla Village Dr/Lebon Dr	82	X	X	X	X					
11548	No	Gilman Dr/Eucalyptus Grove Ln	73	X	X		X				X	X
11923	No	La Jolla Village Dr/Genesee Av	37	X	X		X			X		
12310	Yes	N Torrey Pines Rd/La Jolla Shores Dr	92	X	X	X	X		X	X	X	X
12320	No	Gilman Dr/Eucalyptus Grove Ln	66	X	X	X	X				X	
12634	No	N Torrey Pines Rd/Revelle College Dr	6	X	X		X					
13091	Yes	VA Hospital	122	X	X	X	X	X	X	X	X	X
13171	Yes	Genesee Av/La Jolla Village Dr	4	X	X	X	X	X	X	X	X	X
95034	Yes	UTC Transit Center	229	X	X	X	X	X	X	X	X	X
99931	Yes	Villa La Jolla Dr/La Jolla Village Dr	23	X	X	X	X	X				X
Route #31												
10074	No	Miramar Rd/Miramar Mall	2	X			X					
10444	Yes	Miramar Rd/Miramar Pl	2	X	X	X	X					
11210	No	Miramar Rd/Miramar Mall	3	X	X		X					
11214	Yes	Miramar Rd/Miramar Pl	2	X	X	X	X					X
13171	Yes	Genesee Av/La Jolla Village Dr	1	X	X	X	X	X	X	X	X	X

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
13387	No	Genesee Av/La Jolla Village Dr	8	X	X		X			X		
99186	Yes	UTC Transit Center	74	X	X	X	X	X	X	X	X	X
Route #41												
10378	Yes	La Jolla Village Dr/Villa La Jolla Dr	62	X	X	X	X	X	X	X	X	X
10391	No	La Jolla Village Dr/Lebon Dr	42	X	X		X					
10400	No	La Jolla Village Dr/Regents Rd	46	X	X	X	X		X	X	X	X
10793	No	La Jolla Village Dr/Regents Rd	320	X	X	X	X		X	X	X	X
11153	No	La Jolla Village Dr/Lebon Dr	73	X	X	X	X					
11572	Yes	Genesee Av/Decoro St	35	X	X	X	X		X	X	X	X
11576	Yes	Genesee Av/April Ct	0	X	X	X	X					
11903	No	Gilman/Myers	700	X	X	X	X	X	X		X	X
11921	No	Genesee Av/Esplanade Ct	44	X	X		X	X		X		
11923	No	La Jolla Village Dr/Genesee Av	24	X	X		X			X		
11924	No	Genesee Av/Nobel Dr	56	X	X	X	X		X	X	X	X
11935	Yes	Genesee Av/Calgary Dr	4	X	X	X	X					
11937	No	Genesee Av/Governor Dr	91	X	X	X	X		X	X	X	X
11938	Yes	Genesee Av/Radcliffe Ln	12	X	X	X	X					
12354	No	Genesee Av/Calgary Dr	11	X	X							X
12355	No	Genesee Av/April Ct	0	X	X							
12668	No	Genesee Av/Decoro St	104	X	X		X	X				
12677	No	Genesee Av/Governor Dr	127	X	X	X	X		X	X	X	X
12678	No	Genesee Av/Radcliffe Ln	21	X	X		X					
13091	Yes	VA Hospital	200	X	X	X	X	X	X	X	X	X
13133	No	Genesee Av/Centurion Sq	18	X	X		X				X	

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
13143	No	Genesee Av/Centurion Sq	22	X	X		X	X				X
13171	Yes	Genesee Av/La Jolla Village Dr	114	X	X	X	X	X	X	X	X	X
99185	No	Genesee Av/Esplanade Ct	14	X	X		X	X		X		
99931	Yes	Villa La Jolla Dr/La Jolla Village Dr	6	X	X	X	X	X				X
Route #50												
11572	Yes	Genesee Av/Decoro St	10	X	X	X	X		X	X	X	X
11576	Yes	Genesee Av/April Ct	0	X	X	X	X					
11924	No	Genesee Av/Nobel Dr	10	X	X	X	X		X	X	X	X
11935	Yes	Genesee Av/Calgary Dr	2	X	X	X	X					
11937	No	Genesee Av/Governor Dr	38	X	X	X	X		X	X	X	X
11938	Yes	Genesee Av/Radcliffe Ln	2	X	X	X	X					
12354	No	Genesee Av/Calgary Dr	1	X	X							X
12668	No	Genesee Av/Decoro St	0	X	X		X	X				
12677	No	Genesee Av/Governor Dr	9	X	X	X	X		X	X	X	X
12678	No	Genesee Av/Radcliffe Ln	1	X	X		X					
13133	No	Genesee Av/Centurion Sq	7	X	X		X				X	
13143	No	Genesee Av/Centurion Sq	3	X	X		X	X				X
95032	Yes	UTC Transit Center	94	X	X	X	X	X	X	X	X	X
Route #60												
10409	Yes	La Jolla Village Dr/Executive Wy	20	X	X	X	X		X	X	X	X
11167	Yes	La Jolla Village Dr/Executive Wy	0	X	X	X	X	X				X
13171	Yes	Genesee Av/La Jolla Village Dr	0	X	X	X	X	X	X	X	X	X
95036	Yes	La Jolla Village Dr/Genesee Av	26	X	X	X	X	X	X	X	X	X
95037	Yes	UTC Transit Center	-	X	X	X	X	X	X	X	X	X

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
99197	No	La Jolla Village Dr/Towne Center Dr	0	X	X		X					
Route #101												
11539	Yes	N Torrey Pines Rd/Science Park Rd South	5	X	X	X						
21663	No	N Torrey Pines Rd/Golf Course	-	X	X							
11541	Yes	N Torrey Pines Rd/Science Park Rd	21	X	X	X	X		X	X	X	X
21665	No	N Torrey Pines Rd/Science Park Rd	5	X	X							
24959	Yes	N Torrey Pines Rd/John J. Hopkins Dr	35	X	X	X	X	X	X	X		X
13141	Yes	N Torrey Pines Rd/John J. Hopkins Dr	11	X	X	X	X	X	X	X		X
11882	No	N Torrey Pines Rd/Scripps Clinic Drwy	-	X	X		X					X
12639	No	N Torrey Pines Rd/Scripps Clinic Drwy	2	X	X		X	X				X
11885	No	N Torrey Pines Rd/Genesee Ave	9	X	X		X					X
12316	No	N Torrey Pines Rd/North Point Dr	-	X	X		X					
11538	No	N Torrey Pines Rd/Torrey Pines Scenic Dr	21	X	X		X	X				
12311	No	N Torrey Pines Rd/Torrey Pines Scenic Dr	-	X	X		X	X				
11877	Yes	N Torrey Pines Rd/Salk Institute	-	X	X	X		X				
11875	Yes	N Torrey Pines Rd/Almahurst Rw	-	X	X	X	X	X	X		X	
12631	No	N Torrey Pines Rd/Muir College Dr	24	X	X		X					X
11876	No	N Torrey Pines Rd/La Jolla Shores Dr	-	X	X							
12310	Yes	N Torrey Pines Rd/La Jolla Shores Dr	-	X	X	X	X	X	X	X	X	X
12634	No	N Torrey Pines Rd/Revelle College Dr	3	X	X		X					
24149	No	Revelle College Dr/N Torrey Pines Rd	-	X	X							X
24151	No	Scholars Dr South/Revelle College Dr	6	X	X		X			X		X
24150	No	Scholars Dr South/Revelle College Dr	0	X	X		X			X		X
12320	No	Gilman Dr/Eucalyptus Grove Ln	10	X	X	X	X				X	

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
11548	No	Gilman Dr/Eucalyptus Grove Ln	-	X	X		X				X	X
10374	Yes	Gilman Dr/Myers Dr	70	X	X	X	X	X	X	X	X	X
10772	No	Gilman Dr/Myers Dr	97	X	X	X	X	X	X		X	X
13091	Yes	VA Hospital	142	X	X	X	X	X	X	X	X	X
99931	Yes	Villa La Jolla Dr/La Jolla Village Dr	9	X	X	X	X	X				
13058	No	Nobel Dr/La Jolla Village Square Drwy	28	X	X	X	X		X	X	X	X
10391	No	La Jolla Village Dr/Lebron Dr	1	X	X		X					
10400	Yes	La Jolla Village Dr/Regents Rd	0	X	X	X	X		X	X	X	X
10793	No	La Jolla Village Dr/Regents Rd	59	X	X	X	X		X	X	X	X
11923	No	La Jolla Village Dr/Genesee Ave	15	X	X		X			X		
95034	No	UTC	-	X	X	X	X	X	X	X	X	X
Route #105												
10049	Yes	Governor Dr/Radcliffe Dr	1	X	X	X	X	X				
10401	Yes	Governor Dr/Regents Rd	12	X	X	X	X	X				
10404	Yes	Governor Dr/Scripps St	7	X	X	X	X	X				
10408	Yes	Governor Dr/Stadium St	1	X	X	X	X	X				
10412	Yes	Governor Dr/Mercer St	1	X	X	X	X	X				
10798	Yes	Governor Dr/Scripps St	13	X	X	X	X	X				
11170	Yes	Governor Dr/Mercer St	3	X	X	X		X				
11177	Yes	Governor Dr/Genesee Av	19	X	X	X	X		X	X	X	X
11572	Yes	Genesee Av/Decoro St	4	X	X	X	X		X	X	X	X
11924	No	Genesee Av/Nobel Dr	8	X	X	X	X		X	X	X	X
11935	Yes	Genesee Av/Calgary Dr	1	X	X	X	X					
12354	No	Genesee Av/Calgary Dr	1	X	X							X

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
12668	No	Genesee Av/Decoro St	0	X	X		X	X				
12677	No	Genesee Av/Governor Dr	11	X	X	X	X		X	X	X	X
13133	No	Genesee Av/Centurion Sq	5	X	X		X				X	
13143	No	Genesee Av/Centurion Sq	2	X	X		X	X				X
99186	Yes	UTC Transit Center	-	X	X	X	X	X	X	X	X	X
99852	Yes	Regents Rd/Governor Dr	9	X	X	X	X	X				
Route #150												
10374	Yes	Gilman Dr/Myers Dr	103	X	X	X	X	X	X	X	X	X
10378	Yes	La Jolla Village Dr/Villa La Jolla Dr	4	X	X	X	X	X	X	X	X	X
10391	No	La Jolla Village Dr/Lebon Dr	4	X	X		X					
10400	No	La Jolla Village Dr/Regents Rd	2	X	X	X	X		X	X	X	X
10772	No	Gilman Dr/Myers Dr	302	X	X	X	X	X	X		X	X
10793	No	La Jolla Village Dr/Regents Rd	118	X	X	X	X		X	X	X	X
11153	No	La Jolla Village Dr/Lebon Dr	46	X	X	X	X					
11548	No	Gilman Dr/Eucalyptus Grove Ln	233	X	X		X				X	X
11923	No	La Jolla Village Dr/Genesee Av	33	X	X		X			X		
12320	No	Gilman Dr/Eucalyptus Grove Ln	19	X	X	X	X				X	
12326	Yes	Gilman Dr/Villa La Jolla Dr	94	X	X	X	X	X	X	X	X	X
13091	Yes	VA Hospital	307	X	X	X	X	X	X	X	X	X
13171	Yes	Genesee Av/La Jolla Village Dr	2	X	X	X	X	X	X	X	X	X
13278	Yes	Gilman Dr/Evening Way	7	X	X	X	X					
95032	Yes	UTC Transit Center	127	X	X	X	X	X	X	X	X	X
99931	Yes	Villa La Jolla Dr/La Jolla Village Dr	16	X	X	X	X	X				X
Route #201												

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
10034	Yes	Nobel Dr/Lebon Dr	17	X	X	X	X	X	X	X	X	X
10399	Yes	Nobel Dr/Regents Rd	13	X	X	X	X		X	X	X	X
10772	No	Gilman Dr/Myers Dr	1253	X	X	X	X	X	X		X	X
11548	No	Gilman Dr/Eucalyptus Grove Ln	336	X	X		X				X	X
11909	No	Palmilla Dr/Lebon Dr	28	X	X		X			X		
12662	No	Regents Rd/Arriba St	37	X	X					X		
13024	No	Nobel Dr/La Jolla Village Square Drwy	173	X	X	X	X		X	X	X	X
13092	Yes	Voigt Dr/Scripps Memorial Hospital	61	X	X	X	X	X	X		X	X
95031	Yes	UTC Transit Center	246	X	X	X	X	X	X	X	X	X
99459	No	Executive Dr/Regents Rd	240	X	X	X	X	X	X		X	X
99461	Yes	Medical Center Dr/Health Sciences Dr	0	X	X	X	X	X	X		X	X
99463	Yes	Villa La Jolla Dr/Gilman Dr	33	X	X	X	X	X	X	X	X	X
Route #202												
10374	Yes	Gilman Dr/Myers Dr	556	X	X	X	X	X	X	X	X	X
11151	No	Nobel Dr/Lebon Dr	175	X	X	X	X	X	X		X	X
11154	No	Arriba St/Regents Rd	301	X	X		X			X		X
11915	No	Regents Rd/Nobel Dr	328	X	X		X			X	X	
12320	No	Gilman Dr/Eucalyptus Grove Ln	114	X	X	X	X				X	
12326	Yes	Gilman Dr/Villa La Jolla Dr	154	X	X	X	X	X	X	X	X	X
13058	No	Nobel Dr/La Jolla Village Square Drwy	271	X	X	X	X		X	X	X	X
95030	Yes	UTC Transit Center	317	X	X	X	X	X	X	X	X	X
99200	Yes	Voigt Dr/Scripps Memorial Hospital	20	X	X	X	X	X	X		X	X
99460	Yes	Executive Dr/Regents Rd	7	X	X	X	X	X	X		X	X
99462	Yes	Medical Center Dr/Health Sciences Dr	29	X	X	X	X	X	X		X	X

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
99932	No	Lebon Dr/Palmilla Dr	303	X	X		X			X		
Route #204												
13267	Yes	Nobel Dr/Towne Centre Dr	10	X	X	X	X		X	X	X	X
95033	Yes	UTC Transit Center	154	X	X	X	X	X	X	X	X	X
99075	No	Executive Dr/Executive Wy	8	X	X							
99194	Yes	Judicial Dr/Research Pl	18	X	X	X	X	X	X	X	X	X
99586	Yes	Judicial Dr/Golden Haven Dr	107	X	X	X	X	X	X	X	X	X
99587	Yes	Judicial Dr/Executive Dr	1	X	X	X		X				
99588	Yes	Nobel Dr/Shoreline Dr	12	X	X	X	X		X			
Route #237												
10400	No	La Jolla Village Dr/Regents Rd	-	X	X	X	X		X	X	X	X
10793	No	La Jolla Village Dr/Regents Rd	-	X	X	X	X		X	X	X	X
11902	No	Gilman/Myers	197	X	X	X	X	X	X		X	X
11923	No	La Jolla Village Dr/Genesee Av	7	X	X		X			X		
12320	No	Gilman Dr/Eucalyptus Grove Ln	2	X	X	X	X				X	
13263	Yes	La Jolla Village Dr/Genesee Av	86	X	X	X	X	X	X	X	X	X
Route #921												
10409	Yes	La Jolla Village Dr/Executive Wy	43	X	X	X	X		X	X	X	X
11167	Yes	La Jolla Village Dr/Executive Wy	4	X	X	X	X	X				X
13171	Yes	Genesee Av/La Jolla Village Dr	-	X	X	X	X	X	X	X	X	X
95036	Yes	La Jolla Village Dr/Genesee Av	46	X	X	X	X	X	X	X	X	X
95039	Yes	UTC Transit Center	-	X	X	X	X	X	X	X	X	X
99197	No	La Jolla Village Dr/Towne Center Dr	13	X	X		X					
Route #978												

Stop ID	Meets Standards?*	Stop Location	Boardings	Sign and Pole	Route Designation	ADA	Bench	Expanded Sidewalk	Shelter	Time Table	Trash Container	Lighting
11882	No	N Torrey Pines Rd/Scripps Clinic Drwy	20	X	X		X					X
13130	Yes	N Torrey Pines Rd/John Hopkins Dr	3	X	X	X	X	X	X	X	X	X
98544	No	10240 Science Center Dr	4									
98545	No	John Hopkins Ct/General Atomics	4									
98546	No	3033 Science Park Rd	5									
98547	No	Torreyana Rd/Road to the Cure	0									
98548	No	11099 Callan Rd	2									
98562	No	General Atomics Ct/John Hopkins Dr	2									
98563	No	John Hopkins Dr/N Torrey Pines Rd	1									
98564	No	Torreyana Rd/Callan Rd	3									
Route #979												
11913	No	Genesee Av/Campus Point Dr	4	X	X		X					X
12348	No	Genesee Av/Executive Dr	6	X	X		X					
13387	No	Genesee Av/La Jolla Village Dr	12	X	X		X			X		
21195	Yes	Genesee Av/Scripps Hospital	4	X	X	X	X	X				
21700	Yes	Genesee Av/Campus Point Dr	3	X	X	X	X	X				
21706	No	Genesee Av/Eastgate Mall	0	X	X		X					
21787	No	Genesee Av/Scripps Hospital	7	X	X		X					
99046	Yes	Executive Dr/Executive Way	2	X	X	X	X	X	X		X	
99159	No	Towne Center Dr/Executive Dr	8	X	X		X					
99183	Yes	Eastgate Mall/Easter Wy	0	X	X	X		X				
99184	No	Eastgate Mall/Towne Centre Dr	7	X	X							

Notes:
*For stops serving multiple routes, minimum transit amenity requirements are based on total boardings from all routes that serve that stop.

X	Meets minimum standard
	Does not meet minimum standard
X	Amenity exceed minimum standard
	Amenity not required per minimum standard

TRANSIT STATION CONNECTIONS

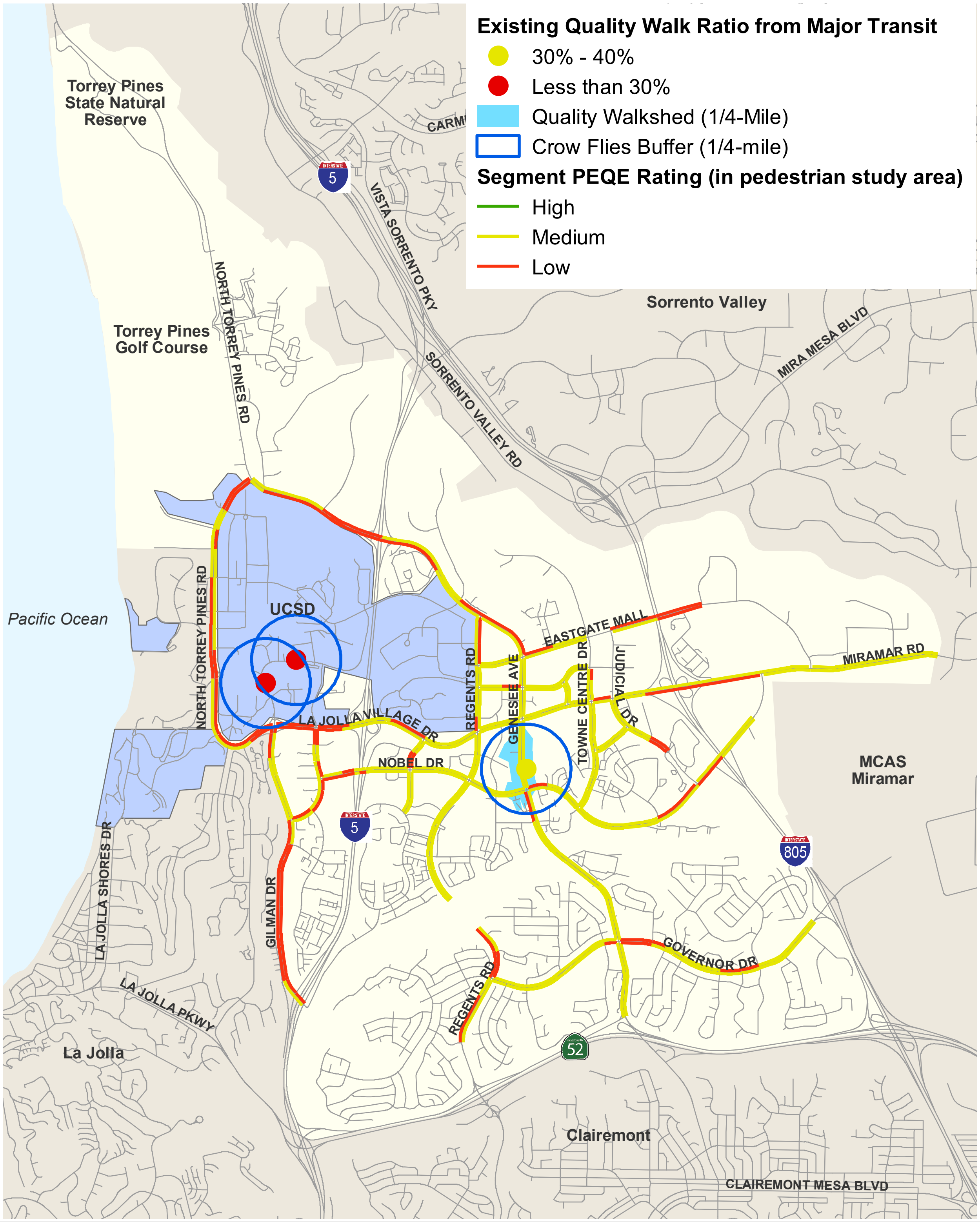
To access the transit system, passengers in the community must walk or bike to a transit stop. High-stress and missing connections in the bicycle and pedestrian networks limit the areas accessible by transit and depresses ridership. First-mile and last-mile connections in the community were assessed by considering the connectivity of bicycle and pedestrian facilities in the areas around major transit stops.

As noted previously in **Section 3**, a major transit station is defined in part as "the intersection of two or more major bus routes each having a frequency of service of 15 minutes or less during the morning and afternoon peak commute periods." The University community has three locations that meet this criteria at the UTC Transit Center, Gilman Transit Center, and the Gilman Drive & Eucalyptus Grove Lane bus stop.

The quality connections assessment draws from the quality walking analysis and quality bicycle analysis results to identify quality ¼-mile pedestrian and ¾-mile bicycle networks surrounding major transit stations. These travelshed distances were obtained from *San Diego Forward: The Regional Plan, Appendix U4 – SANDAG Regional Transit Oriented Development Strategy*, and represent a five-minute travel distance for pedestrians and cyclists.

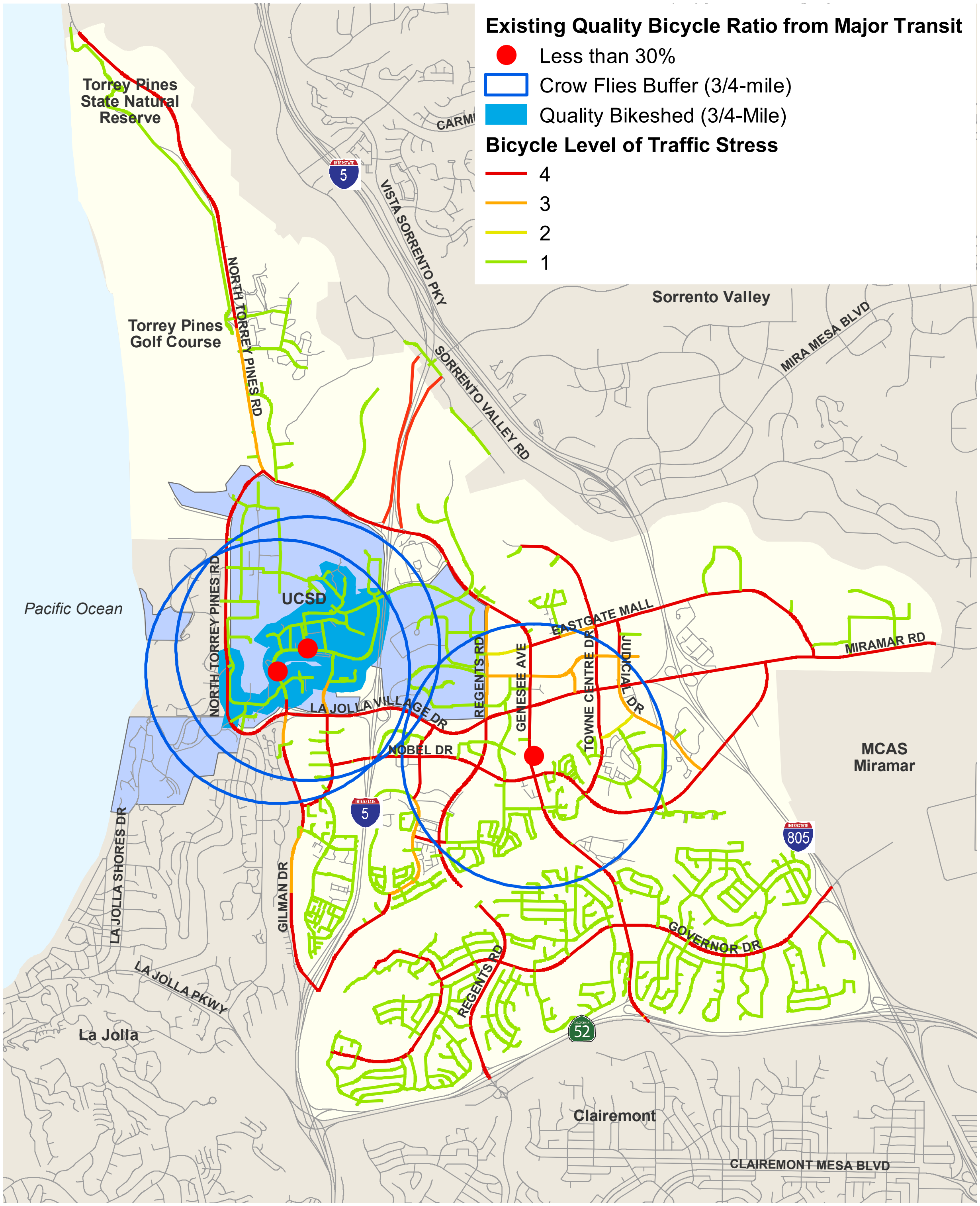
Only the UTC Transit Center has access to low- or medium stress pedestrian facilities immediately adjacent to the three major transit stops, resulting in a connectivity score between 30% and 40%. This connectivity score is the result of the super-blocks along Genesee Avenue that provide limited East-West access. Conversely, only the major transit stops along Gilman have access to BLTS level 1 or 2 facilities with both stops having connectivity scores less than 30%. Both scores result from the lack of access directly west of the stops and south of La Jolla Village Drive. The existing Quality Walk and Bicycle Ratios are shown below in **Figure 6-7** and **Figure 6-8**, respectively.

FIGURE 6-7



Existing Quality Walk Ratio from Major Transit Stations

FIGURE 6-8



Existing Quality Bicycle Ratio from Major Transit Stations

7 VEHICULAR MOBILITY

This section describes the layout and operations of the street system, including the results of existing conditions analyses at the study area intersections, roadway segments, corridors and freeways.

EXISTING SETTING

The following section provides a description of the existing Circulation Element streets within the University community, as shown in **Figure 7-1.** Ultimate roadway classifications are taken from the University Community Plan, last updated during the University Community Plan Amendment, approved December 2016. The portions of the roadways described are intended to reflect the areas within the community and may not reflect the entirety of the roadway.

Peak hour and daily traffic volumes were counted in 2015 as part of the University Community Plan Amendment Under a separate effort, in 2016 and 2017, the University of California San Diego collected counts within the community which were compared to previous counts. Due to continued construction of the Mid-Coast Trolley extension, I-5 Genesee Avenue Interchange, and private developments resulting in intermittent roadway and lane closures throughout the community it was concluded that traffic patterns used in the University Community Plan Amendment is representative of typical traffic patterns within the community. **Appendix E** contains the existing traffic volume data and validation count memo for this report.

URBAN STREETS

Eastgate Mall functions as a two-way east-west, 2 and 4-lane Collector. Between Regents Road and Genesee Avenue, Eastgate Mall is a 2-lane Collector with a two-way left-turn lane, angled parking on both sides of the street and a curb to curb width of 70 feet. The posted speed limit is 25 mph. Between Genesee Avenue and Easter Way, Eastgate Mall is a 4-lane Collector with a two-way left-turn lane, no parking, bike lanes on both sides of the street and a curb to curb width of 70 feet. Eastgate Mall turns into a 4-lane Major Arterial with a raised median, no parking, bike lanes on both sides of the street and a curb to curb width of 70 feet between Easter Way and the I-805 Freeway Overpass. The posted speed limit is 35 mph and the road is lined with sidewalks and curbs on both sides of the street. Over the I-805 Freeway Overpass, Eastgate Mall transitions to a 2-lane Collector with a two-way left turn lane, no parking, bike lanes on both sides of the street, and a curb to curb width of 40 feet. The posted speed limit is 45 mph and is lined with sidewalks on the south side of the street and curbs on both sides. Eastgate Mall between Eastgate Drive and Miramar Road is classified as a 2-lane Collector with a two-way left-turn lane, and a curb to curb width of 50 feet. The posted speed limit is 45 mph and the roadway has sidewalk, curb, and parking on the north side of the street. The ultimate classification within the Adopted Community Plan for Eastgate Mall is a 4-lane Collector with two-way left turn lane between Regents Road and Genesee Avenue, a 4-lane Major Arterial between Genesee Avenue and Town Centre Drive and a 4-lane Collector with two-way left turn lane between Towne Centre Drive and Miramar Road. The City BMP proposes a Class II (Bike Lane) facility throughout the extents of the roadway.

Executive Drive functions as a two-way east-west, 4-lane Collector without a two-way left-turn lane and a curb to curb width of 60 feet from Regents Road to Regents Park Row. Between Regents Park Row and Judicial Drive, Executive Drive is a 4-lane Collector with a two-way left turn lane. Executive Drive is lined with sidewalks and curbs with parallel parking available on both sides of the street for the entire length of the street except for the segment between Regents Park Row and Genesee Avenue. The posted speed limit is 30 mph. Executive Drive has been built to the ultimate classification within the Adopted Community Plan except for the segment between Towne Centre Drive and Judicial Drive which is classified as a 4-lane Major Arterial. The City BMP proposes Executive Drive as a Class III (Bike Route) facility.

Executive Way functions as a two-way north-south, 4-lane Collector with a two-way left-turn lane and a curb to curb width of 70 feet. Executive Way is lined with sidewalks and curbs with parallel parking available on both sides of the street for the entire length of the street. Executive Way has reached its ultimate classification within the Adopted Community Plan.

Genesee Avenue functions as a two-way north-south, 4 and 6-lane Arterial. Between North Torrey Pines Road and I-5, Genesee Avenue is a 6-lane Prime Arterial with bike lanes on both sides of the street, no parking, raised medians, and a curb to curb width ranging from 80 feet to 120 feet. Over I-5, Genesee Avenue turns into a 4-lane Major Arterial with no parking or bike lanes and a curb to curb width of 70 feet. Genesee Avenue is a 6-lane Prime Arterial between I-5 and Campus Point Drive and a 6-lane Major Arterial between Campus Point Drive and La Jolla Village Drive with bike lanes on both sides of the street, no parking, raised medians and a curb to curb width of 110 feet. Between La Jolla Village Drive and Esplanade Court, Genesee Avenue is a 4-lane Major Arterial with bike and bus lanes, raised medians, no parking, and a curb to curb width of 110 feet. Genesee Avenue between Esplanade Court and Nobel Drive is a 6-lane Major Arterial with no parking, bike lanes on both sides of the street, raised medians, and a curb to curb width of 110 feet. Between Nobel Drive and Lehrer Drive, Genesee Avenue is a 4-lane Major Arterial with parking on the West sides of the street between Nobel Drive and Decoro Street; and Governor Drive and Radcliff Lane, bike lanes on both sides of the street, raised medians, and a curb to curb width of 80 feet. Genesee Avenue is lined with sidewalks and curbs on both sides of the street for the entire length of the street. The posted speed limit is 45 mph. Access to I-5 and SR-52 is provided on Genesee Avenue. Genesee has reached the ultimate classification within the Adopted Community Plan on all roadway segments.

Gilman Drive functions as a two-way north-south, 4-lane Major Arterial between La Jolla Village Drive and Via Alicante with bike lanes on both sides of the street and a curb to curb width of 90 feet. Throughout this segment, Gilman Drive is lined with sidewalks and curbs with parallel parking available on the west side of the street between La Jolla Village Drive and Evening way, on both sides of the street between Evening Way and Villa La Jolla Drive, and on the east side between Villa La Jolla Drive and Via Alicante. Gilman Drive between Via Alicante and I-5 is also classified as a 4 Lane Major Arterial with bike lanes, raised medians, and a curb to curb width of 70 feet. Parallel parking is only available on the west side of the street in front of the housing development north of Gilman Court. Between the housing development and I-5, Gilman Drive is lined with sidewalks and curbs on the west side of the street. The posted speed limit is 45 mph. Access to I-5 is provided at the southern terminus of Gilman Drive. Gilman Drive has reached its ultimate adopted Community Plan Street Classification.

Golden Haven Drive functions as a two-way east-west, 4-lane Major Arterial with bike lanes on both sides of the street, no parking, raised medians and a curb to curb width of 74 feet. Golden Haven Drive is lined with sidewalks and curbs on both sides of the street for the entire length of the street. The posted speed limit is 35 mph. Golden Haven Drive has reached its ultimate classification within the Adopted Community Plan.

Governor Drive functions as a two-way east-west, 4-lane Major Arterial with raised medians and a curb to curb width of 70 feet. Governor Drive is lined with sidewalks and curbs on both sides of the street for the entire length of the street. Parallel parking is available on both sides of the street along most segments of the roadway west of Gullstrand Street. Bike lanes are on both sides of the street between Genesee Avenue and Gullstrand Street. The posted speed limit is 35 mph. Access to I-805 is provided at the eastern terminus of Governor Drive. Governor Drive has reached its ultimate classification within the Adopted Community Plan. The City BMP proposes Governor Drive west of Genesee Avenue as a Class II (Bike Lane) or III (Bike Route).

Judicial Drive functions as a two-way north-south, 4-lane Major Arterial with raised medians and a curb to curb width of 80 feet. Judicial Drive is lined with sidewalks and curbs on both sides of the street for the entire length of the street. Parallel parking is available north of Executive Drive with bike lanes on both sides of the street south of Executive Drive. Judicial Drive has reached its ultimate adopted Community Plan street classification. The City BMP proposes Judicial Drive as a Class II (Bike Lane) facility north of Executive Drive.

La Jolla Scenic Drive functions as a two-way north-south, 4-lane Major Arterial with raised medians and a curb to curb width of 80 feet. La Jolla Scenic Drive is lined with sidewalks and curbs with parallel parking available on both sides of the street for the entire length of the street. The La Jolla adopted Community Plan identifies La Jolla Scenic Drive as a 2-lane collector. The City BMP proposes La Jolla Scenic Drive as a Class II (Bike Lane) facility.

La Jolla Village Drive functions as a two-way east-west, 6-lane Prime Arterial between Revelle College Drive and the I-5 NB Ramps, a 6-lane Major Arterial between the I-5 NB Ramps and Towne Centre Drive, and a 7-lane Major Arterial between Towne Center Drive and the I-805 SB Ramps. La Jolla Village Drive has a curb to curb width of 120 feet and is lined with sidewalks and curbs on both sides of the street except between I-5 NB Ramps and Lebon Drive where sidewalk is only on the south side of the street. Parallel parking is available on both sides of the street east of I-5 NB Ramps to Executive Way and bike lanes are on both sides of the street west of La Jolla Scenic Drive. The posted speed limit is 45 mph. Access to I-5 and I-805 is provided along La Jolla Village Drive. The ultimate classification within the Adopted Community Plan for La Jolla Village Drive is an 8-lane Primary Arterial between Villa La Jolla Drive and the I-5 Ramps and Towne Centre Drive and the I-805 Ramps. All other segments of La Jolla Village Drive have reached their ultimate adopted Community Plan street classification. The City BMP proposes La Jolla Village Drive as a Class II (Bike Lane) facility.

Lebon Drive functions as a two-way north-south, 4 and 5-lane Major Arterial. Between Palmilla Drive and Nobel Drive, Lebon Drive is classified as a 4-lane Major Arterial with raised medians and a curb to curb width of 80 feet. Throughout this segment, parallel parking is available on both sides of the street. This segment is also classified as a Class III (Bike Route) facility. Lebon Drive between Nobel Drive and La Jolla Village Drive is classified as a 5-lane Major Arterial with raised medians, no parking, and a curb to curb width of 80 feet. Lebon Drive is lined with sidewalks and curbs on both sides of the street for the entire length of the street. The posted speed limit is 35 mph. The ultimate classification within the Adopted Community Plan for Lebon Drive has been reached. The City BMP proposes all of Lebon Drive as a Class II (Bike Facility) facility.

Miramar Road functions as a two-way east-west, 7 and 8-lane Prime Arterial. Miramar Road is classified as a 6-lane Prime Arterial between I-805 SB Ramps and I-805 NB Ramps, an 8-lane Prime Arterial between I-805 NB Ramps and Nobel Dr, and a 7-lane Prime Arterial between Nobel Dr and Eastgate Mall. The segments between I-805 SB Ramps and Eastgate Mall include raised medians, bike lanes, no parking and a curb to curb width of 124 feet. Between Eastgate Mall and Camino Santa Fe, Miramar Road is classified as a 6-lane Major Arterial with raised medians, bike lanes, no parking and a curb to curb width of 100 feet. Miramar Road is lined with sidewalks and curbs on both sides of the street east of Nobel Drive. West of Nobel Drive, Miramar Road has sidewalks and curbs on the north side of the street. Miramar Road has buffered bike lane facilities between Miramar Mall and Camino Sante Fe. The posted speed limit is 50 mph. Access to I-805 is provided on Miramar Road. The ultimate classification within the Adopted Community Plan for Miramar Road has been reached.

North Torrey Pines Road functions as a two-way north-south, 4 and 6-lane Arterial. Between Science Park Road and Genesee Avenue, North Torrey Pines Road is classified as a 6-lane Prime Arterial with raised medians, bike lanes, no parking, and a curb to curb width of 120 feet. Between Genesee Avenue and Revelle College Drive, North Torrey Pines Road is classified as a 4-lane Major Arterial with raised medians, bike lanes, no parking, and a curb to curb width of 80 feet. North Torrey Pines Road is lined with sidewalks and curbs on both sides of the street for the entire length of the street. The posted speed limit is 45 mph. The ultimate classification within the Adopted Community Plan for North Torrey Pines Road between Genesee Avenue and Torrey Pines Scenic Drive is a 6-lane Major Arterial. The ultimate classification within the Adopted Community Plan for North Torrey Pines Road has been reached for all other roadway segments.

Nobel Drive functions as a two-way east-west, 4, 5 and 6-lane Arterial. Between Villa La Jolla Drive and I-5 NB Ramps, Nobel Drive is classified as a 4-lane Major Arterial with raised medians, bike lanes, no parking, and a curb to curb width of 80 feet. Nobel Drive between I-5 NB Ramps and Genesee Avenue is classified as a 6-lane Major Arterial with raised medians and a curb to curb width of 100 feet. Parallel Parking is available on both sides of the street between I-5 NB Ramps and Regents Road. Throughout the rest of the segments, Nobel drive has bike lanes on both sides of the street. The posted speed limit is 40 mph. Nobel Drive turns into a 4-lane Major Arterial between Genesee Avenue and Towne Centre Drive with raised medians, parallel parking available on the south side of the street between Lombard Place and Via Las Rambles, on the north side of the street between Genesee Ave and Lombard Place, on both sides of the street between Via Las Rambles and Towne Centre Drive; and a curb to curb width of 90 feet. The posted speed limit is 35 mph. Between Towne Centre Drive and Judicial Drive, Nobel Drive is classified as a 6-lane Prime Arterial with raised medians, bike lanes, no parking, and a curb to curb width of 100 feet. The posted speed limit is 45 mph. Between Judicial Drive and Avenue of Flags, Nobel Drive is classified as a 5-lane Major Arterial with raised medians, bike lanes, no parking and a curb to curb width of 100 feet. Nobel Drive from Avenue of Flags to Miramar Road is classified as a 4-lane Prime Arterial with raised medians, bike lanes, no parking, and a curb to curb width of 80 feet. Nobel Drive is lined with sidewalks and curbs on both sides of the street for the entire length of the street. Access to I-5 and I-805 is provided along Nobel Drive. The ultimate classification within the Adopted Community Plan for Nobel Drive has been reached for all segments except between Genesee Avenue and Towne Centre Drive; and between Judicial Drive and I-805 which have an ultimate classification of a 6-lane Prime Arterial. The City BMP proposes Nobel Drive as a Class II (Bike Lane) facility between Genesee Avenue and Towne Centre Drive.

Regents Road functions as a two-way north-south roadway that is divided by Rose Canyon. North of Rose Canyon between Genesee Avenue and Eastgate Mall, Regents Road is classified as a 2-lane Collector without a two-way left-turn lane, buffered bike lanes, no parking, and a curb to curb width of 40 feet. The posted speed limit is 35 mph. Between Eastgate Mall and La Jolla Village Drive, Regents Road is classified as a 4-lane Collector with a two-way left-turn lane, bike lanes, no parking, and a curb to curb width of 65 feet. Regents

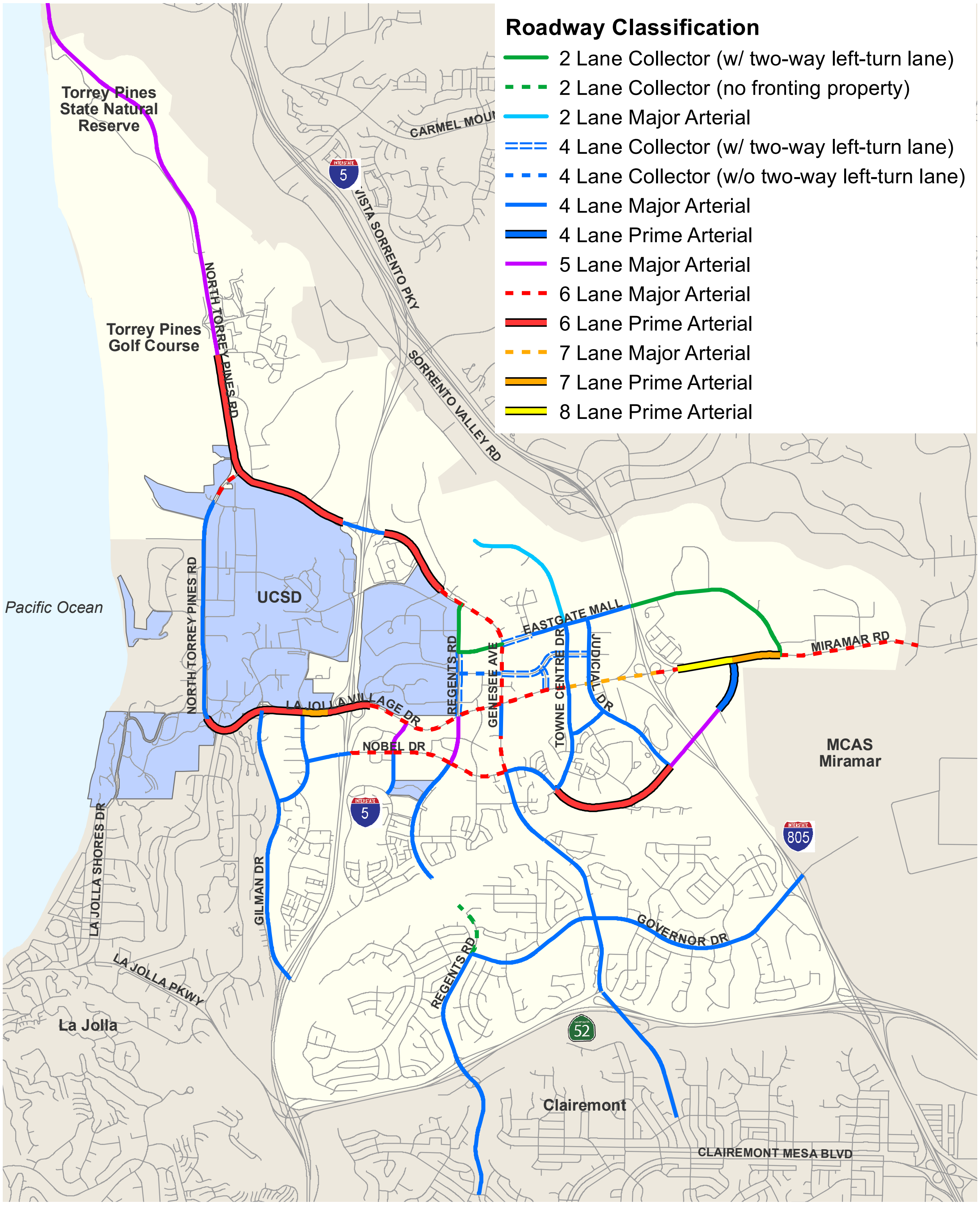
Road between La Jolla Village Drive and Nobel Drive is classified as a 5-lane Major Arterial with raised medians, parallel parking on both sides of the street south of Plaza de Palmas and a curb to curb width of 90 feet. South of Nobel Drive, Regents Road is classified as a 4-lane Major Arterial with raised medians, parallel parking on both sides of the street, and a curb to curb width of 70 feet. North of Rose Canyon, Regents Road is lined with sidewalks and curbs on both sides of the street for the entire length of the street. The posted speed limit is 40 mph. The City BMP proposes Regents Road as a Class II (Bike Lane) or a Class III (Bike Route) facility south of Nobel Drive. South of Rose Canyon and north of Governor Drive, Regents Road is classified as a 2-lane Collector with no fronting property, no parking and a curb to curb width of 30 feet. Between Governor Drive and Luna Avenue, Regents Road is classified as a 4-lane Major Arterial with raised medians, bike lanes, no parking, and a curb to curb width of 80 feet. Regents Road has buffered bike lanes between Pennant Way and Luna Avenue. South of Rose Canyon, Regents Road is lined with sidewalks and curbs on the east side of the street for the entire length of the street. The posted speed limit is 50 mph. Access to SR-52 is provided along Regents Road. The ultimate classification within the Adopted Community Plan for Regents Road is a 4-lane Major Arterial. The City BMP proposes Regents Road as a Class II (Bike Lane) or Class III (Bike Route) facility north of Governor Drive.

Torrey Pines Road functions as a two-way north-south, 4-lane Major Arterial with raised medians, bike lanes, and a curb to curb width of 60 feet. Torrey Pines Road is lined with sidewalks and curbs on both sides of the street for the entire length of the street. The ultimate classification within the La Jolla adopted Community Plan for Torrey Pines Road has been reached.

Towne Centre Drive functions as a two-way north-south, 4-lane Major Arterial with raised medians and a curb to curb width of 80 feet. Towne Centre Drive is lined with sidewalks and curbs on both sides of the street. Parallel parking available on both sides of the street for the majority of the street. Towne Centre Drive between Executive Drive and La Jolla Village Drive has bike lanes with no parking on both sides of the street. The posted speed limit is 40 mph. The ultimate classification within the Adopted Community Plan for Towne Centre Drive has been reached. The City BMP proposes Towne Centre Drive as a Class II (Bike Lane) or Class III (Bike Route) facility.

Villa La Jolla Drive functions as a two-way north-south roadway. South of La Jolla Village Drive, Villa La Jolla Drive is classified as a 4-lane Major Arterial with raised medians, parallel parking on both sides of the street, and a curb to curb width of 80 feet. Villa La Jolla Drive is lined with sidewalks and curbs on both sides of the street for the entire length of the street. The posted speed limit is 30 mph. The ultimate classification within the Adopted Community Plan for Villa La Jolla Drive has been reached.

FIGURE 7-1

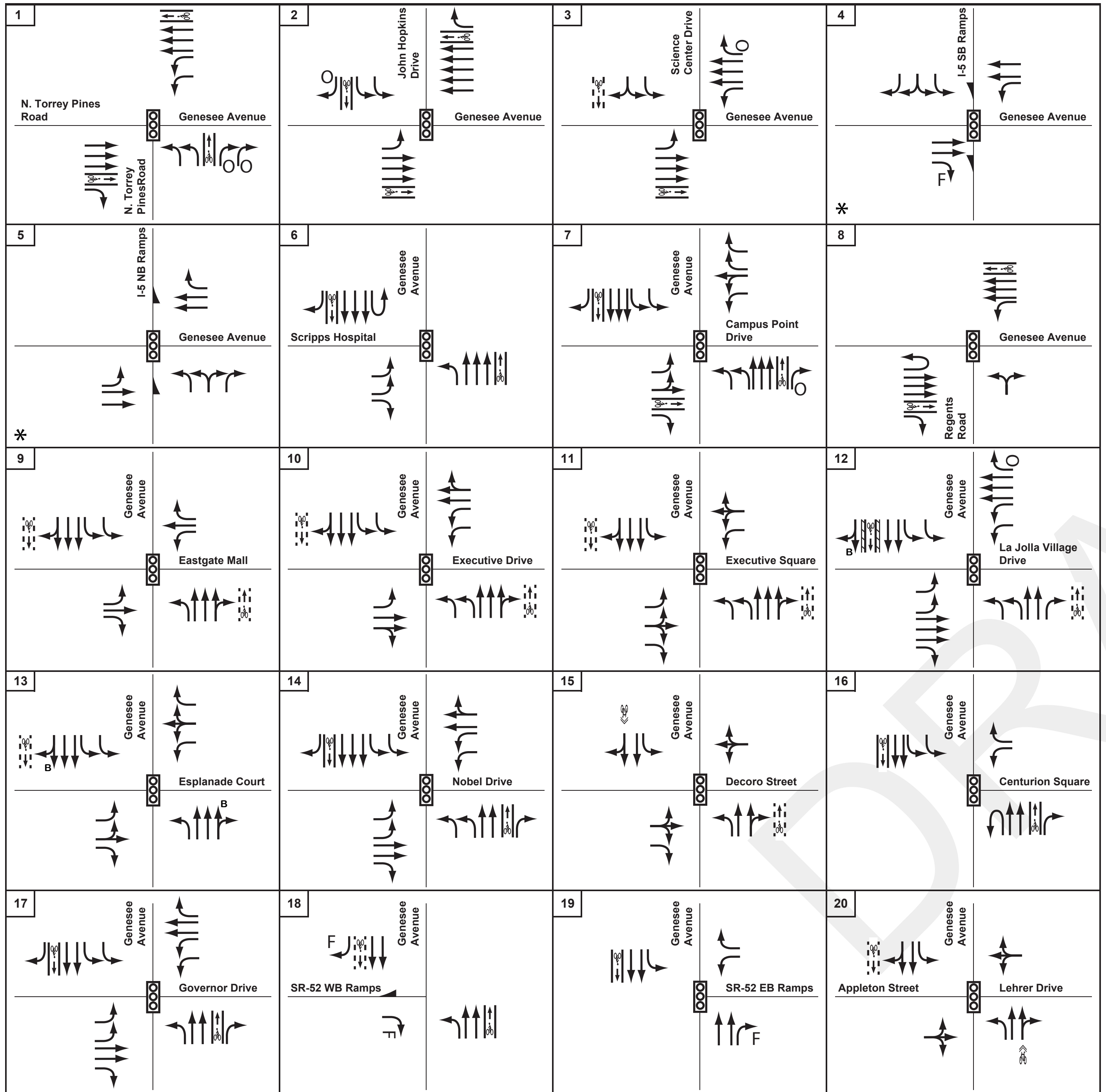


Existing Roadway Classifications

INTERSECTION GEOMETRY

Figure 7-2 through **Figure 7-5** illustrate the geometry at each intersection included in the study area as observed in the field in December 2017. These layouts were used in the existing conditions intersection analysis, except for the intersections of I-5 NB and SB Ramps with Genesee Avenue. Lane configurations at these intersections will be improved through on-going construction of the Caltrans I-5 Interchange project.

FIGURE 7-2

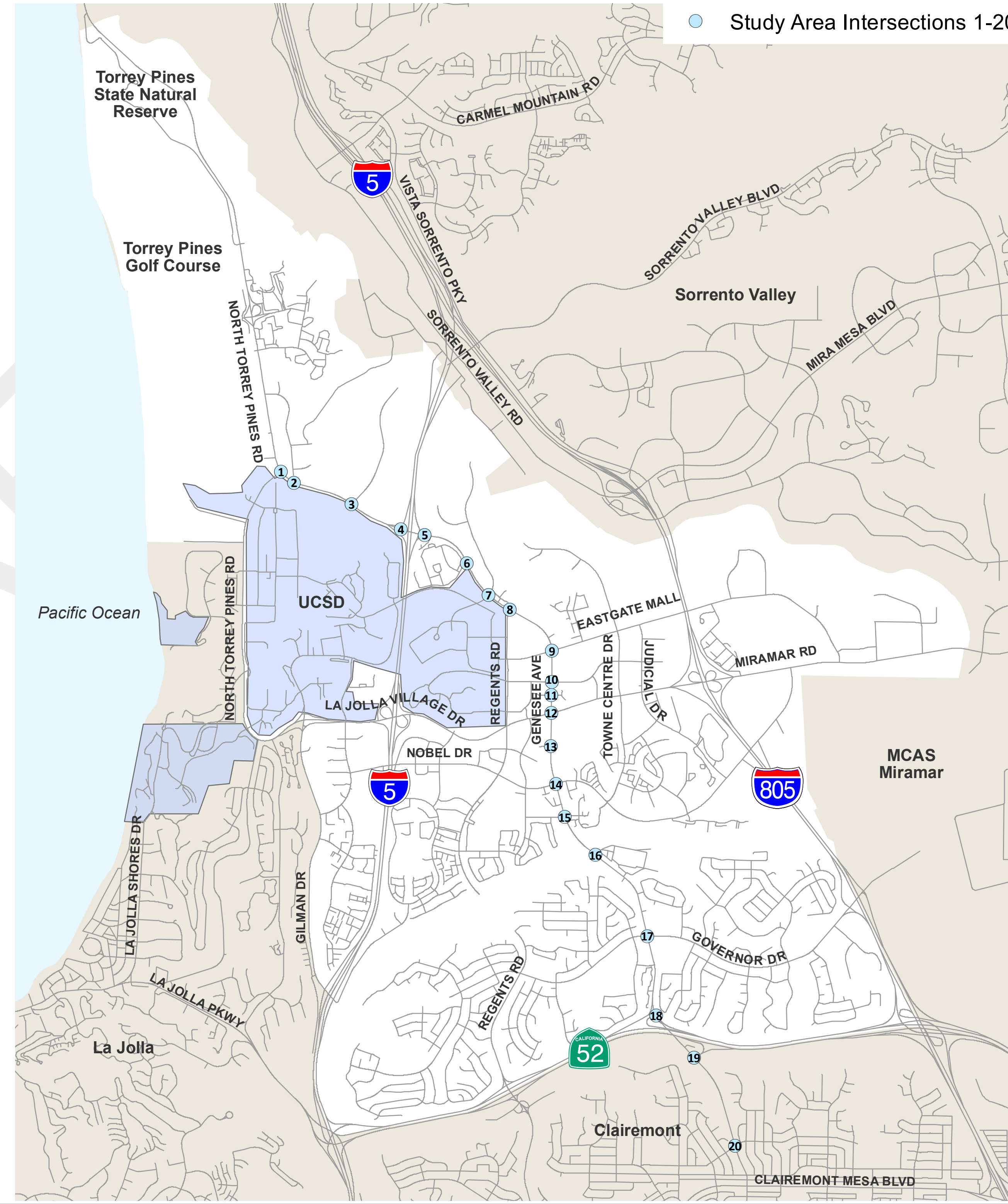


LEGEND

Intersection Control
- Signalized Intersection
- Yield Controlled Movement
- F Free Right-Turn
- O Right-Turn Overlap

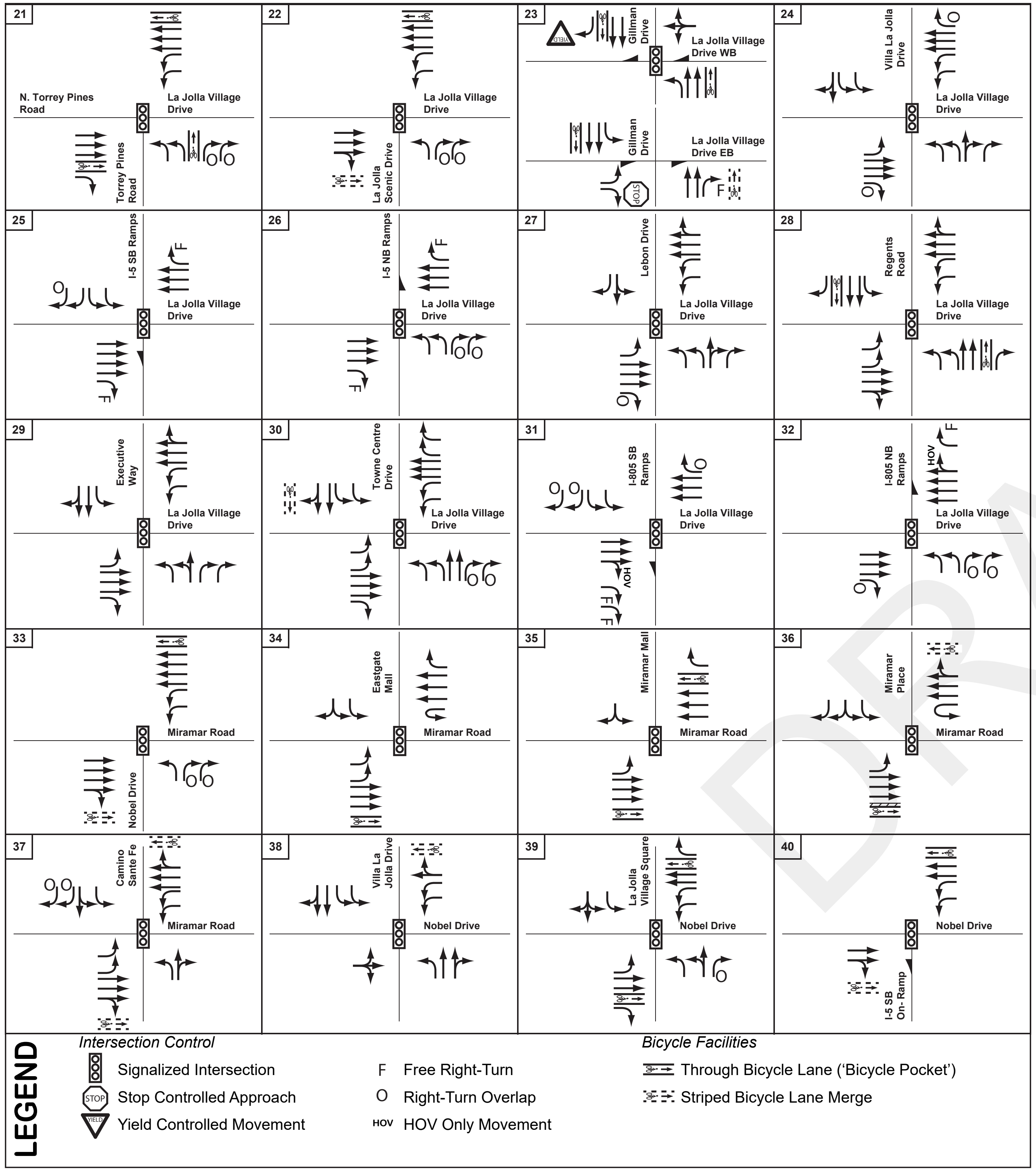
Bicycle Facilities
- Through Buffered Bicycle Lane ('Bicycle Pocket')
- Through Bicycle Lane ('Bicycle Pocket')
- Striped Bicycle Lane Merge
- Shared Lane Marking ('Sharrow')

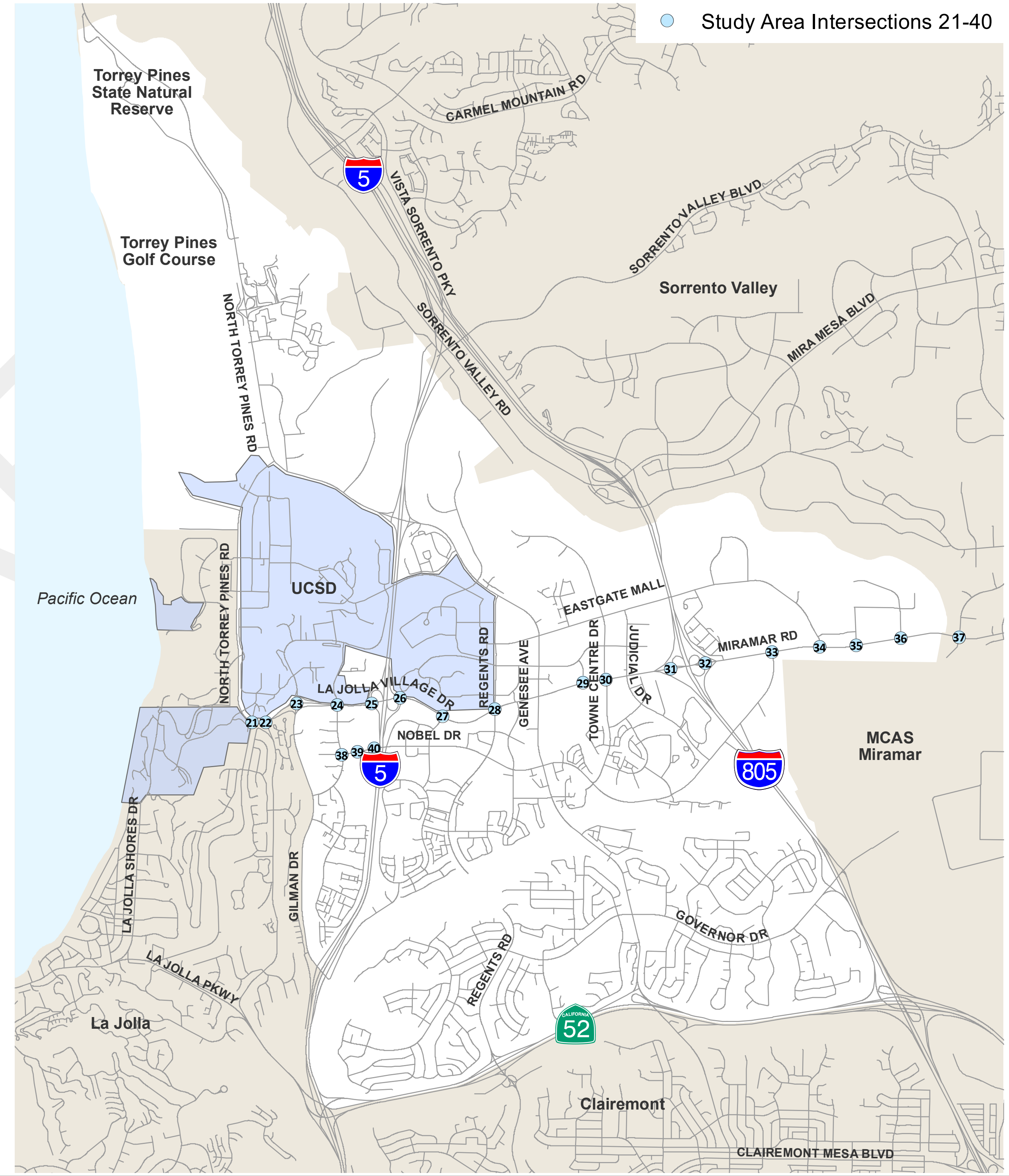
Transit Facilities
- B Bus Only Movement
- * Intersection configuration depicts construction conditions



Existing Intersection Geometry Intersections 1-20

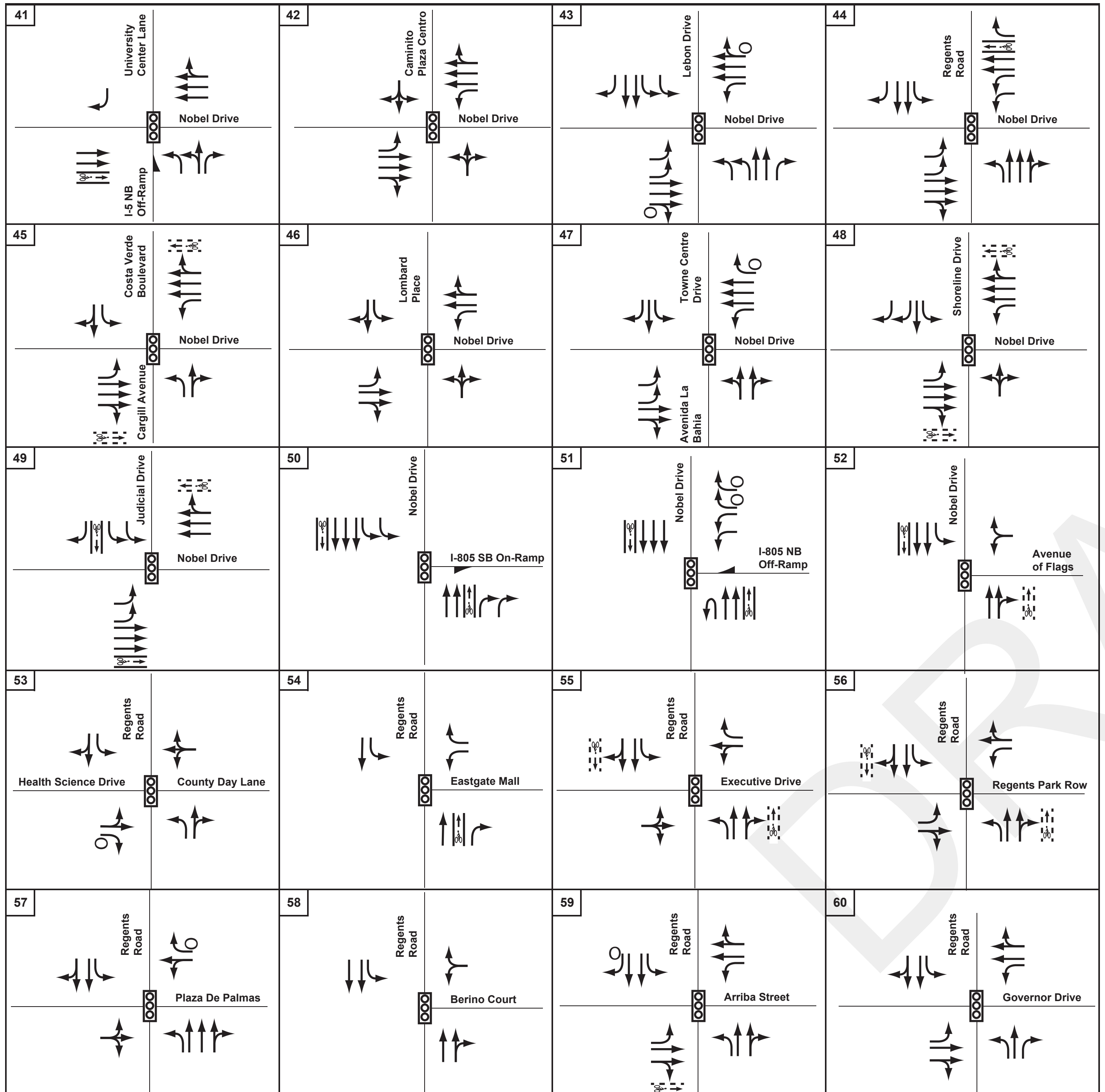
FIGURE 7-3





Existing Intersection Geometry Intersections 21-40

FIGURE 7-4



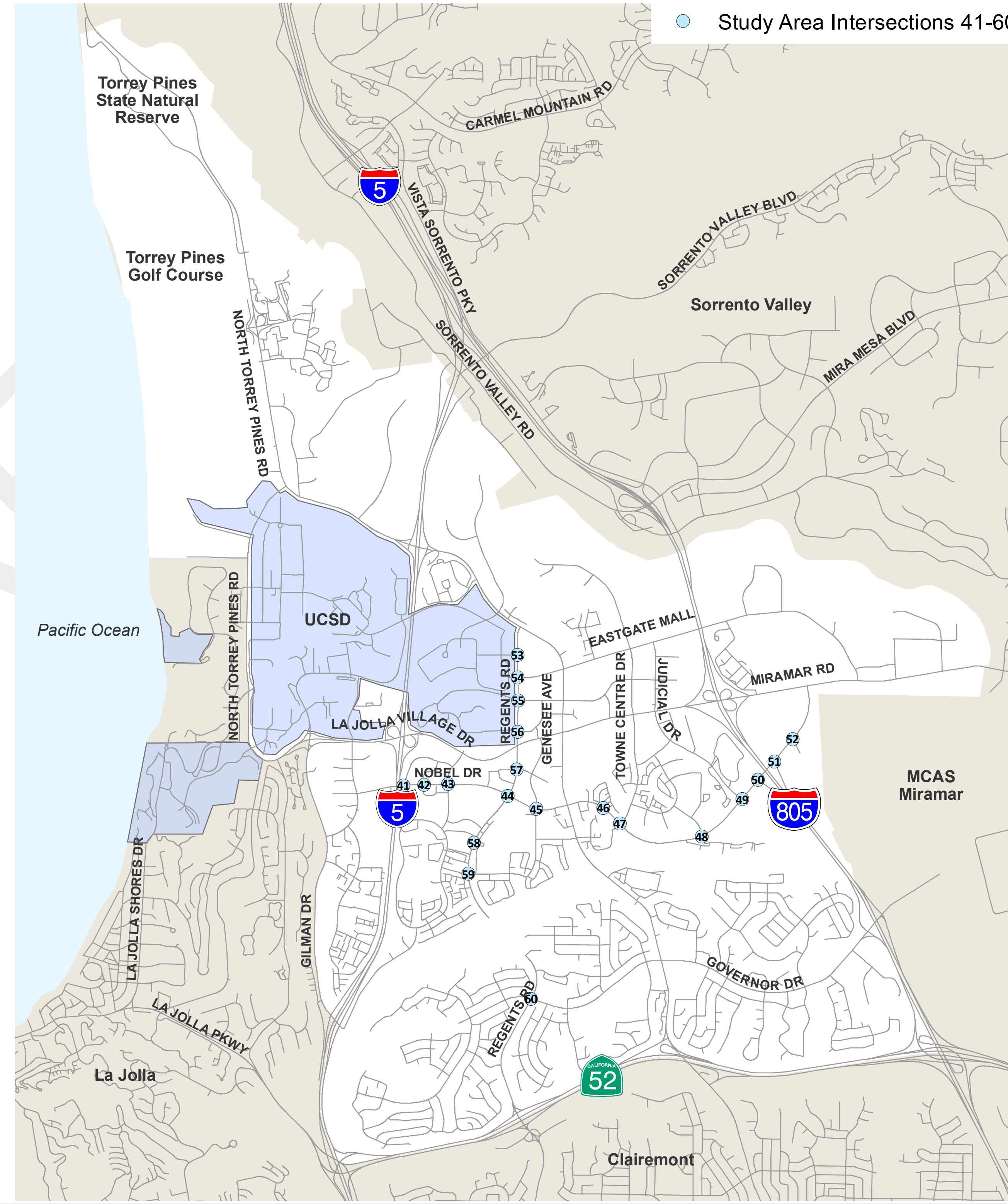
LEGEND

Intersection Control

- Signalized Intersection
- Yield Controlled Movement
- F Free Right-Turn
- O Right-Turn Overlap

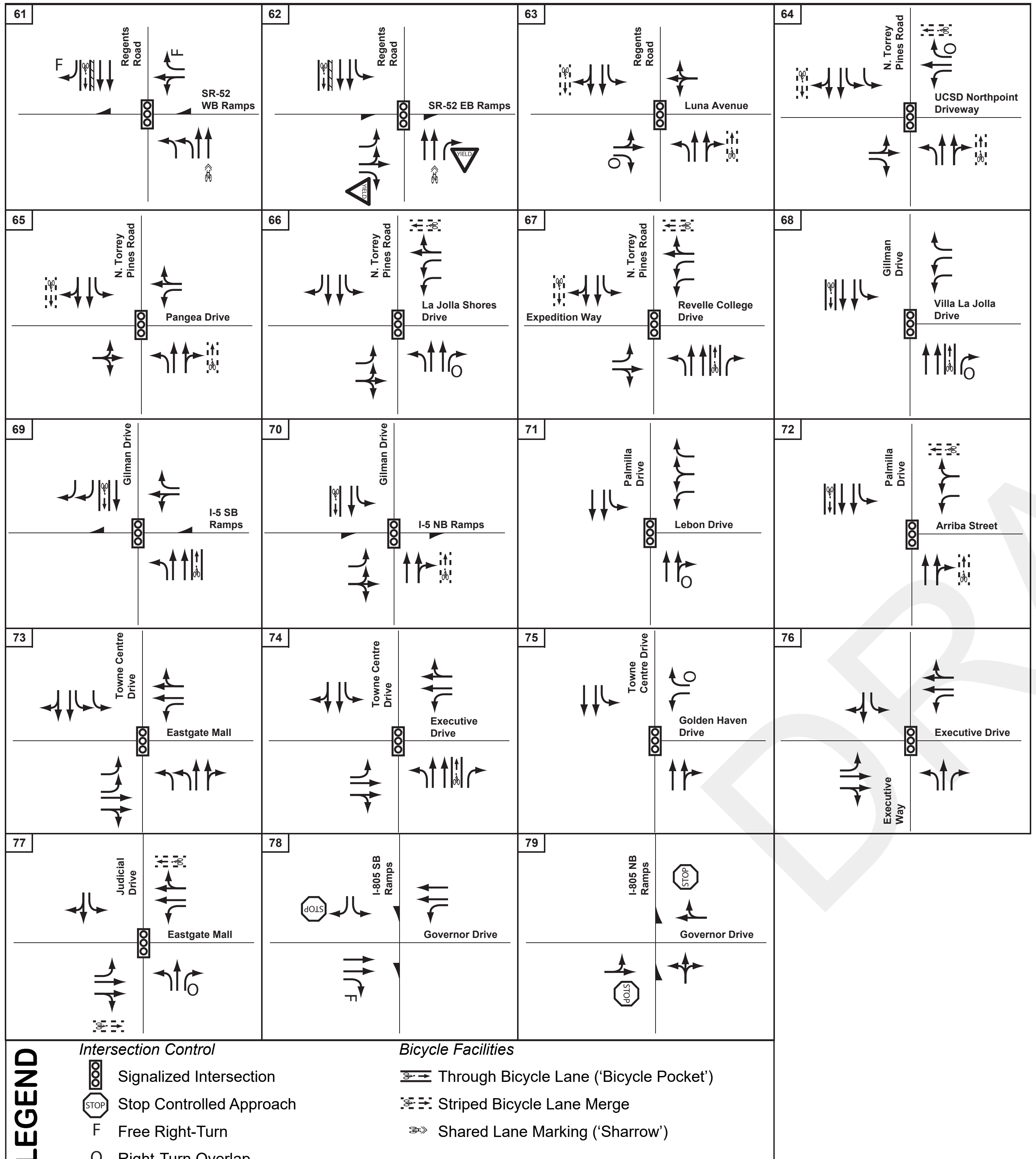
Bicycle Facilities

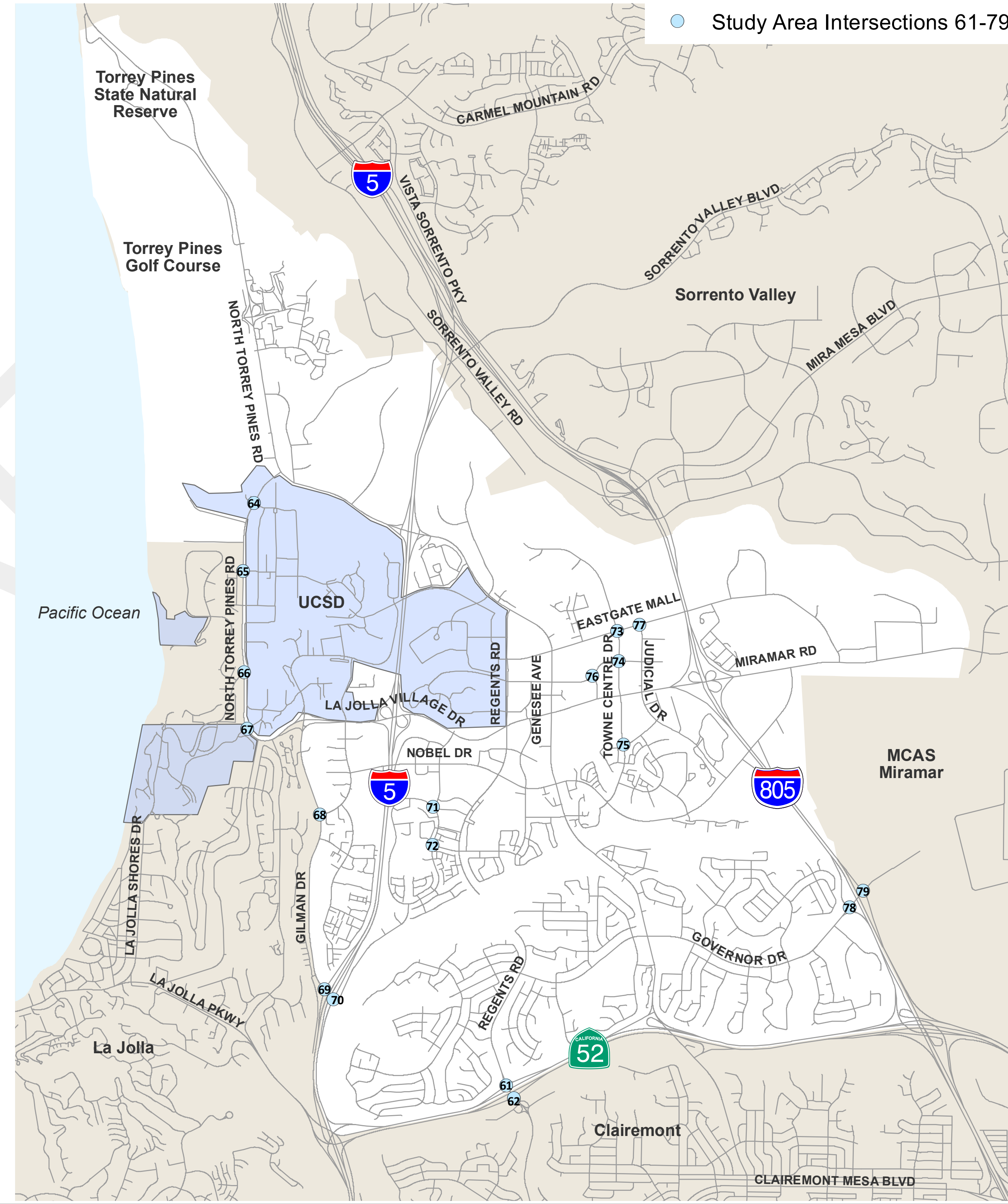
- Through Bicycle Lane ('Bicycle Pocket')
- Striped Bicycle Lane Merge
- Shared Lane Marking ('Sharrow')



Existing Intersection Geometry Intersections 41-60

FIGURE 7-5



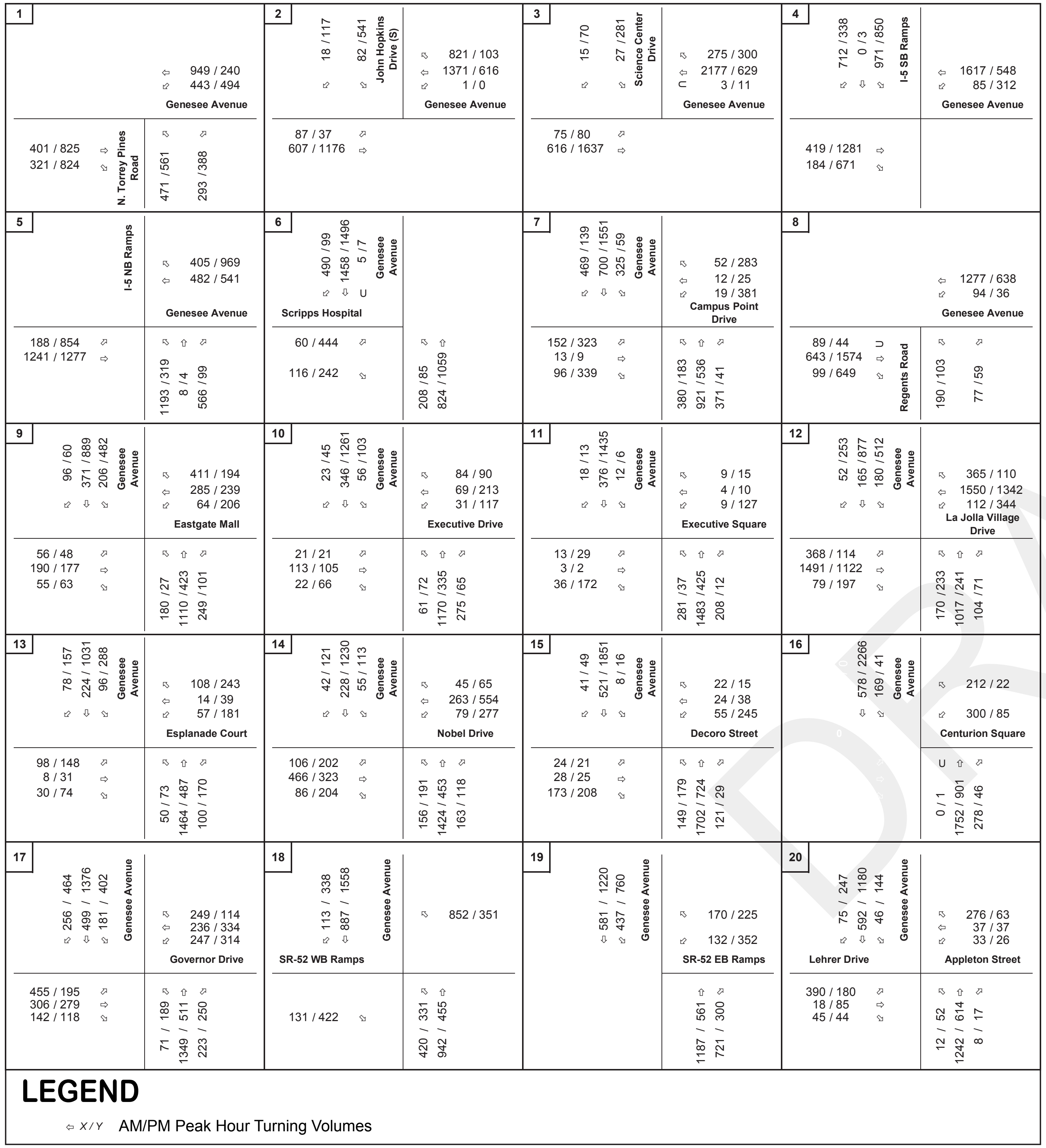


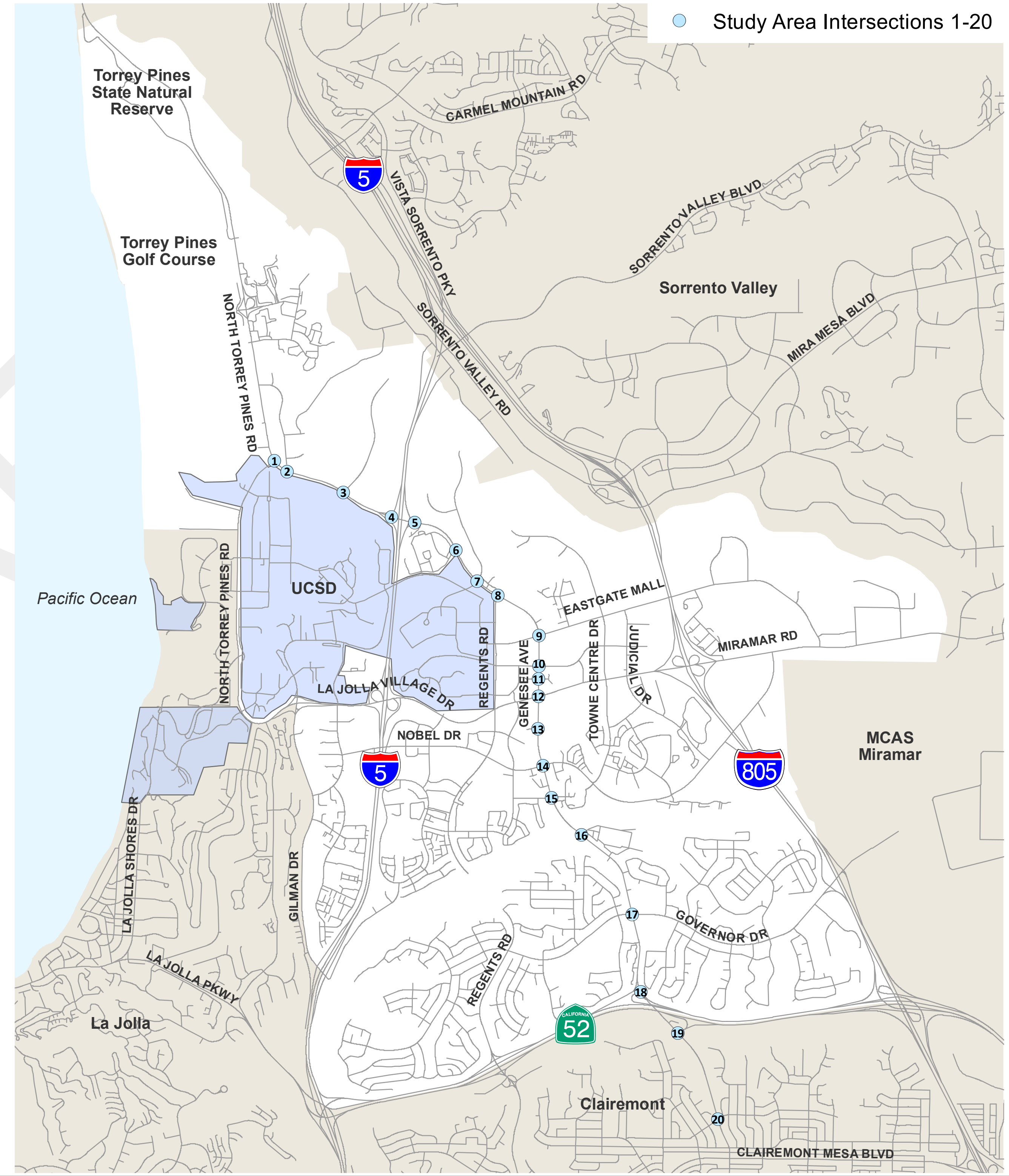
Existing Intersection Geometry
Intersections 61-79

VEHIICULAR DEMAND

The peak-hour intersection turning movement and daily roadway volumes were counted in April and May 2015 by Accurate Video Counts. Counts were taken Tuesday through Thursday over a three-week period. These counts reflect typical weekday conditions when schools were in session. **Figure 7-6** through **Figure 7-9** present the AM and PM peak-hour traffic volumes for all study intersections that were used in the intersection analysis. **Figure 7-10** through **Figure 7-12** present the midday peak-hour traffic volumes for intersections along Genesee Avenue, La Jolla Village Drive, Nobel Drive and Regents Road that were used in the intersection analysis. **Appendix E** contains the existing traffic volume data and validation count memo for this report.

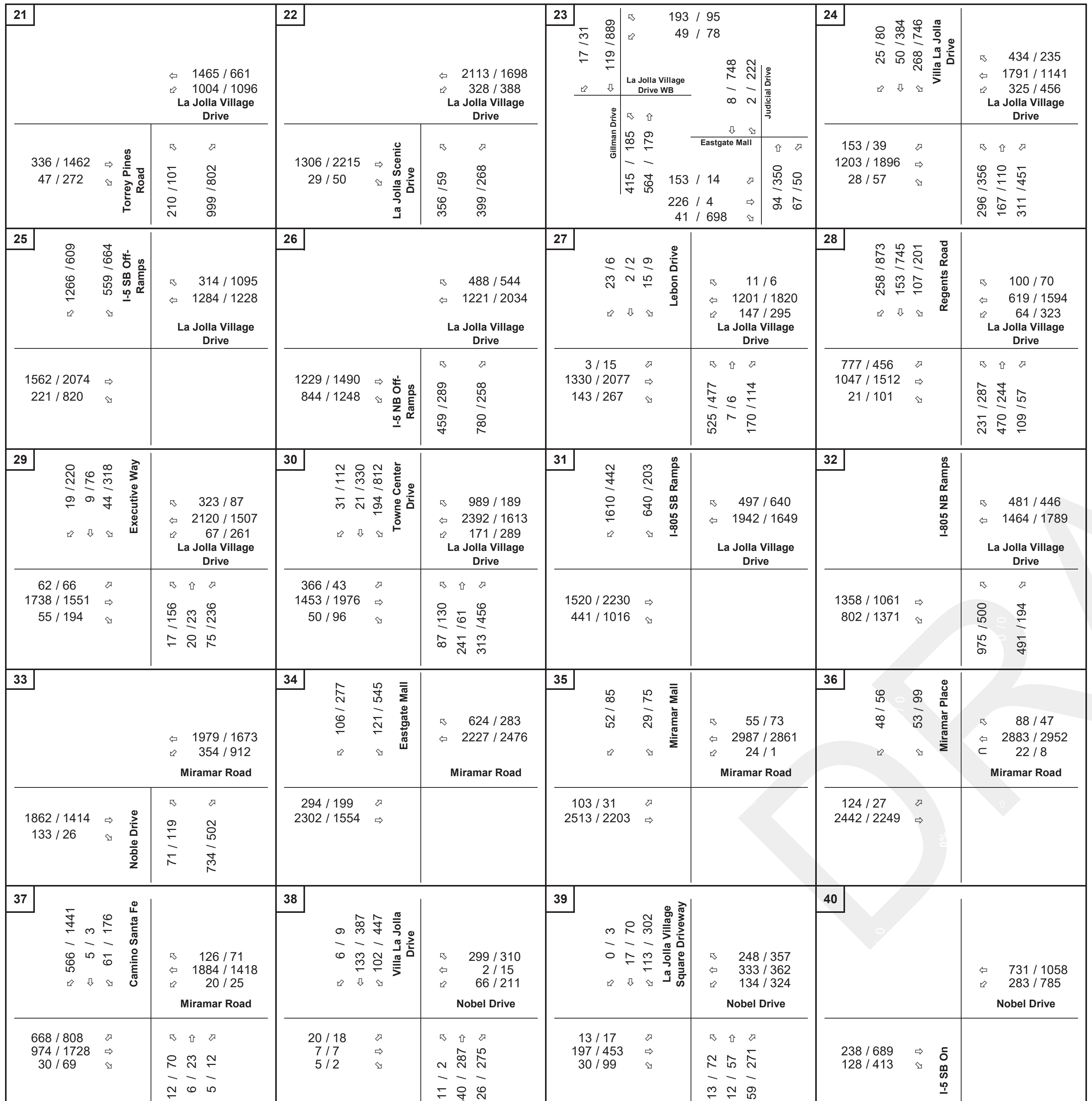
FIGURE 7-6





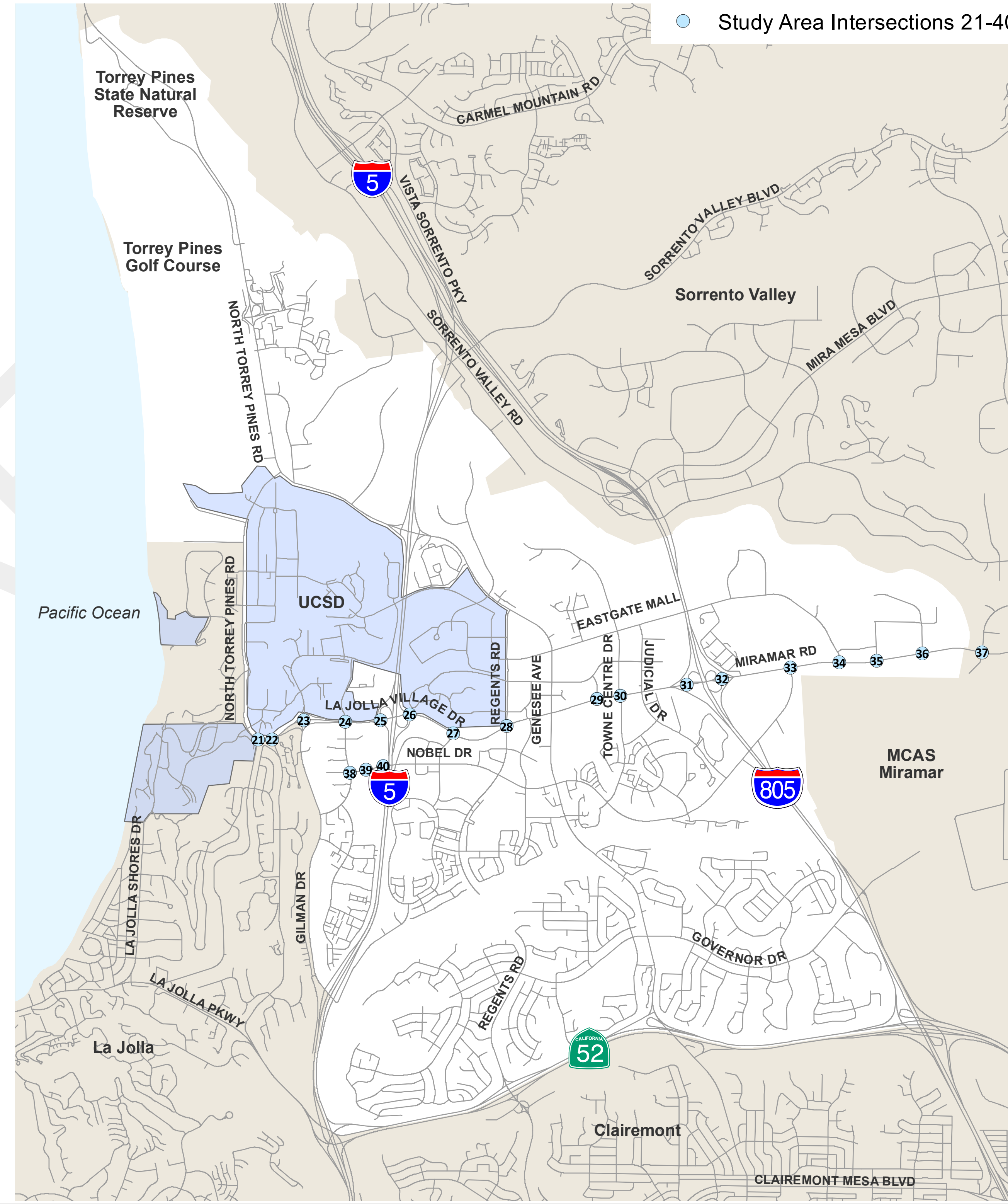
Existing AM and PM Peak-Hour Intersection Turning Movement Volumes Intersections 1-20

FIGURE 7-7



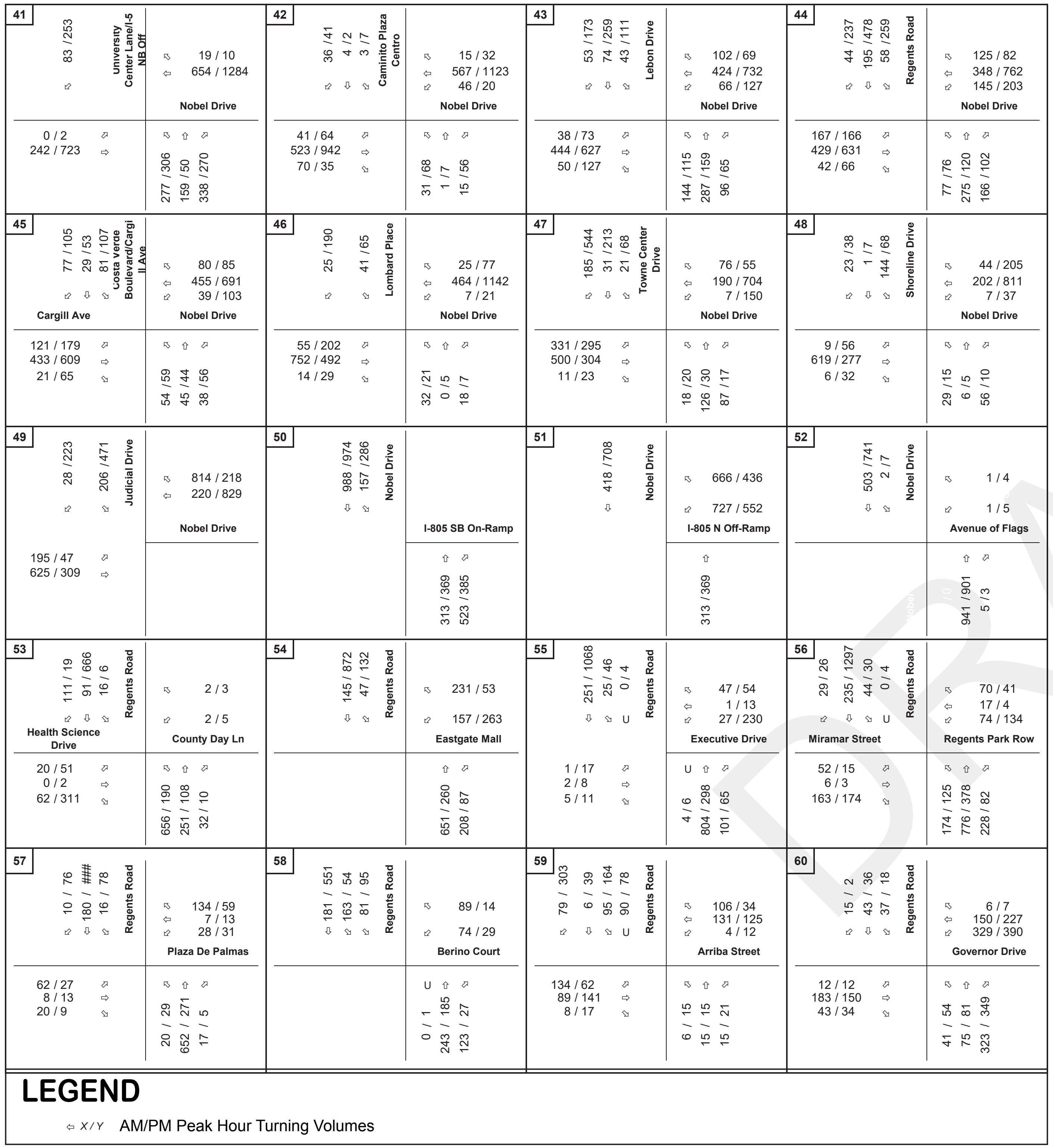
LEGEND

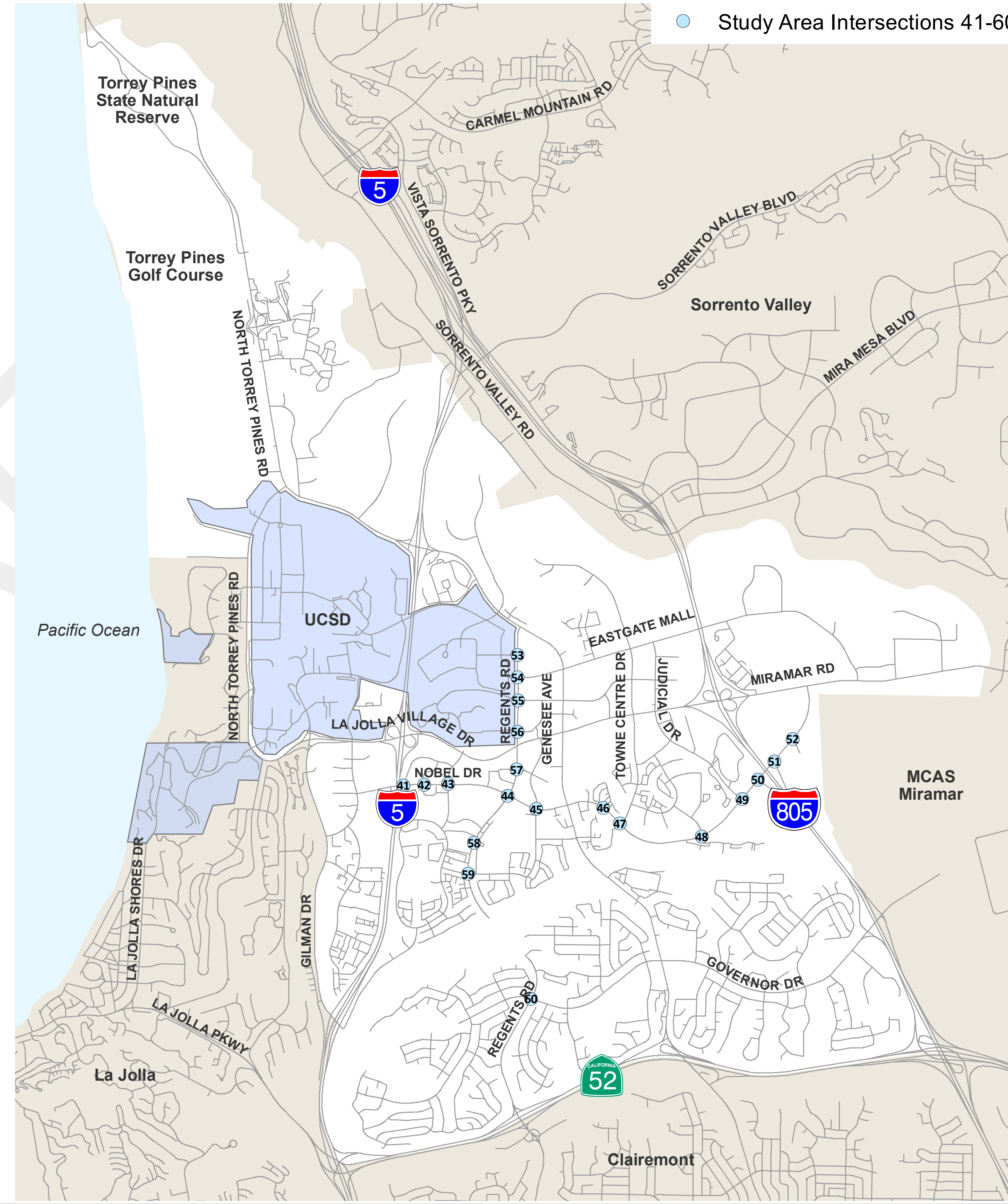
X / Y AM/PM Peak Hour Turning Volumes



Existing AM and PM Peak-Hour Intersection Turning Movement Volumes Intersections 21-40

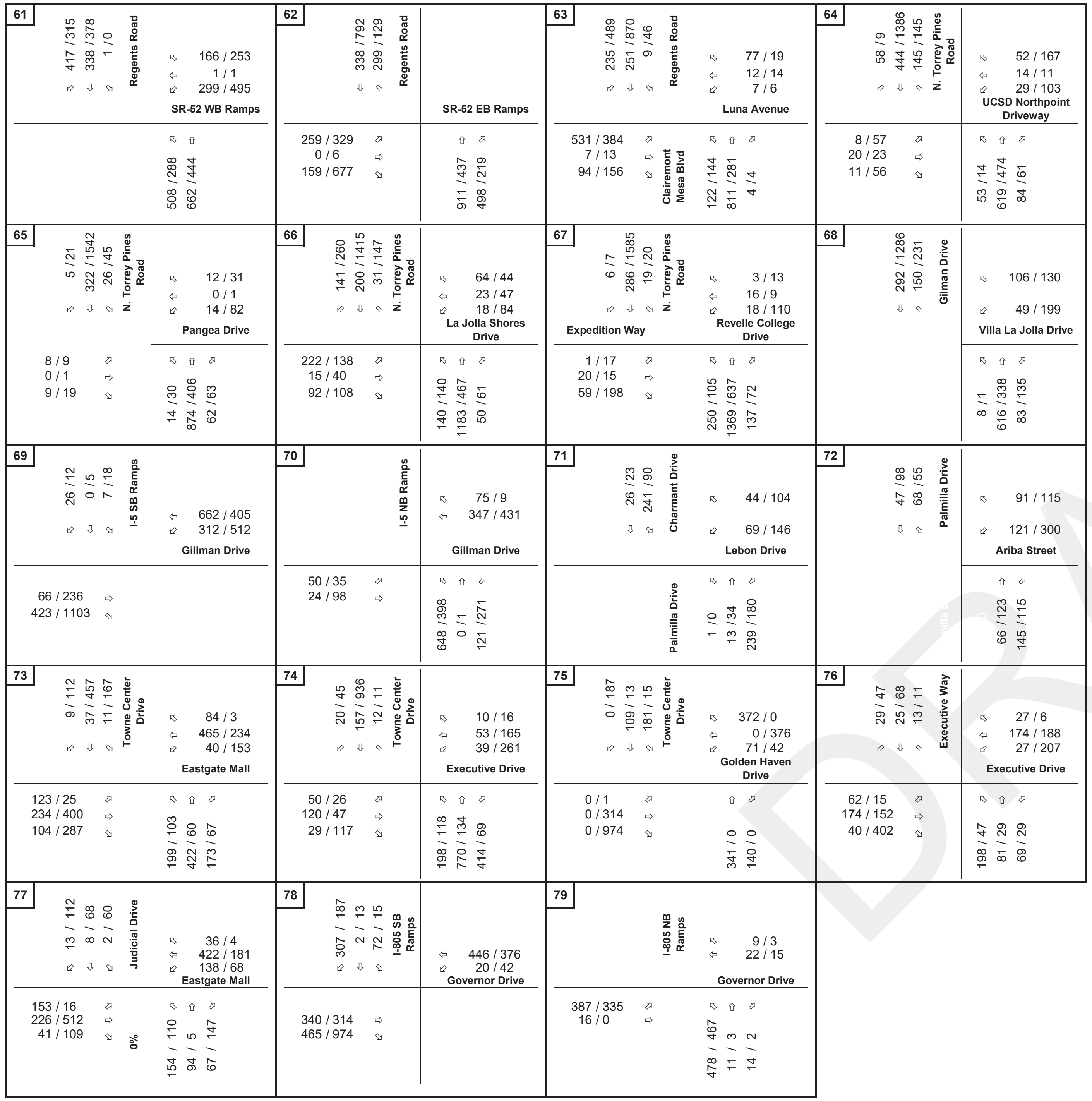
FIGURE 7-8





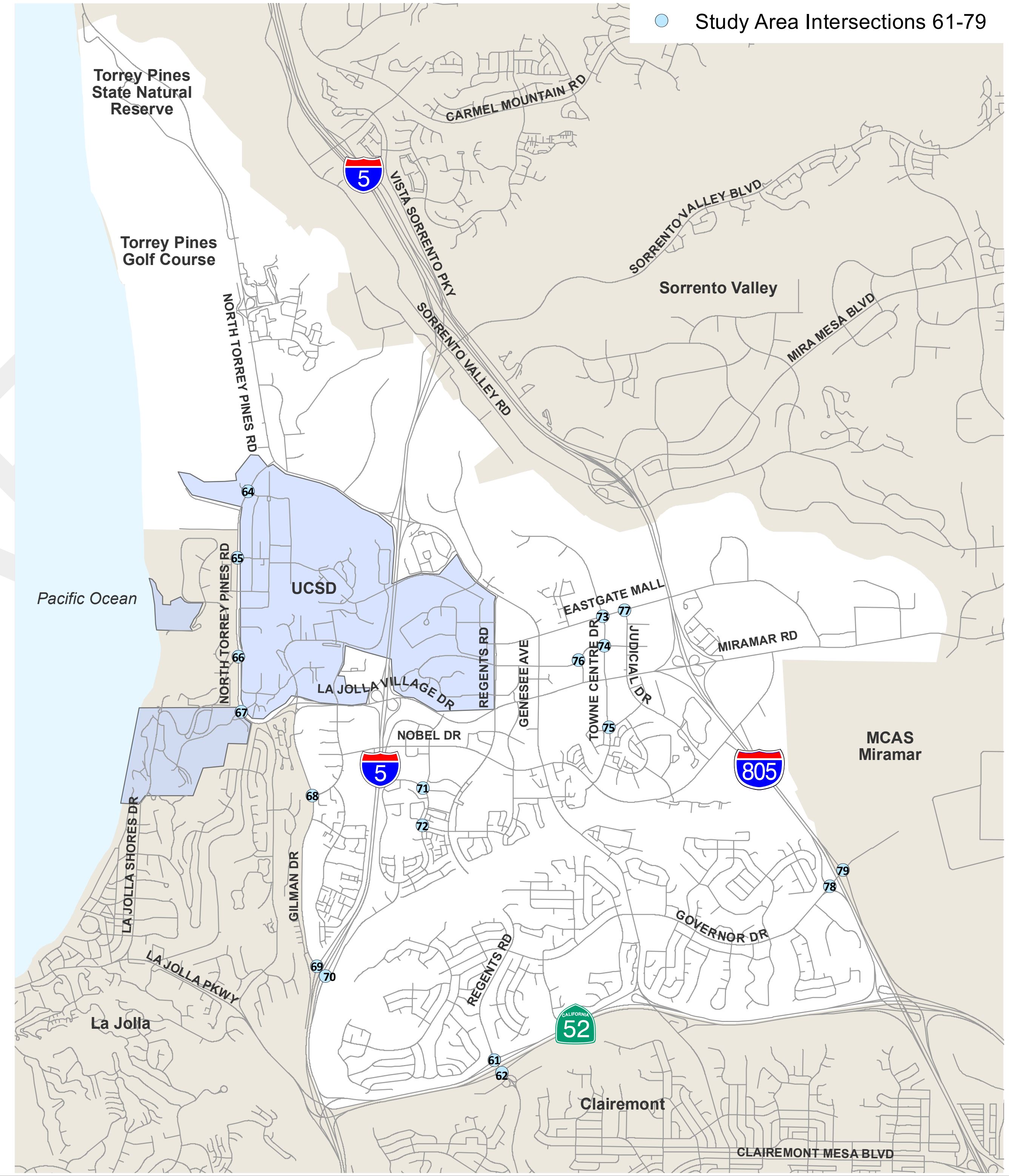
Existing AM and PM Peak-Hour Intersection Turning Movement Volumes Intersections 41-60

FIGURE 7-9



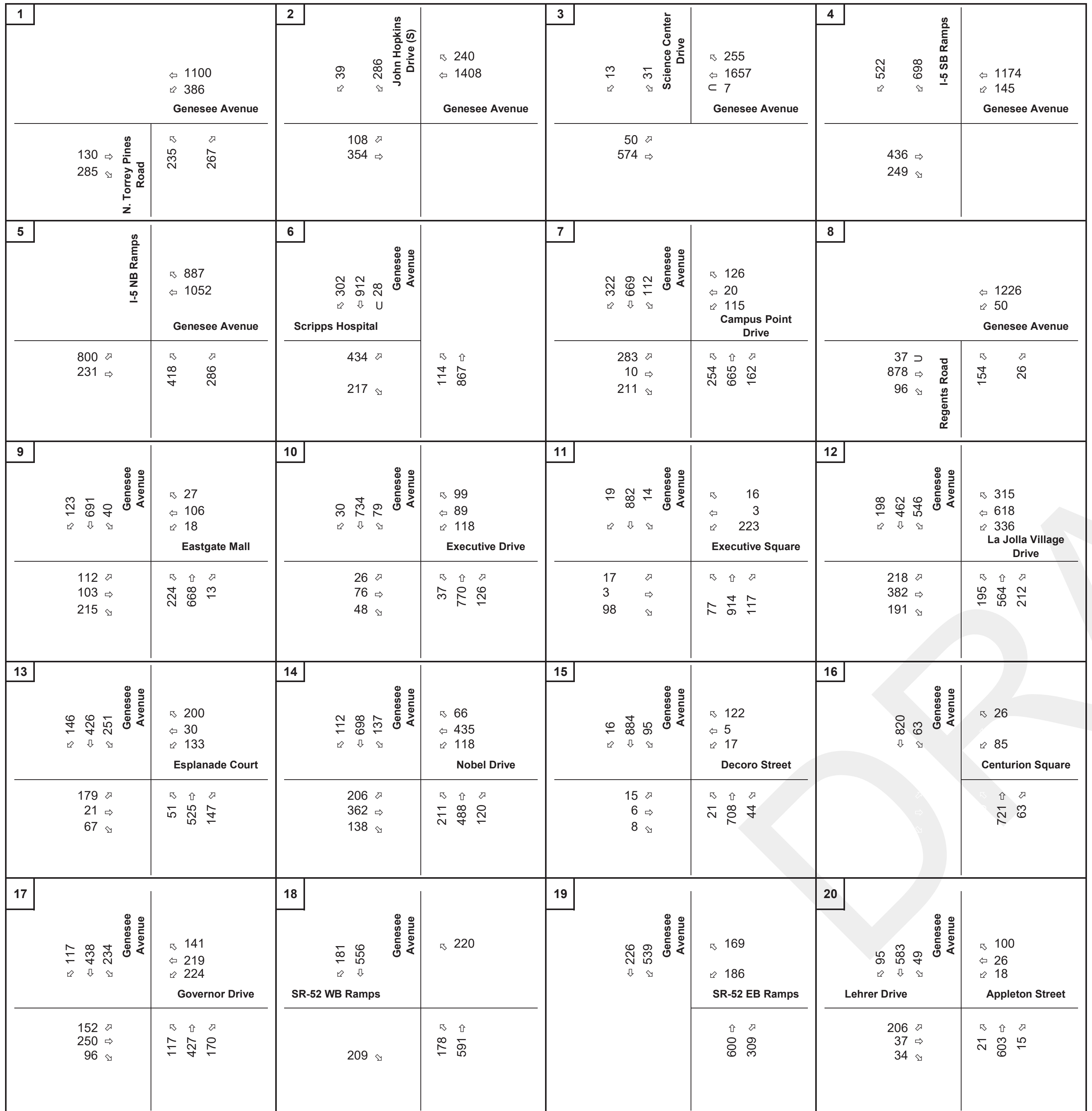
LEGEND

X / Y AM/PM Peak Hour Turning Volumes



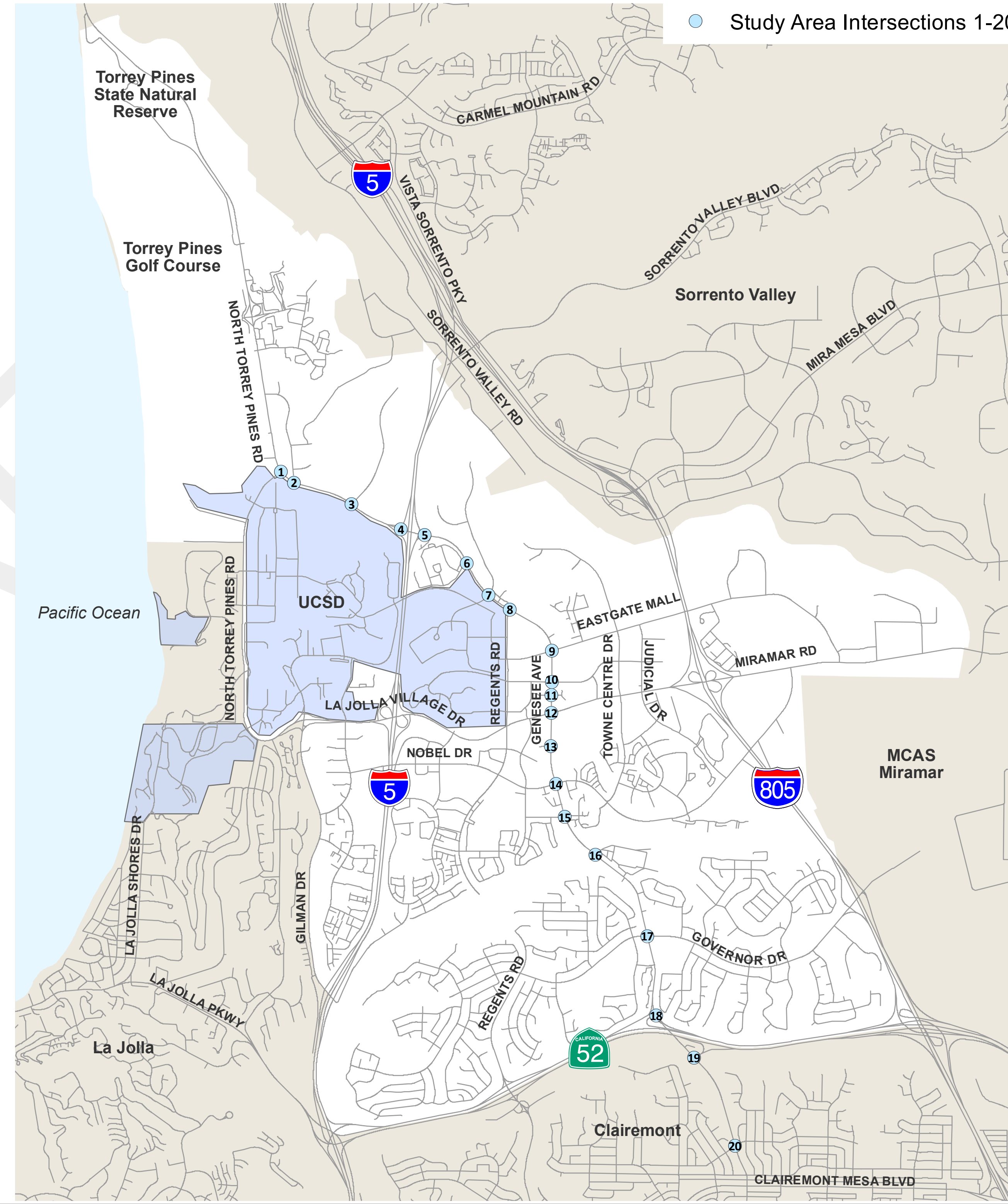
Existing AM and PM Peak-Hour Intersection Turning Movement Volumes Intersections 61-79

FIGURE 7-10



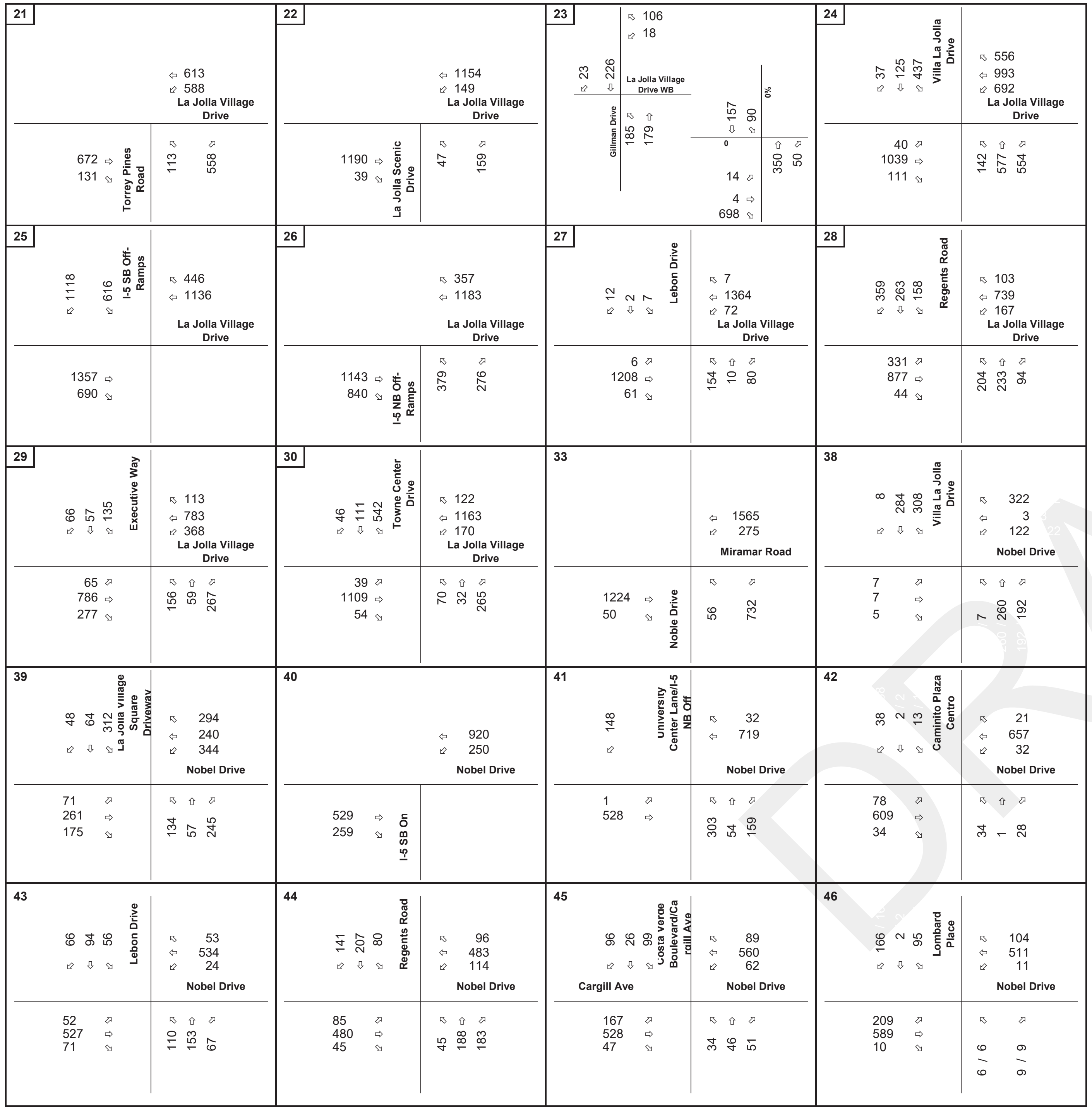
LEGEND

X / Y Midday Peak Hour Turning Volumes



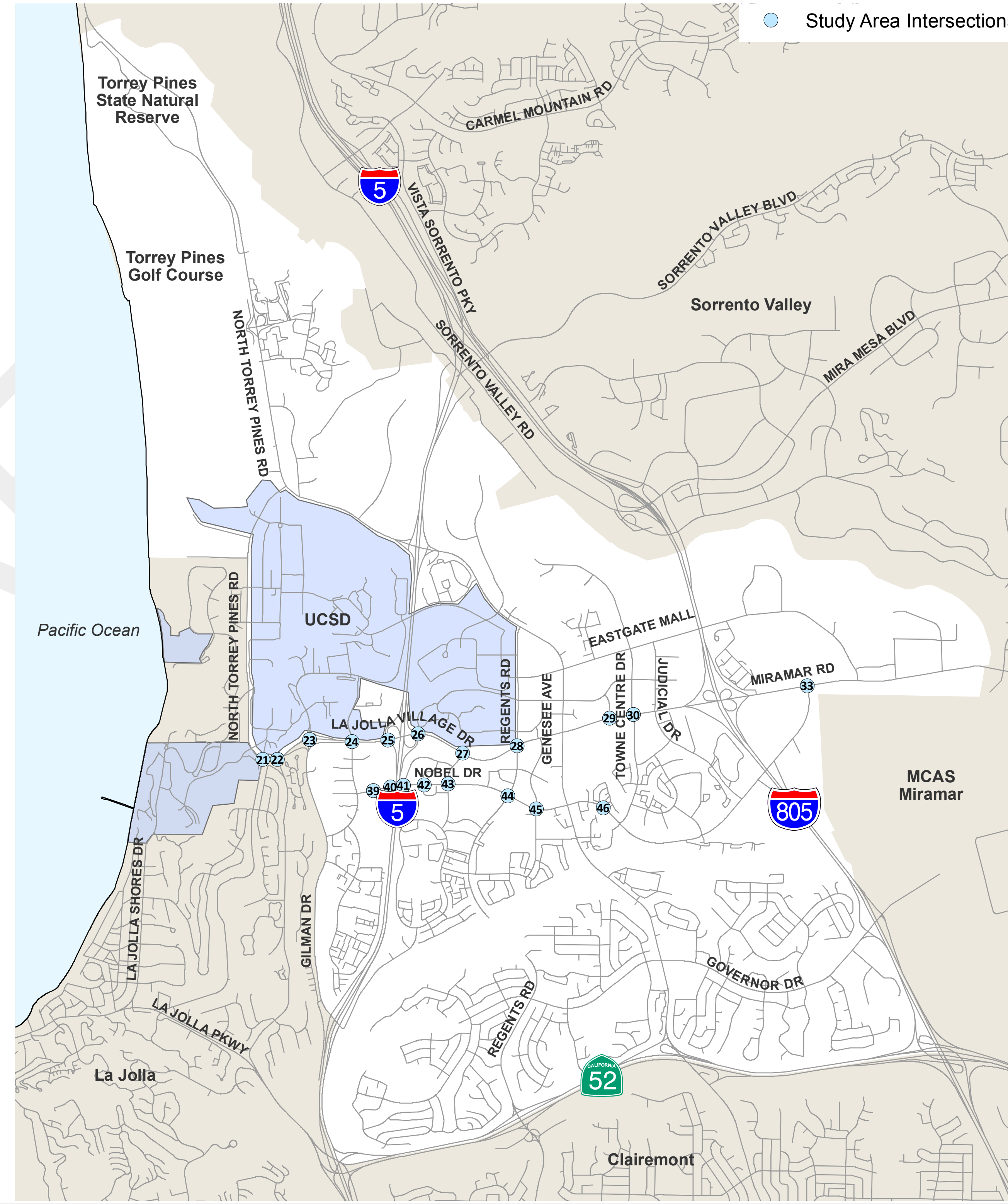
Existing Midday Peak-Hour Intersection Turning Movement Volumes
Intersections 1-20

FIGURE 7-11



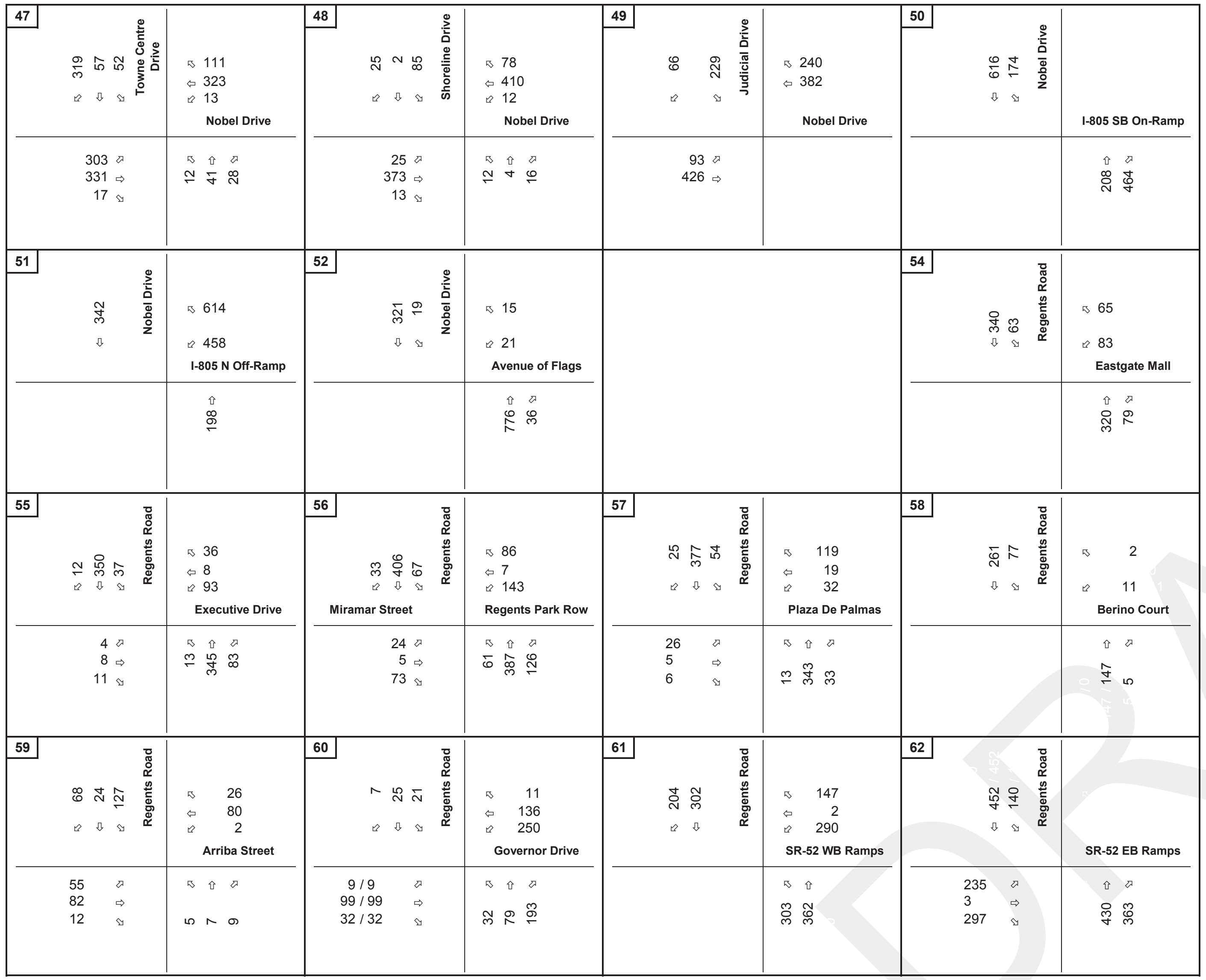
LEGEND

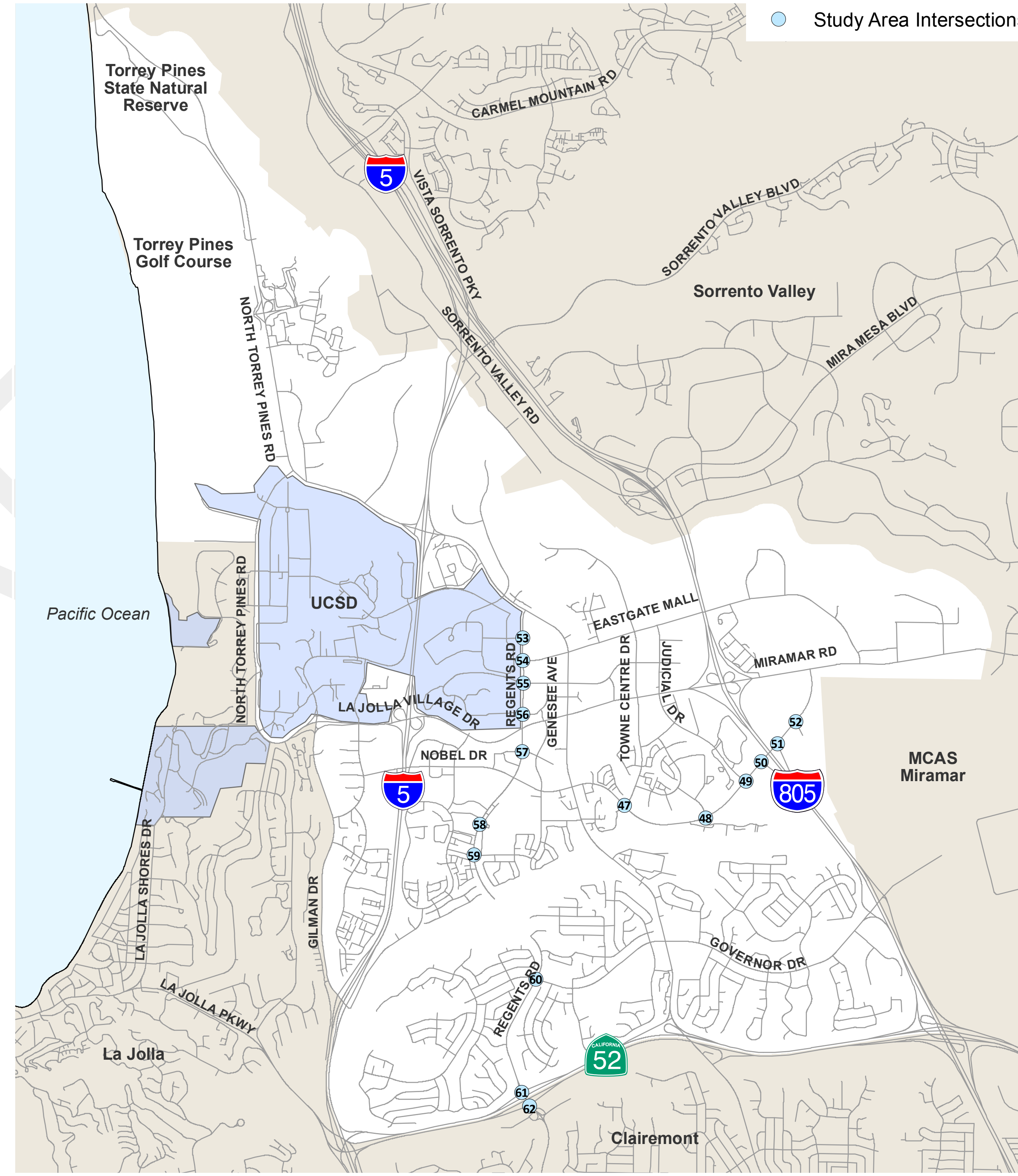
X / Y Midday Peak Hour Turning Volumes



Existing Midday Peak-Hour Intersection Turning Movement Volumes
Intersections 21-46

FIGURE 7-12





LEGEND

⇦ X / Y Midday Peak Hour Turning Volumes

Existing Midday Peak-Hour Intersection Turning Movement Volumes Intersections 47-62

TRAFFIC COLLISION HISTORY

Between October 2012 and September 2017, there were a total of 1,196 reported vehicular collisions (excluding pedestrian- and bicycle-involved collisions) within the University community. In the State of California, collision reports must be generated for any collision where property damage totals 750 dollars or more, someone is injured or killed fatality occurs. As a result, it is important to note some incidents may go unreported for failing to meet one of these criteria. **Figure 7-13** displays the collisions across the community, as included in **Appendix A**, symbolized by the number of crashes at a given location. Most locations have isolated incidents, but some intersections experienced multiple collisions in the five-year period. Intersections with more than 15 vehicle collisions are identified in **Table 7-1**.

Table 7-1 Most Frequent Collision Locations

Rank	Intersections	Collisions
1	La Jolla Village Drive & Genesee Avenue	49
2	La Jolla Village Drive & Villa La Jolla Drive	46
3	La Jolla Village Drive & Towne Centre Drive	39
4	Genesee Avenue & Nobel Drive	28
4	La Jolla Village Drive & Regents Road	28
5	Genesee Avenue & Governor Drive	27
6	La Jolla Village Drive & Executive Way	23
7	La Jolla Village Drive & Lebon Drive	22
7	Miramar Road & Eastgate Mall	22
8	Genesee Avenue & Decoro Street	17
8	Genesee Avenue & Eastgate Mall	17

The location types of the reported collisions are summarized in **Table 7-2**. Types include intersection, mid-block, and approaching/departing locations. Nearly three-quarters of all collisions occurred at intersections.

Table 7-2 Collisions by Location Types

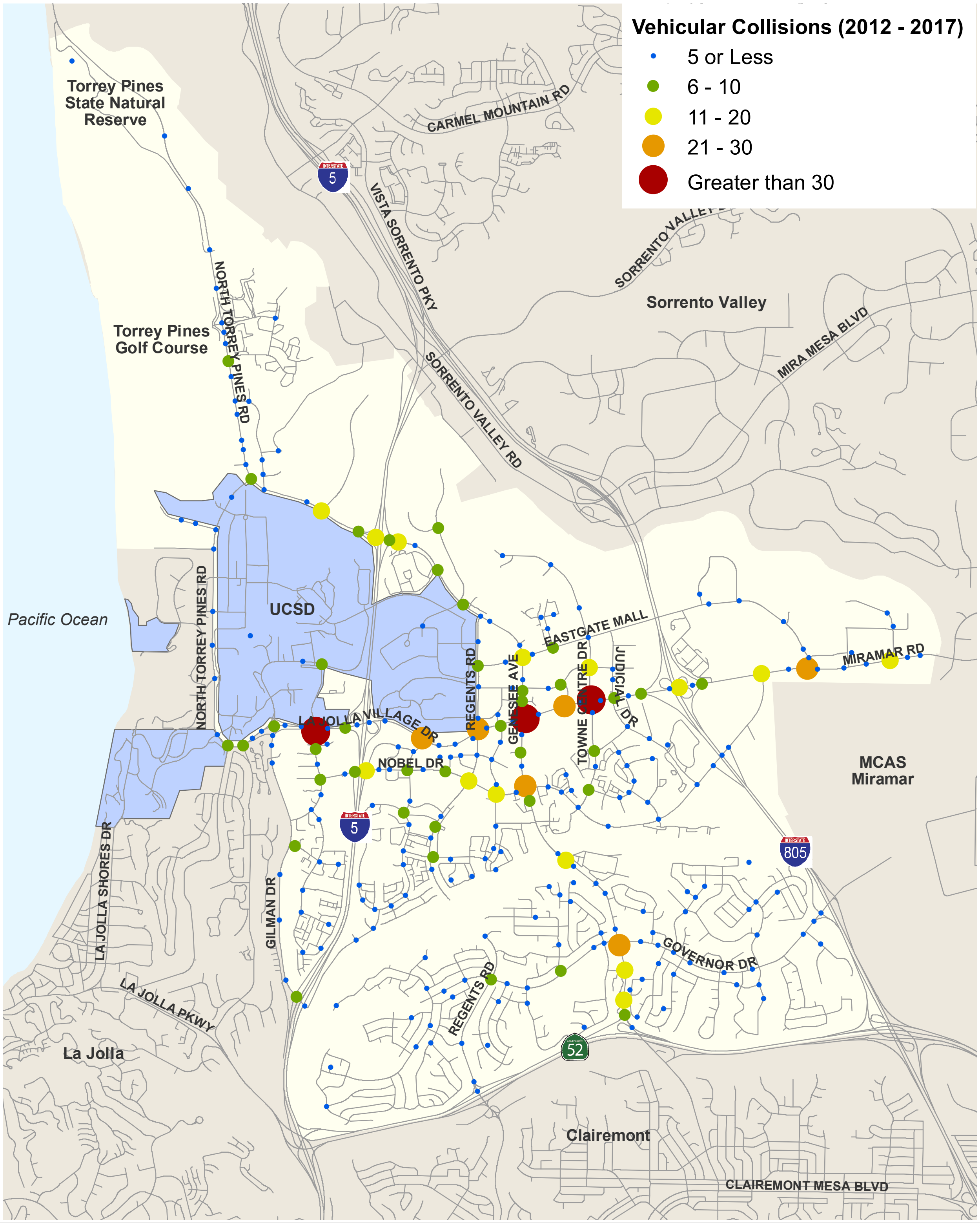
Collision Location Type	Collisions	Percent of Total
Mid-Block	113	9%
Intersection	885	74%
Approaching/Departing	198	17%
Total	***1,196***	***100%***

Table 7-3 displays the primary causes for vehicle collisions. As shown in the table, the top causes of collisions were unsafe speed, followed by improper turning and auto right-of-way violation.

Table 7-3 Primary Collision Cause (2012-2017)

Primary Collision Cause	Number of Collisions	Percent of Total
Auto R/W Violation	170	14%
Driving Under Influence	10	1%
Fell Asleep	4	0%
Following Too Closely	52	4%
Hazardous Parking	1	0%
Improper Passing	5	0%
Improper Turning	238	20%
Not Stated	148	12%
Other	16	1%
Other Equipment	2	0%
Other Hazardous Movement	23	2%
Other Improper Driving	14	1%
Other Than Driver	6	1%
Ped R/W Violation	17	1%
Pedestrian Violation	15	1%
Traffic Signals and Signs	51	4%
Unknown	47	4%
Unsafe Lane Change	63	5%
Unsafe Speed	248	21%
Unsafe Starting or Backing	57	5%
Wrong Side of Road	9	1%
Total	***1196***	***100%***

FIGURE 7-13



Vehicle Collision History (2012-2017)

ROADWAY SEGMENT ADT BASED ANALYSIS

Each roadway segment in the study area was evaluated by comparing the daily traffic volume with the roadway's theoretical capacity based on its classification. The capacity represents the maximum daily volume before the roadway is expected to begin to operate at a LOS E. This volume-to-capacity comparison (v/c ratio) is a planning tool used to determine the general traffic demand on a segment and its sensitivity to delays.

Table 7-4 presents the results of the roadway segment analysis for a typical weekday. As shown in the table, it is estimated that all roadway segments function at an acceptable LOS D or better in the study area, except for the following:

- Eastgate Mall – between I-805 Overpass and Miramar Road
  - 2 Lane Collector (w/ two-way left-turn lane) (LOS E)
- Genesee Avenue – between I-5 SB Ramps and I-5 NB Ramps
  - 4 Lane Major Arterial (LOS F)
- La Jolla Village Drive – between Genesee Avenue and Towne Centre Drive
  - 6 Lane Major Arterial (LOS E)
- La Jolla Village Drive – between Towne Centre Drive and I-805 SB Ramps
  - 7 Lane Major Arterial (LOS F)
- Miramar Road – between I-805 SB Ramps and I-805 NB Ramps
  - 6 Lane Major Arterial (LOS F)
- Miramar Road – between Eastgate Mall and Camino Santa Fe
  - 6 Lane Prime Arterial (LOS F)

Figure 7-14 illustrates the existing LOS results for each of the roadway segments in the study area based on the volume-to-capacity analysis methodology. The segments with LOS E or F have volumes above their theoretical capacity, typically resulting in periods of congestion.

Table 7-4 Existing Conditions Summary of Roadway Segment ADT Based Analysis

ROADWAY SEGMENT	ROADWAY CLASSIFICATION (a)	LOS E CAPACITY	ADT (b)	V/C RATIO (c)	LOS
Eastgate Mall					
Regents Rd to Genesee Ave	2 Lane Collector (w/ two-way left-turn lane)	15,000	6,187	0.412	B
Genesee Ave to Easter Way	4 Lane Collector (w/ two-way left-turn lane)	30,000	14,767	0.492	C
Easter Way to Judicial Dr	4 Lane Major Arterial	40,000	11,115	0.278	A
Judicial Dr to I-805 Overpass	4 Lane Major Arterial	40,000	10,096	0.252	A
I-805 Overpass to Miramar Rd	2 Lane Collector (w/ two-way left-turn lane)	15,000	14,668	0.978	**E**
Executive Drive					
Regents Rd to Genesee Ave	4 Lane Collector (w/o two-way left-turn lane)	15,000	4,397	0.293	A
Genesee Ave to Judicial Dr	4 Lane Collector (w/ two-way left-turn lane)	30,000	5,914	0.197	A
Executive Way					
Executive Dr to La Jolla Village Dr	4 Lane Collector (w/ two-way left-turn lane	30,000	5,923	0.197	A
Genesee Avenue					
N. Torrey Pines Rd to I-5 SB Ramps	6 Lane Prime Arterial	60,000	35,124	0.585	C
I-5 SB Ramps to I-5 NB Ramps	4 Lane Major Arterial	40,000	49,051	1.226	**F**
I-5 NB Ramps to Regents Rd	6 Lane Prime Arterial	60,000	48,542	0.809	C
Regents Rd to La Jolla Village Dr	6 Lane Prime Arterial	60,000	29,457	0.491	B
La Jolla Village Dr to Esplanade Ct	4 Lane Major Arterial	40,000	28,054	0.701	C
Esplanade Ct to Nobel Dr	6 Lane Major Arterial	50,000	23,744	0.475	B
Nobel Dr to Centurion Square	4 Lane Major Arterial	40,000	30,922	0.773	D
Centurion Square to SR-52 WB Ramps	4 Lane Major Arterial	40,000	30,325	0.758	D
SR-52 WB Ramps to SR-52 EB Ramps	4 Lane Major Arterial	40,000	31,170	0.779	D
SR-52 EB Ramps to Lehrer Dr	4 Lane Major Arterial	40,000	30,581	0.765	D
Gilman Drive					
La Jolla Village Dr to Via Alicante	4 Lane Major Arterial	40,000	15,095	0.377	B
Via Alicante to I-5 SB Ramps	4 Lane Major Arterial	40,000	17,138	0.428	B
I-5 SB Ramps to I-5 NB Ramps	4 Lane Major Arterial	40,000	11,873	0.297	A
Golden Haven Drive					
Towne Centre Dr to Judicial Dr	4 Lane Major Arterial	40,000	6,712	0.168	A

Notes: **Bold** values indicate roadway segments operating at LOS E or F.
(a) Existing road classifications are based on field work conducted December 2017.
(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by Accurate Video Counts Inc and measured in April and May 2015.
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

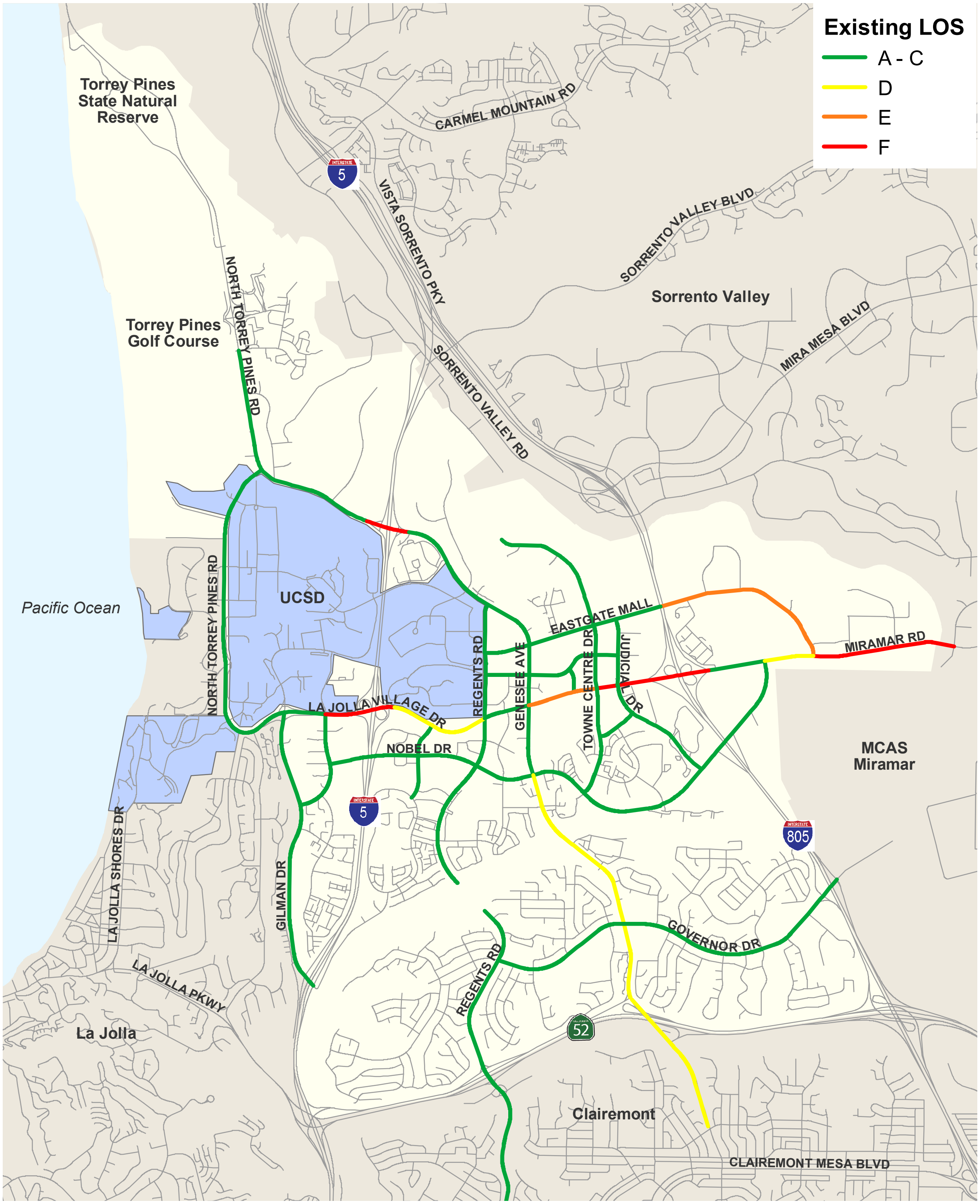
ROADWAY SEGMENT	ROADWAY CLASSIFICATION (a)	LOS E CAPACITY	ADT (b)	V/C RATIO (c)	LOS
Governor Drive					
Regents Rd to Genesee Ave	4 Lane Major Arterial	40,000	16,796	0.420	B
Genesee Ave to I-805 SB Ramps	4 Lane Major Arterial	40,000	19,737	0.493	B
I-805 SB Ramps to I-805 NB Ramps	4 Lane Major Arterial	40,000	10,417	0.260	A
Judicial Drive					
Eastgate Mall to La Jolla Village Dr	4 Lane Major Arterial	40,000	4,828	0.121	A
La Jolla Village Dr to Nobel Dr	4 Lane Major Arterial	40,000	6,574	0.164	A
La Jolla Scenic Drive					
La Jolla Village Dr to Caminito Deseo	4 Lane Major Arterial	40,000	7,928	0.198	A
La Jolla Village Drive					
Revelle College Dr to Villa La Jolla Dr	6 Lane Prime Arterial	60,000	44,520	0.742	C
Villa La Jolla Dr to I-5 SB Ramps	7 Lane Prime Arterial	70,000	62,258	0.889	D
I-5 SB Ramps to I-5 NB Ramps	6 Lane Prime Arterial	60,000	51,391	0.857	D
I-5 NB Ramps to Lebon Dr	6 Lane Major Arterial	50,000	44,335	0.887	D
Lebon Dr to Regents Rd	6 Lane Major Arterial	50,000	42,863	0.857	D
Regents Rd to Genesee Ave	6 Lane Major Arterial	50,000	38,474	0.769	C
Genesee Ave to Towne Centre Dr	6 Lane Major Arterial	50,000	45,117	0.902	**E**
Towne Centre Dr to I-805 SB Ramps	7 Lane Major Arterial	55,000	58,833	1.070	**F**
Lebon Drive					
Palmilla Drive to Nobel Dr	4 Lane Major Arterial	40,000	11,192	0.280	A
Nobel Drive to La Jolla Village Dr	5 Lane Major Arterial	45,000	9,212	0.205	A
Miramar Road					
I-805 SB Ramps to I-805 NB Ramps	6 Lane Major Arterial	50,000	66,139	1.323	**F**
I-805 NB Ramps to Nobel Dr	8 Lane Prime Arterial	80,000	47,991	0.600	B
Nobel Dr to Eastgate Mall	7 Lane Prime Arterial	70,000	64,557	0.922	D
Eastgate Mall to Camino Santa Fe	6 Lane Major Arterial	50,000	67,748	1.355	**F**
North Torrey Pines Road					
Science Park Rd to Genesee Ave	6 Lane Prime Arterial	60,000	29,303	0.488	B
Genesee Ave to Revelle College Dr	4 Lane Major Arterial	40,000	21,760	0.544	C

Notes:
Bold values indicate roadway segments operating at LOS E or F.
(a) Existing road classifications are based on field work conducted December 2017.
(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by Accurate Video Counts Inc and measured in April and May 2015.
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

ROADWAY SEGMENT	ROADWAY CLASSIFICATION (a)	LOS E CAPACITY	ADT (b)	V/C RATIO (c)	LOS
Nobel Drive					
Villa La Jolla Dr to I-5 SB On Ramp	4 Lane Major Arterial	40,000	26,284	0.657	C
I-5 SB On Ramp to I-5 NB Off Ramp/University Center Lane	4 Lane Major Arterial	40,000	27,642	0.691	C
I-5 NB Off Ramp/University Center Lane to Lebon Dr	6 Lane Major Arterial	50,000	21,546	0.431	B
Lebon Dr to Regents Rd	6 Lane Major Arterial	50,000	21,256	0.425	B
Regents Rd to Genesee Ave	6 Lane Major Arterial	50,000	19,772	0.395	A
Genesee Ave to Towne Centre Dr	4 Lane Major Arterial	40,000	18,484	0.462	B
Towne Centre Dr to Judicial Dr	6 Lane Prime Arterial	60,000	17,261	0.288	A
Judicial Dr to Avenue of Flags	5 Lane Major Arterial	45,000	24,125	0.536	B
Avenue of Flags to Miramar Rd	4 Lane Major Arterial	40,000	20,648	0.516	B
Regents Road					
Genesee Ave to Eastgate Mall	2 Lane Collector (w/ two-way left-turn lane)	15,000	6,260	0.417	B
Eastgate Mall to La Jolla Village Dr	4 Lane Collector (w/ two-way left-turn lane)	30,000	15,245	0.508	C
La Jolla Village Dr to Nobel Dr	5 Lane Major Arterial	45,000	16,525	0.367	A
Nobel Dr to Rose Canyon (end)	4 Lane Major Arterial	40,000	10,688	0.267	A
Rose Canyon (end) to Governor Dr	2 Lane Collector (no fronting property)	10,000	1,940	0.194	A
Governor Dr to SR-52 WB Ramps	4 Lane Major Arterial	40,000	16,181	0.405	B
SR-52 WB Ramps to SR-52 EB Ramps	4 Lane Major Arterial	40,000	19,957	0.499	B
SR-52 EB Ramps to Luna Ave	4 Lane Major Arterial	40,000	21,268	0.532	C
Torrey Pines Road					
La Jolla Village Drive to Glenbrook Way	4 Lane Major Arterial	40,000	26,620	0.666	C
Towne Centre Drive					
North of Eastgate Mall	2 Lane Major Arterial	20,000	9,322	0.466	B
Eastgate Mall to La Jolla Village Dr	4 Lane Major Arterial	40,000	20,121	0.503	B
La Jolla Village Dr to Nobel Dr	4 Lane Major Arterial	40,000	13,785	0.345	A
Villa La Jolla Drive					
Gilman Dr (South) to Nobel Dr	4 Lane Major Arterial	40,000	6,896	0.172	A
Nobel Dr to La Jolla Village Dr	4 Lane Major Arterial	40,000	16,011	0.400	B

Notes: **Bold** values indicate roadway segments operating at LOS E or F.
(a) Existing road classifications are based on field work conducted December 2017.
(b) Average Daily Traffic (ADT) volumes for the roadway segments were provided by Accurate Video Counts Inc and measured in April and May 2015.
(c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

FIGURE 7-14



Existing Average Daily Traffic Level of Service Summary

CORRIDOR SPEED BASED ANALYSIS

A speed-based travel time analysis of key corridors within the University community was conducted during peak hours of the day. This analysis evaluates the roadway segment LOS perceived by auto users based on the average speed a vehicle maintains along the corridor. The following corridors were evaluated:

- Genesee Avenue (SR-52 EB Ramps to North Torrey Pines Road)
- La Jolla Village Drive/Miramar Road (Torrey Pines Road to Camino Santa Fe)
- Nobel Drive (Villa La Jolla Drive to Miramar Road)
- Regents Road (Genesee Avenue to Arriba Street, and Governor Drive to Luna Avenue)

The travel time information along each corridor was calculated using Synchro software and actual travel time information. A comparison of the two methods is provided to depict how well the simulation reflects actual travel times. This comparison is helpful in determining the accuracy of future travel time simulations.

The “floating car” method was used in the field to document actual travel times. These travel time runs can vary depending on where the vehicle falls within the progression bands along these segments. Vehicles within a progression band do not have to stop at several consecutive traffic signals. The simulation depicts the average travel time for all vehicles, which includes those that do not fall into progression bands. Additional supporting information on the travel times is provided in **Appendix G**.

Individual corridor analysis results are provided in **Figure 7-15** through **Figure 7-19** and discussed in this section**.** A summary of speed-based LOS along all four corridors are presented at the end of the section in **Figure 7-20** through **Figure 7-22**.

In general, the simulated travel times were longer than observed travel times because the simulation uses average approach delay, which does not account for the timed signal progression that occurs in the community. Also, the observed travel times represent an average time of several runs within a 2-hour timeframe, while the simulation uses the highest 1-hour volume at each intersection.

Genesee Avenue

Figure 7-15 displays the morning and afternoon peak travel time results for Genesee Avenue using a speed-based analysis. **Table 7-5** summarizes the total travel time, average speed, and resulting LOS for traveling from one end of the community to the other on Genesee Avenue. The table includes both field observed travel times and the simulated travel times. Midday speed analysis and additional corridor speed information is provided in **Appendix G**.

The Genesee Avenue corridor is approximately 4.5 miles and goes through 18 traffic signals. The average speed along Genesee between North Torrey Pines Road and SR-52 EB Ramps is estimated in the simulation to be about 20 miles per hour during both peak periods and in both directions. Below 17 mph is equivalent to a LOS E. The travel time and the simulation were fairly consistent in their findings.

In the morning peak, congestion is shown near Executive Square, new Campus Point Drive, and at the I-5 ramps. In the afternoon peak, congestion occurs consistently from Decoro Street to Eastgate Mall.

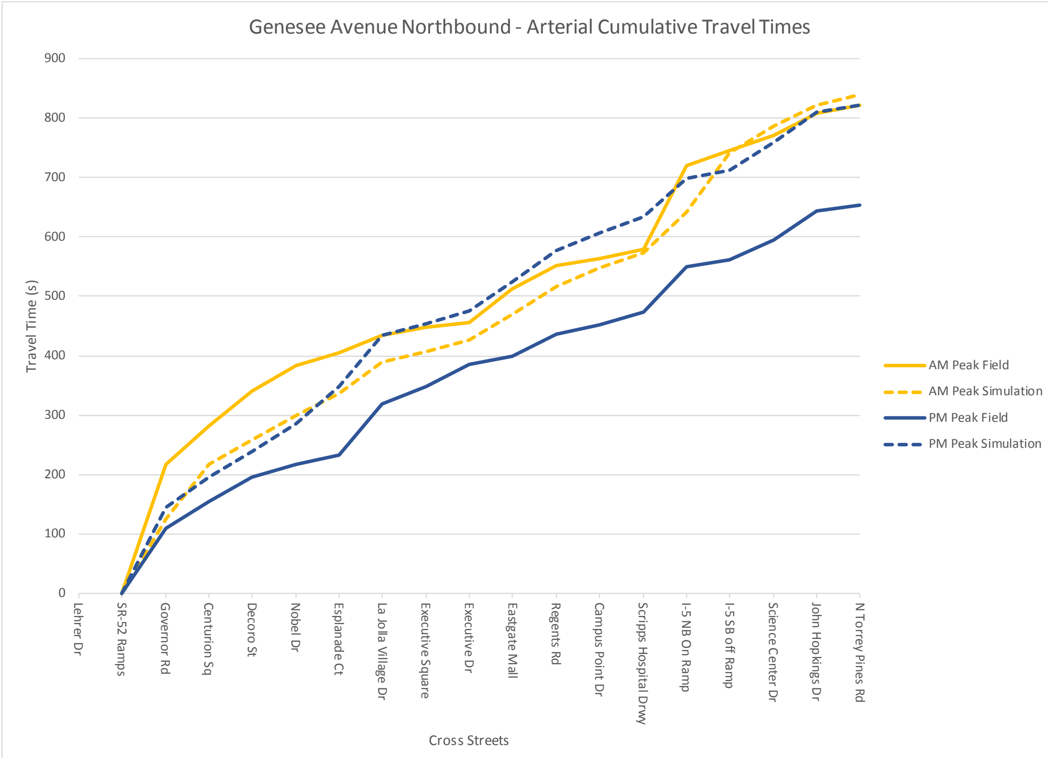
It should be noted that the interchange at I-5 was under construction at the time of these travel times for interchange improvements that will ultimately improve operations in that vicinity. However, the construction did not significantly affect the travel time runs.

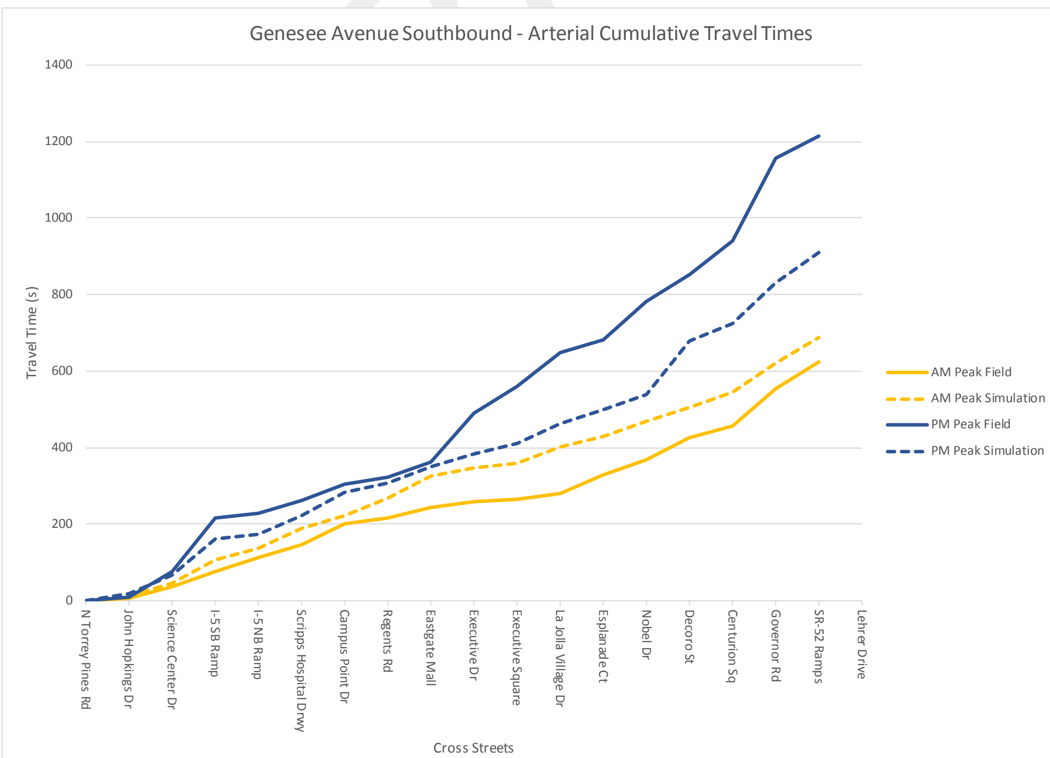
Table 7-5 Genesee Avenue Speed Based Analysis

Corridor	Direction	Peak	Travel Time (sec)	Speed (mph)	LOS
Genesee Avenue					
SR-52 EB Ramps - N Torrey Pines Road	Northbound	AM Field	821	19.6	D
SR-52 EB Ramps - N Torrey Pines Road	Northbound	AM Simulation	840	19.2	D
SR-52 EB Ramps - N Torrey Pines Road	Northbound	PM Field	655	24.6	C
SR-52 EB Ramps - N Torrey Pines Road	Northbound	PM Simulation	822	19.5	D
N Torrey Pines Road – SR-52 EB Ramps	Southbound	AM Field	626	25.7	C
N Torrey Pines Road – SR-52 EB Ramps	Southbound	AM Simulation	688	23.4	C
N Torrey Pines Road – SR-52 EB Ramps	Southbound	PM Field	1216	13.2	**E**
N Torrey Pines Road – SR-52 EB Ramps	Southbound	PM Simulation	910	17.6	D

Notes:
Field = Average value from field based travel time runs
Simulation = Synchro analysis value

Figure 7-15 Genesee Avenue Travel Times





La Jolla Village Drive/Miramar Road

Figure 7-16 displays the morning and afternoon peak travel time results for La Jolla Village Avenue using a speed-based analysis. **Table 7-6** summarizes the total travel time, average speed, and resulting LOS for traveling from one end of the community to the other on La Jolla Village Drive. The table includes both field observed travel times and the simulated travel times. Midday speed analysis and additional corridor speed information is provided in **Appendix G**.

The La Jolla Village Drive corridor is approximately 4.2 miles and goes through 17 traffic signals. The travel times were found to be faster than the estimated simulation times.

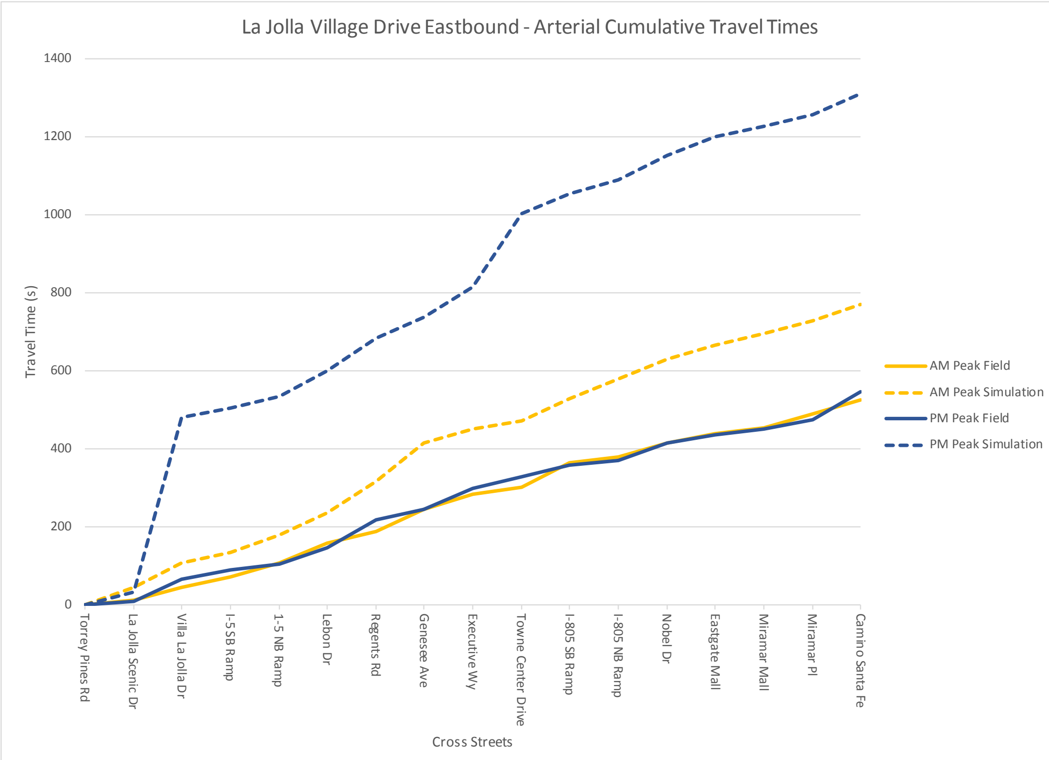
In the morning peak, the average speed along La Jolla Village Drive/Miramar Road is estimated in the simulation to be around 20 miles per hour in the eastbound direction and 14 miles per hour in the westbound direction. The actual travel times were about 9 miles per hour faster on average. The westbound direction has major congestion between the I-805 ramps and Genesee Avenue, and again near the I-5 ramps. The eastbound direction has noticeable congestion between the I-5 ramps and Genesee Avenue

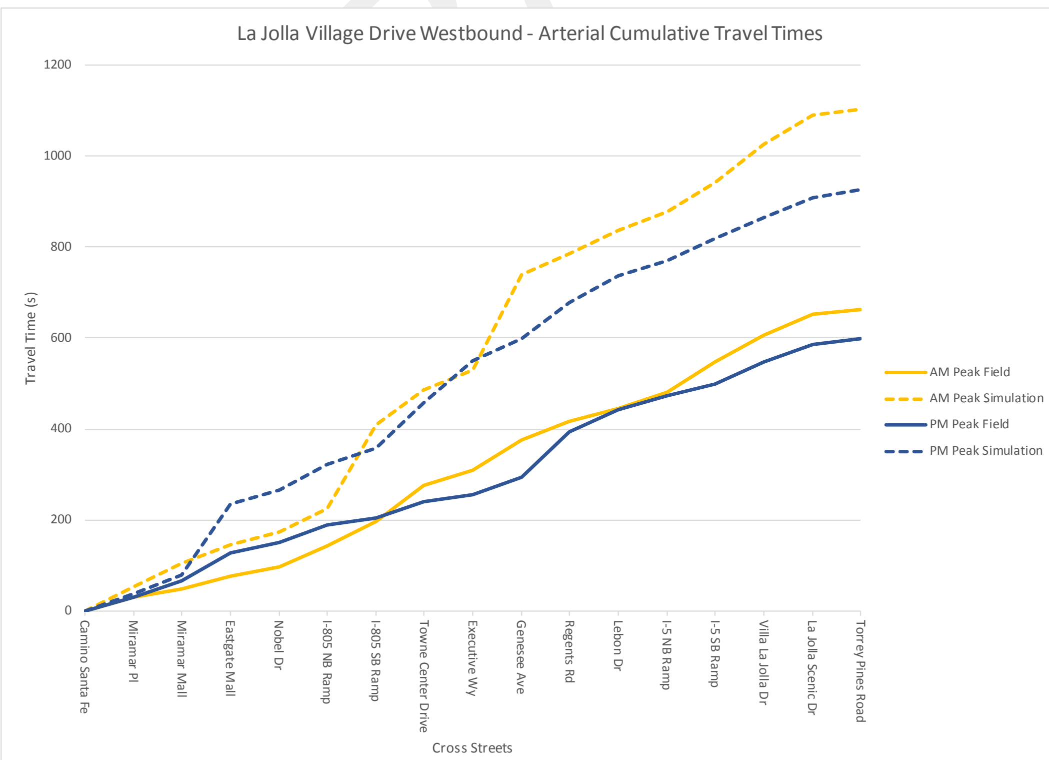
In the afternoon peak, the average speed along La Jolla Village Drive/Miramar Road is estimated in the simulation to be about 12 miles per hour in the eastbound direction and 16 miles per hour in the westbound direction. The travel times showed an average speed of just under 30 miles per hour in both directions. Congestion at a couple key intersections significantly reduce travel speeds on the corridor. In the eastbound direction, the Towne Centre Drive intersection shows extreme congestion; in the westbound direction, Miramar Mall shows extreme congestion.

Table 7-6 La Jolla Village Drive Speed Based Analysis

Corridor	Direction	Peak	Travel Time (sec)	Speed (mph)	LOS
La Jolla Village Drive / Miramar Road					
Torrey Pines Rd - Camino Santa Fe	Eastbound	AM Field	526	28.7	C
		AM Simulation	770	19.6	**E**
		PM Field	546	27.6	C
		PM Simulation	1311	11.5	**F**
Camino Santa Fe - Torrey Pines Rd	Westbound	AM Field	663	22.8	D
		AM Simulation	1101	13.7	**F**
		PM Field	567	26.6	D
		PM Simulation	926	16.3	**E**

Figure 7-16 La Jolla Village Drive Travel Times





Nobel Drive

Figure 7-17 displays the morning and afternoon peak travel time results for Nobel Drive using a speed-based analysis. **Table 7-7** summarizes the total travel time, average speed, and resulting LOS for traveling from one end of the community to the other on Nobel Drive. The table includes both field-observed travel times and the simulated travel times. Midday speed analysis and additional corridor speed information is provided in **Appendix G**.

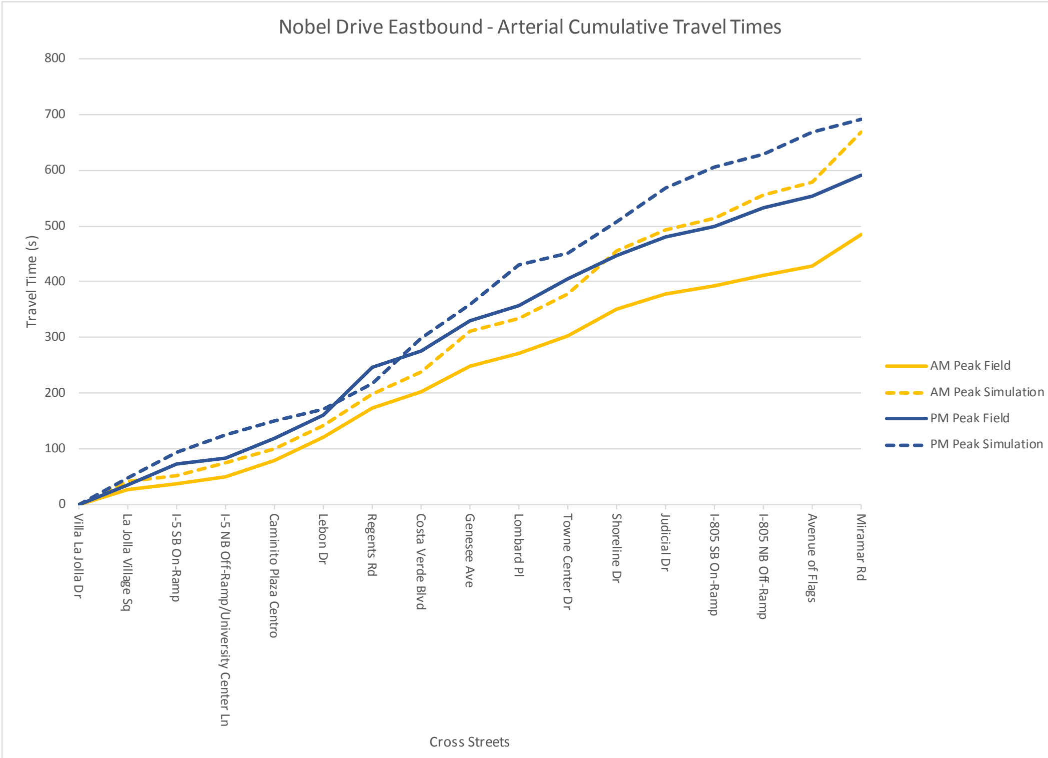
The Nobel Drive corridor is approximately 3.0 miles and goes through 17 traffic signals. The average speed along Nobel Drive between La Jolla Village Square and Miramar Road is estimated in the simulation to be about 17 miles per hour in the morning peak period and about 15 miles per hour during the afternoon peak. Below 17 mph is equivalent to a LOS E. The travel time was found to be about 3 mph faster than the simulation.

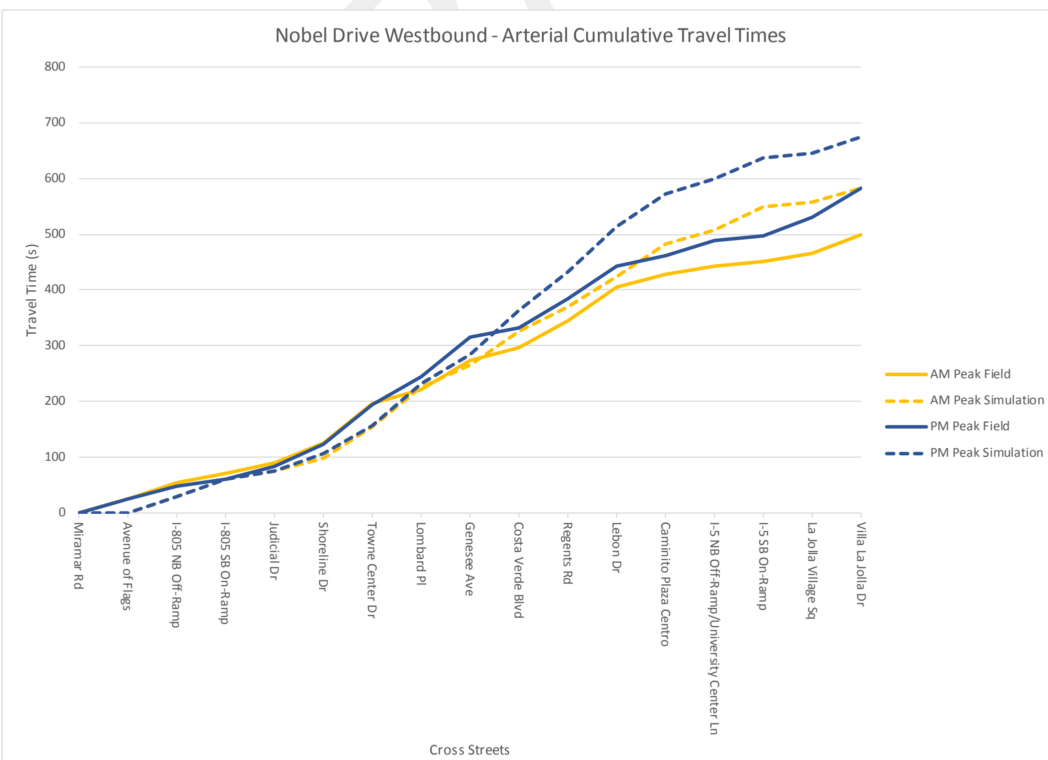
Congestion is shown near the I-5 interchange, Genesee Avenue, and the I-805 interchange during both peak periods. During the field-collected travel time runs there were additional delays and congestion along Nobel Drive during the midday peak, especially near the commercial areas near Villa La Jolla.

Table 7-7 Nobel Drive Speed Based Analysis

Corridor	Direction	Peak	Travel Time (sec)	Speed (mph)	LOS
Nobel Drive					
Villa La Jolla Drive – Miramar Rd	Eastbound	AM Field AM Simulation	485 668	22.5 16.3	C **E**
		PM Field PM Simulation	590 747	18.5 14.7	D **E**
Miramar Rd – Villa La Jolla Drive	Westbound	AM Field AM Simulation	501 607	21.8 18.0	D D
		PM Field PM Simulation	583 700	18.7 15.6	D **E**

Figure 7-2 Nobel Drive Travel Times





Regents Road

Figure 7-18 and **7-19** display the morning and afternoon peak travel time results for Regents Road using a speed-based analysis. **Table 7-8** and **Table 7-9** summarize the total travel time, average speed, and resulting LOS for traveling from one end of the community to the other on Regents Road. The tables include both field-observed travel times and the simulated travel times. Midday speed analysis and additional corridor speed information is provided in **Appendix G**.

The northern section of the Regents Road corridor is approximately 1.5 miles and goes through 10 traffic signals. The average speed along Regents Road between Arriba Street and Genesee Avenue is estimated in the simulation to be about 15 miles per hour in both peak periods and both directions. The travel time and the simulation were fairly consistent in their findings. During the field-collected travel time runs for the northern section, the travel time runs along Regents Road were slower from traffic associated with the La Jolla Country Day School and UCSD's Health Sciences building. The pavement conditions of Regents Road on the northern end was severely degraded and decreased vehicle speeds.

The southern section of the Regents Road corridor is approximately 1.5 miles and goes through 4 traffic signals. Travel times documented in the field were much lower than the simulation, resulting in field-collected speeds being 15 to 25 mph faster than the simulation.

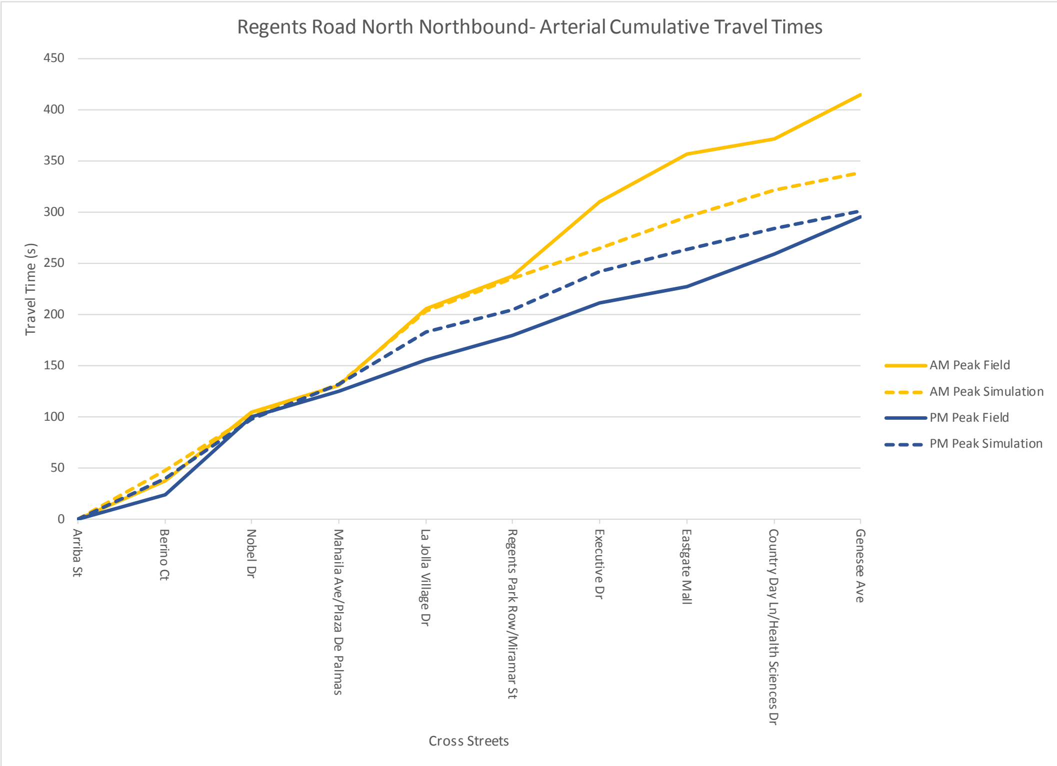
Table 7-4 Regents Road (Northern Section) Speed Based Analysis

Corridor	Direction	Peak	Travel Time (sec)	Speed (mph)	LOS
Regents Road (Northern Section)					
Arriba St – Genesee Ave	Northbound	AM Field AM Simulation	416 339	12.2 15.0	**F** **E**
		PM Field PM Simulation	296 301	17.1 16.8	D **E**
Genesee Ave – Arriba St	Southbound	AM Field AM Simulation	289 335	17.6 15.1	D **E**
		PM Field PM Simulation	385 384	13.2 13.2	**E** **E**

Table 7-5 Regents Road (Southern Section) Speed Based Analysis

Corridor	Direction	Peak	Travel Time (sec)	Speed (mph)	LOS
Regents Road (Southern Section)					
Luna Ave – Governor Dr	Northbound	AM Field AM Simulation	131 361	41.5 15.1	A **F**
		PM Field PM Simulation	125 209	43.5 26.1	A D
Governor Dr – Luna Ave	Southbound	AM Field AM Simulation	102 189	53.3 28.8	A C
		PM Field PM Simulation	116 227	46.9 23.9	B D

Figure 7-3 Regents Road (Northern Section) Travel Times



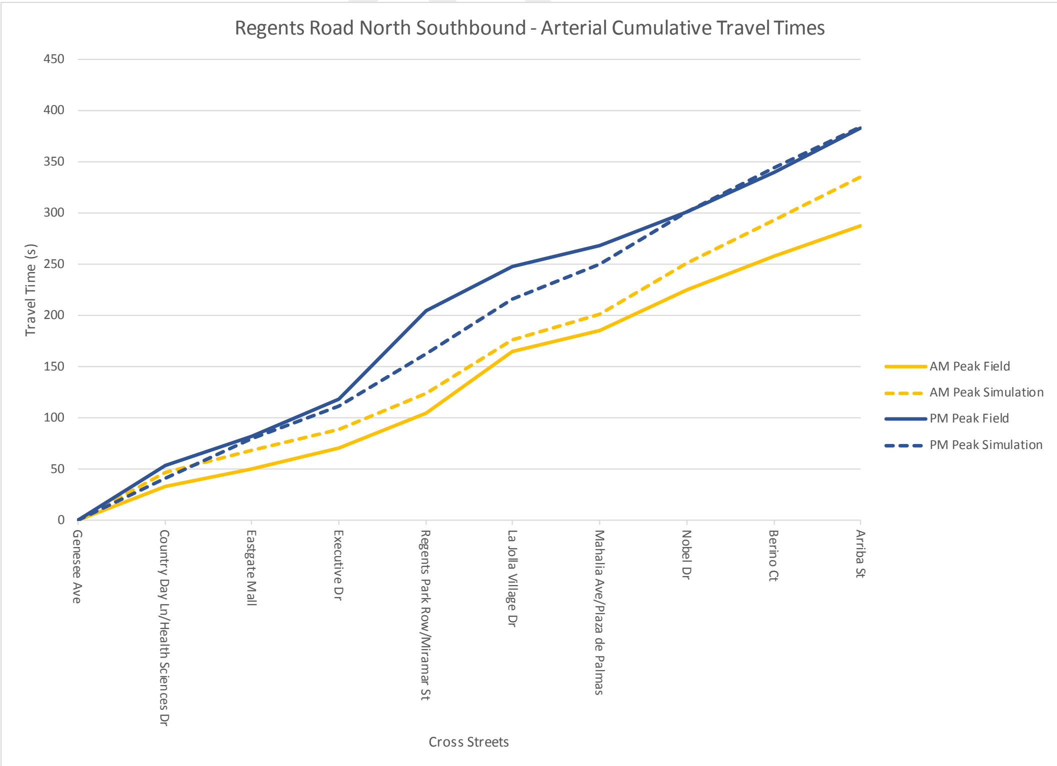
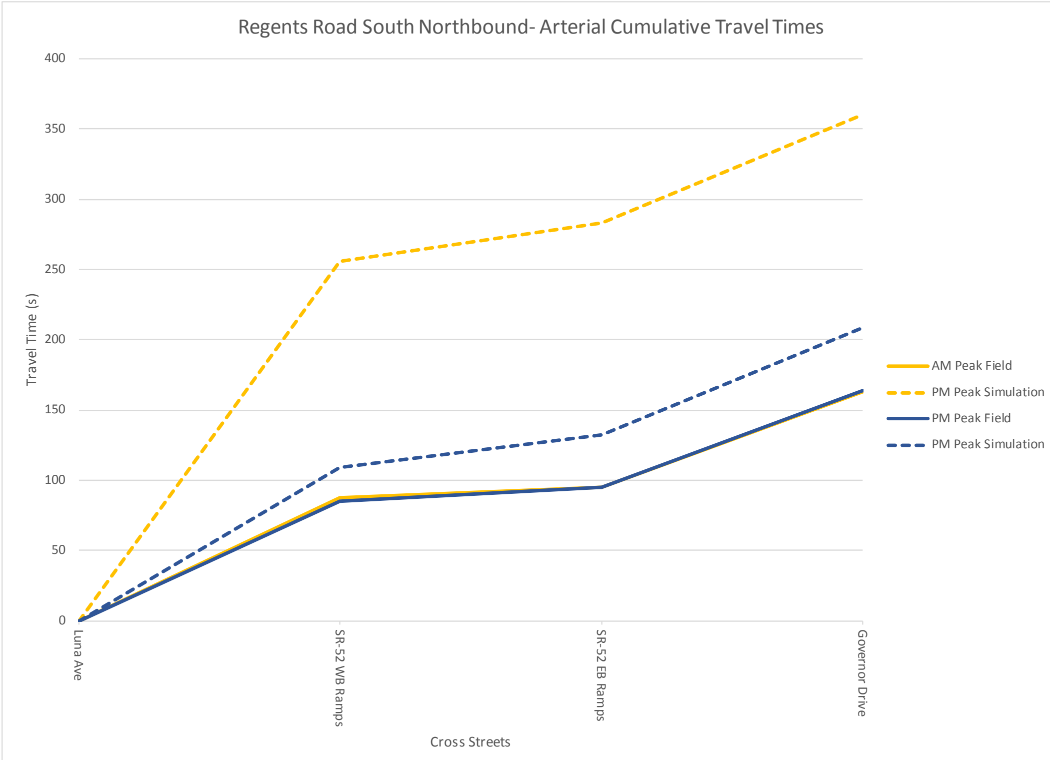


Figure 7-4 Regents Road (Southern Section) Travel Times



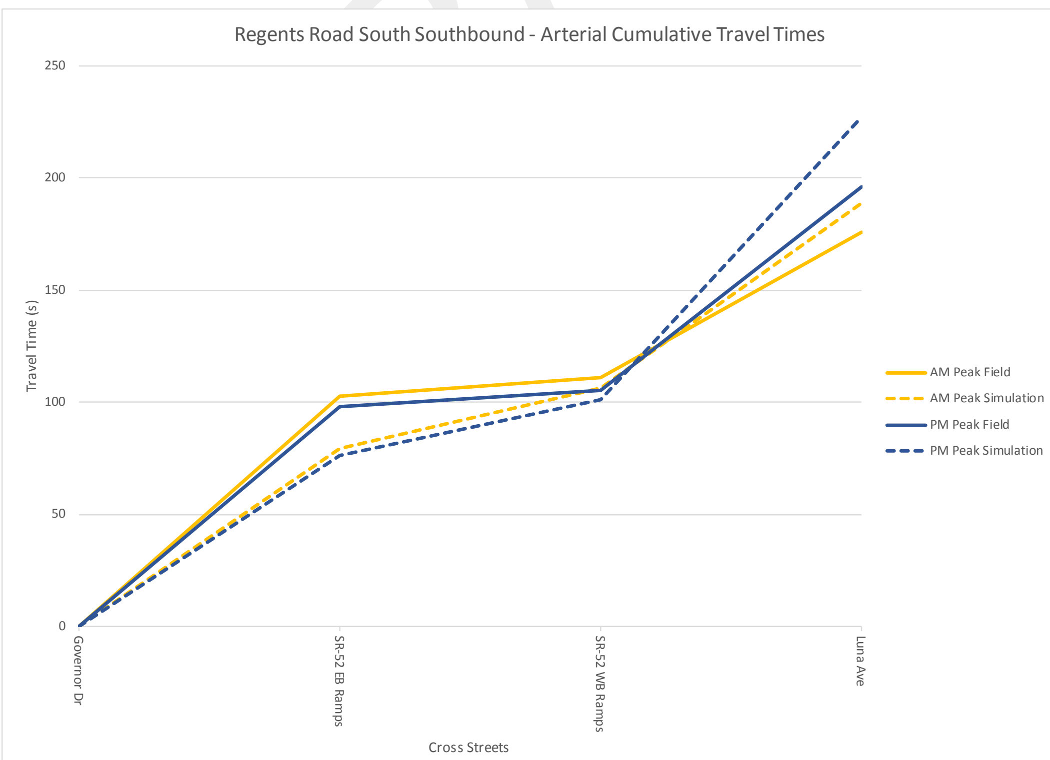
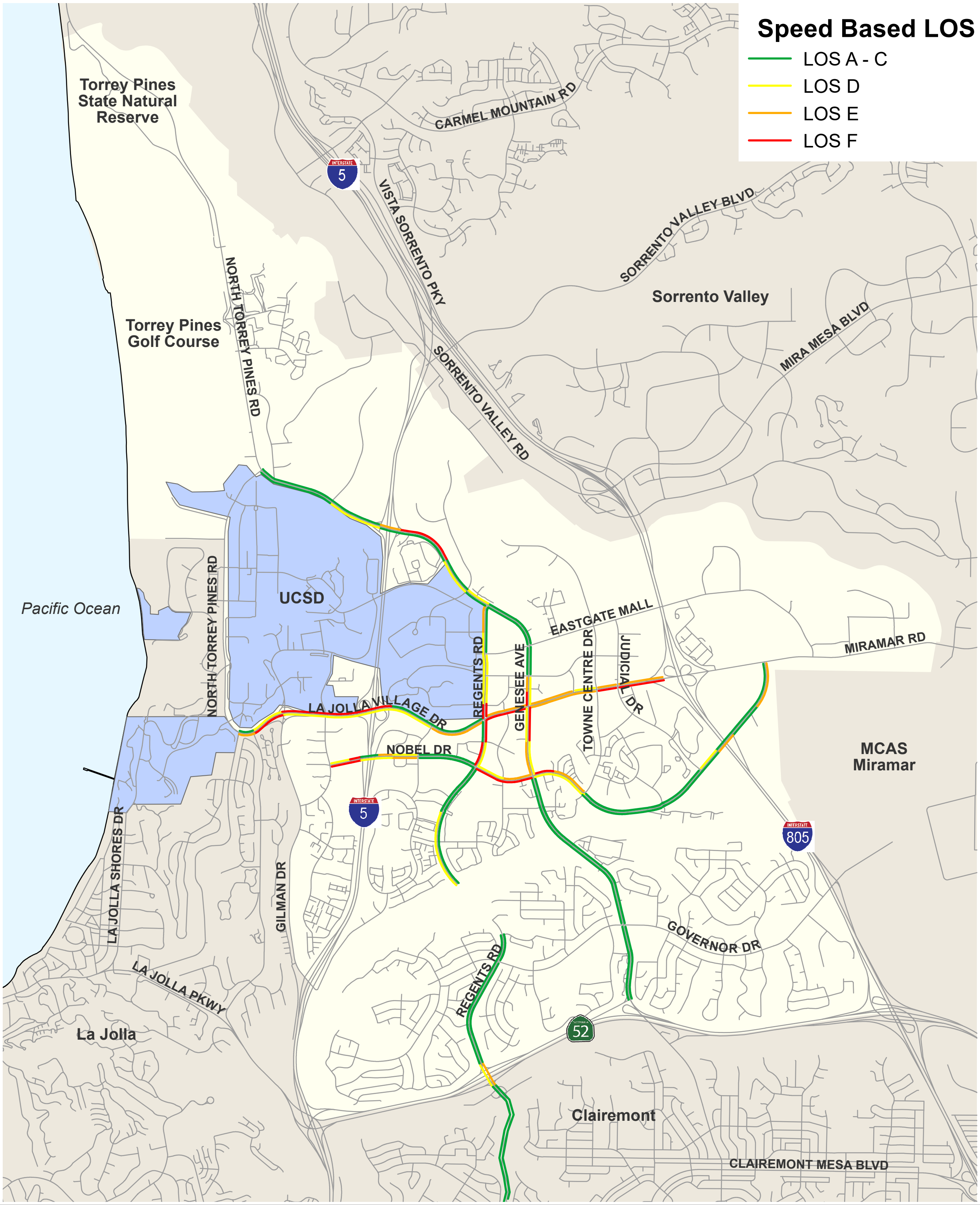


FIGURE 7-20

Existing AM Roadway Segment Speed Based Level of Service Summary

FIGURE 7-21



Existing Midday Roadway Segment Speed Based Level of Service Summary

FIGURE 7-22

Existing PM Roadway Segment Speed Based Level of Service Summary

INTERSECTION OPERATION ANALYSIS

Peak-hour LOS analyses were performed for the morning (AM) and afternoon (PM) peak hour at each of the intersections within the study area. A midday peak hour was also evaluated at intersections along Genesee Avenue, La Jolla Village Drive, Nobel Drive, and Regents Road. The analyses represent the one-hour timeframe that experiences the highest total intersection volume at each individual location.

Appendix F contains the LOS calculation worksheets. **Table 7-10** presents the LOS analysis results for the study intersections.

Figure 7-23 through **Figure 7-25** illustrate the morning, midday, and afternoon peak-hour LOS results for each of the study area intersections.

Twenty-six of the seventy-nine intersections evaluated experienced LOS E or F conditions during one or more of the peak periods including:

- Genesee Ave & N. Torrey Pines Rd (PM)
- Genesee Ave & John Hopkins Dr (S) (AM)
- Genesee Ave & I-5 SB Ramps (AM & PM)
- Genesee Ave & I-5 NB Ramps (Midday and PM)
- Genesee Ave & Eastgate Mall (AM, Midday & PM)
- Genesee Ave & La Jolla Village Dr (AM)
- Genesee Ave & Nobel Dr (AM)
- Genesee Ave & Decoro St (PM)
- Genesee Ave & Centurion Square (AM)
- Genesee Ave & Governor Dr (AM & PM)
- Genesee Ave & SR-52 WB Ramps (PM)
- Genesee Ave & SR-52 EB Ramps (AM & PM)
- Genesee Ave & Appleton St/Lehrer Dr (AM)
- La Jolla Village Dr EB & Gilman Dr (PM)
- La Jolla Village Dr & Villa La Jolla Dr (AM, Midday & PM)
- La Jolla Village Dr & Regents Rd (AM, Midday & PM)
- La Jolla Village Dr & Executive Way (PM)
- La Jolla Village Dr & Towne Centre Dr (AM & PM)
- La Jolla Village Dr & I-805 SB Ramps (AM)
- Miramar Rd & Eastgate Mall (PM)
- Miramar Rd & Camino Santa Fe (PM)
- Nobel Dr & Regents Rd (PM)
- Regents Rd & SR-52 EB Ramps (AM)
- Regents Rd & Luna Ave (AM & PM)
- N. Torrey Pines Rd & Revelle College Dr (PM)
- Governor Dr & I-805 NB Ramps (AM & PM)

Many of the intersections at freeway interchanges are operating at a poor LOS due to the commute to employment areas within the community.

Table 7-10 Existing Conditions Summary of Intersection Analysis

ID	Intersection	Control	Peak Hour	Existing	
				Delay (a)	LOS (b)
1	Genesee Ave & N. Torrey Pines Rd	Signal	AM	33.8	C
			MID	19.8	B
			PM	96.1	**F**
2	Genesee Ave & John Hopkins Dr (S)	Signal	AM	103.3	**F**
			MID	35.5	D
			PM	17.5	B
3	Genesee Ave & Science Center Dr	Signal	AM	24.8	C
			MID	6.7	A
			PM	15.3	B
4	Genesee Ave & I-5 SB Ramps	Signal	AM	57.9	**E**
			MID	25.4	C
			PM	88.3	**F**
5	Genesee Ave & I-5 NB Ramps	Signal	AM	52.3	D
			MID	ECL	**F**
			PM	ECL	**F**
6	Genesee Ave & Scripps Hospital	Signal	AM	19.1	B
			MID	19.9	B
			PM	19.5	B
7	Genesee Ave & Campus Point Dr	Signal	AM	41.3	D
			MID	30.5	C
			PM	37.9	D
8	Genesee Ave & Regents Rd	Signal	AM	26.9	C
			MID	12.4	B
			PM	12.0	B
9	Genesee Ave & Eastgate Mall	Signal	AM	60.1	**E**
			MID	64.2	**E**
			PM	63.5	**E**
10	Genesee Ave & Executive Dr	Signal	AM	13.3	B
			MID	15.9	B
			PM	28.9	C
11	Genesee Ave & Executive Square	Signal	AM	12.5	B
			MID	15.3	B
			PM	8.0	A
12	Genesee Ave & La Jolla Village Dr	Signal	AM	79.1	**E**
			MID	47.7	D
			PM	38.4	D

Notes:

Bold values indicate intersections operating at LOS E or F.

ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* and performed using Synchro 9.0

Table 7-10 Existing Conditions Summary of Intersection Analysis (Continued)

ID	Intersection	Control	Peak Hour	Existing	
				Delay (a)	LOS (b)
13	Genesee Ave and Esplanade Ct	Signal	AM	15.4	B
			MID	35.3	D
			PM	29.9	C
14	Genesee Ave & Nobel Dr	Signal	AM	66.3	**E**
			MID	29.6	C
			PM	36.0	D
15	Genesee Ave & Decoro St	Signal	AM	14.1	B
			MID	11.0	B
			PM	66.3	**E**
16	Genesee Ave & Centurion Square	Signal	AM	65.3	**E**
			MID	19.7	B
			PM	4.9	A
17	Genesee Ave & Governor Dr	Signal	AM	69.3	**E**
			MID	24.2	C
			PM	58.9	**E**
18	Genesee Ave & SR-52 WB Ramps	SSSC	AM	27.5	D
			MID	10.0	A
			PM	79.0	**F**
19	Genesee Ave & SR-52 EB Ramps	Signal	AM	57.8	**E**
			MID	32.2	C
			PM	133.0	**F**
20	Genesee Ave & Appleton St/Lehrer Dr	Signal	AM	85.8	**F**
			MID	26.0	C
			PM	34.6	C
21	La Jolla Village Dr & Torrey Pines Rd	Signal	AM	9.6	A
			MID	27.0	C
			PM	52.0	D
22	La Jolla Village Dr & La Jolla Scenic Dr	Signal	AM	30.4	C
			MID	9.4	A
			PM	20.0	C
23a	La Jolla Village Dr WB & Gilman Dr	Signal	AM	15.4	B
			MID	12.2	B
			PM	17.1	B
23b	La Jolla Village Dr EB & Gilman Dr	SSSC	AM	19.2	B
			MID	13.7	B
			PM	121.1	**F**

Notes:

Bold values indicate intersections operating at LOS E or F.

SSSC = Side Street Stop Control

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* and performed using Synchro 9.0

Table 7-10 Existing Conditions Summary of Intersection Analysis (Continued)

ID	Intersection	Control	Peak Hour	Existing	
				Delay (a)	LOS (b)
24	La Jolla Village Dr & Villa La Jolla Dr	Signal	AM	59.8	**E**
			MID	154.6	**F**
			PM	ECL	**F**
25	La Jolla Village Dr & I-5 SB Off-Ramps	Signal	AM	31.9	C
			MID	41.9	D
			PM	17.1	B
26	La Jolla Village Dr & I-5 NB Off-Ramps	Signal	AM	20.4	C
			MID	13.5	B
			PM	11.0	B
27	La Jolla Village Dr & Lebon Dr	Signal	AM	23.5	C
			MID	13.4	B
			PM	25.3	C
28	La Jolla Village Dr & Regents Rd	Signal	AM	58.4	**E**
			MID	80.3	**F**
			PM	128.8	**F**
29	La Jolla Village Dr & Executive Way	Signal	AM	5.9	A
			MID	27.4	C
			PM	84.5	**E**
30	La Jolla Village Dr & Towne Centre Dr	Signal	AM	81.0	**F**
			MID	37.3	D
			PM	66.2	**E**
31	La Jolla Village Dr & I-805 SB Ramps	Signal	AM	113.2	**F**
			PM	25.4	C
32	La Jolla Village Dr & I-805 NB Ramps	Signal	AM	20.1	C
			PM	28.0	C
33	Miramar Rd & Nobel Dr	Signal	AM	22.6	C
			MID	19.1	B
			PM	31.4	C
34	Miramar Rd & Eastgate Mall	Signal	AM	16.4	B
			PM	81.6	**F**
35	Miramar Rd & Miramar Mall	Signal	AM	53.3	D
			PM	13.2	B
36	Miramar Rd & Miramar Place	Signal	AM	30.4	C
			PM	5.3	A
37	Miramar Rd & Camino Santa Fe	Signal	AM	34.1	C
			PM	89.1	**F**

Notes:
Bold values indicate intersections operating at LOS E or F.
ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.
(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
(b) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* and performed using Synchro 9.0

Table 7-10 Existing Conditions Summary of Intersection Analysis (Continued)

ID	Intersection	Control	Peak Hour	Existing	
				Delay (a)	LOS (b)
38	Nobel Dr & Villa La Jolla Dr	Signal	AM	19.9	B
			MID	22.2	C
			PM	28.2	C
39	Nobel Dr & La Jolla Village Square Dwy	Signal	AM	16.4	B
			MID	34.0	C
			PM	38.8	D
40	Nobel Dr & I-5 SB On Ramp	Signal	AM	3.9	A
			MID	25.7	C
			PM	13.5	B
41	Nobel Dr & University Center Ln/I-5 NB Off-Ramp	Signal	AM	13.9	B
			MID	22.0	C
			PM	18.5	B
42	Nobel Dr & Caminito Plaza Centro	Signal	AM	18.2	B
			MID	17.0	B
			PM	14.6	B
43	Nobel Dr & Lebon Dr	Signal	AM	21.7	C
			MID	18.5	B
			PM	30.4	C
44	Nobel Dr & Regents Rd	Signal	AM	40.4	D
			MID	33.7	C
			PM	70.0	**E**
45	Nobel Dr & Costa Verde Blvd/Cargill Ave	Signal	AM	49.6	D
			MID	45.0	D
			PM	49.3	D
46	Nobel Dr & Lombard Place	Signal	AM	8.1	A
			MID	15.5	B
			PM	24.8	C
47	Nobel Dr & Towne Centre Dr	Signal	AM	22.6	C
			MID	21.5	C
			PM	40.7	D
48	Nobel Dr & Shoreline Dr	Signal	AM	14.4	B
			MID	11.5	B
			PM	13.0	B
49	Nobel Dr & Judicial Dr	Signal	AM	20.3	C
			MID	11.3	B
			PM	17.9	B

Notes:

Bold values indicate intersections operating at LOS E or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* and performed using Synchro 9.0

Table 7-10 Existing Conditions Summary of Intersection Analysis (Continued)

ID	Intersection	Control	Peak Hour	Existing	
				Delay (a)	LOS (b)
50	Nobel Dr & I-805 SB On-Ramp	Signal	AM	3.5	A
			MID	4.2	A
			PM	4.1	A
51	Nobel Dr & I-805 NB Off-Ramp	Signal	AM	17.2	B
			MID	19.5	B
			PM	16.7	B
52	Nobel Dr & Avenue of Flags	Signal	AM	3.2	A
			MID	5.5	A
			PM	3.1	A
53	Regents Rd & County Day Ln/ Health Science Dr	Signal	AM	20.7	C
			MID	12.3	B
			PM	42.6	D
54	Regents Rd & Eastgate Mall	Signal	AM	12.7	B
			MID	5.2	A
			PM	13.3	B
55	Regents Rd & Executive Dr	Signal	AM	8.0	A
			MID	9.1	A
			PM	19.9	B
56	Regents Rd & Regents Park Row	Signal	AM	17.9	B
			MID	13.0	B
			PM	30.3	C
57	Regents Rd & Plaza De Palmas	Signal	AM	9.8	A
			MID	8.8	A
			PM	11.8	B
58	Regents Rd & Berino Ct	Signal	AM	16.7	B
			MID	5.7	A
			PM	6.2	A
59	Regents Rd & Arriba St	Signal	AM	19.1	B
			MID	13.6	B
			PM	16.7	B
60	Regents Rd & Governor Dr	Signal	AM	26.1	C
			MID	14.4	B
			PM	21.4	C
61	Regents Rd & SR-52 WB Ramps	Signal	AM	35.4	D
			MID	31.3	C
			PM	43.3	D
62	Regents Rd & SR-52 EB Ramps	Signal	AM	100.1	**F**
			MID	20.6	C
			PM	31.5	C

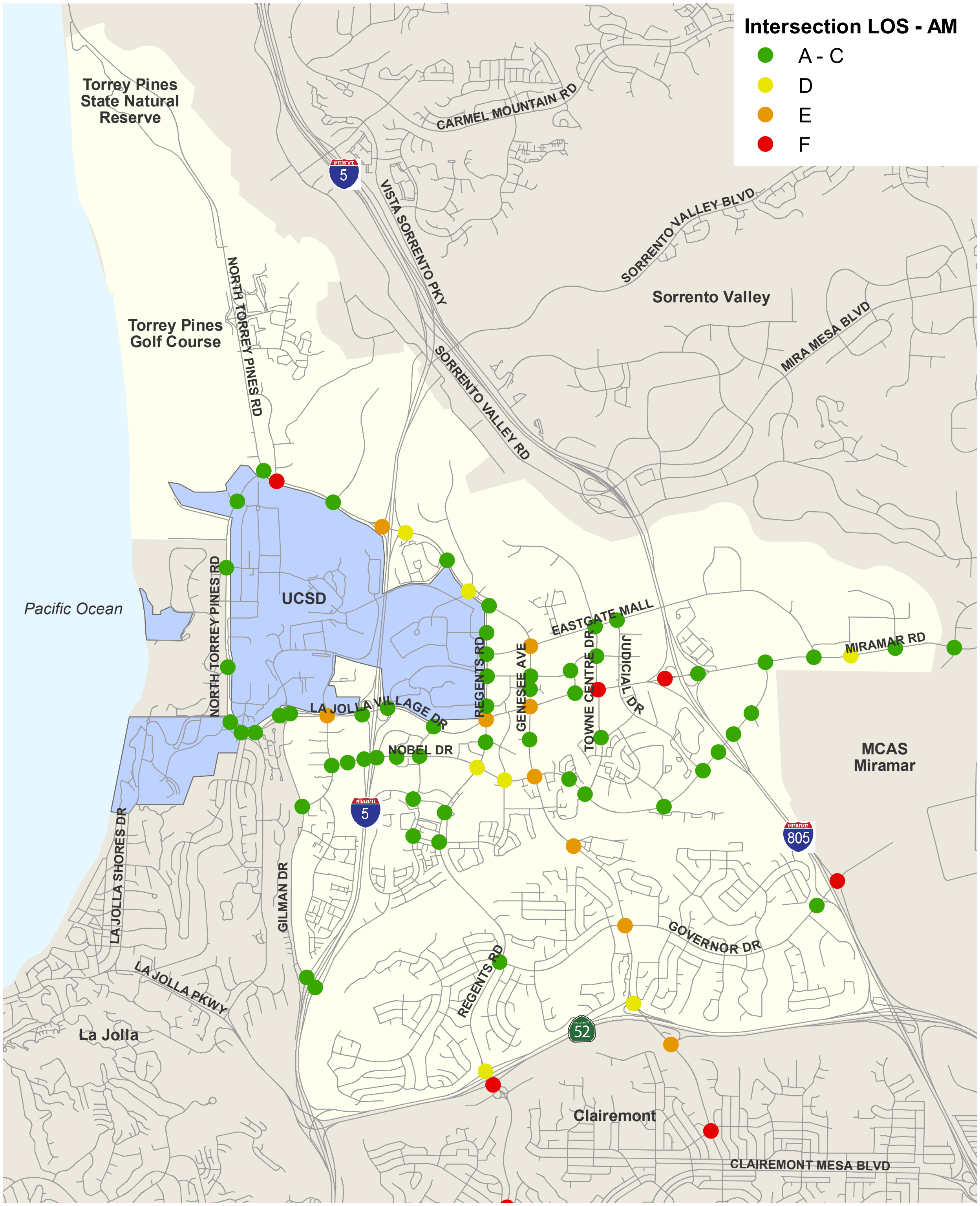
Notes: **Bold** values indicate intersections operating at LOS E or F.
(c) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
(d) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* and performed using Synchro 9.0

Table 7-10 Existing Conditions Summary of Intersection Analysis (Continued)

ID	Intersection	Control	Peak Hour	Existing	
				Delay (a)	LOS (b)
63	Regents Rd & Luna Ave	Signal	AM	ECL	**F**
			PM	177.0	**F**
64	N. Torrey Pines Rd & UCSD Northpoint Dwy	Signal	AM	24.3	C
			PM	32.9	C
65	N. Torrey Pines Rd & Pangea Dr	Signal	AM	7.6	A
			PM	12.7	B
66	N. Torrey Pines Rd & La Jolla Shores Dr	Signal	AM	24.8	C
			PM	42.1	D
67	N. Torrey Pines Rd & Revelle College Dr	Signal	AM	17.9	B
			PM	94.3	**F**
68	Gilman Dr & Villa La Jolla Dr	Signal	AM	22.4	C
			PM	19.0	B
69	Gilman Dr & I-5 SB Ramps	Signal	AM	9.4	A
			PM	43.9	D
70	Gilman Dr & I-5 NB Ramps	Signal	AM	14.3	B
			PM	15.5	B
71	Palmilla Dr & Lebon Dr	Signal	AM	7.8	A
			PM	7.5	A
72	Palmilla Dr & Ariba St	Signal	AM	6.6	A
			PM	7.4	A
73	Towne Centre Dr & Eastgate Mall	Signal	AM	24.1	C
			PM	35.9	D
74	Towne Centre Dr & Executive Dr	Signal	AM	13.5	B
			PM	30.0	C
75	Towne Centre Dr & Golden Haven Dr	Signal	AM	15.9	B
			PM	12.8	B
76	Executive Way & Executive Dr	Signal	AM	10.4	B
			PM	12.9	B
77	Judicial Dr & Eastgate Mall	Signal	AM	16.7	B
			PM	18.9	B
78	Governor Dr & I-805 SB Ramps	SSSC	AM	18.6	C
			PM	17.5	C
79	Governor Dr & I-805 NB Ramps	SSSC	AM	ECL	**F**
			PM	ECL	**F**

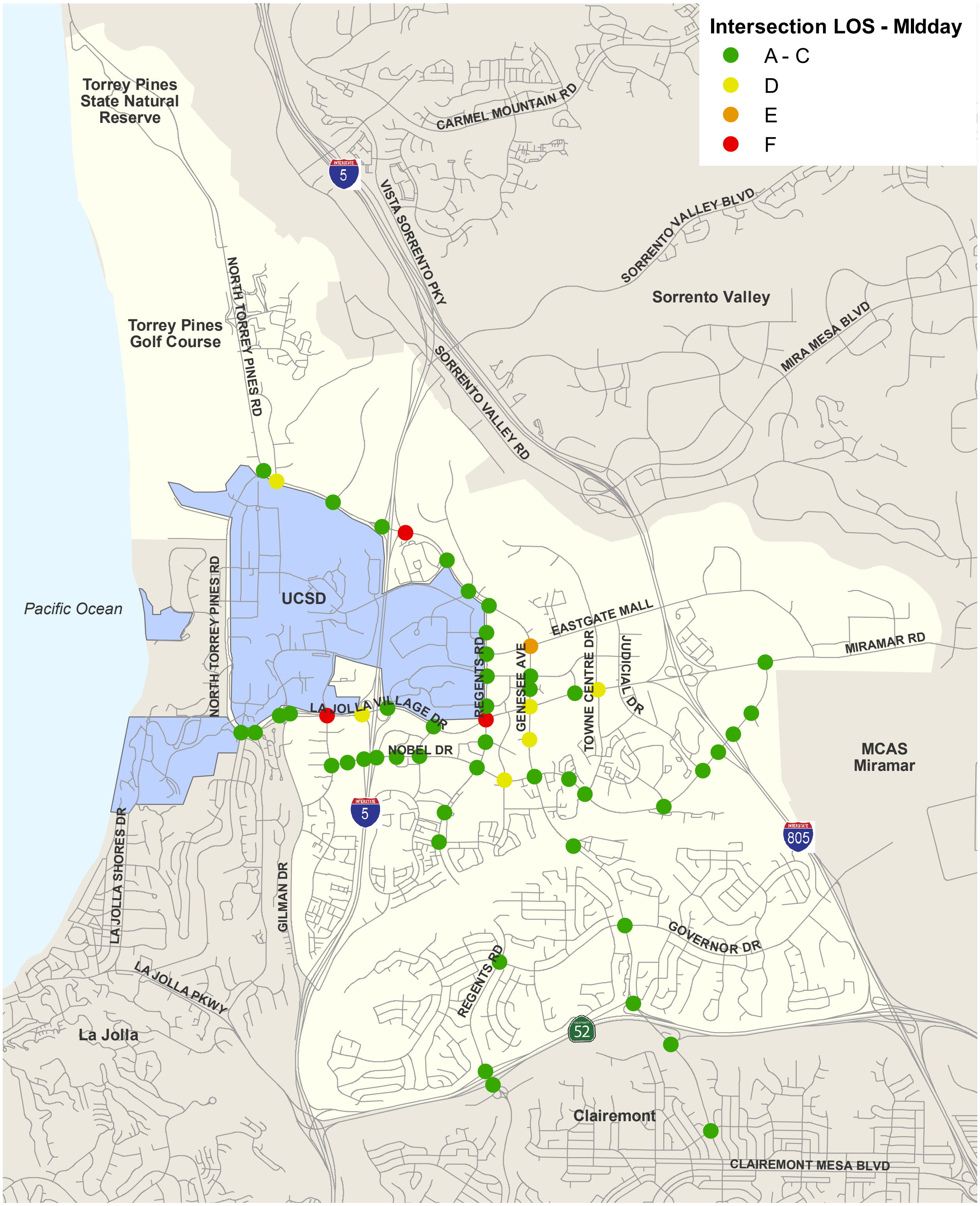
Notes:
Bold values indicate intersections operating at LOS E or F.
ECL = Exceeds Calculable Limit. Reported when delay exceeds 180 seconds.
SSSC = Side Street Stop Control
(c) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a two-way stop-controlled intersection, delay refers to the worst movement.
(d) LOS calculations are based on the methodology outlined in the *2010 Highway Capacity Manual* and performed using Synchro 9.0

FIGURE 7-23



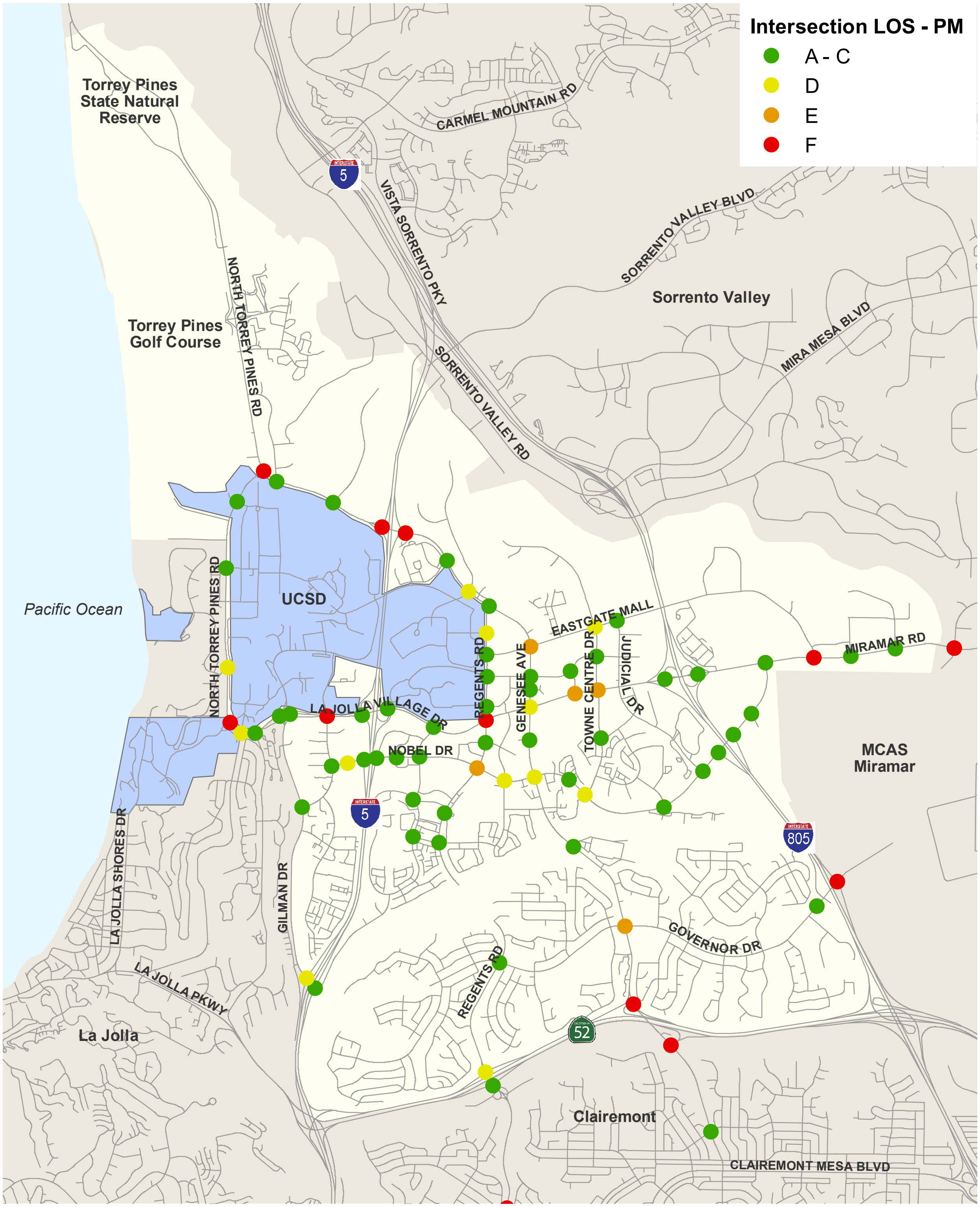
Existing AM Level of Service Summary

FIGURE 7-24



Existing Midday Level of Service Summary

FIGURE 7-25



Existing PM Level of Service Summary

INTERSECTION QUEUEING ANALYSIS

Intersection queueing analysis was performed to understand where queue volumes may cause overflows into adjacent lanes. Overflows were determined to occur where the 95th percentile of queue lengths in either the AM or PM peak periods exceeds the pocket length for that movement. For through movements, the pocket length is calculated as the distance to the preceding intersection. **Table 7-11** presents the results for all movements which produced overflow queues in the analysis. This analysis shows that queues extend beyond the turn pockets of nearly all (64 of 75) of the study area signalized intersections for at least a portion of the peak hour.

Table 7-11 Intersection Queue Overflows

Intersection	Movement	Pocket Length	95% Queue Length (AM)	95% Queue Length (PM)	Excess Queue (AM) (ft)	Excess Queue (PM) (ft)
1: N. Torrey Pines Rd. & Genesee Ave	EBR	150	50	287	-	137
2: Genesee Ave & John Hopkins Drive	WBR	200	804	23	604	-
	SBL	170	61	249	-	79
3: Genesee Ave & Science Center Drive	EBL	125	123	132	-	7
4: Genesee Ave & I-5 SB Ramps	WBT	492	577	1	81	-
	SBL	446	552	583	106	137
	SBT	446	519	628	73	182
5: I-5 NB Ramps & Genesee Ave	EBL	350	139	550	-	200
	NBL	481	693	191	212	-
	NBT	481	735	205	254	-
	NBR	481	472	42	-	-
6: Genesee Ave & Scripps Hospital	NBL	275	323	121	48	-
	SBR	160	193	45	33	-
7: Genesee Ave & Campus Point Drive	EBL	130	124	231	-	101
	EBR	130	21	252	-	122
	WBL	230	37	275	-	45
	SBR	200	387	100	187	-
8: Regents Road & Genesee Ave	WBL	90	101	59	11	-
9: Genesee Ave & Eastgate Mall	WBL	160	105	328	-	168
	NBL	150	247	56	97	-

Intersection	Movement	Pocket Length	95% Queue Length (AM)	95% Queue Length (PM)	Excess Queue (AM) (ft)	Excess Queue (PM) (ft)
10: Genesee Ave & Executive Drive	NBT	326	426	89	100	-
11. Genesee Ave & Executive Square	SBT	326	8	445	-	119
12: Genesee Ave & La Jolla Village Drive	SBL	225	130	357	-	132
13: Genesee Ave & Esplanade Court	EBL	140	97	153	-	13
	EBT	140	98	155	-	15
	WBL	131	75	231	-	100
	WBT	131	41	184	-	53
14: Genesee Ave & Nobel Drive	EBL	125	85	160	-	35
	EBR	125	14	204	-	79
15: Genesee Ave & Decoro Street	WBT	300	154	533	-	233
	NBL	165	159	377	-	212
	SBT	929	228	1458	-	529
16: Genesee Ave & Centurion Square	WBL	50	354	143	304	93
	WBR	50	86	0	36	-
	SBL	105	129	20	14	-
17: Genesee Ave & Governor Drive	EBL	110	372	177	262	67
	EBR	90	135	87	45	-
	WBL	250	217	272	-	22
	NBL	190	161	464	-	274
	NBR	125	232	235	107	110
	SBL	265	173	292	-	27
	SBR	85	231	596	146	511
19: Genesee Ave & SR-52 EB Ramps	NBR	125	527	96	402	-
	SBL	450	528	1180	78	730
20: Genesee Ave & Appleton Street/Lehrer Drive	EBT	239	724	517	485	278
	NBL	75	28	86	-	11
	NBT	439	608	195	169	-
	SBL	175	69	236	-	61

Intersection	Movement	Pocket Length	95% Queue Length (AM)	95% Queue Length (PM)	Excess Queue (AM) (ft)	Excess Queue (PM) (ft)
21: Torrey Pines Road & La Jolla Village Drive	EBT	378	65	774	-	396
	WBL	260	418	602	158	342
	NBR	265	285	219	20	-
22: La Jolla Scenic Dr & La Jolla Village Dr	EBT	362	488	799	126	437
	WBL	200	116	268	-	68
	WBT	200	632	290	432	90
23: Gilman Drive & La Jolla Village Dr WB Off	NBL	50	370	193	320	143
24: Villa La Jolla Drive & La Jolla Village Drive	EBT	318	469	1087	151	769
	WBL	270	154	297	-	27
	NBL	125	184	230	59	105
	SBL	215	140	450	-	235
	SBT	335	76	753	-	418
25: I-5 SB Off-Ramps & La Jolla Village Drive	WBR	250	123	805	-	555
	SBL	130	352	457	222	327
	SBR	130	565	282	435	152
26: I-5 NB Ramps & La Jolla Village Drive	EBR	550	408	1024	-	474
	NBL	175	210	187	35	12
	NBR	175	346	150	171	-
27: Lebon Drive & La Jolla Village Drive	NBL	200	305	307	105	107
28: Regents Road & La Jolla Village Drive	EBL	270	561	486	291	216
	WBL	175	32	273	-	98
	SBL	160	186	356	26	196
	SBT	368	88	430	-	62
	SBR	195	26	1421	-	1226
29: Executive Way & La Jolla Village Drive	WBT	654	1234	571	580	-
	SBL	105	82	654	-	549
30: Towne Center Drive & La Jolla Village Drive	EBL	145	346	25	201	-
	EBT	654	216	961	-	307
	WBT	1193	1190	626	-	-
	WBR	370	350	47	-	-
	SBL	230	140	742	-	512

Intersection	Movement	Pocket Length	95% Queue Length (AM)	95% Queue Length (PM)	Excess Queue (AM) (ft)	Excess Queue (PM) (ft)
31: I-805 SB Ramps & La Jolla Village Drive	EBT	680	513	894	-	214
	SBR	900	1002	232	102	-
32: I-805 NB Ramps & La Jolla Village Drive	EBR	720	50	1538	-	818
	WBT	310	304	454	-	144
34: Miramar Road & Eastgate Mall	WBT	1036	639	1146	-	110
	SBL	225	140	630	-	405
	SBT	451	71	609	-	158
35: Miramar Road & Miramar Mall	EBL	160	174	75	14	-
	WBT	463	1413	1307	950	844
36: Miramar Road & Miramar Place	EBL	210	216	52	6	-
37: Camino Santa Fe & Miramar Road	EBL	545	384	724	-	179
	WBT	449	845	630	396	181
	NBL	75	35	121	-	46
38: Villa La Jolla Drive & Nobel Drive	SBL	125	45	267	-	142
39: La Jolla Village Square Dwy & Nobel Drive	WBL	145	76	226	-	81
	NBL	95	25	124	-	29
	NBT	120	28	129	-	9
	NBR	95	23	251	-	156
	SBL	70	62	275	-	205
	SBT	70	64	283	-	213
40: I-5 SB Ramps & Nobel Drive	EBT	243	31	268	-	25
42: Caminito Plaza Centro & Nobel Drive	EBL	100	65	115	-	15
44: Regents Road & Nobel Drive	SBL	210	116	415	-	205
	SBR	100	0	245	-	145

Intersection	Movement	Pocket Length	95% Queue Length (AM)	95% Queue Length (PM)	Excess Queue (AM) (ft)	Excess Queue (PM) (ft)
45: Cargill Ave/Costa Verde Boulevard & Nobel Drive	EBL	270	183	328	-	58
	NBL	100	92	113	-	13
	SBL	95	148	208	53	113
46: Lombard Place & Nobel Drive	EBL	150	67	259	-	109
48: Nobel Drive & Shoreline Drive	NBT	92	104	49	12	-
53: Regents Road & Health Science Drive	EBR	200	14	226	-	26
	NBL	175	674	216	499	41
54: Regents Road & Eastgate Mall	WBL	120	100	175	-	55
	SBT	571	68	709	-	138
56: Regents Road & Miramar Street/Regents Park Row	WBL	50	58	179	8	129
	NBL	135	118	181	-	46
	SBL	60	48	64	-	4
57: Regents Road & Plaza De Palmas	SBT	599	63	923	-	324
59: Regents Road & Ariba Street	SBL	200	211	266	11	66
60: Regents Road & Governor Drive	WBL	130	310	431	180	301
61: Regents Road & SR-52 WB On/SR-52 WB OFF	NBL	160	233	199	73	33
62: Regents Road & SR-52 EB Off/SR-52 EB On	EBR	50	78	994	28	944
	NBR	50	806	219	756	169
	SBL	110	367	147	257	37

Intersection	Movement	Pocket Length	95% Queue Length (AM)	95% Queue Length (PM)	Excess Queue (AM) (ft)	Excess Queue (PM) (ft)
63: Clairemont Mesa Blvd/Regents Road & Luna Ave	EBT	101	595	495	494	394
	EBR	60	16	84	-	24
	NBL	175	241	196	66	21
	SBT	366	153	886	-	520
64: N. Torrey Pines Rd. & UCSD Northpoint Driveway	EBT	26	48	95	22	69
	WBL	130	58	145	44	15
	NBL	50	94	36	44	-
65: N. Torrey Pines Rd. & Pangea Drive	WBL	90	29	112	-	22
	NBT	296	317	137	21	-
	SBT	313	91	684	-	371
66: N. Torrey Pines Road/N. Torrey Pines Road. & La Jolla Shores Drive	EBL	75	271	194	196	119
	WBT	53	70	117	17	64
	NBL	130	228	226	98	96
	SBL	190	71	265	-	75
	SBT	272	124	1195	-	923
	SBR	165	190	334	25	169
67: La Jolla Village Drive/N. Torrey Pines Road & Expedition Way/Revelle College Drive	NBL	150	356	150	206	-
	NBT	378	731	253	353	-
68: Gilman Drive & Villa La Jolla Drive	SBL	200	119	283	-	83
69: I-5 SB On/I-5 SB Off Ramp & Gilman Drive	EBR	275	25	956	-	681
	WBL	115	151	751	-	636
70: Gilman Drive	NBL	175	245	251	70	76
71: Palmilla Drive/Charmant Dr & Lebon Drive	SBL	110	129	44	19	-
73: Towne Center Drive & Eastgate Mall	WBL	150	63	234	-	84

Intersection	Movement	Pocket Length	95% Queue Length (AM)	95% Queue Length (PM)	Excess Queue (AM) (ft)	Excess Queue (PM) (ft)
74: Towne Center Drive & Executive Drive	WBL	115	63	450	-	335
76: Executive Way & Executive Drive	NBL	105	140	45	35	-
	SBT	61	27	77	-	16
77: Judicial Drive & Eastgate Mall	NBL	150	191	140	41	-

FREEWAY SEGMENTS

Interstate 5 is a significant north-south interstate that traverses the United States from the Mexican border to the Canadian border through the states of California, Oregon, and Washington. Within California, I-5 connects the following major metropolitan areas: San Diego, Los Angeles, Sacramento, and the eastern portion of the San Francisco Bay Area. I-5 is located on the western half of the University community and has interchanges at Genesee Avenue, La Jolla Village Drive, Gilman Drive, and Nobel Drive.

Interstate 805 is largely contained within the San Diego metropolitan area. Termini are both located along Interstate 5, one near the Mexico border and the other near the Torrey Pines State Reserve and the University of California at San Diego. I-805 is located on the eastern half of the University community and has interchanges at La Jolla Village Drive/Miramar Road, Nobel Drive, and Governor Drive.

State Route 52 is an east-west state highway that connects La Jolla on the west end at the termini with I-5 within Santee on the east end. SR-52 is located on the south side of the University community and has interchanges at interstate at Regents Road and Genesee Avenue.

Freeway volumes were obtained from Caltrans and reflect the latest Year 2016 volumes that had been published at the time of this report. The freeways were evaluated using procedures for a freeway mainline as outlined in the HCM.

Table 7-12 displays the LOS analysis results for the freeway segments adjacent to the community during the morning and afternoon peak hours. As shown in the table, the freeway segments surrounding the University community operate with an LOS D or better for all segments except the following:

- Interstate 5 shows LOS F between SR-52 and Gilman Drive during the AM and PM peak, respectively. During the AM peak, the failing LOS appears in the northbound direction, in the PM peak the failing LOS appears in the southbound direction.
- Interstate 805 shows LOS F at each of the study segments in both peak periods. The failing LOS shows up in the northbound direction during the AM peak and in the southbound direction during the PM peak.
- State Route 52 shows LOS E for the segment between Genesee Avenue and I-805 during the AM peak and LOS E or F at each of the study segments during the PM peak. All failing segments are in the eastbound direction.

In general, the failing segments are those that move traffic towards the University community in the morning and away from the University community in the afternoon. **Figure 7-26** illustrates the LOS along the freeways during the AM peak. **Figure 7-27** illustrates the LOS along the freeways during the PM peak. **Appendix H** includes the "k" and "d" factors published by Caltrans that are included in the analysis.

FREEWAY ENTRANCE RAMPS

Freeway entrance ramps that currently have ramp meters installed and in operation were evaluated to determine the delay and queue associated with the ramp meters. Calculations were made using the peak hour demand at the entrance ramp and the current meter rate to quantify the number and frequency of vehicles that are processed through the meter. The excess demand not being processed is then quantified along with its respective queue length. Ramp volumes were obtained from the intersection turning movements collected in May 2015. **Appendix H** contains the ramp meter rates provided by Caltrans.

Table 7-13 displays the results of the freeway ramp meters in the study area. It should be noted that the I-5/Genesee Avenue interchange was under construction at the time of this study and ramp meters were removed and not operating. As shown in the table, the meter rate adequately controls the expected demand with delays resulting in less than 15 minutes, except at the following locations:

- I-5 SB & Gilman Drive, PM peak (21-minute delay)
- I-5 SB & La Jolla Village Drive (WB to SB), PM peak (22-minute delay)
- I-5 SB & La Jolla Village Drive (EB to SB), PM peak (55-minute delay)
- I-805 SB & Governor Drive, PM Peak (19-minute delay)

It is expected that delays over 15 minutes lead people to use an alternate route or choose to use the ramp during a different time period.

Figure 7-26 illustrates that no ramps are over capacity during the AM peak period. **Figure 7-27** illustrates the ramps that are over capacity during the PM peak period. As shown in the figures, existing freeway ramps over capacity include:

- I-5 SB & Gilman Drive
- I-5 NB & La Jolla Village Drive (EB to NB)
- I-5 SB & La Jolla Village Drive (WB to SB)
- I-5 SB & La Jolla Village Drive (EB to SB)
- I-805 & Nobel Drive
- I-805 SB and Governor Drive

Field observations were made at each of the entrance ramps. Ramp meter analysis used the most restrictive rates which may not result in queue lengths that reflect these field observations.

Table 7-12 Existing Summary of Freeway Segment Level of Service

	Freeway Segment	Dir	Number of Lanes	Peak-Hour Volume (a)		Speed (mph) (b)		Density (pc/mi/ln)		LOS (c)	
				AM	PM	AM	PM	AM	PM	AM	PM
I-5	SR-52 to Gilman Dr	NB	4	8,989	5,724	49	68	52.0	23.9	**F**	C
		SB	4	5,223	8,712	68	51	23.7	48.1	C	**F**
	Gilman Dr to Nobel Dr	NB	4	6,549	6,267	65	66	28.5	26.8	D	D
		SB	4	5,315	5,529	68	68	23.7	23.7	C	C
	Nobel Dr to La Jolla Village Dr	NB	4	5,735	5,489	68	68	23.9	23.7	C	C
		SB	4	4,655	4,842	68	68	23.7	23.7	C	C
	La Jolla Village Dr to Genesee Ave	NB	4	6,278	6,008	66	67	26.9	25.4	D	C
		SB	4	5,095	5,300	68	68	23.7	23.7	C	C
I-805	SR-52 to Governor Dr	NB	4	10,585	4,863	33	68	92.4	23.7	**F**	C
		SB	4	3,368	10,253	68	36	23.7	80.1	C	**F**
	Governor Dr to Nobel Dr	NB	4	10,378	4,768	35	68	82.6	23.7	**F**	C
		SB	4	3,302	10,052	68	39	23.7	72.6	C	**F**
	Nobel Dr to La Jolla Village Dr	NB	4	9,340	4,291	46	68	57.8	23.7	**F**	C
		SB	4	2,972	9,047	68	48	23.7	52.9	C	**F**
	La Jolla Village Dr to Mira Mesa Blvd	NB	4	9,288	4,267	46	68	57.0	23.7	**F**	C
		SB	4	2,956	8,997	68	49	23.7	52.1	C	**E**
SR-52	I-5 to Regents Rd	EB	3	3,672	4,215	61	54	33.5	43.6	D	**E**
		WB	3	2,967	2,882	68	68	24.7	23.8	C	C
	Regents Rd to Genesee Ave	EB	2	3,585	4,116	62	56	32.3	41.5	D	**E**
		WB	2	2,897	2,814	67	67	25.3	25.3	C	C
	Genesee Ave to I-805	EB	2	3,845	4,414	59	51	36.7	49.1	**E**	**F**
		WB	2	3,106	3,018	67	67	26.4	25.4	D	C

Notes:

(a) Peak-hour volumes were estimated by applying the K and D factors to the published 2016 Caltrans AADT volumes.

(b) The speed was calculated from a base free-flow speed (BFFS) of 75.4 mph.

(c) The LOS for the respective freeway segments were based on the methodologies contained in Chapter 11 of the *2010 Highway Capacity Manual.*

Table 7-13 Existing Summary of Freeway Ramp Metering Operations

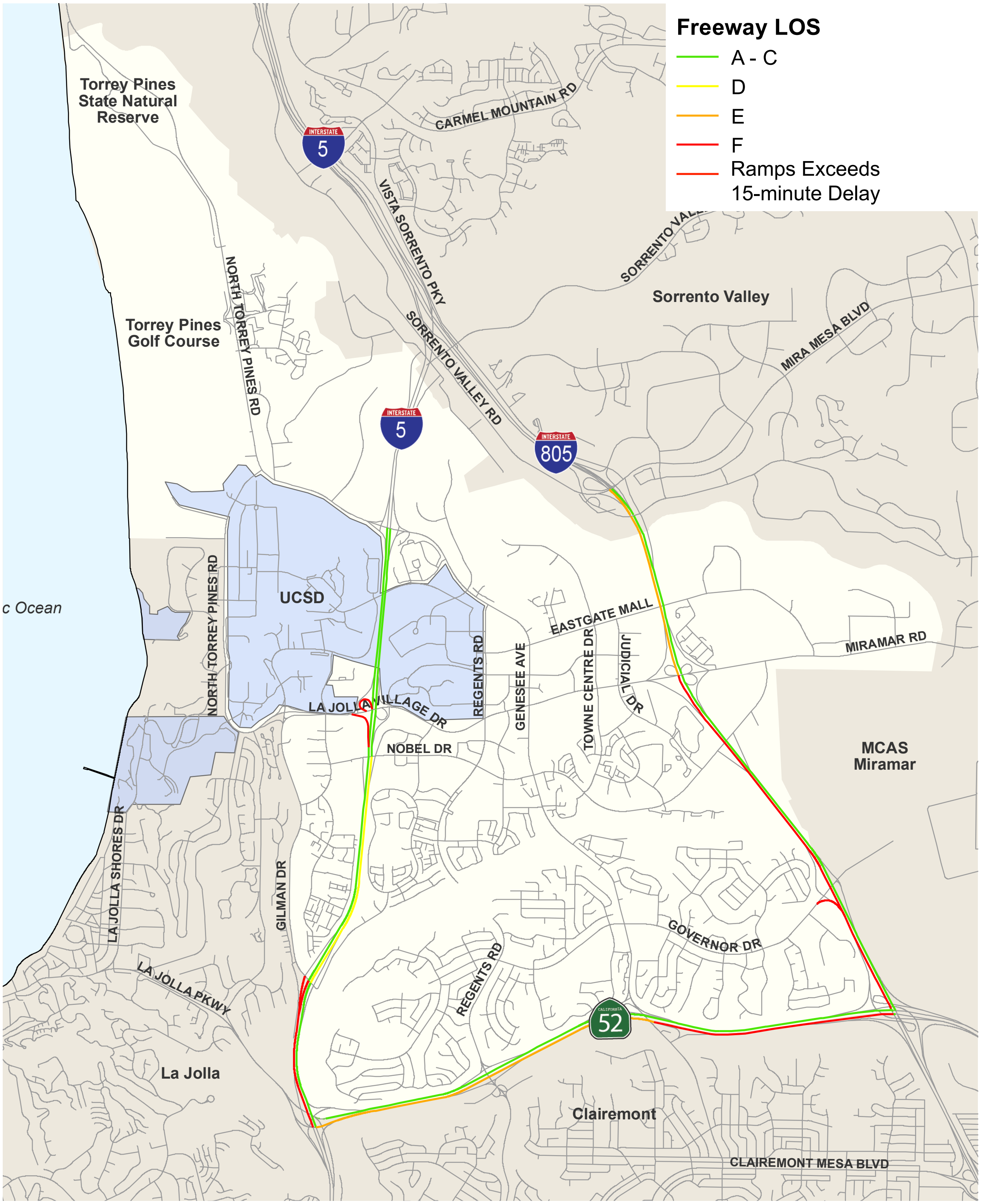
On-Ramp	Peak Hour	Number of Lanes		Storage Length (ft)		Meter Rate (veh/hr/ln) (a)	Ramp Volume (per lane)			Excess Demand (veh/hr)		Delay (min) (c)		Queue Length (ft/ln)	
		GP	HOV	GP	HOV		Total	GP	HOV	GP	HOV	GP	HOV	GP	HOV
I-5 SB & Gilman Dr	AM	2	1	570	570	n/a	735	294	147						
	PM					478	1615	646	323	168	0	**21**	0	4,200	0
I-5 SB & Nobel Dr	AM	2	1	490	370	n/a	411	164	82						
	PM					528	1198	479	240	0	0	0	0	0	0
I-5 NB & La Jolla Village Dr (WB to NB)	AM	1	0	715	n/a	n/a	488	488	0						
	PM					555	544	544	0	0	0	0	0	0	0
I-5 NB & La Jolla Village Dr (EB to NB)	AM	1	1	410	410	n/a	844	675	169						
	PM					n/a (b)	1248	998	250						
I-5 SB & La Jolla Village Dr (WB to SB)	AM	1	1	535	475	n/a	314	251	63						
	PM					643	1095	876	219	233	0	**22**	0	5,825	0
I-5 SB & La Jolla Village Dr (EB to SB)	AM	1	1	355	265	n/a	221	177	44						
	PM					343	820	656	164	313	0	**55**	0	7,825	0
I-805 NB & La Jolla Village Dr (WB to NB)	AM	1	1	1850	1090	804	481	385	96	0	0	0	0	0	0
	PM					n/a	446	357	89						
I-805 NB & La Jolla Village Dr (EB to NB)	AM	1	1	780	780	746	802	642	160	0	0	0	0	0	0
	PM					n/a	1371	1097	274						
I-805 SB & La Jolla Village Dr (WB to SB)	AM	1	1	1290	1290	n/a	497	398	99						
	PM					704	640	512	128	0	0	0	0	0	0
I-805 SB & La Jolla Village Dr (EB to SB)	AM	2	1	2220	920	n/a	441	176	88						
	PM					593	1016	406	203	0	0	0	0	0	0
I-805 SB & Nobel Dr	AM	2	1	915	915	n/a	680	272	136						
	PM					229	671	268	134	39	0	10	0	985	0
I-805 NB Governor Dr	AM	1	1	485	485	385	396	317	79	0	0	0	0	0	0
	PM					n/a	338	270	68						
I-805 SB & Governor Dr	AM	1	0	515	n/a	n/a	485	485	0						
	PM					768	1016	1016	0	248	0	**19**	0	6,200	0

Notes:
(a) The ramp meter rate represents the most restrictive rate obtained from Caltrans. This rates may not result in queue lengths that reflect field observations.
(b) A ramp meter rate ranging between 643 to 996 veh/hr/ln was provided, but Caltrans and field observations indicated that the ramp is not turned on during the PM peak period.
(c) Delays exceeding 15-minutes are shown in **Bold**.

FIGURE 7-26

Existing AM Freeway Operations

FIGURE 7-27



Existing PM Freeway Operations

8 INTELLIGENT TRANSPORTATION SYSTEMS

Use of Intelligent Transportation Systems (ITS) can provide many benefits to a mobility network, including improving travel time, providing transit bypass methods, helping relay valuable traffic-related information to vehicular and non-vehicular users, and providing guidance to key destinations.

Coordinated traffic signals is an example of an ITS strategy that helps improve roadway operations, and can be found in the University community. Traffic signals have coordinated timing plans and improve traffic flow along a corridor. The traffic signals typically communicate using underground copper or fiber optic wires. Having traffic signals coordinated helps to maximize the efficiency of the traffic signal system on that roadway. The following roadways within the study area have coordinated traffic signal timing plans:

- Genesee Avenue
- La Jolla Village Drive
- Miramar Road
- North Torrey Pines Road

Transit signal priority is an ITS strategy that allows a public transit vehicle, such as an MTS bus, to send information to an upcoming traffic signal to activate advanced transitioning to a green signal for its approach. Queue bypass lanes for transit are another form of transit signal priority that can be coupled with signal priority. There are a few instances of transit priority measures currently in place in the community.

As part of the SuperLoop rapid bus route, a total of 40 intersection have transit signal priority capability. This includes 31 City operated intersections, seven UCSD operated intersections, and two Caltrans operated intersections. Although equipped, transit signal priority is not operating at these intersections along the SuperLoop route within the University community. A list of the intersections with transit signal priority along the SuperLoop route is included in Appendix D.

9 TRANSPORTATION DEMAND MANAGEMENT

The goal of the City's Transportation Demand Management (TDM) program is to improve mobility, reduce congestion and air pollution, and provide options for employees and residents to commute to and from work. Typical TDM strategies include promoting teleworking, alternative work schedules, walking, bicycling, carpooling, vanpooling, transit, carsharing, mixed-use development, and other transportation options. TDM measures improve the efficiency of our transportation system by helping to reduce vehicle trips during peak periods of demand. **Figure 9-1** displays the existing mode split percentages collected by the US Census Bureau for 2014.

The San Diego Association of Governments (SANDAG) performed a survey of some of the major employers in the community to help assess effectiveness of TDM measures currently in place and to help strategize future TDM efforts for the community. The survey provided an insight to the current mode split in the community:

SANDAG has an established program called iCommute that serves as the administrator for TDM in the region. iCommute provides the following services:

- RideMatcher – resources for finding carpool partners or available vanpool seats
- SchoolPool – a program that enrolls schools to encourage parents to carpool
- Transit Information - provides a linkage to transit service provider web pages
- Bicycle Information – provides a link to SANDAG's Regional Bikeway Master Plan, which has been updated to show bicycle paths, lanes and routes in the region.
- Guaranteed Ride Home – a program that allows vanpool riders affordable rides home to deal with emergency meetings or illness

The City of San Diego's Municipal Code requires new development to provide sufficient bicycle parking stalls, carpool parking and motorcycle facilities to encourage the use of alternative modes of transportation. As new developments enter the community, TDM measures most likely will be required. Examples of recent TDM measures requested for development in the community include:

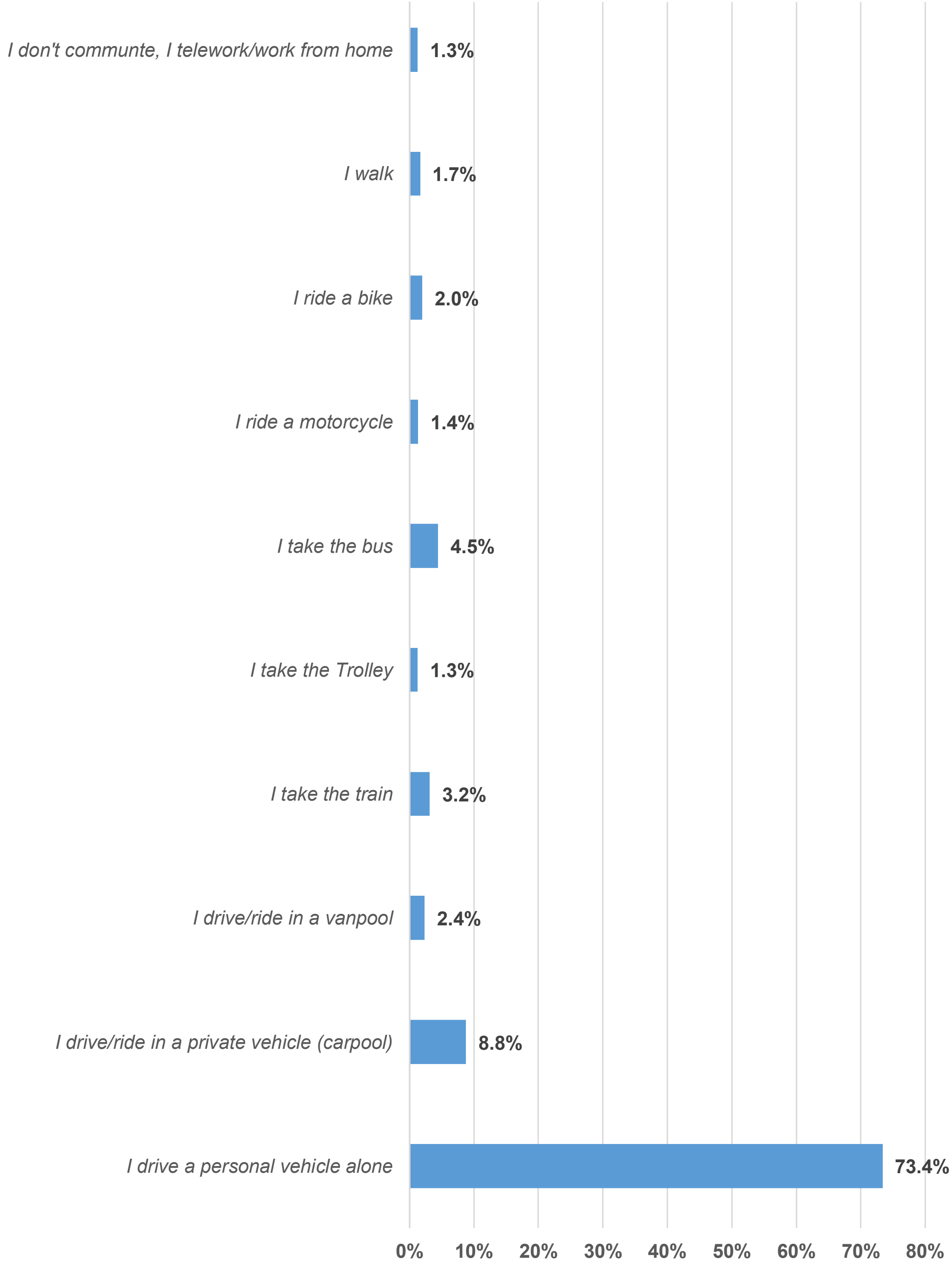
- Partially (or fully) subsidize transit passes
- Provide bicycle lockers
- Provide on-site shower facilities
- Provide reserved parking spaces for carpool/vanpool/low emission vehicles
- Provide transit/carpool/vanpool information kiosks

Caltrans owns and/or maintains several park-and-ride lots in the region that are used to promote carpool activity. There are currently two park-and-ride locations within the community, located at:

- Gilman Drive, just west of Interstate 5 and
- Governor Drive, just west of Interstate 805

Pricing strategies are also used to reduce demand on the transportation system. Managed lanes along Interstate 805 and Interstate 5 adjacent to the community are included in the 2050 RTP. These facilities will be available for carpools, vanpools, buses, and for single occupant drivers who pay a toll. The amount of carpooling activity is expected to increase as the system of high occupancy lanes and managed lanes increase in the region.

FIGURE 9-1



Source: U.S. Census Bureau 2014

Existing Mode Split Based on Survey Data

10 PARKING

PARKING MANAGEMENT

Parking in the University community is primarily off-street parking. In the commercial areas, off-street parking lots are provided for the adjacent uses. In residential areas, off-street parking is mostly provided as well, with on-street parking sparingly used as overflow parking for residents and visitors. For on-street parking in the community, there are no permit parking areas and time-restricted and metered parking is used infrequently.

Portions of some of the key corridors in the community currently provide on-street parking:

- La Jolla Village Drive
- Governor Drive
- Regents Road
- Nobel Drive

Connectivity in the community may benefit from the conversion of on-street parking to transit or bicycle facilities. Providing enough off-street parking to accommodate the adjacent land uses and repurposing the roadways to accommodate other modes of travel may be needed to capture future growth. The effect of removing on-street parking will need to be considered on an individual project basis.

The number of off-street parking spaces for future development should follow the municipal code regulations, including requirements for reserved parking spaces for carpool and zero emission vehicles. Bicycle parking should also be provided for commercial uses. Near major transit stations and stops, reduced parking requirements should be considered to encourage transit use and discourage single occupancy vehicle use.

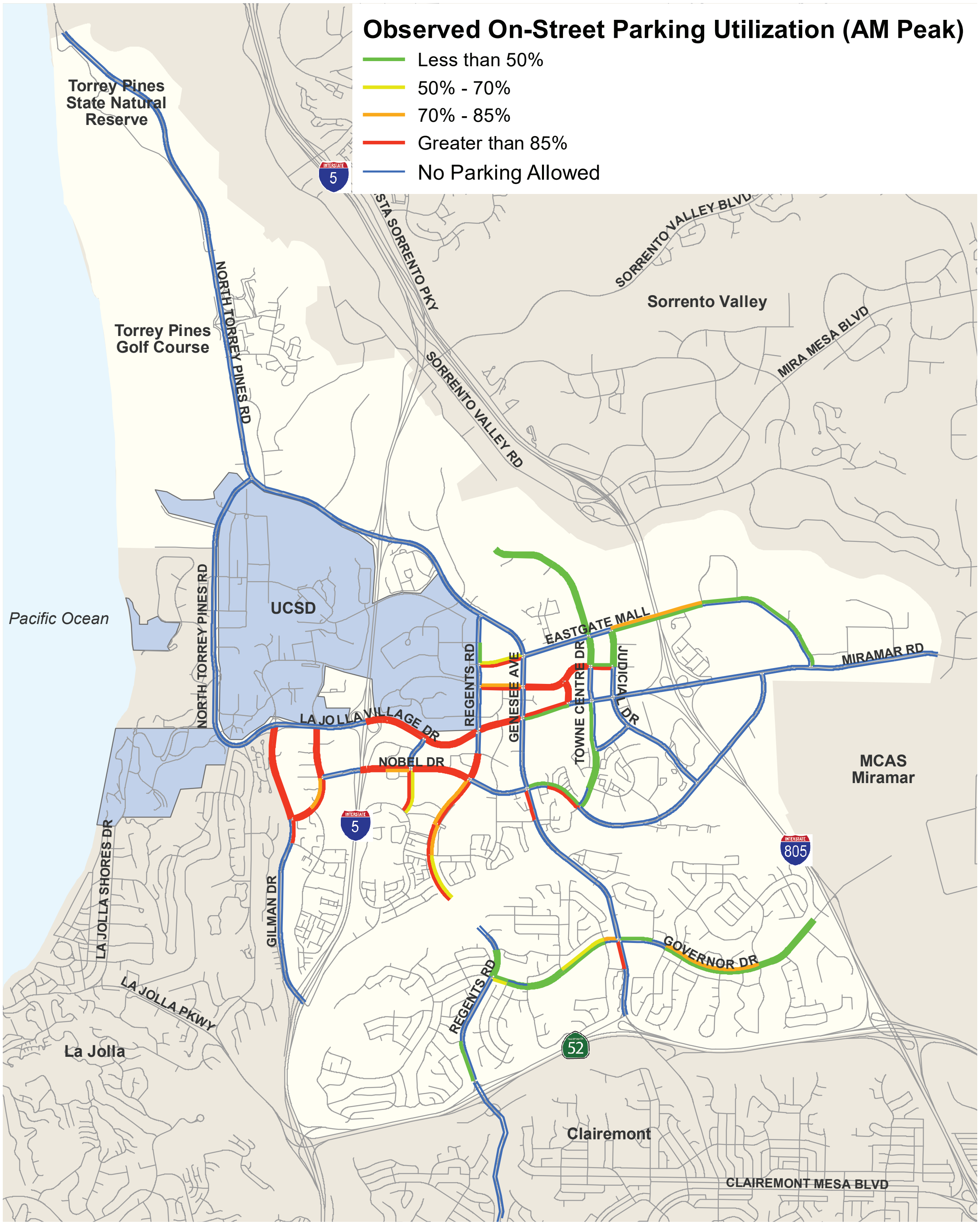
ON-STREET PARKING UTILIZATION

On-street parking is present on several study roadway segments in the University community. Occupancies for on-street spaces were measured during the AM Peak (7am – 10am), the Mid-day period (11am - 2pm), and the PM Peak (4pm – 7pm). Observed on-street parking utilization for AM Peak, Mid-day, and PM Peak are presented in **Figure 10-1**, **Figure 10-2**, and **Figure 10-3**, respectively.

Parking occupancies were observed to be highest for roadways adjacent to multi-family residential developments. Interestingly, occupancies did not decrease significantly between the AM and Mid-day periods, indicating that many residential parkers may be storing their vehicles on the street over the course of the day, rather than simply using on-street spaces for overnight parking. Parking around the UCSD campus could also be a result of students and/or faculty not wanting to pay or not being able to find parking on UCSD's campus. Parking occupancies of 85 percent or greater are typically considered to be full operationally and indicate where it may be difficult to find a parking space. High on-street occupancies can cause increased congestion and emissions associated with vehicles circling the block, looking for open parking spaces.

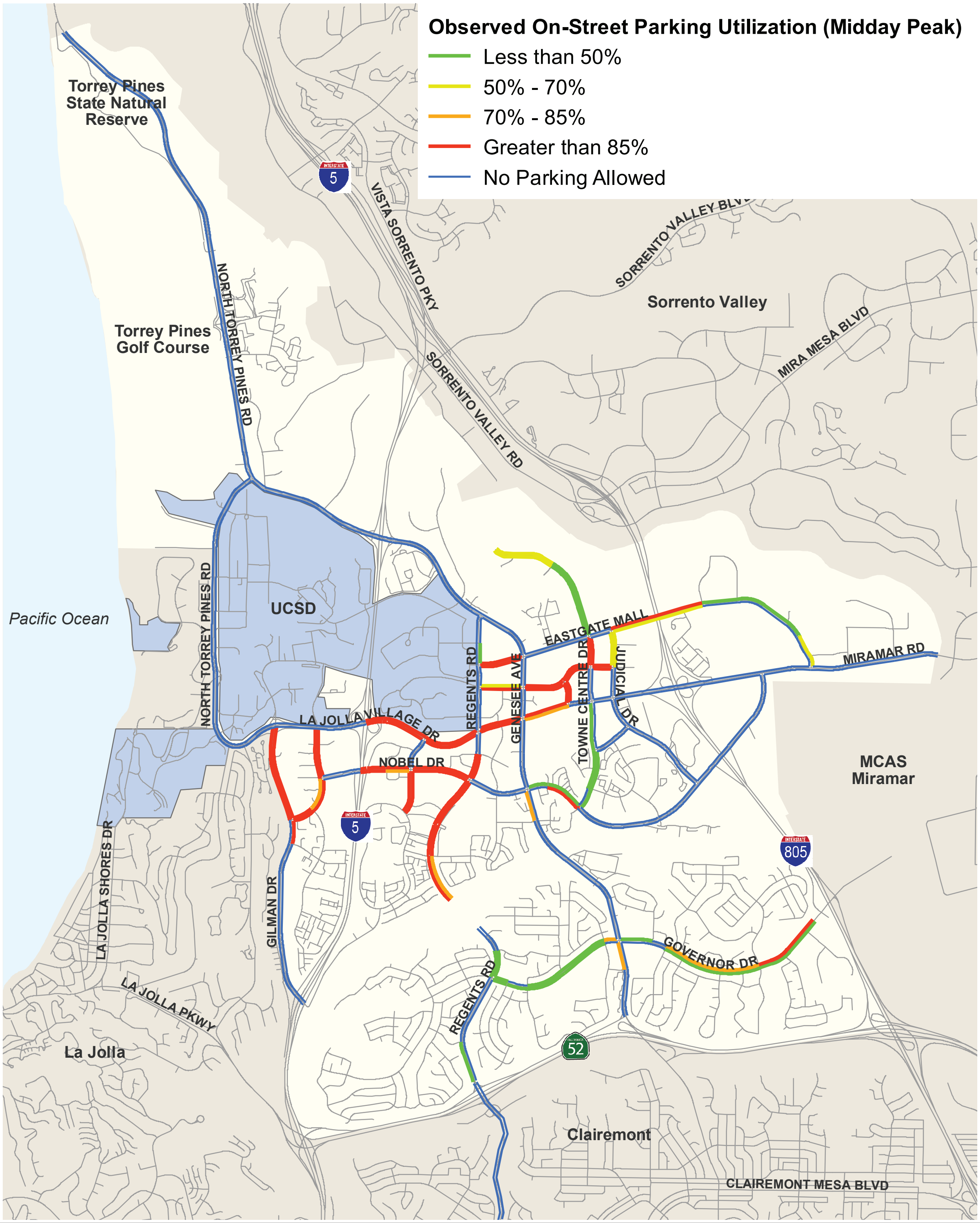
Another reason for parking being occupied during mid-day periods could be due to UCSD students and staff from outside of the community avoiding paying for on-campus parking by using free on-street parking and riding the SuperLoop to reach the campus.

FIGURE 10-1



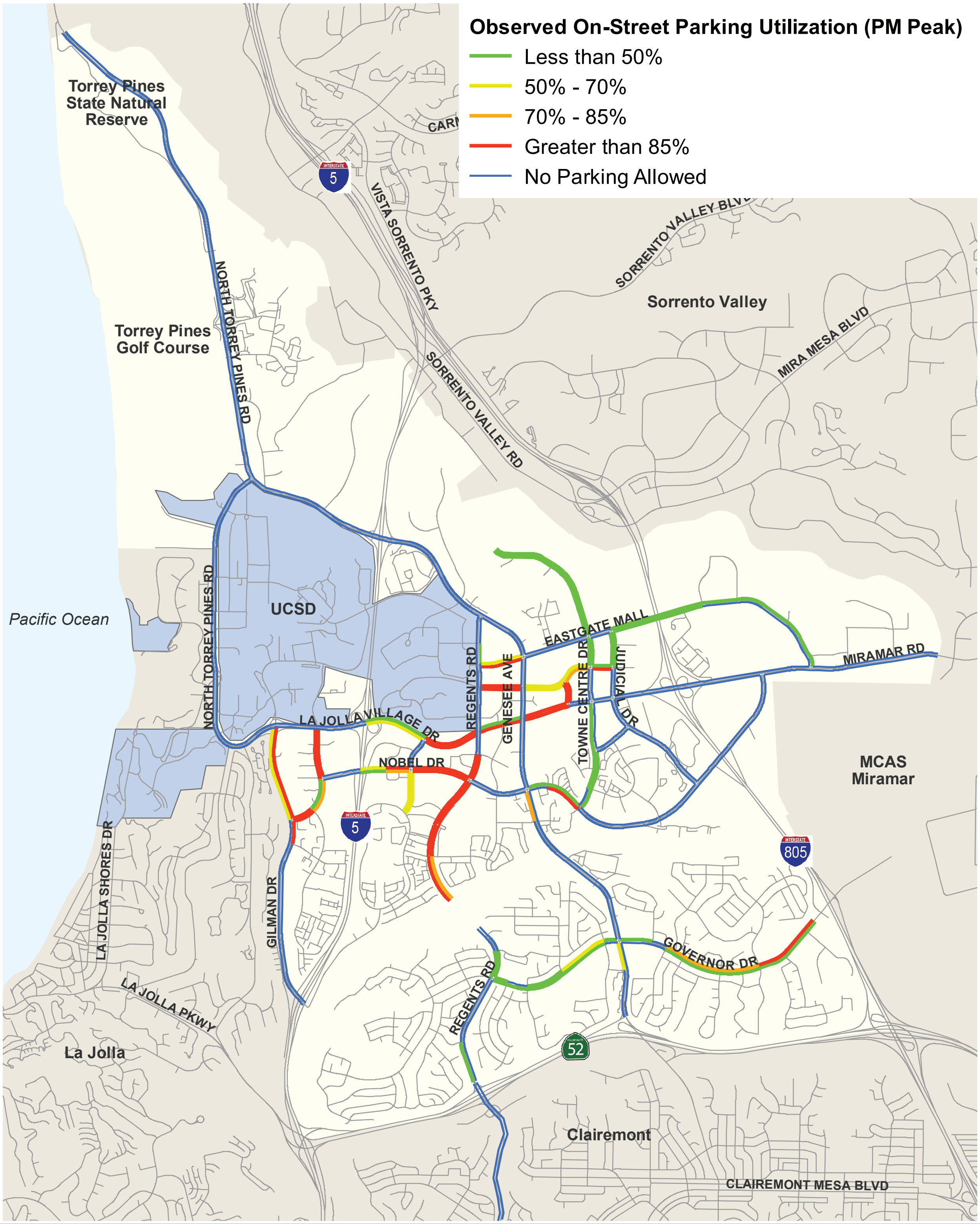
Observed AM Peak Hour Parking Utilization

FIGURE 10-2



Observed Midday Parking Utilization

FIGURE 10-3



Observed PM Peak Hour Parking Utilization

11 AIRPORTS

The closest passenger airport serving the University community is the San Diego International Airport (Lindbergh Field). There currently are not any direct public transit options that connect the community to the airport. Commuter air travel and corporate air travel is also available at McClellan-Palomar Airport, in Carlsbad, California to the north of the community. Montgomery Field is a general aviation airport located southeast of the community in Kearny Mesa. Miramar Marine Corps Air Station, is a military air field located adjacent to the eastern portion of the University community.

12 PASSENGER RAIL

Passenger rail is defined as train serving destinations outside of the San Diego Region. AMTRAK provides train service from San Diego to other parts of California and a majority of the United States. The main route serving San Diego is the Pacific Surfliner, which travels via Orange and Los Angeles Counties to the California central coast. The Pacific Surfliner stops in Los Angeles, which functions as a transfer point to access destinations across the nationwide AMTRAK service area. The main AMTRAK station in San Diego is Union Station (commonly known as Santa Fe Depot), located in downtown San Diego. The closest AMTRAK station to the University community is the Sorrento Valley station. Only three trains per day (in each direction) stop at this location on both weekdays and weekends.

NCTD provides commuter rail service (the COASTER) from Oceanside to downtown San Diego through the University community. The closet COASTER station to the University community is also the Sorrento Valley Station. Eleven trains per day (in each direction) stop at this location during the week and four trains per day (in each direction) stop on the weekend.

13 GOODS MOVEMENT & FREIGHT

The movement of goods in San Diego and the region is supported by an integrated intermodal freight infrastructure consisting of the use of trucks/roadways, rail/railroads, ports/maritime shipping, and air cargo/airports. The University community has no freight rail service, ports, or airports located within their boundary. However, freight service is provided along the LOSSAN corridor through the community, but does not stop within the community. Commercial good movements are limited to local deliveries to businesses and through travel on freeways.

14 MOBILITY OPPORTUNITIES AND CONSTRAINTS

This chapter provides a summary of pedestrian, bicycle, transit, and street and freeway mobility needs determined through the existing conditions analyses.

PEDESTRIAN OPPORTUNITIES AND CONSTRAINTS

Nearly all trips involve a pedestrian connection – either simply walking from a parked car to a building or something more direct such as walking to transit, a store, school, or employment. The surrounding environment can either encourage or discourage walk trips depending on the availability of sidewalks, trees for shading, lighting, interesting buildings or scenery to look at, other people outside, neighborhood destinations and a feeling of safety. Pedestrian environments that are inviting and land uses that promote pedestrian activities can help to increase walking as a means of transportation and recreation. Land use and street design recommendations that benefit pedestrians also contribute to the overall quality, vitality, and sense of community within a neighborhood.

Future improvements to the pedestrian environment in University should focus on areas where need is the greatest. Pedestrian areas for improvement identified in University include locations with high pedestrian counts and collisions, sidewalk connectivity issues; as well as high existing pedestrian activity, and high pedestrian priority as identified by the City of San Diego Pedestrian Priority Model. Pedestrian opportunities and constraints are identified in **Figure 14-1**

Pedestrian Safety

Facilitating the safe movement of pedestrians is key to increasing the propensity of walking in an area. Locations with three or more collisions involving pedestrians over a 5-year period are concentrated at the intersections of one of the community's major east-west roadway, La Jolla Village Drive. The following intersections each have 3 or more collisions between October 2012 and September 2017:

- Executive Way and La Jolla Village Drive
- Genesee Avenue and La Jolla Village Drive
- Towne Centre Drive and La Jolla Village Drive
- Lebon Drive and La Jolla Village Drive
- Genesee Avenue and Governor Drive
- Regents Road and Nobel Drive

These intersections are in the denser, central part of the community, with high pedestrian activity due to adjacency to retail, office, residential, and schools. These intersections have wide crossings and are heavily travelled by pedestrians and vehicles experiencing delay, making both pedestrians and motorists more aggressive in their decision-making.

Sidewalk Connectivity

Connectivity within the pedestrian network is important to facilitate the safe and efficient movement of pedestrians in an area. Missing sidewalks discourage walking trips and may cause pedestrians to take longer routes to get to their destinations. The majority of the University community has a complete sidewalk network, including pedestrian bridges at busy intersections.

The north side of La Jolla Village Drive between I-5 and Lebon Drive stands out as one missing sidewalk link that would benefit the community by connecting student housing to the main campus west of I-5.

The southern half of Eastgate Mall between the I-805 overcrossing and Miramar Road is undeveloped land and does not provide sidewalks. As vacant land there is not much pedestrian attraction to walk along that side of Eastgate Mall as there is a completed connection on the north side. The missing sidewalks should be completed when that land is developed.

Sidewalks along Gilman Drive and Regents Road are missing in areas that traverse long distances with no fronting properties. These sidewalks would provide safety benefits for people walking along these roadways, but the pedestrian demand is minimal due to the lack of fronting properties and distance between connections on either end. Alternative routes in distance provide sidewalks and can be utilized.

Pedestrian Activity

The University community has a high level of pedestrian activity, in general. Locations with peak hour pedestrian counts greater than 100 were considered notable. These occurred primarily at locations near retail, office, residential, and schools:

- Lebon Drive and Nobel Drive (adjacent to retail center)
- Regents Road and La Jolla Vilage Drive (near retail and residential)
- Regents Road and Nobel Drive (surrounded by retail and residential)
- Regents Road and Berino Court (adjacent to Doyle Elementary School)
- Regents Road and Arriba Street (near retail and residential)
- Genesee Avenue and Esplanade Court (surrounded by retail)
- Genesee Avenue and Governor Drive (near schools, residential, and retail)
- Executive Way and La Jolla Village Drive (surrounded by retail)
- North Torrey Pines Road and La Jolla Shores Drive (adjacent to UCSD)
- Villa La Jolla Drive and Nobel Drive (surrounded by retail)
- La Jolla Village Square and Nobel Drive (surrounded by retail)

As shown in this list and the pedestrian volumes figures, the corridors along Nobel Drive between Villa La Jolla Drive and Regents Road and Regents Road between La Jolla Village Drive and Arriba Street have high pedestrian activity.

Pedestrian Priority Model

Pedestrian priority areas were determined using the City of San Diego's Pedestrian Priority Model. The model evaluates community characteristics including demographic data, traffic volumes and speed, pedestrian collisions, presence of street lighting, location of transit stations, and land uses such as residential, office, commercial/retail, schools, and parks. The model uses these factors to identify areas where both pedestrian demand and detractors are high, thereby indicating a need to focus resources in these locations.

The Model identifies the area east of Gillman Drive, south and west of Genesee Avenue, and north of Rose Canyon as having the highest pedestrian priority. The area contains the UCSD campus, VA Hospital, UCSD medical campus, Scripps Hospital, Westfield UTC, La Jolla Village Square, parks, schools, and high-density housing complexes.

Planned Pedestrian Improvements

Pedestrian Route Typology

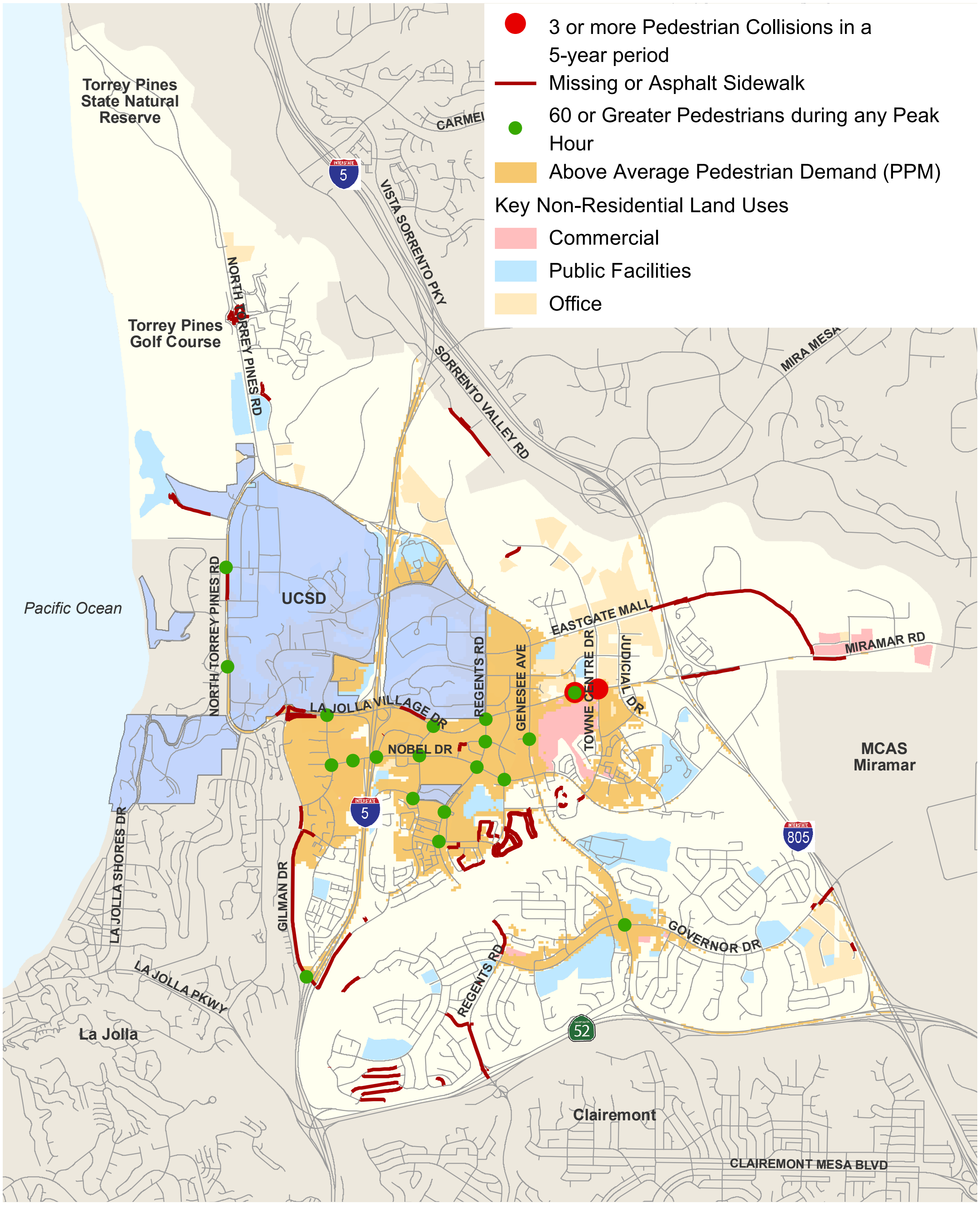
The City of San Diego Pedestrian Master Plan – City-wide Implementation Framework Report (2006) established pedestrian route typologies to categorize sidewalks by function and environment. These typologies work to define the function which a route serves and establishes a hierarchy for the development of priority pedestrian improvements.

As shown in **Figure 14-2**, route types are divided into seven categories ranging from Districts to Trails. The route type purpose, adjacent street classifications, and adjacent land uses are identified for each typology. **Figure 14-3** shows a route typology assessment for the pedestrian study area within the University community.

Additionally, the Framework Report acknowledges there should be flexibility in the treatments and amenities for pedestrian facilities. **Figure 14-4** describes four treatment levels to consider for pedestrian facilities, including premium, enhanced, basic, and special use walkway improvements. Each feature is labeled as required, suggested, suggested if conditions or standards met, or not applicable.

Districts, corridors, and connectors are the most typical pedestrian route types in communities; however, there are no district routes identified in the University Community. University community has connectors, neighborhood, ancillary facilities (pedestrian bridges) and trails, which make this community unique and desirable for pedestrian travel.

FIGURE 14-1



Pedestrian Opportunities and Constraints

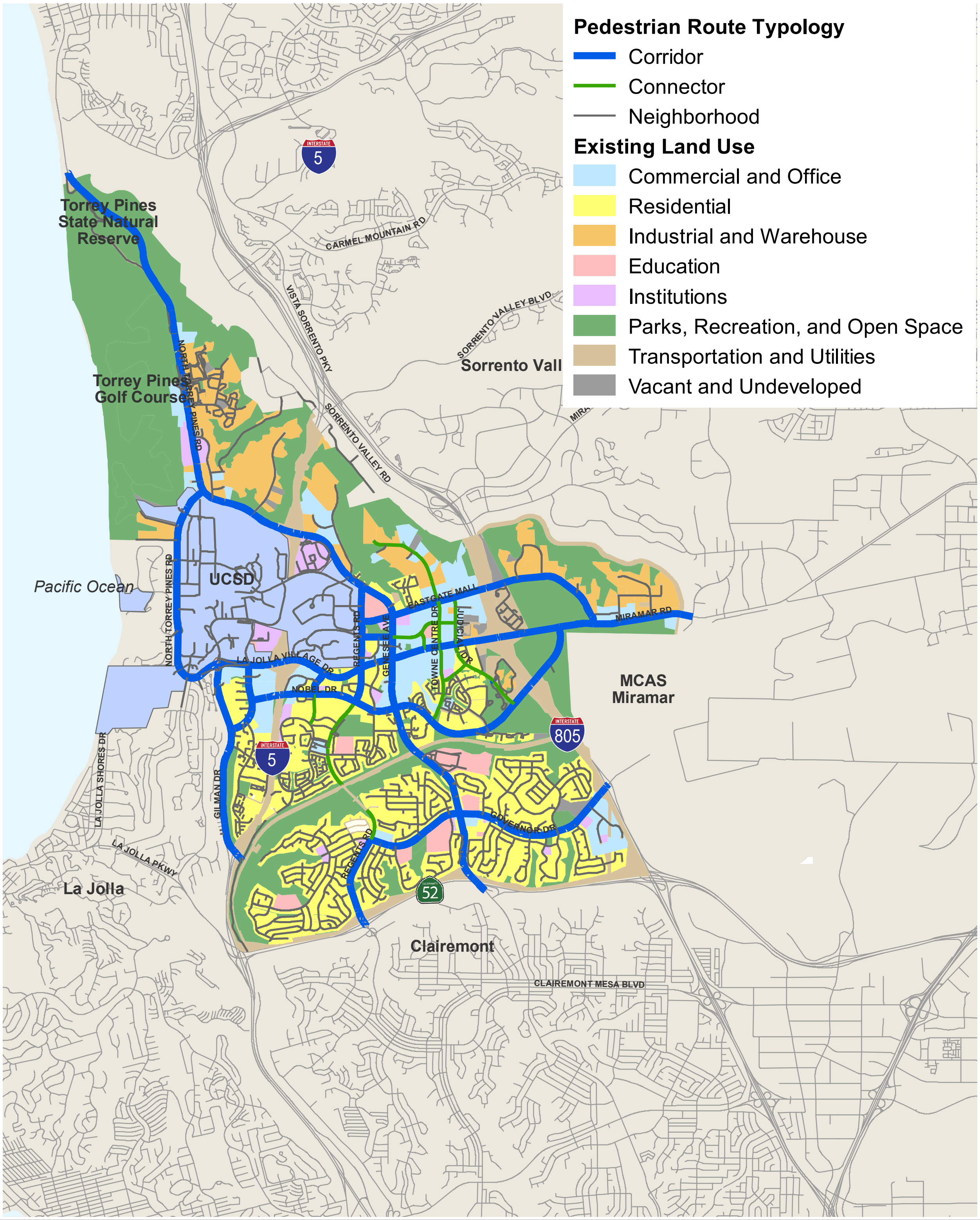
Figure 14-2 City of San Diego Pedestrian Route Typologies

Table 26: Route Types

ROUTE TYPE:	1. District Sidewalks	2. Corridor Sidewalks	3. Connector Sidewalks	4. Neighborhood Sidewalks	5. Ancillary Pedestrian Facilities	6. Path	7. Trail (Included for Reference Only, not a Focus of this Plan)
Purpose	Sidewalks Along Roads that Support Heavy Pedestrian Levels in Mixed-use Concentrated Urban Areas	Sidewalks Along Roads that Support Moderate Density Business & Shopping Districts with Moderate Pedestrian Levels	Sidewalks Along Roads that Support Institutional, Industrial or Business Complexes with Limited Lateral Access & Low Pedestrian Levels	Sidewalks Along Roads that Support Low to Moderate Density Housing with Low to Moderate Pedestrian Levels	Facilities Away or Crossing Over Streets such as Plazas, Paseos, Promenades, Courtyards or Pedestrian Bridges & Stairways	Walkways and Paved Paths that are not Adjacent to Roads that Support Recreational and Transportation Purposes	Unpaved Walk Not Adjacent to Roads Used for Recreational Purposes
Typical Adjacent "Street Design Manual" Classifications	All types of adjacent streets are possible	Commercial, Urban Collector, Urban Major & Arterial	Commercial, Industrial, Urban Major, Rural Collector & Arterial	Rural, Low Volume Residential, Residential Local & Sub-collector	Not associated with a street	Not associated with a street	Not associated with a street
Cross Reference to Related "Strategic Framework Plan" Definitions	Existing: Regional Centers, Urban Villages & Neighborhood Villages	Existing: Sub-regional Districts and Transit Corridors	Existing: Sub-regional Districts, Transit Corridors, & Suburban Residential along Major Arterials	All other Residential Areas not Classified under the Strategic Framework Plan	Most common in Regional Centers, Urban or Neighborhood Villages but can be in any area	Can occur in any area, but most often found in Recreation, Tourist or Open Space Areas	Can occur in any area, but most often found in Recreation or Open Space Areas
Typical Adjacent Land Uses	Mixed-use Housing, Commercial, Office & Entertainment with Urban Densities	Multiple Land Uses but may be Separated. Often Strip Commercial or Office Complex.	Open Space, Industrial Uses, Institutional Uses or other Pedestrian Restricted Uses	Single-family and Moderate Density Multi-Family with Limited Supporting Neighborhood Commercial	Adjacent Land Uses Vary	Adjacent Uses Vary, Often Recreational or Open Space or Housing	Open Space, Parks and Natural Areas

Source: City of San Diego Pedestrian Master Plan – City-Wide Implementation Framework Report (2006)

FIGURE 14-3



Pedestrian Route Typologies

Figure 14-4 Pedestrian Route Type Treatment Levels and Potential Improvements

TREATMENT LEVEL:	**Treatment Level 1 "Premium" Walkway Improvements**	**Treatment Level 2 "Enhanced" Walkway Improvements**	**Treatment Level 3 "Basic" Walkway Improvements**	**Treatment Level 4 "Special Use" Walkway Improvements**
Route Types Receiving These Treatment Levels (Unless Special Circumstances Exist*)	District Route Type / Special Pedestrian Zone	Corridor Route Type	Connector and Neighborhood Route Type	Path & Ancillary Route Types
*Special Circumstances that Warrant a Higher Treatment Level than Normal. Requirements in Each Column would Increase to the Column on its Left	Already Uses Highest Treatment Level	If within 1/4 mile of Transit/ School/ Ped. High Use/ Major Arterial	If within 1/4 mile of Transit/ School/ Maj. Commercial Facilities/ Maj. Arterials	Case-by-Case Basis
Provide Accessible Facilities Such As:				
1A) Curb ramps	!	!	!	?
2A) Audible/visual crosswalk signals	!	!	?	?
3A) Walkways & ramps free of damage or trip hazards	!	!	!	✔
4A) Pedestrian paths free of obstructions and barriers	!	!	!	✔
5A) Sidewalks with limited driveways and minimal cross-slope	!	✔	✔	✔
6A) Re-grade slope of walkway to meet ADA / Title 24 standards	?	?	?	?
7A) Repair, slice or patch lifts on walk surfaces or reset utility boxes to be flush	?	?	?	?
Provide Safety Features Such As:				
1S) Median refuges (a safe place to stand in the street)	!	✔	-	-
2S) Pedestrian popouts (curb / sidewalk extensions into street)	✔	✔	-	-
3S) High visibility crosswalk striping	!	✔	-	?
4S) Raised crosswalks or special paving materials to denote crosswalks	✔	✔	-	?
5S) Advance stop bars >10 feet from crosswalk	✔	✔	!	?
6S) Radar Speed Monitor & Display	?	?	?	?
7S) Reduced curb radii	✔	✔	✔	-
8S) Early pedestrian start at crossing signal (Lead Pedestrian Interval)	✔	?	-	?
9S) No Turn on Red at Intersection	?	?	?	?
10S) Mid-block crosswalks with ped. flashers but no traffic control	-	-	✔	-
11S) Automatic pedestrian detection & signal control	✔	-	-	?
12S) Mid-block crossing with signs, median or curb ext. & flashing lights in road	?	?	-	?
13S) Mid-block crosswalks with ped. actuated traffic control device	✔	?	-	-
14S) 1-Lane Mid-block with high contrast crossings, signs & center lane marker	?	?	✔	?
15S) Parkway planting for buffer between sidewalk and cars	!	!	!	?
16S) On-street parking for buffer between sidewalk and cars	!	✔	✔	-
17S) Adequate levels of pedestrian lighting	!	!	✔	✔
18S) Various traffic calming measures	✔	✔	✔	-
19S) Enforcement, education or encouragement solutions	?	?	?	?
20S) Missing sidewalks added or provide adeq. walk width clear of obstructions	?	?	?	?
Improve Walkability by Providing:				
1W) Above minimum walkway widths (> 5')	!	✔	?	?
2W) Trees that provide shade on walkways	!	!	✔	✔
3W) Street furnishings for comfort and enjoyment	!	✔	?	✔
4W) Countdown display crosswalk signals	✔	?	?	-
5W) Traffic control for crossings such as traffic signals or "All way stops"	!	✔	✔	✔
6W) Pedestrian scrambles (cross all directions of street)	?	-	-	?
Ensure Connectivity by Adding:				
1C) Missing sidewalk segments in areas where sidewalks mostly exist	!	!	✔	✔
2c) Missing sidewalks in areas where no sidewalks exist at all	!	✔	?	✔
3C) Connection pathways between streets	!	✔	✔	✔
4C) Narrow street widths or adding features to narrow for pedestrians	!	✔	✔	✔
5C) Destinations within walking distance of origins	!	✔	✔	✔
6C) Pedestrian bridges that avoid excessive ramp lengths	?	-	-	?
7C) Pedestrian crossing opportunities for all sides (legs) of an intersection	!	✔	✔	-
8C) Verify that pedestrian distances between land uses are reasonable & direct	?	?	?	?

LEGEND ("!"= required, "4" = suggested, "?"= suggested if conditions or standards met & "-" = not applicable)

Source: City of San Diego Pedestrian Master Plan – City-Wide Implementation Framework Report (2006)

City of San Diego Transportation Unfunded Needs List (TUNL)

The following pedestrian facility improvements are identified by the City of San Diego Transportation Unfunded Needs List (TUNL) as desirable enhancements to the pedestrian environment in the University community:

- 10675 John Jay Hopkins Dr – install crosswalk with two pedestrian access ramps, street lighting, and median modification
- Via Mallorca at Via Marin – install new crosswalk with Pedestrian Activated Flashing Beacons and curb ramps.
- Executive Dr at midblock east of Judicial Dr – install Pedestrian Hybrid Beacon (HAWK)
- Stadium St from Governor Dr to Stadium Pl – install one (1) electronic V-Calm sign facing NB traffic
- Gilman Dr from Gilman Ct to Via Alicante – install two (2) electronic V-Calm Signs
- Lakewood St from Corlita Ct to Lakewood Ct – install one (1) electronic V-Calm sign
- Mercer St from Governor Dr to Mercer Ln – install two (2) electronic V-Calm signs, one sign per direction
- Radcliffe Dr from Governor Dr to Dennison St – install one (1) electronic V-Calm sign
- Radcliffe Dr from Radcliffe Ln to Syracuse Ave – install one (1) electronic V-Calm sign
- Renaissance Ave from Towne Centre Dr to Golden Haven Dr – install two (2) electronic V-Calm sign, one sign per direction.
- Soderblom Ave/Stresemann St from Lamas St to Barkla St – install two (2) electronic V-Calm signs, one sign per direction
- Stresemann St from Pennant Wy to Bragg St – install two (2) electronic V-Calm Signs
- Governor Dr from Radcliffe Dr to Stadium St – install two (2) electronic V-Calm Signs, one sign per direction.
- Arriba St from Regents Rd to Camino Tranquilo – install two (2) electronic V-Calm Signs
- Radcliffe Dr from Governor Dr to Dennison St – install two (2) electronic V-Calm Signs
- Stadium St at Eton Ave – install two (2) pop outs and a new school crosswalk on the north leg of the intersection
- Via Alicante from Gilman Dr to Via Malorca – install two (2) electronic V-Calm Signs
- Governor Dr at Mercer St – install 8 pedestrian countdown timers
- La Jolla Village Dr at Towne Centre Dr – install Polara APS
- Governor Dr at Gullstrand St – install 8 pedestrian count down timers
- Governor Dr at Agee St – install pedestrian countdown timers
- Governor Dr at Edmonton St – install 8 pedestrian countdown timers
- Genesee Ave at Esplanade Ct – install Polara APS for all legs
- Executive Way at La Jolla Village Dr – upgrade existing APS to Polara system and upgrade 1 pedestrian ramp to ADA
- La Jolla Shores Dr at North Torrey Pines Rd – replace (1) pedestrian head and install (7) pedestrian countdown timer
- Genesee Ave at La Jolla Village Dr – install pedestrian crossings on north and east legs and install (8) pedestrian countdown timers

- Governor Dr at Radcliffe Dr – install new signal mast-arm for NB/SB Radcliffe Dr, install pedestrian countdown timers and upgrade pedestrian ramps
- Governor Dr at Regents Rd – install right turn overlap (5-section signal head) for NB Regents Rd and install pedestrian countdown timers.
- Genesee Ave at Nobel Dr – install pedestrian countdown timers for all directions
- Governor Dr at Scripps St – install pedestrian count down timers and ADA Ped ramps
- Genesee Ave at Decoro St – install one signal head at SW and NE corners
- Governor Dr at Agee St – install two (2) Pedestrian Push Button (PPB) posts/foundations on north side

Opportunities

Pedestrian connections are an important part of this community to improve access to residential, employment, retail, and schools, particularly locations within proximity of each other. With the current transit use and upcoming expansion of transit services, connections between transit centers and nearby attractions are vital to transit ridership.

Connections along the high-speed, wide roadways in the community should consider alternatives to standard at-grade pedestrian crossings. Minimizing conflict points between pedestrians and vehicles reduces the risk of collisions and can improve the efficiency of the roadway system and pedestrian experience, encouraging pedestrian travel within the community. There are currently two existing pedestrian bridge structures within the community that provide a pedestrian connection across the community's major roadways. These crossings are ideal for the University community by providing an alternative to crossing multiple lanes of high speed and heavy vehicular volumes.

Providing efficient pedestrian connections internal to large private developments also helps improve the pedestrian experience. In addition to alternatives to crossings, best efforts to improve the quality of the pedestrian facilities such as providing wider walkways, pedestrian amenities, street trees for shade, accessibility to transit, and buffers from vehicles will be considered in this update.

Constraints

It is important to take into consideration existing barriers within the University community. As previously mentioned in Chapter 4, freeways and topography create barriers to connectivity within the community. The University community is essentially bounded by Interstate 805 to the east and State Route 52 to the south. Canyons present challenges in connecting to major areas of employment within the community and in Sorrento Valley. Wide street crossings and freeway interchanges at Nobel Drive, La Jolla Village Drive and Genesee Avenue create barriers for walking. Lack of sidewalks may be another barrier for pedestrian connectivity; however, this community plan update will look at ways to improve connections both within the community and across freeways to neighboring communities.

BICYCLE OPPORTUNITIES AND CONSTRAINTS

Bicycle infrastructure should provide for the safety and comfort of its users, and the bicycle network should be well connected across a community. Safety and comfort are paramount considerations, given that active travelers are more exposed and vulnerable than those inside a vehicle. Residential roadways are generally inviting to bicyclists. The wider, high-speed roadways and intersections typically discourage bicycle trips. These areas are often where a community needs to focus its bicycle infrastructure efforts. Network connectivity is also important, as gaps in the bicycle network can also discourage bicycle travel within the community.

The University community has several areas for improvement based on the analyses performed. They are identified by locations with a high number of bicycle collisions, the amount of stress likely to be experienced by a bicyclist, lack of existing bicycle facilities, and high cycling demand. Bicycle opportunities and constraints are identified in **Figure 14-5**.

Bicycle Safety

The following four locations in the community had three or more collisions involving a bicycle in the 5-year period analyzed:

- North Torrey Pines Road at John J Hopkins Drive
- Villa La Jolla Drive at La Jolla Village Drive
- Regents Road at La Jolla Village Drive
- Regents Road at Nobel Drive

These intersections have wide crossings, lack bicycle intersection treatments, and are along the major thoroughfares within the community, such as North Torrey Pines Road, Regents Road, Nobel Drive and La Jolla Village Drive.

Bicycle Level of Traffic Stress

Bicycle Level of Traffic Stress (LTS) is high (LTS 3 or 4) on all major roadways in the University community. These roadways are nearly all higher speed, high volume arterials with little or no accommodations made for bicyclists. Due to the land use patterns and barriers in the community, traveling between areas of the community requires the use of these roadways. Thus, finding opportunities to introduce low-stress facilities along some major roadways to allow for safe bicycle travel within the community is necessary to improve the overall bicycle experience in the community. Not every roadway will be able to accommodate bicycle facilities, but an integrated east-west and north-south route near the residential, school, and retail areas should be determined.

Bicycle Demand

Bicycle demand was quantitatively established by collecting bicycle count data during the AM, Mid-day, and PM peak periods. The community has high levels of bicycle activity, especially near UCSD campus. The following eight intersections experience volumes of 50 or greater during any peak period:

- North Torrey Pines Road and Genesee Avenue
- North Torrey Pines Road and UCSD Northpoint Driveway
- North Torrey Pines Road and Pangea Drive
- North Torrey Pines Road and La Jolla Shores Drive
- Gilman Drive and La Jolla Village Drive
- Regents Road and Executive Drive
- Regents Road and La Jolla Village Drive
- Regents Road and Nobel Drive

Volumes were highest along the major roadways of Regents Road, La Jolla Village Drive, and North Torrey Pines Road. These roads provide crucial access to UCSD as well as the employment centers.

Bicycle Demand Model

Bicycle demand was assessed using the City's Bicycle Demand Model (BDM). Demand is highest along the major roadways in the study area. Streets including Genesee Avenue, Nobel Drive, and La Jolla Village Drive were found to be in the top 25 percent of bicycle demand in the University community. These streets are continuous across the community, crossing barriers such as I-5, and thus are highly desirable for making connections throughout the University community.

Bicycle Connectivity

Canyons, freeways and large parcels create barriers resulting in low connectivity in many areas throughout the community. Moderate connectivity is observed at the future Mid-Coast station locations. Although not ideal, connectivity in the central part of the community, which has a more grid-like street network, is higher than the rest of the community.

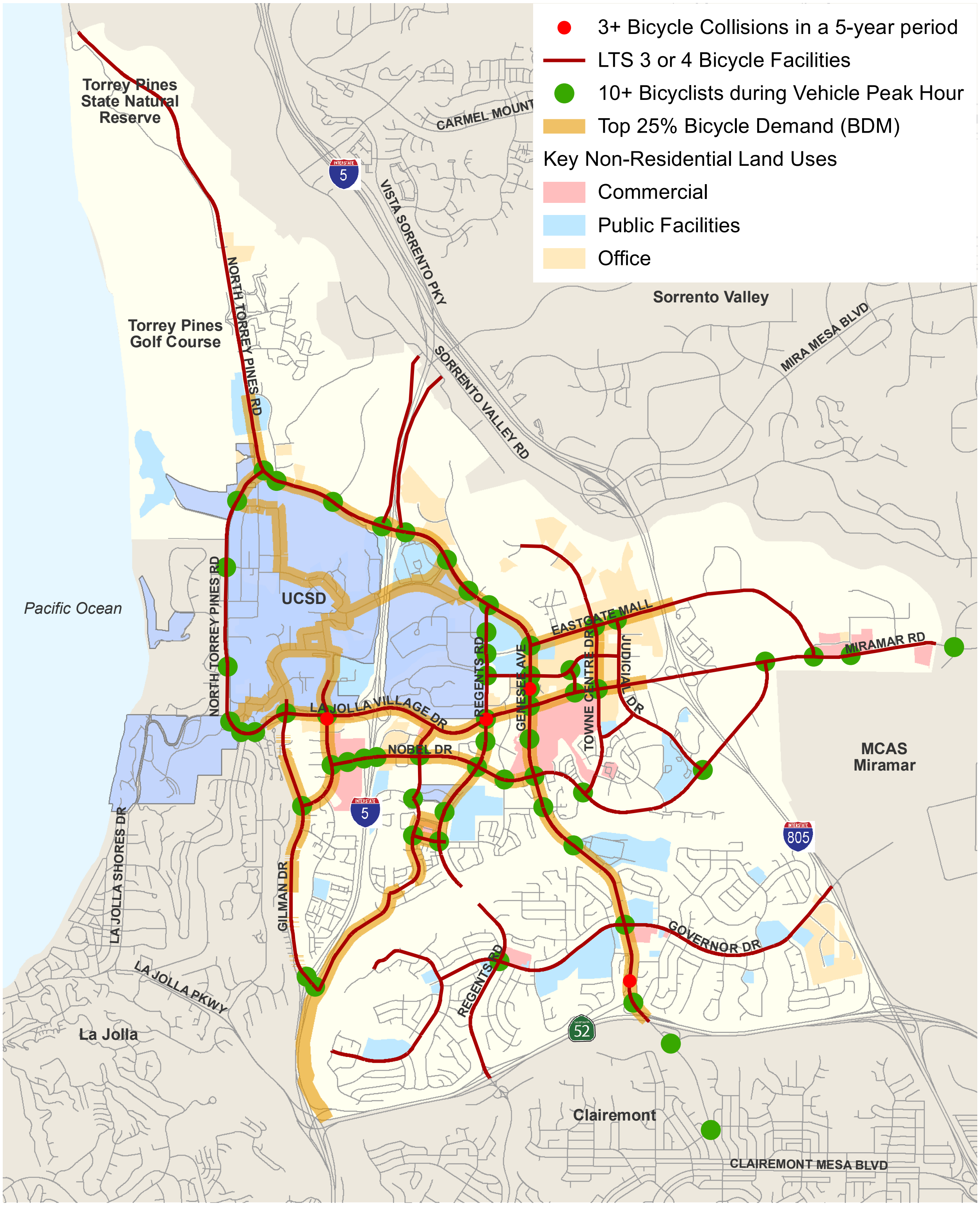
Opportunities

To increase bicycling, it is important to create a low-stress bicycle network which can connect retail, office, residential uses and schools. Major arterials are the only roadways that connect these land uses in the University community. Low-stress facilities would need to be implemented along the major arterials to increase comfort and connectivity which encourages more bicycling within the community. Genesee Avenue provides the primary north-south connection within and beyond the community. Considerations should be made to improve Genesee Avenue for cyclists. This community plan update should focus on treatments to facilitate travel across freeways, driveways, and intersections. First/last mile connections to transit and other future considerations will be made to identify routes for cyclists that can tie into enhanced facilities that are planned or currently under construction, such as the Interstate 5-Genesee Avenue bike path that will provide a direct connection from the transit center and employment hub at Sorrento Valley to the University community. In addition, a Class IV cycle track along Gilman Drive that will connect to the Rose Creek Bike Path and improve connectivity to the southern portion of the community. Planned bicycle facilities are shown in **Figure14-6**.

Constraints

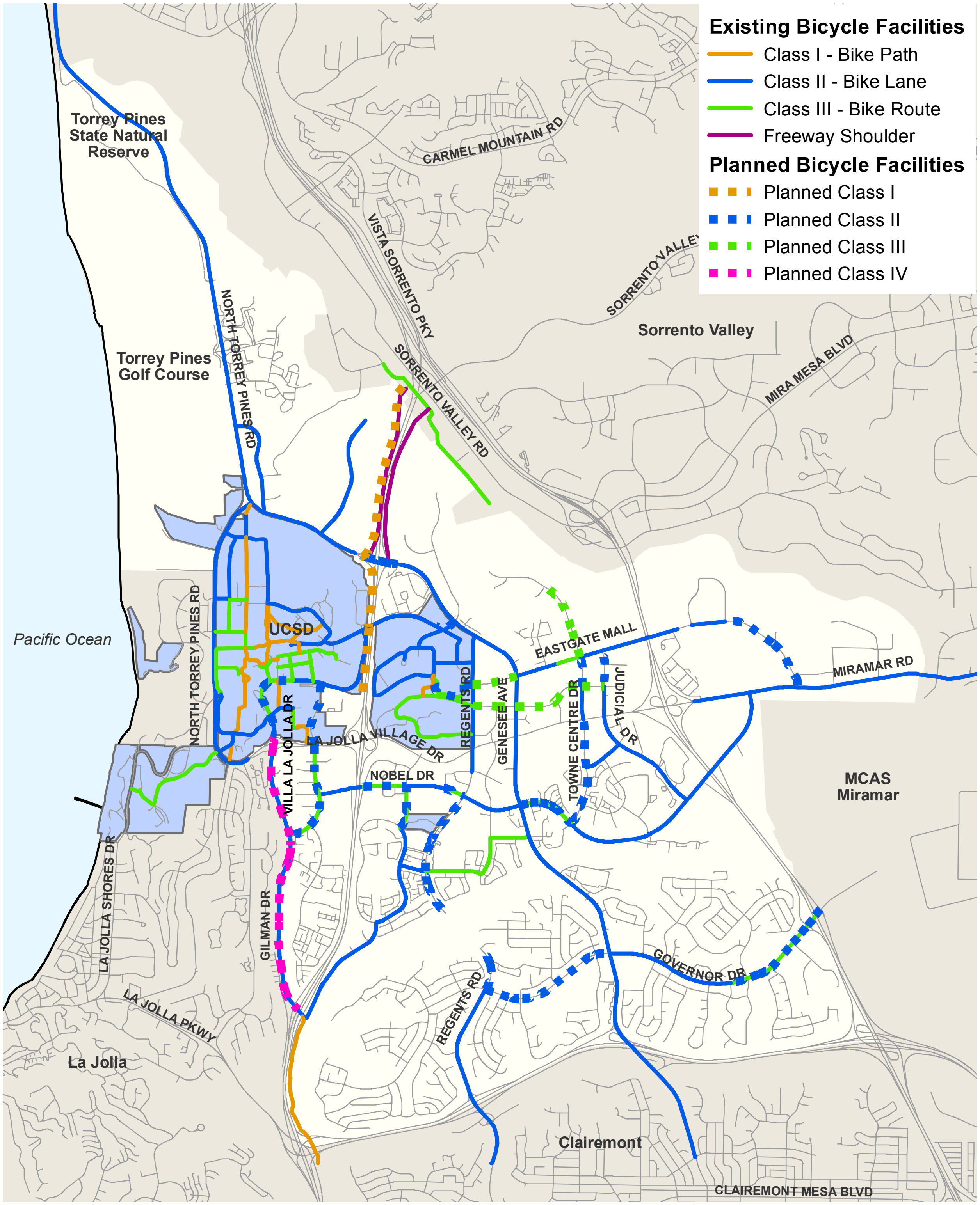
Freeways, canyons and gaps in the bicycle network create barriers for cycling for the University community. Examples include: Interstate 5, Interstate 805, State Route 52, Rose and San Clemente Canyons as well as portions of Nobel Drive, Governor Drive, and Eastgate Mall. Similar to pedestrians, lack of continuous facilities can cause an existing barrier for bicycle connectivity. Due to right-of-way constraints and existing development conflicts, in specific areas, considerations will need to be made for parallel facilities to balance the needs of all modes and identify key connections and facilities needed to encourage cycling within the community.

FIGURE 14-5



Bicycle Opportunities and Constraints

FIGURE 14-6



Planned Bicycle Facilities

TRANSIT OPPORTUNITIES AND CONSTRAINTS

The City of Villages strategy supports expansion of the transit system by encouraging multi-family housing, employment centers, and other higher-intensity uses to be located in areas that can be served by high quality transit services. This will allow more people to live and work within walking distance of transit. The University community is relatively well served by transit and experiences high transit ridership. The highest public transit ridership levels in the community are along SuperLoop Routes 201 and 202.

Transit opportunities and constraints are identified in **Figure 14-**.

Transit Area Safety

Since most transit trips begin and end on foot or by bike, it is crucial that users can safely access transit stops. High bicycle- and pedestrian-involved collisions near a transit stop may indicate safety concerns for transit users, Transit area safety was assessed by looking at the number of pedestrian- and bicycle-involved collisions which occurred within 500 feet of transit stops. Locations with three or more collisions near a transit stop were primarily in the northern half of the community, with the exception of the intersection of Governor Drive and Genesee Avenue which is located south of Rose Canyon. These locations include:

- North Torrey Pines Road at John J Hopkins Drive
- Villa La Jolla Drive at La Jolla Village Drive
- Villa La Jolla Drive at Gilman Drive
- Lebon Drive at La Jolla Village Drive
- Lebon Drive at Charmant Drive
- Regents Road at La Jolla Village Drive
- Regents Road at Nobel Drive
- Genesee Avenue at Executive Square
- Genesee Avenue and La Jolla Village Drive
- Genesee Avenue and Governor Drive
- Executive Way and La Jolla Village Drive
- Towne Centre Drive and La Jolla Village Drive

Transit Access

Transit access was assessed using the quality bike and quality pedestrian connectivity to major transit stops. The Gilman Transit Center has a relatively high quality bikeshed, due to the low-stress bicycle facilities on the UCSD campus. By contrast, the UTC Transit Center does not have any low-stress bicycle facilities which provide access to the station, due to its location along Genesee Avenue between La Jolla Village Drive and Nobel Drive (both with high levels of traffic stress due to high speeds of vehicular traffic).

Transit Demand

Transit demand was assessed through a combination of existing ridership as well as U.S. Census data showing concentrations of housing and jobs. Housing density is highest in the center of the community, and is concentrated between Regents Road and Genesee Avenue, south of Eastgate Mall and north of Nobel Drive. Employment density is focused on the northern ends of the community, with jobs concentrated north of Genesee Avenue as well as on the UCSD campus. Planned light rail transit extensions will serve the high employment areas in the community.

Opportunities

As further discussed in Section 3, SANDAG's San Diego Forward: The Regional Plan (2015) identifies the following transit improvements within the project study area:

- **Trolley Route 510 (Mid-Coast Trolley Blue Line Extension) (2021):** extend the existing Blue Line service from America Plaza to the University Towne Centre (UTC) Transit Center.
- **Trolley Route 561 (2035):** provide a COASTER connection from the UTC Transit Center via the Sorrento Valley station.
- **Trolley Route 562 (2050):** provide a connection from Kearny Mesa to Carmel Valley.
- **Rapid Bus Route 30 (2035):** conversion of existing MTS Route 30 to a rapid bus route would connect Old Town to Sorrento Mesa via Pacific Beach, La Jolla and UTC/University.
- **Rapid Bus Route 41 (2035)**: connect Fashion Valley to UTC/UC San Diego via Linda Vista and Clairemont.
- **Rapid Bus Route 473 (2035)**: connect Solana Beach to UTC/UC San Diego via Hwy 101 Coastal Communities and Carmel Valley.
- **Rapid Bus Route 689 (2035)**: connect Otay Mesa Port of Entry (POE) to UTC/Torrey Pines via Otay Ranch/Millennia and I-805 Corridor (Peak Only).
- **Rapid Bus Route 870 (2050):** connect El Cajon to UTC via Santee, SR-52 & I-805.

On-time performance is an important piece of getting and maintaining transit ridership. The reliability of services is directly affected by the amount of congestion and level of service of intersections and roadway segments. Improving reliability can be accomplished with technology improvements such as adaptive and transit signal priority at traffic signals, and/or striping dedication such as transit only lanes or transit queue jump areas at intersections. Also providing adequate bus stop facilities at appropriate locations can reduce delays. The following are operational improvements in the community that are identified by the San Diego Metropolitan Transit System (MTS):

- Bus-only lane along Genesee Avenue between SR-52 and Nobel Drive. Especially southbound in PM. To be used by Routes 41 and 50 (up to 12 buses/hr/direction in peak).
- Sidewalk and bus stop improvements along west side of Gilman Drive (southbound) from north of Villa La Jolla to Via Alicante. (To be used by Route 150)
- Infrastructure to allow buses to turn right onto southbound I-5 on-ramp HOV lane from Gilman Drive #2 through-lane. (To be used by Route 150)
- Infrastructure to allow buses to turn right onto southbound I-805 on-ramp HOV lane from Nobel Drive #2 through-lane. (To be used by Route 60 and other future RTP services)

As part of the community plan update, future considerations will be made for improvements at key intersections and roadways that are experiencing congestion and delay to reduce delay for transit users and encourage more transit use. The construction of the Mid-Coast Trolley service to UTC provides great opportunity to connect University community to the major employment center in Downtown San Diego as well as to the US-Mexico Border. This will allow for the implementation of mobility hubs at the Mid-Coast Trolley stations to facilitate transit use.

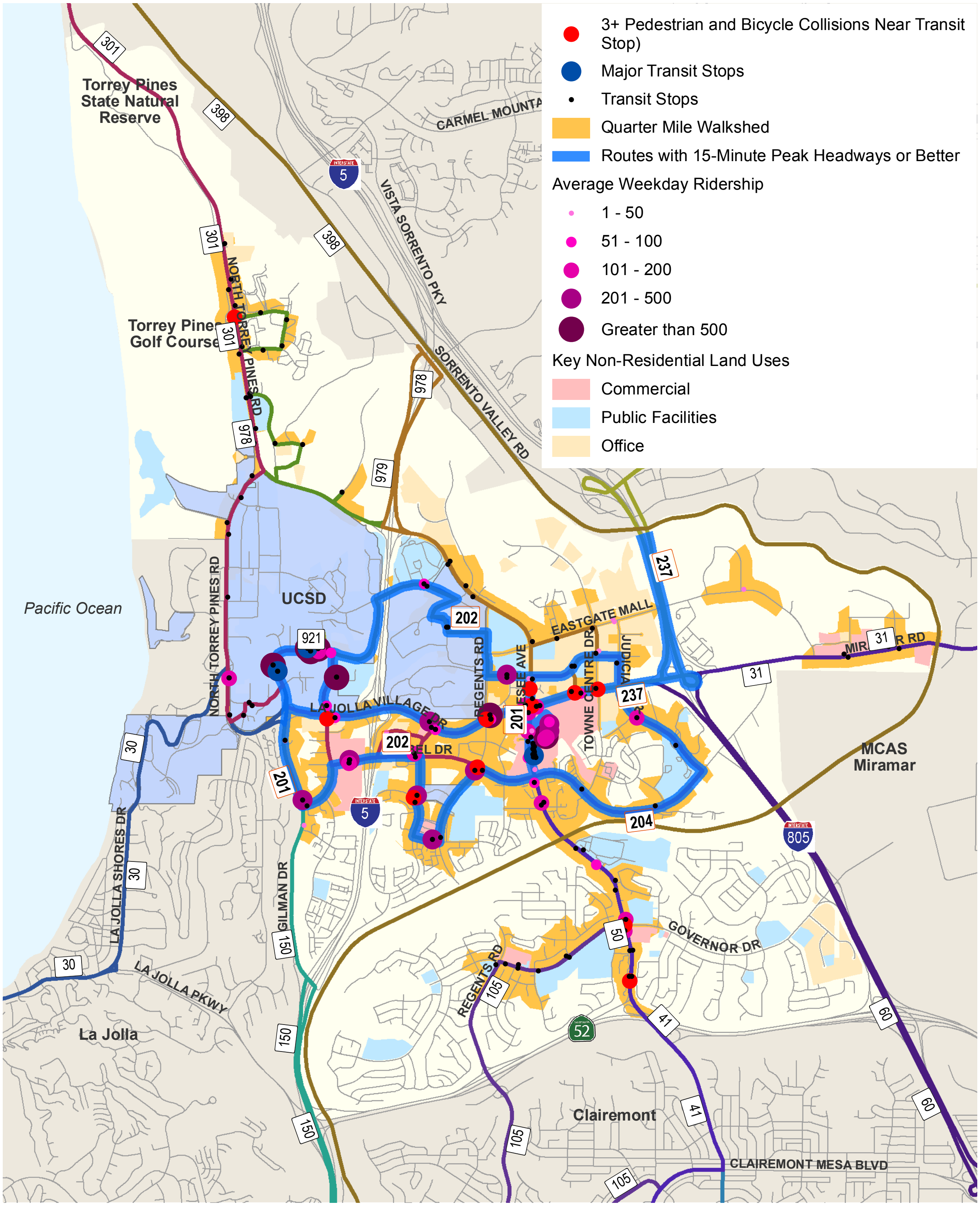
Constraints

Based on input from MTS and roadway and freeway analyses presented in Chapter 7 of this study, five key chokepoints were identified that cause delays for buses in the community. The locations of these key chokepoints are illustrated in **Figure 14-8**.

- La Jolla Village Drive to I-805 Southbound: The on-ramp from eastbound La Jolla Village Drive to southbound I-805 has excessive delays during the PM peak. Additionally, the southbound I-805 off ramp is a choke point during the PM peak.
- Gilman Drive to Southbound I-5: The right lane leading to the on-ramp to southbound I-5 during the PM peak is has excessive delays.
- Genesee Avenue and La Jolla Village Drive intersection: The left turn from northbound Genesee Avenue to westbound La Jolla Village Drive creates abnormal delays for buses making this left turn movement.
- Genesee Avenue between Nobel Drive and Governor Drive: Delays occur frequently during peak periods and there is no alternative route to cross Rose Canyon.
- La Jolla Village Drive and the Interstate 5 Southbound Ramp: Heavy through movement demand on La Jolla Village Drive leads to large queue development on all approaches

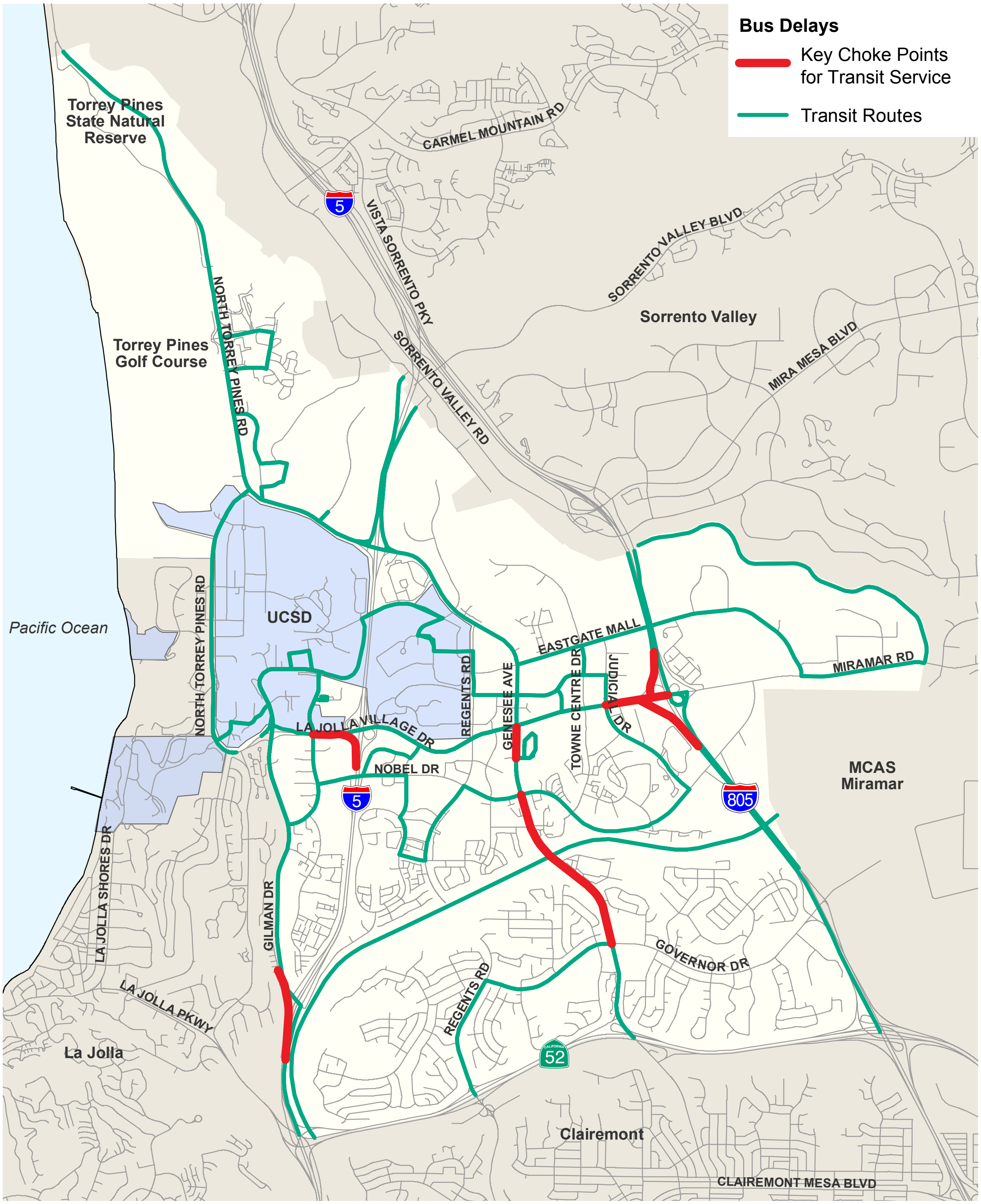
Due to congestion at on-ramps, considerations should be made to determine if a High Occupancy Vehicle (HOV) lane is feasible at specific locations which will allow buses to bypass the congestion at freeways. This in addition to existing and planned managed lanes along I-5 and I-805 will improve transit efficiency.

FIGURE 14-7



Transit Opportunities and Constraints

FIGURE 14-8



Existing Transit Choke Points

VEHICULAR OPPORTUNITIES AND CONSTRAINTS

Street and freeways comprise the framework of our transportation system and play a major role in shaping the community and quality of life. Vehicular opportunities and constraints are identified in **Figure 14-9**.

Safety

Vehicular safety was assessed by looking at the vehicular collisions which occurred in the study area in the 5-year period analyzed. Intersections with fifteen or more collisions are identified in the figure and listed below:

- Villa La Jolla Drive and La Jolla Village Drive
- Lebon Drive and La Jolla Village Drive
- Regents Road and La Jolla Village Drive
- Genesee Avenue and La Jolla Village Drive
- Executive Way and La Jolla Village Drive
- Towne Centre Drive and La Jolla Village Drive
- Eastgate Mall and Miramar Road
- I-5 Northbound Off-Ramp/University Center Lane and Nobel Drive
- Regents Road and Nobel Drive
- Genesee Avenue and Nobel Drive
- Genesee Avenue and Decoro Street
- Genesee Avenue and Governor Drive
- Genesee Avenue and Eastgate Mall

These locations are largely concentrated in the core of the community along La Jolla Village Drive, Nobel Drive, Regents Road and Genesee Avenue. These roadways are high speed, multi-lane facilities which may be conducive to speeding and other dangerous behaviors. Roadway and intersection safety measures may be beneficial in reducing the number of collisions along these facilities.

Roadway Segments

The University community has inter-community travel disbursed along its major east-west and north-south thoroughfares. Volumes are highest along roadway segments near freeways. Travel along La Jolla Village Drive and Genesee Avenue, specifically, can be difficult. The traffic demand is carried over several hours in the morning and afternoon as the community serves a variety of different travel patterns for office, retail, residential, UCSD, and schools.

Roadway segments with LOS D or worse were identified and are shown in the figure. These segments include the majority of La Jolla Village Drive from Villa La Jolla to I-805, Genesee Avenue between I-5 and SR-52, Miramar Road from I-805 to the east of Eastgate Mall, and Eastgate Mall from Miramar Road to Judicial Drive.

Freeways

The three freeways that serve University community are I-5, I-805, and SR-52. There is a merge of I-5 and I-805 at the northern portion of the community which can create significant congestion. Freeway operations for the adjacent Interstate 5, Interstate 805, and State Route 52 facilities are at or above capacity and many of the major corridor connections in the community experience significant congestion. On and off-ramps to I-5 and I-805 were also found to have high levels of delay.

Intersections

Nearly half of the study intersections (37 of 79) currently operate at Level of Service D or worse during at least one peak period. Intersections with high levels of delay are focused along Genesee Avenue and La Jolla Village Drive. The following 26 intersections currently operate at an unacceptable level of service (LOS E or F) during at least one peak period:

- Genesee Ave & N. Torrey Pines Rd – PM LOS F
- Genesee Ave & John Hopkins Dr (S) – AM LOS F
- Genesee Ave & I-5 SB Ramps – AM/PM LOS E/F
- Genesee Ave & I-5 NB Ramps – PM LOS F
- Genesee Ave & Eastgate Mall – AM/PM LOS E
- Genesee Ave & La Jolla Village Dr – AM LOS E
- Genesee Ave & Nobel Dr – AM LOS E
- Genesee Ave & Decoro St – PM LOS E
- Genesee Ave & Centurion Square – AM LOS E
- Genesee Ave & Governor Dr – AM/PM LOS E
- Genesee Ave & SR-52 WB Ramps – PM LOS F
- Genesee Ave & SR-52 EB Ramps – AM/PM LOS E/F
- Genesee Ave & Appleton St/Lehrer Dr – AM LOS F
- La Jolla Village Dr EB & Gilman Dr – PM LOS F
- La Jolla Village Dr & Villa La Jolla Dr – AM/PM LOS E/F
- La Jolla Village Dr & Regents Rd – AM/PM LOS E/F
- La Jolla Village Dr & Executive Wy – PM LOS E
- La Jolla Village Dr & Towne Centre Dr – AM/PM LOS F/E
- La Jolla Village Dr & I-805 SB Ramps – AM LOS F
- Miramar Rd & Eastgate Mall – PM LOS F
- Miramar Rd & Camino Santa Fe – PM LOS F
- Nobel Dr & Regents Rd – PM LOS F
- Regents Rd & SR-52 EB Ramps – AM LOS F
- Regents Rd & Luna Ave – AM/PM LOS F
- N. Torrey Pines Rd & Revelle College Dr – PM LOS F
- Governor Dr & I-805 NB Ramps – AM/PM LOS F

Parking

Parking in the University community is primarily off-street parking. In the commercial areas, off-street parking lots are provided for the adjacent uses. In residential areas, off-street parking is mostly provided as well, with on-street parking sparingly used for overflow of residents and visitors. Parking should continue to be reliant on off-street parking supplies to utilize the roadway space for bicycle, pedestrian, and transit travel.

For on-street parking in the community, there are no permit parking areas and time-restricted and metered parking is used infrequently. Parking is highly utilized in the core of the community where it is provided along La Jolla Village Drive, Nobel Drive, Gilman Drive, Villa La Jolla Drive, Executive Drive and Executive Way. Roadways such as Towne Centre Drive, Eastgate Mall, and Governor Drive have less demand.

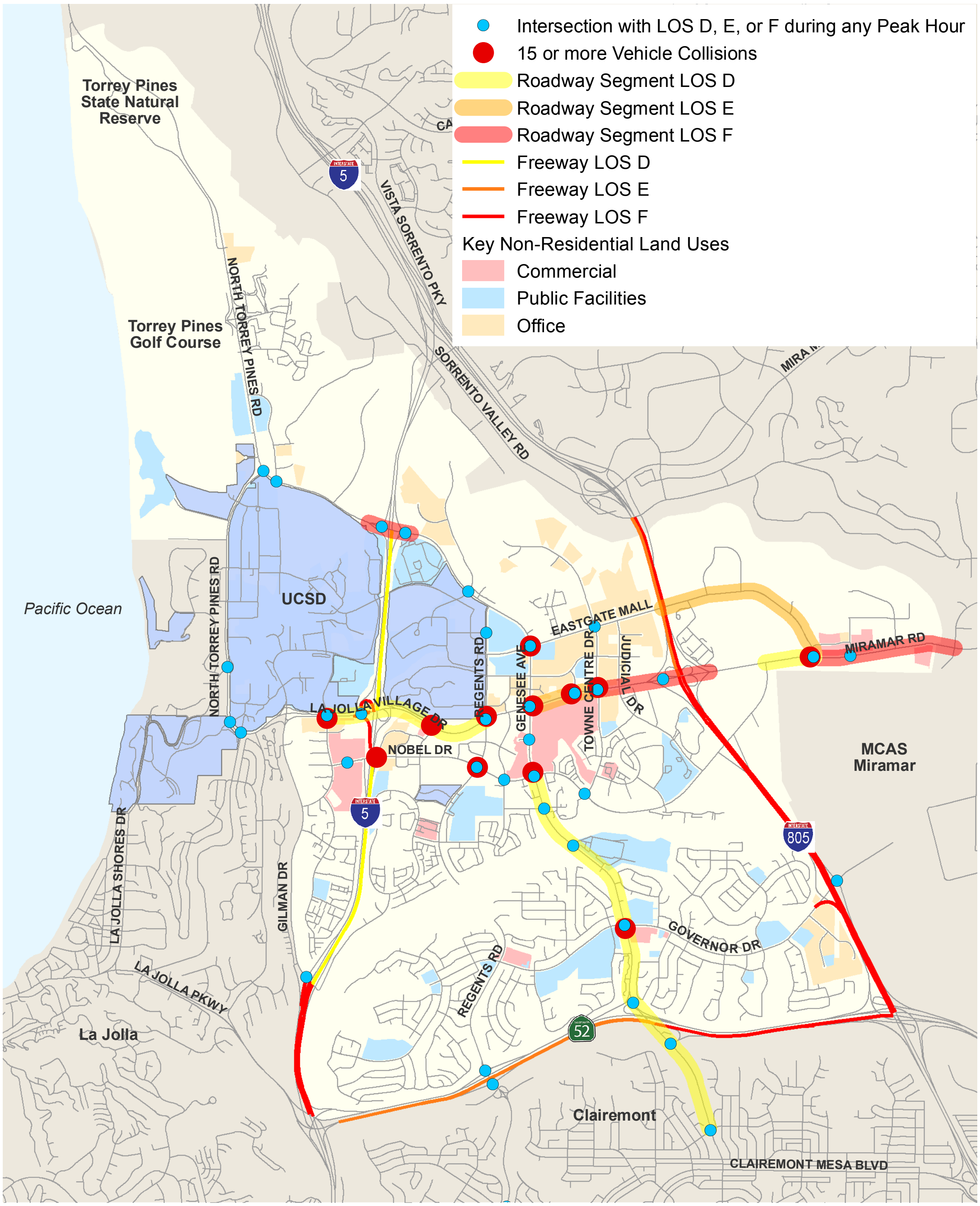
Opportunities

The roadways in the University community are primarily built out, with only a few locations where capacity improvements would be reasonable and beneficial. Mode shift away from single occupancy vehicles will be important to maintaining or decreasing vehicle operations in the community. Vehicle traffic along La Jolla Village Drive and Genesee Avenue would continue to be priority when balancing the needs of all users in the community as these are major roadways within the community that provide direct access to freeways, employment areas, and school campuses. The Mid-Coast trolley extension is currently under construction and will provide opportunities for additional travel within the community without relying on the automobile for travel. The community plan update can look at opportunities in areas where parking is in less demand to repurpose that right-of-way for more efficient use. For example, connectivity in the community may benefit from the conversion of on-street parking to transit or bicycle facilities. Providing enough off-street parking to accommodate the adjacent land uses and repurposing the roadways to accommodate other modes of travel and future travel demand may be needed. The effects of removing on-street parking will need to be considered on an individual project basis.

Constraints

As previously mentioned, the University community is primarily built out with few opportunities for constructing additional travel lanes. Many considerations should be given to identify opportunities to facilitate the shift from vehicle to other modes of travel. In addition, the community is comprised of canyons and freeways creating barriers and limiting roadway access in certain areas. Commute into and out of the community can be difficult during peak hours as congestion occurs on many of the community's roadways as well as adjacent freeways.

FIGURE 14-9



Vehicle Opportunities and Constraints

Appendix B

Blueprint SD, University CPU, Hillcrest FPA Vehicle Miles Traveled (VMT) Analysis

Blueprint SD Initiative

including

Blueprint SD
General Plan Amendment

University
Community Plan Update

and

Hillcrest
Focused Plan Amendment

Vehicle Miles Traveled Analysis

Prepared By: City of San Diego
Sustainabilty and Mobility Department

Sustainability & Mobility

February 23, 2024

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APPENDICES

LIST OF TABLES

1.0 INTRODUCTION

1.1 Purpose of the Report

This Vehicle Miles Traveled (VMT) Analysis Technical Report serves to identify and document potential California Environmental Quality Act (CEQA) transportation impacts related to VMT of the Proposed Project which includes the following key components: the Blueprint SD Initiative, the University Community Plan and Local Coastal Plan Update (CPU) (hereinafter referred to as the “University CPU”), and the Hillcrest Focused Plan Amendment (FPA) to the Uptown Community Plan (hereinafter referred to as the “Hillcrest FPA”).

This report has been prepared in accordance with the City of San Diego (City’s) compliance with Senate Bill (SB) 743 legislation specified by the Governor’s Office of Planning and Research (OPR). SB 743 removes vehicular Level of Service (LOS) as a metric for determining significant environmental impacts for transportation and replaces it with VMT as the primary measure of transportation impacts for CEQA. Operational analyses of the University CPU and Hillcrest FPA proposed mobility networks will be provided in separate reports and/or memorandums.

1.2 Report Organization

The remainder of this report is organized into the following chapters:

- ***2.0 Project Description*** – Summarizes the project’s components.
- ***3.0 Analysis Methodology*** – Describes the methodologies and standards utilized to analyze the CEQA transportation impacts related to VMT for all scenarios.
- ***4.0 Project Impacts*** – Discusses the VMT analysis and potential CEQA transportation impacts of the Proposed Project.

2.0 PROJECT DESCRIPTION

The project analyzed in this VMT Analysis Technical Report includes the following:

- “Blueprint SD Initiative” which includes adoption of a General Plan amendment and associated discretionary actions.
- The Hillcrest Focused Plan Amendment (FPA) to the Uptown Community Plan (hereinafter referred to as the “Hillcrest FPA”), rezones, amendments to the City’s Land Development Code (LDC), and associated discretionary actions.
- The University Community Plan and Local Coastal Plan Update (CPU) (hereinafter referred to as the “University CPU”), rezones, amendments to the LDC, and associated discretionary actions.

Please refer to Chapter 3, Project Description, of the Blueprints SD Initiative, Hillcrest FPA, and University CPU Program Environmental Impact Report (PEIR) for the detailed project description.

2.1 Land Use Changes

Blueprint SD Initiative Climate Smart Village Areas

The Blueprint SD Initiative Climate Smart Village Areas are areas within the City with a village propensity value between 7 and 14 as identified in the Village Climate Goal Propensity Map (see Figure 3-1a through d from the PEIR). Future opportunities for homes and jobs are anticipated to be focused in these Climate Smart Village Areas as these areas have good access to homes, jobs, and mixed use-destinations; are in proximity to high-frequency transit services based on the 2050 regional transportation network, have competitive transit access to job centers based on the 2050 regional transportation network, and provide good connections between transit and destinations.

University Community Plan Update

The changes proposed to the University CPU land use plan address the demand for homes and jobs and reflect the recent extension of the University of California San Diego (UCSD) Metropolitan Transit System (MTS) Blue Line Trolley service to UCSD and other existing and planned transit services. Table 3-3 of the PEIR identifies the existing, adopted plan and proposed plan non-residential build-out square footage for the University CPU area. Table 3-4 of the PEIR identifies the total number of existing homes by type and the total number of homes that could be built for the adopted University Community Plan and proposed University CPU. The proposed University CPU land use map is depicted on Figure 3-18 of the PEIR.

Hillcrest Focused Plan Amendment

The Hillcrest FPA would increase the allowable development intensity and residential density within approximately 380 acres of the Hillcrest and Medical Complex neighborhoods allowing for additional homes and jobs to be near sustainable transportation options. Generally, higher intensity development would be allowed along primary transit corridors, increasing opportunities for mixed-use commercial and employment districts. Table 3-2 of the PEIR identifies the existing, adopted plan and proposed plan non-residential build-out square footage for the Hillcrest FPA area. Table 3-1 of the PEIR identifies the total number of existing homes by type and the total number of homes that could be built for the Hillcrest FPA. The proposed Uptown Community Plan land use map is depicted on Figure 3-8 of the PEIR.

2.2 Multi-Modal Changes

Future modeling scenarios used the planned regional mobility network/investments/policies from the San Diego Association of Government's (SANDAG's) 2021 Regional Plan 2023 Amendment. Information on the proposed mobility system and multi-modal improvements for the University CPU are described in Section 3.5.3.1.c. of the PEIR. Information on the proposed mobility system and improvements for the Hillcrest FPA are described in Section 3.5.2.2 of the PEIR. Operational analyses of the proposed mobility system for the University CPU and Hillcrest FPA will be provided in separate reports.

3.0 ANALYSIS METHODOLOGY

This chapter describes the methodology for the CEQA VMT impact analysis that was prepared in accordance with the City's compliance with the SB 743 legislation and the CEQA review process.

3.1 Data Sources and Methods

VMT data was obtained from SANDAG's Series 14 Activity Based Model (ABM2+). The ABM is a travel demand forecasting model that incorporates census data and travel surveys to inform the algorithms of the model's projections. It uses a simulated population based on existing and projected demographics to match residents to employment and forecasts the daily travel on the regional transportation network. In addition, the model is able to estimate the daily travel behavior of individuals in the simulated population, including origins, destinations, travel distances and mode choices.

For the Proposed Project, SANDAG's 2016 Base Year forecast was used to determine the VMT metrics for residents and employees for the baseline condition.

The Project developed a Citywide Village Climate Goal Propensity Map (see Figure 3-1a through d of the PEIR) and subsequently identified areas with a village propensity value between 7 and 14 as Climate Smart Village Areas. Future opportunities for homes and jobs are anticipated to be focused in these Climate Smart Village Areas as they have good access to homes, jobs, and mixed use-destinations; are in proximity to high-frequency transit services and would have competitive transit access to job centers based on the 2050 regional transportation network, and provide good connections between transit and destinations. For additional information on the Village Climate Goal Propensity Map and Climate Smart Village Areas see ***Appendix A***.

To evaluate the VMT impact that could potentially arise from the implementation of the Blueprint SD Initiative, the City worked with its transportation modeling consultant and SANDAG to develop model inputs that would best represent the future conditions which resulted in 3 modeling scenarios as described in Section 1.2 of this document. From these scenarios, SANDAG generated VMT Reports that were used to determine the VMT impact(s) of the Project, these reports are contained in ***Appendix F***.

Activity Based Model (ABM) Background

The ABM is a complex travel demand model that can track the characteristics of each simulated traveler and can analyze the travel patterns of a wide area throughout an entire day. When simulating a person's travel patterns, the ABM takes into consideration a multitude of personal and household attributes to ensure that people move from one place to another in a realistic manner. Each model run "scenario" can reflect a specific year, land use scenario, and/or transportation network. After an ABM scenario is constructed, it produces a loaded roadway network that provides projected daily vehicle volumes on each link in the network with additional reports on mode share, VMT and other transportation metrics that can be generated for analysis. Additional technical information on the SANDAG ABM can be found at: https://github.com/SANDAG/ABM/wiki.

Village Climate Goal Propensity Map

For the Blueprint SD Initiative, a land use modeling effort was used to locate homes and jobs within areas near high frequency transit, with the goal of supporting a shift in mode share from single occupancy vehicles to other non-vehicular models of travel including walking, biking, and transit. Refer to *Appendix A* for the description of the methodology used in the development of the Blueprint SD Initiative Climate Goal Propensity Map. Future homes and jobs within the Climate Smart Village Areas would be further defined as part of future CPUs, Specific Plans, and/or FPAs.

Model Input Development

To model the Project within SANDAG's ABM 2+, the proposed Village Climate Goal Propensity Map and Climate Smart Village Areas were converted into model inputs that are representative of the Proposed Project. With its consultant, the City estimated the overall increased Citywide housing capacity that the Blueprint SD Initiative would allow, ranging from low to high intensity. The increased capacities where then distributed to the Climate Smart Village Areas. To evaluate the full effect of the project, two model runs would be used to represent the low and high intensity capacities which are Model Run 1 and Model Run 3, respectively.

For the University CPU and Hillcrest FPA, a third model run, Model Run 2 was developed that was built off Model Run 1 with modifications to incorporate the University CPU and Hillcrest FPA land uses.

The detailed methodology of how the model inputs were developed can be found in ***Appendix B-1***. Summaries of the land use inputs citywide for Model Runs 1, 2 and 3 are provided in ***Appendix C***. More detailed land use inputs for the University CPU and Hillcrest FPA areas are provided in ***Appendix D*** and ***Appendix E***, respectively.

SB 743 VMT Reports

SANDAG is able to extract various transportation metrics from completed model via post processing methods. SB 743 VMT reports are based on the resident model of the Activity Based Model and do not account for VMT from other sources such as visitors/tourist or goods movement. The ABM can track the tours of all the residents of the region by purpose and calculate their daily VMT. The SB 743 VMT report focuses on two VMT efficiency metrics:

- VMT per capita represents the average amount of personal, non-commercial, vehicle travel made on an average weekday by each resident who lives within that geographic boundary. In practice this metric is typically applied to residential land use projects.
- VMT per employee represents the average amount of personal, non-commercial, vehicle travel made on an average weekday by each resident employee whose employment/work location is within that geographic boundary. In practice this metric is typically applied to commercial employment land use projects.

The VMT metrics can be reported on any specific geographic boundary within the region. For this project, the geographic boundaries used were:

- Region: San Diego Region
- City: City of San Diego
- Study Areas:
  - University Community Plan Area Boundary
  - Hillcrest Focused Plan Amendment Area Boundary

Additional details on SANDAG SB 743 post-processing can be found here:

https://sandag.maps.arcgis.com/sharing/rest/content/items/f85d3ffea0394f298af2462c9fbfe724/data

SANDAG VMT reports utilized for this project are found in ***Appendix F***.

Modeling Scenarios

SANDAG's ABM was used to determine the project's VMT. The proposed land uses and Regional Plan mobility network/investments/policies were inputs to the model to develop future travel forecasts and

VMT. For the project's VMT analysis the following modelling scenarios were utilized:

- Base Year (2016) – The 14.3.0 version of the 2021 Regional Plan Base Year (2016)
- City of San Diego Blueprint SD Model Run 1 (2050) – Is the low estimate density for the Blueprint SD Initiative Climate Smart Village Areas, which are areas with a village propensity value of 7 through 14, with the proposed regional mobility network/investments/policies from the 2021 Regional Plan 2023 Amendment.
- City of San Diego Blueprint SD Model Run 2 (2050) – Incorporates proposed land uses from the University CPU and Hillcrest FPA with the proposed regional mobility network/investments/policies from the 2021 Regional Plan 2023 Amendment.
- City of San Diego Blueprint SD Model Run 3 (2050) – Is the high estimate density for Blueprint SD Initiative Climate Smart Village Areas with the proposed regional mobility network/investments/policies from the 2021 Regional Plan 2023 Amendment.

All scenarios were modeled using the SANDAG ABM 2+, Series 14 Regional Model and assume the Regional Plan's 2023 Amendment transportation network for 2050. For the Blueprint SD GPU, Model Run 1 and Model Run 3 serve as the low and high residential land use scenarios, respectively, proposed by the Blueprint SD Initiative. Model Run 2 Citywide land uses fall between Model Runs 1 and 3 and incorporate the proposed land uses for the University CPU and Hillcrest FPA.

For the purpose of the VMT transportation impact study, a Plan-to-Ground analysis was conducted by comparing the Proposed Project to the Base Year (2016), which is representative of baseline conditions.

3.2 Determination of CEQA Transportation Significant Impact for VMT

On September 27, 2013, Governor Jerry Brown signed SB 743 into law and started a process intended to fundamentally change transportation impact analysis under CEQA. The Office of Planning and Research (OPR) published its latest recommended Technical Advisory on Evaluating Transportation Impacts in CEQA in December 2018. This Technical Advisory provides recommendations on how to evaluate transportation impacts under SB 743. The OPR guidance covers specific changes to the CEQA guidelines and recommends elimination of auto delay for CEQA purposes and the use of VMT as the preferred CEQA transportation metric.

VMT is positively correlated with growth and as the region is expected to grow, VMT is also expected to increase. How and where growth occurs plays a significant role in determining how much VMT will increase. Growth areas are projected to be more VMT efficient with the following: high quality transit service, a complete active transportation network, and complementary land use mixes.

Consistent with OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018), the City updated the transportation thresholds in their CEQA Significance Determination Thresholds and adopted the Transportation Study Manual (TSM) in 2020 (updated in 2022) that requires the use of the following VMT metrics for determining CEQA transportation impacts of land use projects:

- For residential uses, the recommended efficiency metric is Resident VMT per Capita;
- For employment uses, the recommended efficiency metric is Employee VMT per Employee.
- For retail uses, the recommended metric is a net change of total area VMT due to the nature of retail trips typically redistributing shopping trips rather than creating new trips.

From Table 3 of the TSM, Significance Thresholds for VMT by land use type are shown in **Table 3-1**.

Table 3-1: Significance Thresholds for VMT Impacts

Table 3-1 Significance Thresholds for VMT Impacts	
Land Use Type (See TSM Appendix B for Specific Land Use Designations)	Threshold for Determination of a Significant Transportation VMT Impact**
Residential	15% below regional mean* VMT per Capita
Commercial Employment	15% below regional mean* VMT per Employee
Industrial and Agricultural Employment	Regional mean* VMT per Employee
Regional Retail	Zero net increase in total regional VMT*
Hotel	See Commercial Employment
Regional Recreational	See Regional Retail
Regional Public Facilities	See Regional Retail
Mixed-Use	Analyze each land use individually per above categories
Redevelopment	Apply the relevant threshold based on proposed land use (ignore the existing land use)
Transportation Projects	Zero net increase in total regional VMT*
* The regional mean and total regional VMT are determined using the SANDAG Regional Travel Demand Model. The specific model version and model year will be identified by the Development Services Department's Transportation Development Section. ** Projects that exceed these thresholds would have a significant impact.	

While the metrics and thresholds in **Table 3-1**, Significance Thresholds for VMT Impacts, are appropriate at the project level, both OPR and the City recognize that for large land use plans such as the General Plan and Community Plans, proposed new residential, office and retail land uses should be considered in aggregate (OPR, 2018). Locally serving retail land uses are presumed to have a less than significant impact on VMT. However, it is not possible at the program level to isolate the components of citywide proposed retail land uses that may be regionally serving which may have a significant VMT impact verses those that are locally serving and would be presumed to have a less than significant VMT impact. In addition, it is not possible to isolate the component of VMT attributable only to proposed retail land uses because net regional VMT changes referred to in **Table 3-1** and provided by the transportation forecasts include those caused by population and employment growth as well as proposed land use, transportation network, and policy changes. For retail land uses it is more appropriate to identify VMT impacts and potential mitigation measures at the project level.

Project-specific significance thresholds for the Proposed Project (Blueprint SD Initiative, University CPU, and Hillcrest FPA) have been developed to guide programmatic analysis for the Proposed Project.

*Table 3-2: Project Specific Significance Threshold for VMT Impacts by Land Use**

Table 3-2 Project Significance Thresholds for VMT Impacts by Land Use*	
Land Use Type	Threshold for Determination of a Significant Transportation VMT Impact
Residential	15% below regional mean** VMT per Capita
Commercial Employment	15% below regional mean** VMT per Employee
Regional Retail	Net increase in total base year regional VMT**

*The thresholds included in this table are for the pertinent land use types of the Proposed Project. Other land use thresholds (e.g., hotel, institutional, mixed-use, etc.) have been excluded as those thresholds are more land use specific and for project- level analyses.
** The regional mean and total VMT are determined using the Base Year (2016) of the current version of the SANDAG Regional Travel Demand Model

The VMT thresholds provided in **Table 3-2** were developed based on SB 743 legislation, the City's TSM and OPR's Technical Advisory on Evaluating Transportation Impacts in CEQA, which covers specific changes to the CEQA guidelines and contains OPR's technical recommendations related to the use of VMT, as the preferred CEQA transportation metric.

VMT per capita represents the average amount of personal, non-commercial, vehicle travel made on an average weekday by each resident who lives within that geographic boundary.

VMT per employee represents the average amount of personal, non-commercial, vehicle travel made on an average weekday by each resident employee whose employment/work location is within that geographic boundary.

4.0 IMPACT ANALYSIS

This chapter presents the assessment of VMT impacts resulting from the Proposed Project.

4.1 Vehicle Miles Traveled – SB 743 Analysis

As described in ***Chapter 3***, SANDAG's Activity Based Model (ABM) was used to calculate the Proposed Project's VMT. The proposed land uses were inputs to the model with the proposed regional mobility network/investments/policies from the 2021 Regional Plan 2023 Amendment to develop future roadway volumes and VMT. VMT Reports from the modeling scenarios (described in ***Chapter 3***) by study area are contained in ***Appendix F.***

Blueprint SD Initiative VMT Analysis

Residential and Employment VMT

Table 4-1 presents the City of San Diego resident and employee VMT efficiency metrics for Base Year conditions. Under Base Year conditions, the City is above the threshold of 85 percent of the regional mean for both efficiency metrics at 92 percent and 104 percent of the Base Year regional means for both VMT per Capita (Residents) and VMT per Employee (Employment), respectively.

Table 4-1: Citywide Base Year VMT Metrics

Table 4-1 Base Year VMT Metrics			
		2016 Base Year	
	2016 Regional Mean[1]	Citywide Mean[2]	Percent of 2016 Regional Mean
VMT per Capita (Residents)	19.1	17.6	92%
VMT per Employee (Employment)	19.1	19.8	104%

[1] Source: SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, VMT Report Scenario ID 186
[2] Source: SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, VMT Report Scenario ID 186
See Appendix F for VMT Reports

By 2050, under the Blueprint SD Initiative, the VMT efficiency substantially improves. **Table 4-2** presents the Blueprint SD Initiative 2050 resident and employee VMT for the City of San Diego. Under the Blueprint SD Initiative, the City is projected to have VMT per Capita between 13.3 - 14.4 and VMT per Employee between 13.2 - 14.2, which are 70 - 75 percent and 69 - 74 percent, respectively, of the Base Year regional means. VMT associated with the residential and employment land uses would not exceed the thresholds and would be less than significant assuming full implementation of the Blueprint SD Initiative and the SANDAG 2021 Regional Plan. However, at a programmatic level of analysis, we cannot ensure full implementation of the Regional Plan's transportation investments. Therefore, residential and employment VMT impacts would be considered significant.

Table 4-2: Citywide CEQA VMT Analysis for Blueprint SD

Table 4-2 VMT CEQA Analysis for Blueprint SD				
		2050 Blueprint SD		
	2016 Regional Mean[1]	Citywide Mean[2]	Percent of 2016 Regional Mean	Exceeds Threshold[3] (Y/N)
VMT per Capita (Residents)	19.1	13.3 - 14.4	70% - 75%	NO
VMT per Employee (Employment)	19.1	13.2 - 14.2	69% - 74%	NO

[1] Source for 2016 Regional Mean is SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, VMT Report Scenario ID 186
[2] Sources for Citywide mean are SANDAG ABM 2+, Blueprint Model Run 3 Scenario - SB 743 VMT Report, Scenario ID 321 and SANDAG ABM 2+, Blueprint Model Run 1 Scenario - SB 743 VMT Report, Scenario ID 319
[3] Threshold is 85% of the 2016 Regional Mean VMT per Capita or VMT per Employee, respectively.
See Appendix F for VMT Reports

Retail VMT

While the metrics and thresholds in **Table 3-1**, Significance Thresholds for VMT Impacts are appropriate at the project level, both OPR and the City recognize that for large land use plans such as the General Plan and Community Plans, proposed new residential, office and retail land uses should be considered in aggregate (OPR, 2018). Locally serving retail land uses are presumed to have a less than significant impact on VMT. However, it is not possible at the program level to isolate the components of citywide proposed retail land uses that may be regionally serving which may have a significant VMT impact verses those that are locally serving and would be presumed to have a less than significant VMT impact. In addition, it is not possible to isolate the component of VMT attributable only to proposed retail land uses because net regional VMT changes provided by the transportation forecasts include those caused by population and employment growth as well as proposed land use, transportation network, investment, and policy changes. For retail land uses it is more appropriate to identify VMT impacts and potential mitigation measures at the project level. In addition, at this programmatic analysis it is not possible to ensure full implementation of the Regional Plan's transportation investments to support access to retail land uses. Therefore, impacts would be considered significant.

University Community Plan Update VMT Analysis

Residential and Employment VMT

Table 4-3 presents the University CPU resident and employee VMT efficiency metrics for Base Year conditions. Under Base Year conditions, the University CPU exceeds the thresholds by being above 85 percent of the regional means for both VMT per Capita (Residents) and VMT per Employee (Employment) at 90 percent and 126 percent of the Base Year regional means, respectively.

Table 4-3: University CPU Base Year VMT Metrics

Table 4-3 Base Year VMT Metrics – University Community Plan Update			
		2016 Base Year	
	2016 Regional Mean[1]	University Community Plan Area Mean[2]	Percent of 2016 Regional Mean
VMT per Capita (Residents)	19.1	17.1	90%
VMT per Employee (Employment)	19.1	24.0	126%

[1] Source: SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, VMT Report Scenario ID 186
[2] Source: SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, TFIC SB 743 VMT Maps Scenario ID 458
See Appendix F for VMT Reports and SANDAG Traffic Forecast Information Center (TFIC) data

By 2050, with the implementation of the University CPU, the VMT efficiency substantially improves. **Table 4-4** presents the University CPU resident and employee VMT for 2050 which is projected to have a VMT per Capita at 11.5 and an VMT per Employee at 16.3, which are 60 percent and 85.3 percent, respectively, of the Base Year regional means. With implementation of the SANDAG Regional Plan, VMT associated with the residential land uses would not exceed the 85 percent thresholds at buildout of the University CPU and would be less than significant However, for the purpose of this programmatic analysis, it cannot be ensured that full implementation of the Regional Plan's transportation investments will occur. Therefore, residential VMT impacts would be considered significant. VMT associated with employment land uses would exceed the 85 percent threshold at buildout of the University CPU and would be considered significant.

Table 4-4: University CPU Resident and Employee VMT Analysis

Table 4-4 Resident and Employee VMT - University Community Plan Update				
		2050 University CPU		
	2016 Regional Mean[1]	University CPA Mean[2]	Percent of 2016 Regional Mean	Exceeds Threshold[3] (Y/N)
VMT per Capita (Residents)	19.1	11.5	60%	NO
VMT per Employee (Employment)	19.1	16.3	85.3%	**YES**

[1] Source: SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, VMT Report Scenario ID 186
[2] Source: SANDAG ABM 2+, Blueprint Model Run 2 Scenario - SB 743 VMT Report, Scenario ID 320
[3] Threshold is 85% of the 2016 Regional Mean VMT per Capita or VMT per Employee, respectively.
See Appendix F for VMT Reports

Retail VMT

While the metrics and thresholds in **Table 3-1**, Significance Thresholds for VMT Impacts, are appropriate at the project level, both OPR and the City recognize that for large land use plans such as the General Plan and Community Plans, proposed new residential, office and retail land uses should be considered in aggregate. Locally serving retail land uses are presumed to have a less than significant impact on VMT.

Due to the presence of the University Towne Centre Mall in the University CPU area, it is not possible at the program level to isolate proposed retail land uses that may be regionally serving, and which may have a significant VMT impact versus those that are locally serving and would be presumed have a less than significant VMT impact. In addition, it is not possible to isolate the component of VMT attributable solely to proposed retail land uses due to net regional VMT changes reflecting those caused by population and employment growth as well as proposed land use, transportation network, and policy changes. For retail land uses, it is more appropriate to identify VMT impacts and potential mitigation measures at the project level. At this programmatic level of analysis, the retail land uses in University CPU would have a significant VMT impact.

Hillcrest Focused Plan Amendment VMT Analysis

Residential and Employment VMT

Table 4-5 presents the Hillcrest FPA resident and employee VMT efficiency metrics for Base Year conditions. Under Base Year conditions, the Hillcrest FPA is below the threshold for the VMT per Capita (Residents) metric at 75 percent of the Base Year regional mean while VMT per Employee (Employment) for the Hillcrest FPA is 87 percent of the Base Year regional averages, which exceeds the threshold.

Table 4-5: Hillcrest FPA Base Year VMT Metrics

Table 4-5 Base Year VMT Metrics – Hillcrest FPA			
		2016 Base Year	
	2016 Regional Mean[1]	HC FPA Mean[2]	Percent of 2016 Regional Mean
VMT per Capita (Residents)	19.1	14.2	75%
VMT per Employee (Employment)	19.1	16.5	87%

[1] Source: SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, VMT Report Scenario ID 186
[2] Source: SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, VMT Report Scenario ID 186
See Appendix F for VMT Reports

By 2050 with the implementation of the Hillcrest FPA, the VMT efficiency substantially improves. **Table 4-6** presents the Hillcrest FPA resident and employee VMT for 2050 which is projected to have a Resident VMT per Capita at 5.7 and an Employee VMT per Employee at 9.4, which are 30 percent and 50 percent, respectively, of the Base Year regional averages. VMT associated with the residential and employment land uses would not exceed the 85 percent thresholds at buildout of the Hillcrest FPA and would be less than significant based on the Hillcrest FPA land uses and the implementation of the SANDAG 2021 Regional Plan. However, at this programmatic level of analysis, it cannot be ensured that implementation of the Regional Plan's transportation investments will occur. Therefore, residential and employment VMT impacts would be considered significant.

Table 4-6: Hillcrest FPA Resident and Employee VMT Analysis

Table 4-6 Resident and Employee VMT for Hillcrest Focused Plan Amendment				
		2050 Hillcrest Focused Plan Amendment Buildout		
	2016 Regional Mean[1]	**Hillcrest FPA Mean[2]**	**Percent of 2016 Regional Mean**	**Exceeds Threshold[3] (Y/N)**
VMT per Capita (Residents)	19.1	5.7	30%	NO
VMT per Employee (Employment)	19.1	9.4	50%	NO

[1] Source: SANDAG ABM 2+ RP 2021, 2016 Base Year Scenario, VMT Report Scenario ID 186
[2] Source: SANDAG ABM 2+, Blueprint Model Run 2 Scenario - SB 743 VMT Report, Scenario ID 320
[3] Threshold is 85% of the 2016 Regional Mean VMT per Capita or VMT per Employee, respectively.
See Appendix F for VMT Reports

Retail VMT

Although total VMT generated by all land uses is expected to increase under future buildout of the Hillcrest FPA, it is anticipated that further redevelopment would maintain and possibly expand neighborhood and community-serving retail. Per the City's TSM and OPR's Technical Advisory "local-serving retail development tends to shorten trips and reduce VMT. Thus, lead agencies generally may presume such development creates a less-than significant transportation impact." Consistent with the City's TSM and OPR's Technical Advisory, impacts related to VMT for retail land uses would be considered to be less than significant.

4.2 Significance of Impacts

Vehicle Miles Traveled per Capita – SB 743 Analysis

The project would have a significant VMT impact at the program level due to residential, employment, and retail VMT for the Blueprint SD Initiative and University CPU. Residential and employment VMT impacts under the Hillcrest FPA would also be significant; however, retail VMT impacts under the Hillcrest FPA would be less than significant.

Appendices

Table of Contents

Appendix A:

Blueprint Methodology Documentation

MEMO

TO: City of San Diego

FROM: Rick Curry, Sara Khoeini

SUBJECT: Blueprint Methodology Documentation

DATE: October 5, 2022

PROJECT SUMMARY

The City of San Diego's Climate Action Plan is oriented towards dramatically reducing Greenhouse Gas emissions from all energy sectors within the City of San Diego. On-road transportation related emissions account for approximately 40 percent of GHG emissions in the city of San Diego. The City of San Diego, through a variety of planning and policy documents, has focused transportation related reductions on reducing auto trip distances and mode shift to non-auto travel modes.

The goal of this project is to develop a data-driven planning process for the City of San Diego to maximize weekday daily alternative transport mode use such as walking, biking, micro-mobility, and transit. The final output map of this process highlights areas in the City of San Diego that are receptive to future housing and retail development through the forecasting year of 2050 that would help achieve the mode share goals.

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The main benefit of this planning process compared to traditional scenario planning (based on the SANDAG travel demand model) is the time saving of running the entire ABM2+ model in addition to the revisions required from SANDAG Service Bureau. Furthermore, scenario planning itself is an iterative process that involves thoughtful consideration to suggest reasonable scenarios for testing with the model and it is not guaranteed that the suggested scenarios will include the best possible scenario. The SANDAG ABM2+ is very good at answering questions of "what will it be" and "what if" questions such as "what will the mode share be in 2050 based on the existing general plan land use?" or "what will the transit mode share be if we added a new transit line?". The advantage of the Metamodel optimization process is that it helps to answer questions on "how do we" such as "how do we minimize auto mode share?".

The Metamodel estimated in this process uses the zonal data from ABM2+ to relate land use densities and transit attributes to alternative transportation mode use. The latter step of the process uses the estimated model to optimize alternative transport mode use as a function of zonal attributes. The Metamodel provides a much faster trial/testing process for scenarios from which insights may be gleaned to refine assumptions and develop a preferred scenario with the most desired outcomes. This memo explains the data-driven planning process for the City of San Diego and includes three main steps of model estimation (Section 1), application (Section 2), and visualization (Section 3). The Section 4 explains the technical requirement to run the entire process and Section 5 provides a glossary of technical terms.

SECTION 1: MODEL ESTIMATION

The input data for this project comes from various sources from the SANDAG 2021 Regional Plan including the SANDAG regional travel demand model inputs and outputs, Transit Priority Area (TPA) planned stops, and residential, retail, and mixed-use densities. The unit of analysis in this project is the SANDAG defined Master Geographic Reference Area (MGRA) which is the smallest zoning system of SANDAG's travel demand model (ABM2+). The model has been estimated for the ABM2+ base year of 2016. The dependent variable of the model, which comes from the SANDAG ABM2+, is the share of trips at each MGRA that use alternative transport modes (non-auto modes including walk, bike, micro-mobility, and transit) called "non-auto propensity".

The variables that are significant in explaining non-auto propensity at each MGRA are dwelling unit density, retail employment density, mixed-use density, the competitiveness of transit services for work commute travel, proximity to TPA high-quality transit stops, and household vehicle ownership. The estimated coefficients for all the variables reflect an increasing relationship with the response variable except for vehicle ownership. In other words, increasing dwelling, retail, and mixed-use densities will increase non-auto propensity, while having a higher rate of average vehicle ownership decreases the non-auto propensity. The model goodness of fit was high at 0.72 and the least square linear regression has been used for model estimation.

SECTION 2: MODEL APPLICATION

The estimated model has been used in the model application step to maximize non-auto propensity and predict the most receptive locations to add residential units and retail development in future years. In the residential and retail optimization step, a ranking score was given to each MGRA based on optimizing non-auto propensity in the estimated model. This ranking score was then aggregated with transit and mixed-use score to calculate the final prioritization score of each MGRA for future residential and retail developments. The transit score was based on transit accessibility to job locations out of SANDAG ABM2+ as well as closeness to TPA high-quality transit stops (with higher weights for rail and BRT stops) using the SANDAG 2021 Regional Plan 2050 Vision transit network and stops. The mixed-use score is calculated based on the following formula[1]:

$$Mix\ Score = \frac{Intersections * (DU\ Density * F1) * (Retail\ Employment\ Density * F2)}{Intersections + (DU\ Density * F1) + (Retail\ Employment\ Density * F2)}$$

Where: $F1 = {}^{Mean\ Intersections}/_{Mean\ DU\ Density}$

$F2 = {}^{Mean\ Intersections}/_{Mean\ Retail\ Employment\ Density}$

Intersection Count in the mixed-density formulation explains urban form and walkability. The final combined prioritization score divided the MGRAs into 14 groups with a higher score indicating higher priority for future developments.

Locations outside the jurisdiction of the City of San Diego or areas not considered for redevelopment during the Blueprint process have been excluded from the model applications. These exclusion areas include Port of SD, airports, Airport Land Use Compatibility Plan safety zones exclusions, cemeteries, military establishments, attractions, hiking trails, golf courses, conservation/non-development land, schools and universities, large medical facilities, government/public land, federal land, parks, and industrial/research and development land uses.

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[1] Equation based on previous work by SANDAG and Portland Metro.
SANDAG 4D Model Development, published March 2010:
https://www.sandag.org/uploads/publicationid/publicationid_1602_13320.pdf, page 12
Metro Travel Forecasting Trip Model Methodology Report. Metro Planning Department, Travel Forecasting Division, 2001.

[2] ArcGIS Desktop Help 9.2 - Implementing Inverse Distance Weighted (IDW) (esri.com)

SECTION 3: VISUALIZATION

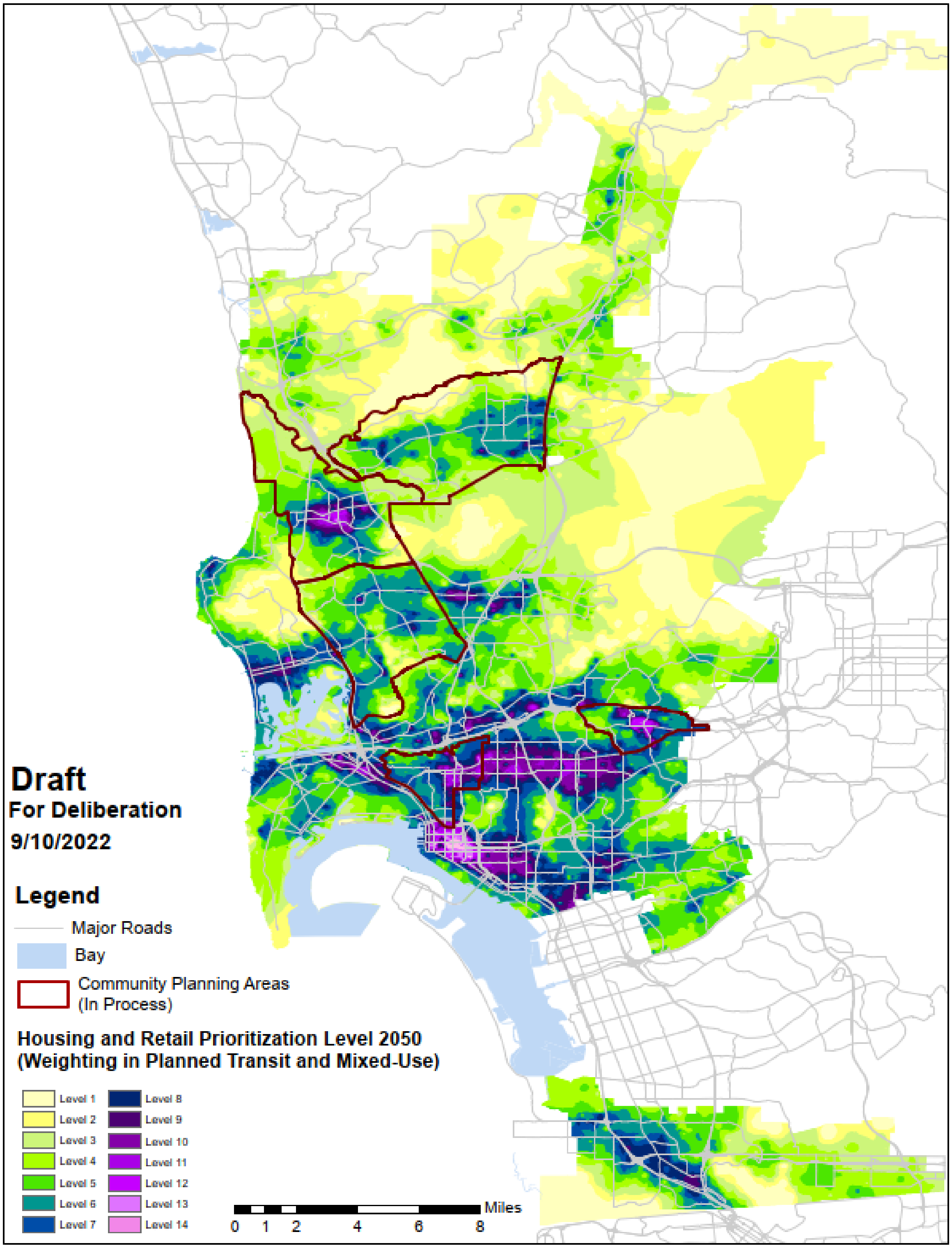
While the ranking scores were calculated at the MGRA level, the optimization results were mapped in a heatmap format using the Inverse Weighted Distance function[2] in ArcGIS to enhance the visualization. The heatmap generation process considers the exclusion areas meaning that the ranking score for the exclusion zones were considered as zero, but the blending of values often shades them as a low-level score.

The final combined prioritization scores (14 levels) of MGRAs are visualized in Figure 1. Levels 1 to 3 are color-coded in yellow representing the areas with very low recommendation for future developments. Starting from level 4 to level 6 where the green color pops up, the map highlights the areas with low-medium priority for developments. Level 7 (blue) to 9 (dark purple) highlights areas with medium priority for development considering all the interacting factors. At level 10 (dark purple) to level 14 (light purple**),** the areas with the highest receptiveness for future developments to maximize non-auto propensity are illustrated. Areas with existing or predicted transit accessibility, residential-commercial mixed-use development, and walkability are very well highlighted with higher ranks in the map and future developments in these areas have the higher potential to maximize the use of alternative transportation modes and contribute to sustainability goals of the Blueprint Plan.

SECTION 4: TECHNICAL PROCESS

The model estimation and application steps have all been scripted in Python using Jupyter Notebook and stored in a GitHub repository. The script reads the ABM2+ outputs shared by SANDAG, implements data cleaning and compilation steps to prepare the estimation and application variables into a feather file and then estimate the model. Using the same python scripting system, the model application step produces the optimized scores. Input data, such as transit and mixed-use variables, have been calculated in QGIS and ArcGIS and imported into the Python script. The final map visualization (heat map) has been prepared in ArcGIS using the Spatial Analyst extension.

Figure 1: Blueprint Draft Map (produced by WSP)



SECTION 5: GLOSSARY OF TECHNICAL TERMS

ABM2+ is the most recent version of the SANDAG Activity-based Model used within the 2021 Regional Plan. (https://www.sandag.org/index.asp?subclassid=120&fuseaction=home.subclasshome)

ArcGIS is the main Esri Software for analyzing Geographic Information Systems. (https://www.esri.com/en-us/home)

GitHub is a distributed version control for various programming languages. (https://github.com/)

GitHub repository is a location in the GitHub platform where the files and codes corresponding to the projects and their respective versions as a part of revision history are stored, managed, and used.

Goodness of fit of a statistical model describes how well it fits a set of observations.

Jupyter Notebook is an open-source web application that you can use to create and share documents that contain live code, equations, visualizations, and text. Jupyter Notebook is maintained by the people at Project Jupyter. (https://jupyter.org/)

Least square linear regression method is a form of regression analysis that establishes the relationship between the dependent and independent variables along a linear line.

Python is a programming language that lets you work quickly and integrate systems more effectively. (https://www.python.org/)

QGIS is a free and open-source cross-platform desktop geographic information system (GIS) application that supports viewing, editing, printing, and analysis of geospatial data. (https://www.qgis.org/en/site/)

Spatial Analyst extension is an extension for ArcGIS that provides advanced spatial modeling and analysis capabilities for both raster and feature data. (https://www.esri.com/en-us/arcgis/products/arcgis-spatial-analyst/overview)

Appendix B:

Blueprint SD Activity Based Model (ABM) Inputs Development Memos

B-1 Conversion of Blueprint SD Land Use to SANDAG Model Run Inputs

B-2 Summary of Updates in Three Model Run Inputs

MEMO

TO: **City of San Diego**

FROM: **WSP (Sara Khoeini, Rick Curry, and Xianting Huang)**

SUBJECT: **Conversion of Blueprint Land Use to SANDAG Model Run Inputs (H197127)**

DATE: **1/17/2024**

Introduction

This memo details the construction of three Blueprint scenario input files for the SANDAG (San Diego Association of Governments) Activity-Based Model 2+ (ABM 2+) model run based on the forecasts of growth in recently completed community plan updates (CPUs) and specific Master-Geographic Reference Area (MGRA) inputs for a few upcoming and draft CPUs. To augment these Blueprint inputs, we also incorporated data from additional sources including the Regional Land Use and Dwelling Unit Inventory (LUDU) for the year 2022, Series 14 Sustainable Communities Strategy (SCS) land use pattern (DS-42) for the year 2050, and Series 14 General Plan (DS-41) land use pattern for the year 2050, applying specific conditions to refine our final input estimates for the model run.

The calculations were carried out across three Excel Worksheets, each associated with a specific blueprint scenario. This document articulates the assumptions and rationales behind these calculations, while a separate slide deck will provide detailed documentation of all tabs and columns in the spreadsheets. The scope of this document is limited to the MGRAs within the City of San Diego and excludes any areas, termed as exclusion zones, where the City has no land use control, which are regulated due to law, or which are unlikely to change due to existing use of the land. For MGRAs outside the City of San Diego limits, the model utilizes data from SCS 2050.

Methodology of Model Inputs Calculation

This section outlines the methodology employed for calculating the Blueprint-related inputs for each model run. Table 1 presents a comprehensive overview of the attributes associated with each model run. This includes a comparison of the additional dwelling units relative to the Series 14 General Plan 2050 (GP-14 2050), highlighting the variations across different model runs. Additionally, the table provides specific insights into four selected Community Planning Areas (CPAs) which have CPUs in progress: University, Hillcrest, College Area, and Clairemont Mesa, demonstrating how the model's inputs differ in these areas. Blueprint changes only those areas identified as being advantageous to addressing climate and mobility goals. All other areas in the City of San Diego are assumed to remain consistent with the GP-14 2050.

Model run 1 serves as the base Blueprint scenario, featuring 255,963 additional dwelling units in comparison to LUDU 2022. In contrast, model run 3 intensifies the growth level by a factor of 1.6 across all city Blueprint zones uniformly. Meanwhile, model run 2 functions as a calibration model, incorporating customized inputs specifically for the four selected CPUs - University, Hillcrest FPA, College Area, and Clairemont Mesa. For the remaining CPAs, model run 2 maintains the unit growth from model run 1.

Table 1 Model Run Inputs by Geography (City of SD)

	Model Run 1	Model Run 2	Model Run 3
Model Year	2050	2050	2050
Transportation Network	2050 SCS Build	2050 SCS Build	2050 SCS Build
Model Version	14.3.0	14.3.0	14.3.0
Additional City of SD DU (2022 to 2050) compared to LUDU2022	255,963	312,895	414,650
Remainder Region	SCS	SCS	SCS
University Growth (DU) (2022 to 2050)	20,555	32,655	32,246
Uptown Growth (DUs) (2022 to 2050)	12,566	33,448 (31,430 in Hillcrest)	22,247
College Area Growth (DUs) (2022 to 2050)	13,352	27,976	22,018

For estimating the count of override dwelling units by unit type (single-family, multi-family, and mobile home), we first uniformly downscale the unconstrained Blueprint dwelling units, to constrained Blueprint dwelling units based on the anticipated overall growth in the entire city of San Diego (refer to Table 1). After a uniform downscale, we found that the estimated growth values in a few CPAs are not coordinated with the CPA-level planned growth. To accommodate CPA-level planned growth as well the overall city-level growth, we added some CPA-level factors to a few CPAs. The final MGRA-level constrained Blueprint dwelling units then served as the foundational basis for estimating the number of dwelling units in each MGRA, categorized by unit type, as explained in the steps below.

1. Number of multi-family dwelling units per MGRA

The number of multi-family dwelling units in each MGRA is determined by taking the maximum value of multi-family units among the Blueprint (BP) base constrained value, the LUDU 2022, and the GP-14 2050.

2. Number of single-family dwelling units per MGRA

We include single-family dwelling units in each MGRA in addition to multi-family dwelling units only if the existing or planned single-family dwelling units is more than the constrained Blueprint dwelling units. Under this condition, the number of single-family dwelling units is determined by selecting the higher value between the LUDU 2022 and the GP-14 2050.

3. Number of mobile homes per MGRA

The count of Blueprint mobile homes is set to match the number of mobile homes from the GP-14 2050, but only under the condition that the total unit count from GP-14 2050 exceeds the aggregate of the Blueprint-calculated single-family and multi-family units determined in the previous steps. If this condition is not met, the number of mobile homes is considered to be zero.

4. **Number of employees and school enrollment per MGRA by category (non-retail)**

Although the Blueprint primarily addresses dwelling unit inputs, it is necessary to proportionally augment employment and enrollment figures to prevent an imbalance in trip frequency and length to access life opportunities for the additional population. The increase in employment and enrollment in the Blueprint model run inputs should be calibrated to maintain a consistent ratio of opportunities to the population as established in the GP-14 2050 data. All employment categories and school enrollments will undergo proportional adjustments using a unified coefficient. However, the adjustment for retail employment will be uniquely guided by specific recommendations from the City of San Diego which are explained below.

5. **Number of retail employments per MGRA**

The calculation of updated retail employees in each MGRA is based on the specific retail index value assigned to each MGRA. The designation of a retail index value for each MGRA was based on inputs from the City of San Diego planners. The implications of these retail index values are as follows.

- Retail Index Equals Zero: This indicates that the retail employee count in the respective MGRA should remain at zero.
- Retail Index Equals One: This suggests that retail presence is permissible in the MGRA, with the flexibility to increase the employee count as necessary.
- Retail Index Equals Two: This implies that the retail employee count should be maintained at the level specified in the GP-14 2050, with no increases. All exclusion zones (zones that were excluded from Blueprint due to residential building constraints) are in this group.

The number of retail employees in the MGRAs permitted by their respective retail index values will be increased. This adjustment is made to ensure that the ratio of retail units to population in the entire city of San Diego remains consistent with the same ratio derived from the GP-14 2050. Localized MGRA adjustments with respect to population in the area allowed for addressing areas that may be underserved with the hope to create shorter trips and more active transportation friendly trips.

Data Summary by Model Run

Following the application of the outlined calculations across the three spreadsheets corresponding to the three model runs, we have computed the input values for each model run. These values include single-family dwelling units, multi-family dwelling units, mobile homes, retail employment, other employment categories, and school enrollment figures for each MGRA within the City of San Diego. Table 2 provides a comprehensive summary, showcasing the total number of dwelling units and retail employment figures for each model run. Additionally, it presents a comparison with the total figures from the LUDU 2022 and the GP-14 2050.

Table 2 Dwelling Units and Retail Employment Summary by Model Run

Model Run	Source	Single-family	Multi-family	Mobile home	Retail Employment	Total Dwelling Units
Model Run 1	LUDU22	288,146	260,067	4,872	N/A	553,085
	GP-14 2050	304,367	377,812	4,962	196,551	687,141
	BP 2050	**278,790**	**526,577**	**3,681**	**229,930**	**809,048**
Model Run 2	LUDU22	288,146	260,067	4,872	N/A	553,085
	GP-14 2050	304,367	377,812	4,962	196,551	687,141
	BP 2050	**273,388**	**589,850**	**2,742**	**243,908**	**865,980**
Model Run 3	LUDU22	288,146	260,067	4,872	N/A	553,085
	GP-14 2050	304,367	377,812	4,962	196,551	687,141
	BP 2050	**252,295**	**713,014**	**2,426**	**255,348**	**967,735**

Standardizing the Model Inputs for SANDAG Service Bureau

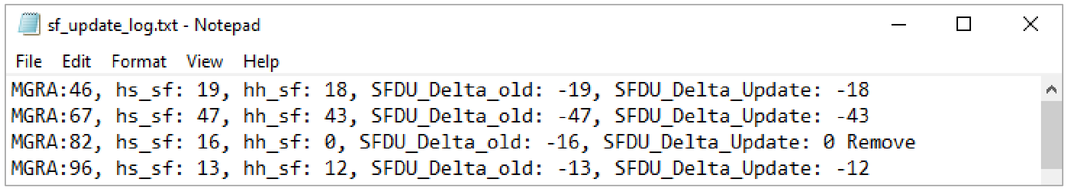
1. Creation of Client Project Input Files for Land Use Deltas

Using the client land-use form template, three model-run spreadsheets were transformed into three long-formatted tables as model-run inputs via Python code. The model run inputs comprise of four columns where changes were made: lu_code, LU Description, MGRA, and Dwelling Unit. Note that the Dwelling Unit column represents the delta value, calculated as the difference between calculated override dwelling units and the dwelling units from the SCS 2050.

While the SANDAG client land-use form uses the term "dwelling unit" it is actually referring to households. The dwelling unit/household input value is used in the generation of the synthetic population for the zone. Dwelling units and households are not equivalent as the SANDAG forecast includes typical occupancy levels by area. Occupancy levels reflect the number of units available for sale or rent including short-term vacation rentals which are prevalent in beach communities and Downtown. While the BP process is determining future unit totals by type the SANDAG land use override process is treating them as households.

Considering the disparity between housing structure (hs) and household (hh) in the baseline forecast, it is important to make sure that, when preparing the input spreadsheet, the values under hh_ (sf, mf, mh) are considered and cannot go below the baseline values. Taking MGRA 46 as an example, where hs_sf is 19, and hh_sf is 18 in the original file, we first attempted to remove 19 single-family households based on the calculation spreadsheets. However, this resulted in negative household values, risking a crash in the conversion tool. Therefore, adjustments to the delta value are necessary, and in this case, the delta DU should change from -19 to -18. Log files have been prepared to document all MGRAs where delta values were modified (refer to Figure 1) due to household issues, ultimately resulting in a slight discrepancy in total dwelling units (refer to Table 3) compared to the original override DU presented in Table 2. The final step for the input spreadsheet is splitting it into two files: one for all negative deltas and another for all positive deltas. The land use converter will be executed twice per SANDAG's updated procedures.

Figure 1 Log File Example


sf_update_log.txt - Notepad

File Edit Format View Help

```
MGRA:46, hs_sf: 19, hh_sf: 18, SFDU_Delta_old: -19, SFDU_Delta_Update: -18
MGRA:67, hs_sf: 47, hh_sf: 43, SFDU_Delta_old: -47, SFDU_Delta_Update: -43
MGRA:82, hs_sf: 16, hh_sf: 0, SFDU_Delta_old: -16, SFDU_Delta_Update: 0 Remove
MGRA:96, hs_sf: 13, hh_sf: 12, SFDU_Delta_old: -13, SFDU_Delta_Update: -12
```

Table 3 Dwelling Units Final Input Summary by Model Run

Model Run	Single-family	Multi-family	Mobile home	Total Dwelling Units
Model Run 1	280,267	532,392	3,716	**816,375**
Model Run 2	274,910	595,367	2,808	**873,085**
Model Run 3	255,081	717,410	2,497	**974,988**

2. Update of MGRA Based Input Files for Employment and Enrollment

After receiving the MGRA-based synthetic population files from SANDAG, we proceeded to update columns related to employment and school enrollment. In the case of non-retail and school enrollment, we adjusted their values to align with the added population to keep the city-level ratio of the resource to population the same. We added additional amounts of non-retail employment and school enrollment only in MGRAs with existing similar resources. Table 4 shows the updated employment and enrollment data resulting from Model Run 2.

To calculate the revised number of retail employees two key measures were considered: the overall ratio of retail to housing units, and a retail index variable to ensure that any increase in retail units aligns with the City's community plans. More detailed information about the retail index variable is available in the “Model Run Input Update_Draft Final Memo”.

Table 4 Updated Employment and Enrollment Data for Model Run 2

	#/hs	Additional Amounts	New Total	Growth
Grade School K-8 enrollment	0.21	36,930	178,824	1.26
Grade School 9-12 enrollment	0.10	17,383	84,172	1.26
Major College enrollment	0.15	26,907	130,290	1.26
Other College enrollment	0.15	26,383	127,753	1.26
Adult School enrollment	0.04	7,991	38,696	1.26
Non-Retail Employees	1.32	236,466	1,145,022	1.26
Retail Employees	0.28	51,555	247,706	1.26

Acronyms & Glossary

ABM – Activity Based Model – type of travel demand model used by SANDAG

BP - Blueprint - an approach for the City of San Diego's General Plan and community planning that will align with climate and housing goals and promote sustainable growth

CPA - Community Planning Area

DU – Dwelling unit; Equivalent to Housing Structure

GP - General Plan – as referenced in this document refers to the zoning and land use provided by the City of San Diego to SANDAG for development of the SANDAG General Plan land use pattern.

HH – Household

HS – Housing Structure

LU – Land Use

LUDU - Land Use and Dwelling Unit Inventory – developed by SANDAG to be an inventory of existing conditions

MF – Multi-Family

MGRA – Master Geographic Reference Areas – Aggregations of parcels; smallest unit of geography in the SANDAG ABM; developed by SANDAG; aka Micro Analysis Zones (MAZ)

MH – Mobile Home

SCS - Sustainable Communities Strategy – as referenced in this document refers to the land use pattern developed by SANDAG for their SCS submittal to CARB

SF – Single Family

MEMO

TO: **City of San Diego**

FROM: **WSP (Sara Khoeini, Rick Curry, and Xianting Huang)**

SUBJECT: **Summary of Updates in Three Model Run Inputs (H197127)**

DATE: **01/17/2024**

Introduction

The objective of this task order is to reconstruct the three Blueprint input files for the SANDAG (San Diego Association of Governments) ABM (Activity-Based Model) run. This reconstruction is necessitated by discrepancies identified in the base General Plan land use data, initially provided by SANDAG to WSP for the calculation of the input files, and the handling of group quarters within the input files. An additional request was made to conduct a thorough review of all final inputs at the MGRA level to ensure that the inputs for the final model run are in alignment with the City of San Diego's CPA (Community Plan Area)-level plans. This memo explains all the updates taken to the input file generated in the previous task order. If further information is needed related to the entire process of converting the Blueprint land uses to SANDAG ABM model run inputs, please refer to the memo entitled "Conversion of Blueprint Land Use to SANDAG Model Run Inputs" dated January 17, 2024.

Update Description

1. Update the base data from Series 14 DS-39 to DS-41 for forecast year 2050

The base data, encompassing single-family units, multi-family units, and mobile homes, has been utilized in tandem with Blueprint inputs. This approach ensures that where the base data exceeds the Blueprint unit estimates, the base data is preferentially used. Additionally, this base data has been instrumental in the update of employment and enrollment forecasts to align with housing estimates. A comprehensive explanation detailing the application of the Series 14 DS-41 year 2050 forecast pattern in the model input calculations is provided in the memo entitled "Conversion of Blueprint Land Use to SANDAG Model Run Inputs" dated January 17, 2024.

2. Update the number of retail employees

To calculate the revised number of retail employees after updating residential dwelling units based on Blueprint inputs, two key measures were considered. Firstly, the overall ratio of retail to housing units was maintained at a constant level (number of retail employees to number of housing units equals 0.28), in line with the base data (DS-41 Year 2050). Secondly, a retail index variable was developed to ensure that any increase in retail units aligns with the City's community plans. Below is the definition of values assigned to the retail index of each MGRA and reviewed by City of San Diego staff.

- A retail Index of zero means there should be no retail.

- Retail Index of one means there is retail today and/or in the future and can grow more than DS-41 year 2050 Retail based on blueprint residential units override.
- Retail Index of two means retail should be kept at DS-41 year 2050 and no extra retail should be added. All exclusion zones (zones that were excluded from Blueprint due to residential building constraints) are in this group.

3. Decrease in total dwelling units in Hillcrest from ~39,000 to ~31,000 in Model Run 2

City staff requested a reduction in the total number of additional residential dwelling units (DUs) in Hillcrest, decreasing from approximately 39,000 to about 31,000, in alignment with the Hillcrest Draft Focused Plan Amendment. Table 1 presents a comprehensive breakdown of the Blueprint residential units by geographical area for each model run after all the updates have been made.

Table 1 Model run inputs residential units by geography

	Model Run 1	Model Run 2	Model Run 3
Model Year	2050	2050	2050
Transportation Network	2050 SCS Build	2050 SCS Build	2050 SCS Build
Model Version	14.3.0	14.3.0	14.3.0
Additional City of SD DU (2022 to 2050) compared to LUDU2022	255,963	312,895	414,650
Remainder Region	SCS	SCS	SCS
University Growth (DU) (2022 to 2050)	20,555	32,655	32,246
Uptown Growth (DUs) (2022 to 2050)	12,566	33,448 (31,430 in Hillcrest)	22,247
College Area Growth (DUs) (2022 to 2050)	13,352	27,976	22,018
Clairemont Mesa Growth (DUs) (2022 to 2050)	12,627	24,182	19,624

4. Generate online maps for visualization of model inputs

WSP utilized online interactive GIS tools to visualize the inputs for the model run, thereby facilitating the City's review process. The online maps feature three delta layers: dwelling unit override minus GP14, dwelling unit override minus LUDU22, and retail override minus GP14. Additionally, they display the retail index, total override dwelling units (Single-Family Dwelling Units [SFDU], Multi-Family Dwelling Units [MFDU], Mobile Home Dwelling Units [MHDU]), and total override retail units. Links to these online maps are provided below. Please be aware that some final adjustments may have been made subsequent to the creation of these maps.

- Link to model run 1 inputs visualization: MR1
- Link to model run 2 inputs visualization: MR2
- Link to model run 3 inputs visualization: MR3

5. Update the preparation of the input file for SANDAG

The preparation of model run inputs, formatted according to SANDAG's specifications, has been executed using a Python script. This script processes the final override dwelling units from the Blueprint final outputs. In this iteration, instead of providing specific residential unit counts by type (Single-Family Dwelling Units [SFDU], Multi-Family Dwelling Units [MFDU], and Mobile Homes [MH]), we have supplied the deltas, i.e., the positive and negative differences. These deltas represent the total Blueprint dwelling units in SFDU and MFDU minus the DS-42 Build SCS data for all Major Geographic Reporting Areas (MGRAs) in the City of San Diego. Rows exhibiting zero deltas were eliminated. This approach preserves any group quarter values in the model run input file, a notable improvement from previous methods where overriding total dwelling units led to the exclusion of group quarters. Additionally, we incorporated a new check to ensure that the reduction of dwelling units in any MGRA does not exceed the total number of households in that area. Where this was the case, the number of removed dwelling units was capped at the total household count for each MGRA.

Appendix C:

Blueprint SD Model Run Citywide Land Use Inputs Summaries

Appendix C-1: Blueprint Model Run 1 - Citywide Land Use Inputs Summary

City of San Diego (All)	SFDUs	MFDUs	MHs	RetEmp	GP14GQ (2050)_civ	GP14GQ (2050)_mil	Total
LUDU22	288,146	260,067	4,872				553,085
2050 GP series 13	294,142	411,766	4,962				710,870
2050 GP series 14	304,367	377,812	4,962	196,551	46,214	22,316	687,141
Override BP 2050	**278,790**	**526,577**	**3,681**	**229,930**			**809,048**
Growth		266,510					255,963

City of San Diego (BP)	SFDUs	MFDUs	MHs	RetEmp	GP14GQ (2050)_civ	GP14GQ (2050)_mil	Total
LUDU22	80,702	189,775	3,223				273,700
2050 GP series 13	86,927	314,434	3,313				404,674
2050 GP series 14	91,104	288,432	3,313	119,030	21,139		382,849
BP Override 2050	**63,789**	**435,672**	**2,032**	**148,648**			**501,493**
	Growth	245,897					227,793

City of San Diego (Non-BP)	SFDUs	MFDUs	MHs	RetEmp	GP14GQ (2050)_civ	GP14GQ (2050)_mil	Total
LUDU22	207,444	70,292	1,649				279,385
2050 GP series 13	207,215	97,332	1,649				306,196
2050 GP series 14	213,263	89,380	1,649	77,521	25,075	22,316	304,292
Non-BP Override 2050	**215,001**	**90,905**	**1,649**	**81,282**			**307,555**
	Growth	20,613					28,170

Appendix C-2: Blueprint Model Run 2 - Citywide Land Use Inputs Summary

City of San Diego (All)	SFDUs	MFDUs	MHs	Retail	Total
LUDU22	288,146	260,067	4,872		553,085
2050 GP series 13	294,142	411,766	4,962		710,870
2050 GP series 14	304,367	377,812	4,962	196,551	687,141
Override BP 2050	**273,388**	**589,850**	**2,742**	**243,908**	**865,980**
	Growth	329,783			312,895

City of San Diego (BP)	SFDUs	MFDUs	MHs	Retail	Total
LUDU22	80,702	189,775	3,223		273,700
2050 GP series 13	86,927	314,434	3,313		404,674
2050 GP series 14	91,104	289,014	3,313	120,772	383,431
BP Override 2050	**82,971**	**508,227**	1,093	164,535	**592,291**
	Growth	318,452			318,591

City of San Diego (Non-BP)	SFDUs	MFDUs	MHs	Retail	Total
LUDU22	207,444	70,292	1,649		279,385
2050 GP series 13	207,215	97,332	1,649		306,196
2050 GP series 14	213,263	88,798	1,649	75,779	303,710
Non-BP Override 2050	**190,417**	**81,623**	**1,649**	**79,373**	**273,689**
	Growth	11,331			(5,696)

Appendix C-3: Blueprint Model Run 3 - Citywide Land Use Inputs Summary

City of San Diego (All)	SFDUs	MFDUs	MHs	Retail	Total
LUDU22	288,146	260,067	4,872		553,085
2050 GP series 13	294,142	411,766	4,962		710,870
2050 GP series 14	304,367	377,812	4,962	196,551	687,141
Override BP 2050	**252,295**	**713,014**	**2,426**	**255,348**	**967,735**
	Growth	452,947			414,650
City of San Diego (BP)	SFDUs	MFDUs	MHs	Retail	Total
LUDU22	80,702	189,775	3,223		273,700
2050 GP series 13	86,927	314,434	3,313		404,674
2050 GP series 14	92,567	289,014	3,313	119,030	384,894
BP Override 2050	**37,294**	**622,109**	**777**	174,066	**660,180**
	Growth	432,334			386,480
City of San Diego (Non-BP)	SFDUs	MFDUs	MHs	Retail	Total
LUDU22	207,444	70,292	1,649		279,385
2050 GP series 13	207,215	97,332	1,649		306,196
2050 GP series 14	211,800	88,798	1,649	77,521	302,247
Non-BP Override 2050	**215,001**	**90,905**	**1,649**	**81,282**	**307,555**
	Growth	20,613			28,170

Appendix D:

University CPU Model Run Land Use Inputs Extract from Blueprint Model Run 2

mgra	City	CPA	taz	hs	hs_sf	hs_mf	hs_mh	gq_civ	gq_mil	pop	emp_prof_bus_svcs	subtotal_emp_retail_rest_bar_personal_svcs	emp_total	subtotal_enrollgradekto12	subtotal_postkto12enroll	hotelroomtotal
4170	14	1441	2199	0	0	0	0	5496	0	5496	54	24	16141	0	19553	0
4171	14	1441	2204	0	0	0	0	0	0	0	77	14	1319	0	0	0
4172	14	1441	2215	0	0	0	0	4930	0	4930	159	14	8887	0	8712	0
4173	14	1441	2239	0	0	0	0	3008	0	3008	120	48	7486	0	8712	0
4174	14	1441	2215	0	0	0	0	0	0	0	48	0	292	0	8712	0
4175	14	1441	2248	0	0	0	0	0	0	0	3	26	7115	0	6534	0
4176	14	1441	2247	0	0	0	0	0	0	0	260	17	4894	0	0	0
4177	14	1441	2218	0	0	0	0	0	0	0	52	14	1769	0	0	0
4178	14	1441	2228	143	0	143	0	0	0	317	55	53	530	0	436	0
4179	14	1441	2228	0	0	0	0	0	0	0	59	5	545	0	0	0
4180	14	1441	2234	0	0	0	0	0	0	0	0	0	542	1364	0	0
4181	14	1441	2249	700	0	700	0	3517	0	5298	3	0	15	10	0	0
4182	14	1441	2249	123	3	120	0	0	0	281	1	0	15	0	0	0
4183	14	1441	2228	0	0	0	0	0	0	0	42	0	453	1028	273	0
4184	14	1441	2228	39	0	39	0	0	0	84	165	17	1464	0	0	0
4185	14	1441	2228	1307	0	1307	0	0	0	2864	0	0	129	0	0	0
4186	14	1441	2228	1220	0	1220	0	0	0	2740	605	0	924	0	0	0
4187	14	1441	2341	106	106	0	0	0	0	227	0	0	3	0	0	0
4188	14	1441	2341	17	17	0	0	0	0	37	1	0	2	0	0	0
4189	14	1441	2341	160	127	33	0	0	0	338	3	39	46	0	0	0
4190	14	1441	2387	19	19	0	0	0	0	39	0	0	0	0	0	0
4191	14	1441	2387	74	74	0	0	0	0	151	3	0	9	0	0	0
4192	14	1441	2387	79	79	0	0	0	0	170	0	0	5	0	0	0
4193	14	1441	2387	61	61	0	0	0	0	137	0	0	1	0	0	0
4194	14	1441	2387	73	73	0	0	0	0	157	11	0	23	0	0	0
4195	14	1441	2387	80	80	0	0	0	0	186	16	0	36	0	0	0
4196	14	1441	2341	169	143	26	0	0	0	383	13	25	59	0	0	0
4197	14	1441	2341	72	72	0	0	0	0	155	4	0	8	0	0	0
4198	14	1441	2341	8	8	0	0	0	0	18	0	23	31	0	0	0
4199	14	1441	2387	176	176	0	0	0	0	426	0	0	4	0	0	0
4200	14	1441	2387	55	55	0	0	0	0	128	0	0	1	0	0	0
4201	14	1441	2387	31	31	0	0	0	0	62	4	0	8	0	0	0
4202	14	1441	2387	32	32	0	0	0	0	64	5	0	11	0	0	0
4203	14	1441	2387	0	0	0	0	0	0	0	0	0	125	257	0	0
4204	14	1441	2387	21	21	0	0	0	0	37	1	0	4	0	0	0
4205	14	1441	2387	16	16	0	0	0	0	29	0	0	0	0	0	0
4206	14	1441	2387	26	26	0	0	0	0	59	4	0	8	0	0	0
4207	14	1441	2379	154	146	8	0	0	0	379	0	0	3	0	0	0
4208	14	1441	2379	32	32	0	0	0	0	82	0	0	0	0	0	0
4209	14	1441	2379	27	27	0	0	0	0	60	5	0	10	0	0	0
4210	14	1441	2379	140	140	0	0	6	0	333	0	0	3	0	0	0

mgra	City	CPA	taz	hs	hs_sf	hs_mf	hs_mh	gq_civ	gq_mil	pop	emp_prof_bus_svcs	subtotal_emp_retail_rest_bar_personal_svcs	emp_total	subtotal_enrollgradekto12	subtotal_postkto12enroll	hotelroomtotal
4211	14	1441	2315	110	110	0	0	6	0	279	0	0	3	0	0	0
4212	14	1441	2315	110	110	0	0	6	0	261	3	0	27	0	0	0
4213	14	1441	2315	60	0	60	0	0	0	141	0	0	1	0	0	0
4214	14	1441	2315	154	154	0	0	0	0	388	28	0	60	0	0	0
4215	14	1441	2315	45	45	0	0	0	0	103	5	0	9	0	0	0
4216	14	1441	2315	160	129	31	0	14	0	410	8	15	77	0	0	0
4217	14	1441	2315	67	67	0	0	0	0	143	16	0	23	0	0	0
4218	14	1441	2315	106	106	0	0	0	0	258	3	0	9	0	0	0
4219	14	1441	2315	242	0	242	0	0	0	536	49	195	397	0	0	0
4220	14	1441	2356	174	0	174	0	0	0	427	0	43	50	0	0	0
4221	14	1441	2356	10	10	0	0	0	0	29	0	0	115	1358	0	0
4222	14	1441	2356	92	6	86	0	0	0	198	0	0	7	0	0	0
4223	14	1441	2379	0	0	0	0	0	0	0	0	7	91	790	0	0
4224	14	1441	2379	0	0	0	0	0	0	0	0	0	0	0	0	0
4225	14	1441	2356	127	127	0	0	0	0	304	6	0	18	0	0	0
4226	14	1441	2356	50	0	50	0	0	0	115	0	0	1	0	0	0
4227	14	1441	2379	49	49	0	0	0	0	119	8	0	9	0	0	0
4305	14	1441	2034	0	0	0	0	0	0	0	0	0	0	0	0	0
4306	14	1441	2034	0	0	0	0	0	0	0	0	80	607	0	0	0
4307	14	1441	2034	0	0	0	0	0	0	0	14	18	368	0	0	741
4308	14	1441	2163	0	0	0	0	0	0	0	1094	28	3233	0	0	0
4309	14	1441	2185	0	0	0	0	0	0	0	43	0	43	0	0	0
4310	14	1441	2163	52	0	52	0	0	0	38	136	25	333	0	0	0
4311	14	1441	2185	0	0	0	0	0	0	0	373	6	749	0	436	0
4312	14	1441	2185	49	0	49	0	0	0	3	43	2	92	0	436	0
4313	14	1441	2185	0	0	0	0	0	0	0	6	47	129	0	0	0
4644	14	1441	2034	0	0	0	0	0	0	0	0	0	0	0	0	0
4645	14	1441	2084	4	4	0	0	0	0	8	353	4	1594	0	0	0
4646	14	1441	2084	0	0	0	0	0	0	0	431	47	1081	0	0	0
4647	14	1441	2130	0	0	0	0	0	0	0	123	0	196	0	0	0
4648	14	1441	2130	0	0	0	0	0	0	0	97	13	957	0	0	0
4649	14	1441	2149	0	0	0	0	0	0	0	0	0	0	0	0	0
4650	14	1441	2130	0	0	0	0	0	0	0	52	24	168	0	0	0
4651	14	1441	2149	0	0	0	0	0	0	0	438	15	1362	0	0	0
4652	14	1441	2160	0	0	0	0	0	0	0	830	30	3173	0	0	0
4653	14	1441	2149	0	0	0	0	0	0	0	635	11	1393	0	0	0
4654	14	1441	2160	0	0	0	0	0	0	0	0	0	76	0	0	0
4655	14	1441	2173	0	0	0	0	0	0	0	435	150	1305	0	0	0
4656	14	1441	2149	0	0	0	0	0	0	0	241	49	852	0	0	0
4657	14	1441	2173	0	0	0	0	0	0	0	26	12	742	0	0	0
4658	14	1441	2160	11	0	11	0	0	0	43	445	0	1539	0	0	0

mgra	City	CPA	taz	hs	hs_sf	hs_mf	hs_mh	gq_civ	gq_mil	pop	emp_prof_bus_svcs	subtotal_emp_retail_rest_bar_personal_svcs	emp_total	subtotal_enrollgradekto12	subtotal_postkto12enroll	hotelroomtotal
4659	14	1441	2173	157	0	157	0	0	0	205	210	45	469	0	0	0
4660	14	1441	2149	0	0	0	0	0	0	0	0	0	0	0	0	0
4661	14	1441	2202	0	0	0	0	0	0	0	1079	25	2342	0	0	0
4662	14	1441	2173	514	0	514	0	0	0	1161	100	146	323	0	0	0
4663	14	1441	2213	10	0	10	0	0	0	88	3059	0	3572	0	0	0
4664	14	1441	2213	0	0	0	0	0	0	0	310	8	794	0	0	0
4665	14	1441	2213	118	0	118	0	0	0	96	210	22	491	0	0	0
4666	14	1441	2202	1	0	1	0	0	0	15	1133	0	1331	0	0	0
4667	14	1441	2202	62	0	62	0	0	0	137	440	17	1197	0	0	0
4668	14	1441	2213	0	0	0	0	0	0	0	0	0	0	0	0	0
4669	14	1441	2202	1471	0	1471	0	0	0	3416	29	0	63	0	0	0
4670	14	1441	2213	380	0	380	0	0	0	775	794	0	1682	0	0	0
4671	14	1441	2202	44	44	0	0	0	0	96	0	0	1	0	0	0
4672	14	1441	2202	365	0	365	0	0	0	892	0	0	11	0	0	0
4673	14	1441	2236	73	0	73	0	0	0	125	441	21	850	0	0	0
4674	14	1441	2236	175	0	175	0	0	0	499	326	77	1193	0	0	0
4675	14	1441	2242	1174	0	1174	0	0	0	2399	501	361	1343	0	0	0
4676	14	1441	2242	1673	0	1673	0	0	0	3550	412	486	1413	0	0	0
4677	14	1441	2236	648	0	648	0	0	0	1522	687	55	1580	0	0	0
4678	14	1441	2250	255	0	255	0	0	0	589	0	256	415	0	0	440
4679	14	1441	2236	307	0	307	0	0	0	685	750	842	3231	0	0	0
4680	14	1441	2252	456	0	456	0	0	0	993	451	447	1104	0	0	0
4681	14	1441	2252	773	0	773	0	0	0	1714	640	431	1288	0	0	0
4682	14	1441	2173	342	0	342	0	0	0	787	2146	97	4434	0	0	0
4683	14	1441	2270	49	0	49	0	0	0	115	4	0	8	0	0	0
4684	14	1441	2270	923	0	923	0	0	0	2067	11	0	52	0	0	0
4685	14	1441	2270	0	0	0	0	0	0	0	0	0	0	0	0	0
4686	14	1441	2280	256	0	256	0	0	0	536	108	7	334	0	0	0
4687	14	1441	2289	325	0	325	0	0	0	745	13	0	27	0	0	0
4688	14	1441	2289	391	0	391	0	0	0	882	0	0	14	0	0	0
4689	14	1441	2258	1238	0	1238	0	0	0	2682	0	144	162	0	0	0
4690	14	1441	2258	3167	0	3167	0	0	0	6653	40	922	1030	0	0	0
4691	14	1441	2258	1762	0	1762	0	0	0	3822	15	170	319	0	0	0
4692	14	1441	2275	56	56	0	0	0	0	133	3	0	8	0	0	0
4693	14	1441	2275	298	4	294	0	0	0	673	0	0	5	0	0	0
4694	14	1441	2254	1780	0	1780	0	0	0	4046	152	0	308	0	0	0
4695	14	1441	2254	1030	0	1030	0	0	0	2235	1861	93	3078	0	0	0
4696	14	1441	2257	423	0	423	0	0	0	933	609	119	1603	49	0	0
4697	14	1441	2257	329	0	329	0	0	0	743	10	0	26	0	0	0
4698	14	1441	2270	165	0	165	0	0	0	350	0	0	12	0	0	0
4699	14	1441	2270	318	0	318	0	0	0	660	5	0	18	0	0	0

mgra	City	CPA	taz	hs	hs_sf	hs_mf	hs_mh	gq_civ	gq_mil	pop	emp_prof_bus_svcs	subtotal_emp_retail_rest_bar_personal_svcs	emp_total	subtotal_enrollgradekto12	subtotal_postkto12enroll	hotelroomtotal
4700	14	1441	2285	340	0	340	0	0	0	742	92	36	244	0	0	0
4701	14	1441	2270	340	2	338	0	0	0	738	0	0	1	0	0	0
4702	14	1441	2285	644	0	644	0	0	0	1432	0	0	28	0	0	0
4703	14	1441	2265	241	0	241	0	0	0	535	436	144	1685	0	0	551
4704	14	1441	2265	501	0	501	0	0	0	1136	3	110	123	0	0	0
4705	14	1441	2272	575	0	575	0	0	0	1299	4	0	21	0	0	0
4706	14	1441	2272	542	0	542	0	0	0	1214	9	0	57	0	0	0
4707	14	1441	2265	541	0	541	0	0	0	1192	330	7	632	0	0	0
4708	14	1441	2272	346	0	346	0	0	0	802	0	0	5	0	0	0
4709	14	1441	2246	153	0	153	0	0	0	266	72	305	620	0	0	0
4710	14	1441	2253	775	0	775	0	0	0	1687	14	83	166	0	0	0
4711	14	1441	2253	359	0	359	0	0	0	794	314	117	745	0	0	0
4712	14	1441	2253	463	0	463	0	0	0	916	100	18	481	0	0	473
4713	14	1441	2264	556	0	556	0	0	0	1188	0	102	111	0	0	0
4714	14	1441	2264	1164	0	1164	0	0	0	2629	63	0	95	0	0	0
4715	14	1441	2264	525	0	525	0	382	0	1363	30	252	352	0	0	0
4716	14	1441	2264	630	0	630	0	0	0	1415	68	0	587	0	0	0
4717	14	1441	2286	682	0	682	0	0	0	1408	14	10	99	0	0	0
4718	14	1441	2292	240	0	240	0	0	0	551	29	0	188	930	0	0
4719	14	1441	2292	163	0	163	0	0	0	377	0	0	4	0	0	0
4720	14	1441	2292	213	0	213	0	5	0	493	3	0	17	0	0	0
4721	14	1441	2292	339	0	339	0	0	0	804	0	0	16	0	0	0
4722	14	1441	2292	127	0	127	0	0	0	332	1	0	11	0	0	0
4723	14	1441	2292	2100	0	2100	0	0	0	4647	0	0	13	0	0	0
4724	14	1441	2302	257	257	0	0	5	0	655	32	0	72	0	0	0
4725	14	1441	2308	103	103	0	0	0	0	253	4	0	11	0	0	0
4726	14	1441	2308	0	0	0	0	0	0	0	0	0	325	2267	1200	0
4727	14	1441	2308	53	53	0	0	0	0	129	0	0	1	0	0	0
4728	14	1441	2328	145	145	0	0	0	0	334	18	0	40	0	0	0
4729	14	1441	2328	110	0	110	0	0	0	259	0	32	107	759	0	0
4730	14	1441	2328	57	57	0	0	0	0	116	0	0	1	0	0	0
4731	14	1441	2302	0	0	0	0	0	0	0	10	0	44	0	0	0
4732	14	1441	2308	114	114	0	0	0	0	265	4	0	31	0	0	0
4733	14	1441	2302	80	80	0	0	0	0	177	9	0	20	0	0	0
4734	14	1441	2302	132	132	0	0	0	0	300	0	0	14	0	0	0
4735	14	1441	2302	56	56	0	0	0	0	126	4	0	12	0	0	0
4736	14	1441	2328	15	15	0	0	0	0	32	0	0	0	0	0	0
4737	14	1441	2302	48	48	0	0	0	0	118	0	0	14	0	0	0
4738	14	1441	2302	47	47	0	0	3	0	108	0	0	12	0	0	0
4739	14	1441	2302	100	100	0	0	0	0	225	8	0	17	0	0	0
4740	14	1441	2342	402	0	402	0	0	0	857	697	126	1445	0	0	0

mgra	City	CPA	taz	hs	hs_sf	hs_mf	hs_mh	gq_civ	gq_mil	pop	emp_prof_bus_svcs	subtotal_emp_retail_rest_bar_personal_svcs	emp_total	subtotal_enrollgradekto12	subtotal_postkto12enroll	hotelroomtotal
4741	14	1441	2342	456	0	456	0	0	0	967	1023	142	1679	0	0	0
4742	14	1441	2342	634	0	634	0	0	0	1352	731	201	2175	19	0	0
4743	14	1441	2364	59	5	54	0	0	0	125	0	0	5	0	0	0
4744	14	1441	2364	106	106	0	0	0	0	253	10	0	22	0	0	0
4745	14	1441	2364	827	0	827	0	0	0	1778	0	0	7	0	0	0
4746	14	1441	2364	164	164	0	0	0	0	394	8	0	151	0	0	0
4747	14	1441	2357	10	10	0	0	0	0	26	0	0	4	0	0	0
4748	14	1441	2357	20	20	0	0	0	0	40	0	0	0	0	0	0
4749	14	1441	2364	72	0	72	0	0	0	160	0	0	5	0	0	0
4750	14	1441	2357	21	21	0	0	0	0	41	5	0	6	0	0	0
4751	14	1441	2364	172	0	172	0	0	0	430	35	0	79	0	0	0
4752	14	1441	2357	24	24	0	0	0	0	59	0	0	0	0	0	0
4753	14	1441	2357	88	12	76	0	0	0	171	0	0	47	0	0	0
4754	14	1441	2357	52	0	52	0	0	0	106	0	0	1	0	0	0
4755	14	1441	2357	681	0	681	0	0	0	1498	59	420	633	0	0	0
4756	14	1441	2357	63	63	0	0	0	0	127	0	0	1	0	0	0
4757	14	1441	2357	6	6	0	0	0	0	10	0	0	0	0	0	0
4758	14	1441	2357	106	106	0	0	0	0	234	0	0	7	0	0	0
4759	14	1441	2357	131	131	0	0	0	0	284	5	0	59	0	0	0
4760	14	1441	2357	24	24	0	0	0	0	58	0	0	0	0	0	0
4952	14	1441	2210	0	0	0	0	0	0	0	20	0	205	0	0	0
4953	14	1441	2210	0	0	0	0	0	0	0	130	8	378	0	0	0
4954	14	1441	2210	0	0	0	0	0	0	0	25	4	471	0	0	0
4955	14	1441	2222	2	2	0	0	0	0	4	295	72	1021	0	0	0
4956	14	1441	2210	0	0	0	0	0	0	0	112	4	509	0	0	0
4957	14	1441	2210	45	0	45	0	0	0	4	231	113	791	0	0	0
4958	14	1441	2210	0	0	0	0	0	0	0	8	16	228	0	0	0
4959	14	1441	2222	0	0	0	0	0	0	0	152	0	368	0	0	0
4960	14	1441	2222	0	0	0	0	0	0	0	204	31	1070	0	0	0
4961	14	1441	2233	0	0	0	0	0	0	0	0	0	0	0	0	0
4962	14	1441	2233	0	0	0	0	0	0	0	0	0	0	0	0	0
4963	14	1441	2222	0	0	0	0	0	0	0	372	24	685	0	0	0
4964	14	1441	2222	20	0	20	0	0	0	59	87	81	369	0	0	0
4965	14	1441	2222	0	0	0	0	0	0	0	39	26	158	0	0	0
4966	14	1441	2222	11	0	11	0	0	0	74	64	149	597	0	0	0
5179	14	1441	2266	602	0	602	0	0	0	1181	29	263	584	0	0	331
5180	14	1441	2269	535	0	535	0	0	0	1122	0	153	289	0	0	379
5181	14	1441	2269	758	0	758	0	0	0	1637	15	195	245	0	0	0
5182	14	1441	2266	729	0	729	0	0	0	1575	79	368	547	0	0	0
5183	14	1441	2269	667	0	667	0	0	0	1448	4	0	17	0	0	0
5184	14	1441	2269	256	0	256	0	0	0	564	6	0	23	0	0	0

University Community Plan Update
Land Use Inputs Extract From Blueprint SD Model Run 2

mgra	City	CPA	taz	hs	hs_sf	hs_mf	hs_mh	gq_civ	gq_mil	pop	emp_prof_bus_svcs	subtotal_emp_retail_rest_bar_personal_svcs	emp_total	subtotal_enrollgradekto12	subtotal_postkto12enroll	hotelroomtotal
5185	14	1441	2300	548	0	548	0	0	0	1176	32	0	42	0	0	0
5186	14	1441	2284	833	0	833	0	0	0	1781	115	365	545	0	0	0
5187	14	1441	2284	374	0	374	0	0	0	792	6	0	16	0	0	0
5188	14	1441	2311	310	0	310	0	0	0	649	0	0	5	0	0	0
5189	14	1441	2284	249	0	249	0	0	0	542	5	0	19	0	0	0
5190	14	1441	2311	318	0	318	0	0	0	609	9	0	26	0	0	0
5191	14	1441	2284	230	0	230	0	0	0	467	0	0	8	0	0	0
5192	14	1441	2311	467	0	467	0	0	0	939	11	0	31	0	0	0
5193	14	1441	2283	712	0	712	0	0	0	1631	5	0	14	0	0	0
5194	14	1441	2283	1390	0	1390	0	0	0	3182	13	0	95	0	0	0
5195	14	1441	2283	651	0	651	0	0	0	1495	91	0	104	0	0	0
5196	14	1441	2283	436	0	436	0	0	0	962	55	219	327	0	0	0
5197	14	1441	2303	244	0	244	0	0	0	558	0	0	12	0	0	0
5198	14	1441	2303	123	0	123	0	0	0	287	3	0	18	0	0	0
5199	14	1441	2303	102	102	0	0	0	0	237	11	0	18	0	0	0
5200	14	1441	2329	146	146	0	0	0	0	340	30	0	41	0	0	0
5201	14	1441	2282	466	0	466	0	0	0	1032	14	0	29	0	0	0
5202	14	1441	2282	383	0	383	0	0	0	863	1	0	22	0	0	0
5203	14	1441	2303	338	0	338	0	0	0	753	0	0	9	0	0	0
5204	14	1441	2303	75	75	0	0	0	0	184	1	0	7	0	0	0
5205	14	1441	2282	767	0	767	0	0	0	1624	86	2	215	0	0	0
5206	14	1441	2282	641	0	641	0	0	0	676	32	0	41	0	0	0
5207	14	1441	2303	13	0	13	0	0	0	27	0	0	0	0	0	0
5208	14	1441	2329	214	0	214	0	0	0	488	0	0	15	0	0	0
5209	14	1441	2329	92	0	92	0	0	0	211	3	0	9	0	0	0
6268	14	1441	2222	0	0	0	0	0	0	0	1	0	2	0	0	0
6269	14	1441	2222	0	0	0	0	0	0	0	0	0	0	0	0	0
6270	14	1441	2233	0	0	0	0	0	0	0	0	0	0	0	0	0
6271	14	1441	2233	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix E:

Hillcrest FPA Model Run Land Use Inputs Extract from Blueprint Model Run 2

Hillcrest Focused Plan Amendment
Land Use Inputs Extract From Blueprint SD Model Run 2

mgra	City	CPA	taz	hs	hs_sf	hs_mf	hs_mh	gq_civ	gq_mil	pop	emp_prof_bus_svcs	subtotal_emp_retail_rest_bar_personal_svcs	emp_total	subtotal_enrollgradekto12	subtotal_postkto12enroll
149	14	1442	3510	109	0	109	0	0	0	224	47	12	82	0	0
154	14	1442	3516	456	0	456	0	0	0	860	4	195	210	0	0
155	14	1442	3516	619	0	619	0	3	0	1184	37	293	349	0	0
156	14	1442	3522	623	1	622	0	0	0	1217	0	191	205	0	0
157	14	1442	3522	468	28	440	0	0	0	945	0	160	174	0	0
158	14	1442	3547	361	0	361	0	0	0	739	0	192	192	0	0
160	14	1442	3551	416	0	416	0	0	0	859	69	119	350	0	0
161	14	1442	3547	861	0	861	0	0	0	1650	13	385	443	0	0
162	14	1442	3547	353	0	353	0	2	0	708	74	117	530	0	0
163	14	1442	3515	475	0	475	0	0	0	958	33	681	731	0	0
164	14	1442	3515	818	0	818	0	0	0	1684	30	284	314	0	0
165	14	1442	3515	316	0	316	0	3	0	652	28	78	133	0	0
166	14	1442	3515	453	61	392	0	0	0	930	10	63	90	0	0
167	14	1442	3515	134	3	131	0	0	0	289	6	38	48	0	0
168	14	1442	3515	323	0	323	0	0	0	593	5	143	2052	20	0
169	14	1442	3573	579	0	579	0	0	0	1215	13	224	314	0	0
170	14	1442	3573	211	0	211	0	0	0	424	9	143	162	0	0
171	14	1442	3573	51	0	51	0	0	0	119	19	5	34	0	0
172	14	1442	3608	224	0	224	0	0	0	444	47	76	158	0	0
173	14	1442	3608	800	0	800	0	0	0	1625	320	223	835	0	0
174	14	1442	3608	96	1	95	0	0	0	184	20	16	55	0	0
179	14	1442	3571	387	3	384	0	35	0	828	32	64	130	0	0
181	14	1442	3609	435	0	435	0	153	0	1055	23	125	917	0	0
193	14	1442	3325	132	0	132	0	80	0	344	16	0	152	0	0
194	14	1442	3362	1144	0	1144	0	0	0	2425	8	0	96	0	0
195	14	1442	3420	133	0	133	0	0	0	272	0	38	39	0	0
196	14	1442	3420	156	0	156	0	0	0	331	10	0	17	0	0
197	14	1442	3425	27	0	27	0	1	0	54	69	14	2145	0	0
198	14	1442	3420	135	0	135	0	0	0	287	0	39	56	0	0
199	14	1442	3420	150	0	150	0	0	0	312	0	23	35	0	0
200	14	1442	3450	505	0	505	0	0	0	993	13	179	244	0	0
201	14	1442	3450	741	0	741	0	0	0	1527	208	231	788	0	0
202	14	1442	3325	166	68	98	0	0	0	354	0	47	48	0	0
203	14	1442	3425	81	0	81	0	0	0	194	0	23	67	0	0
204	14	1442	3425	72	0	72	0	0	0	151	15	21	36	0	0
205	14	1442	3427	750	0	750	0	114	0	1702	26	182	801	0	0
206	14	1442	3472	159	0	159	0	0	0	332	0	57	74	0	0
207	14	1442	3472	278	0	278	0	1	0	599	8	30	42	0	0
208	14	1442	3472	540	1	539	0	0	0	1116	29	143	376	0	0
209	14	1442	3472	485	0	485	0	0	0	1033	25	125	225	0	0
210	14	1442	3472	865	0	865	0	0	0	1775	94	665	824	0	0

Hillcrest Focused Plan Amendment
Land Use Inputs Extract From Blueprint SD Model Run 2

mgra	City	CPA	taz	hs	hs_sf	hs_mf	hs_mh	gq_civ	gq_mil	pop	emp_prof_bus_svcs	subtotal_emp_retail_rest_bar_personal_svcs	emp_total	subtotal_enrollgradekto12	subtotal_postkto12enroll
211	14	1442	3483	217	4	213	0	0	0	444	34	158	217	0	0
212	14	1442	3484	52	0	52	0	0	0	105	0	15	53	307	0
213	14	1442	3484	220	0	220	0	0	0	446	3	55	60	0	0
214	14	1442	3485	700	1	699	0	0	0	1373	20	119	180	0	0
215	14	1442	3485	893	0	893	0	0	0	1797	20	581	725	0	0
216	14	1442	3472	81	0	81	0	79	0	205	111	107	450	0	0
217	14	1442	3484	87	0	87	0	0	0	177	32	25	58	0	0
219	14	1442	3325	1000	0	1000	0	99	0	2125	0	288	11484	0	0
221	14	1442	3325	9	0	9	0	0	0	20	0	2	39	0	0
222	14	1442	3419	37	0	37	0	0	0	86	0	8	25	0	0
223	14	1442	3419	151	1	150	0	0	0	315	14	57	83	0	0
226	14	1442	3419	115	10	105	0	0	0	230	0	33	45	0	0
228	14	1442	3449	160	1	159	0	0	0	349	0	56	76	0	0
229	14	1442	3451	130	0	130	0	1	0	279	74	95	206	0	0
230	14	1442	3451	153	2	151	0	0	0	319	285	13	374	0	0
231	14	1442	3449	451	0	451	0	0	0	906	63	191	268	0	0
265	14	1442	3389	631	1	630	0	66	0	1339	0	241	250	0	0
266	14	1442	3389	569	0	569	0	25	0	1190	0	163	249	43	0
267	14	1442	3389	292	17	275	0	0	0	595	40	83	132	0	0
268	14	1442	3389	243	0	243	0	0	0	499	0	76	87	0	0
269	14	1442	3444	782	0	782	0	0	0	1604	0	287	308	0	0
270	14	1442	3462	311	0	311	0	2	0	719	0	0	6	0	0
271	14	1442	3444	638	8	630	0	4	0	1241	0	192	268	0	0
272	14	1442	3444	536	18	518	0	0	0	1120	24	153	186	0	0
273	14	1442	3462	1179	0	1179	0	0	0	2437	32	396	537	0	0
274	14	1442	3444	1253	0	1253	0	0	0	2580	23	1114	1935	0	0
275	14	1442	3444	906	0	906	0	3	0	1779	59	343	577	0	0
276	14	1442	3462	662	0	662	0	0	0	1372	8	464	526	0	0
277	14	1442	3512	403	0	403	0	0	0	796	93	237	381	0	0
278	14	1442	3512	561	0	561	0	0	0	1163	0	241	271	0	0
279	14	1442	3512	155	13	142	0	0	0	322	28	45	102	0	0
280	14	1442	3512	244	36	208	0	0	0	518	6	0	27	0	0
281	14	1442	3512	304	60	244	0	0	0	635	0	0	15	0	0
286	14	1442	3513	710	26	684	0	0	0	1403	125	315	464	0	0
287	14	1442	3513	389	3	386	0	0	0	803	0	92	107	0	0
288	14	1442	3513	652	5	647	0	0	0	1193	44	75	166	0	0

Appendix F:

SANDAG VMT Reports and Traffic Forecast Information Center (TFIC) Maps

F-1 SANDAG SB 743 VMT Report: 2016 Base Year, Scenario 186 – Regionwide, Citywide and Hillcrest FPA

F-2 SANDAG SB 743 VMT Report: BP Model Run 1, Scenario 319 – Regionwide, Citywide and Hillcrest FPA

F-3 SANDAG SB 743 VMT Report: BP Model Run 2, Scenario 320 – Regionwide, Citywide and Hillcrest FPA

F-4 SANDAG SB 743 VMT Report: BP Model Run 2, Scenario 320 – Regionwide, Citywide and University CPU

F-5 SANDAG SB 743 VMT Report: BP Model Run 3, Scenario 321 – Regionwide, Citywide and Hillcrest FPA

F-6 SANDAG TFIC SB 743 VMT per Capita Map: 2016 Base Year, Scenario 458 – University

F-7 SANDAG TFIC SB 743 VMT per Employee Map: 2016 Base Year, Scenario 458 – University

Appendix F-1

SB 743 VMT Report

Report Generated	ABM Version	Scenario ID	Scenario Name
12/13/2023	version_14_3_0	186	2016

Purple dashed line indicates 85th percentile of regional per resident/per worker VMT.

SANDAG

Residents

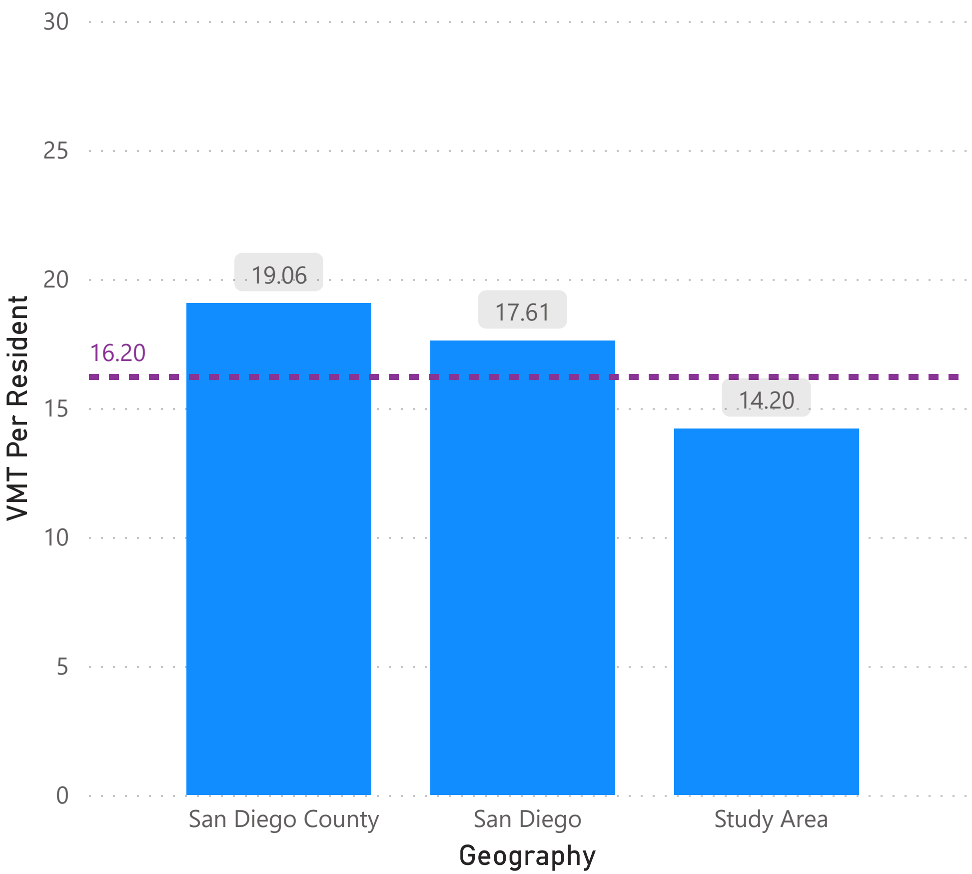
Regionwide Resident VMT Metrics

62,255,823 VMT

19.06 VMT Per Resident

Geography	Number of Residents
San Diego County	3,265,488
San Diego	1,381,156
Study Area	13,536

VMT Per Resident by Geography



Workers

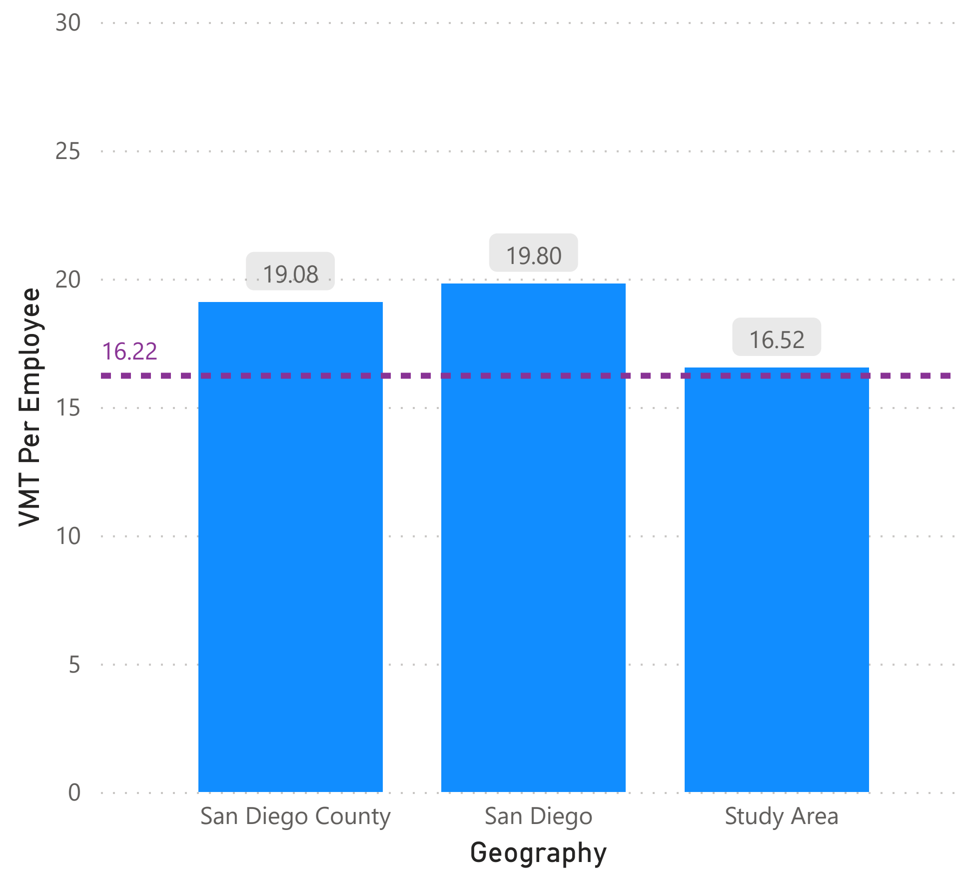
Regionwide Employee VMT Metrics

29,342,797 VMT

19.08 VMT Per Employee

Geography	Number of Employees
San Diego County	1,538,159
San Diego	821,715
Study Area	21,552

VMT Per Employee by Geography



TAZs in Study Area

(Hillcrest FPA)

TAZ
3325
3362
3373
3389
3419
3420
3425
3427
3444
3449
3450
3451
3462
3472
3483
3484
3485
3510
3512
3513
3515
3516
3522
3547

SANDAG

SB 743 VMT Report

The original SANDAG-created report was modified to add the 85th percentile lines for Year 2016 (Appendix F-1) for comparative purposes.

Report Generated	ABM Version	Scenario ID	Scenario Name
12/6/2023	version_14_3_0	319	mr1v2_final_2050

Purple dashed lines indicate 85th percentile of regional per resident/per worker VMT.

Residents

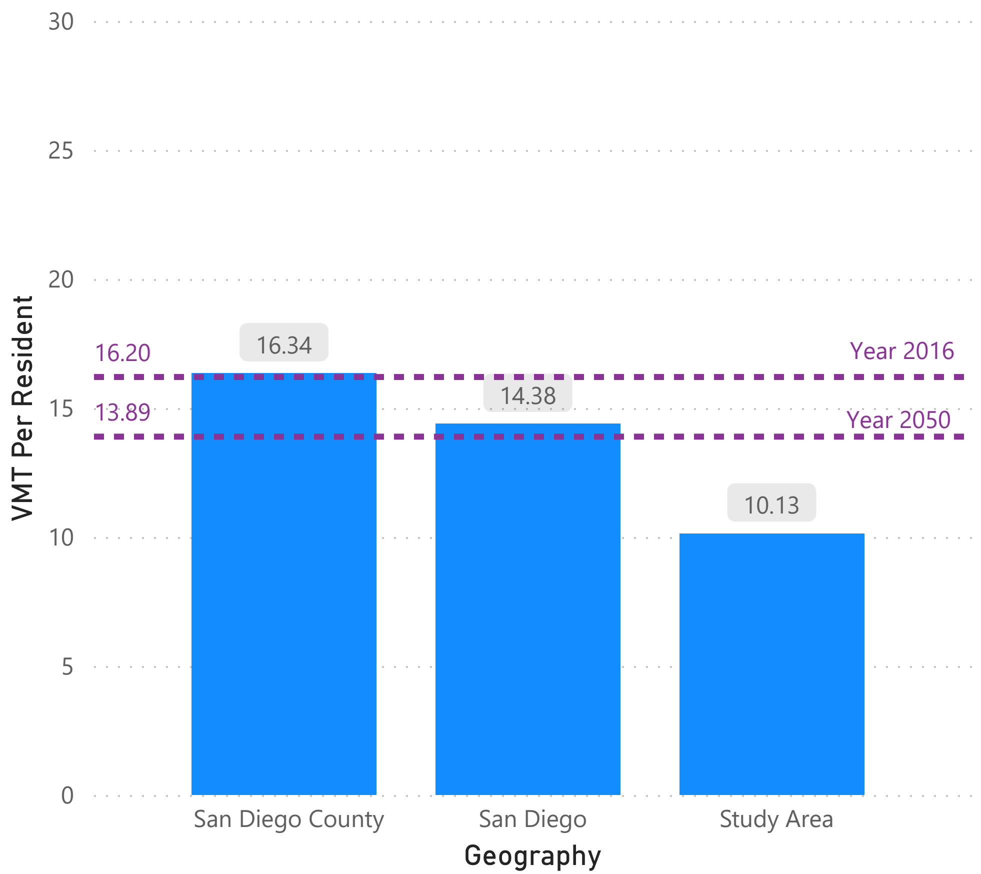
Regionwide Resident VMT Metrics

64,245,602 VMT

16.34 VMT Per Resident

Geography	Number of Residents
San Diego County	3,931,399
San Diego	1,863,747
Study Area	30,042

VMT Per Resident by Geography



Workers

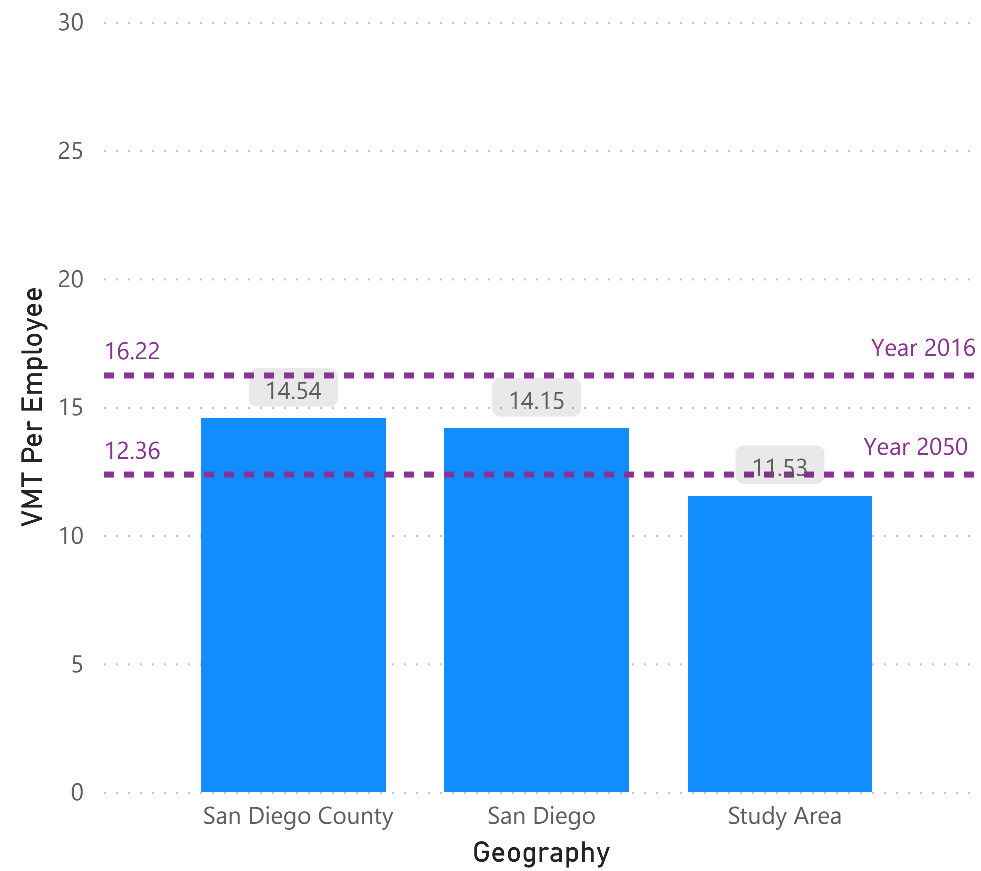
Regionwide Employee VMT Metrics

26,864,550 VMT

14.54 VMT Per Employee

Geography	Number of Employees
San Diego County	1,847,339
San Diego	1,049,631
Study Area	23,001

VMT Per Employee by Geography



TAZs in Study Area

(Hillcrest FPA)

TAZ
3325
3362
3373
3389
3419
3420
3425
3427
3444
3449
3450
3451
3462
3472
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3522
3547

SB 743 VMT Report

The original SANDAG-created report was modified to add the 85th percentile lines for Year 2016 (Appendix F-1) for comparative purposes.

Report Generated	ABM Version	Scenario ID	Scenario Name
12/12/2023	version_14_3_0	320	MR2v2_Final_2050

Purple dashed line indicates 85th percentile of regional per resident/per worker VMT.

SANDAG

Residents

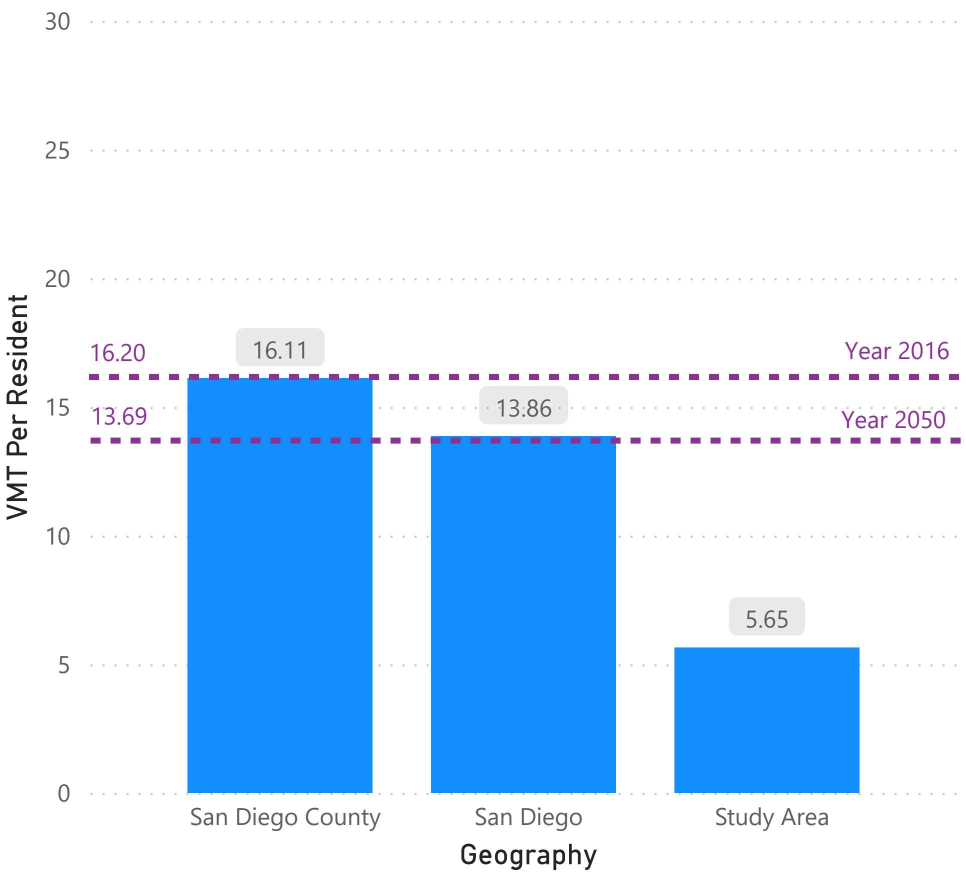
Regionwide Resident VMT Metrics

65,256,570 VMT

16.11 VMT Per Resident

Geography	Number of Residents
San Diego County	4,051,560
San Diego	1,983,908
Study Area	70,442

VMT Per Resident by Geography



Workers

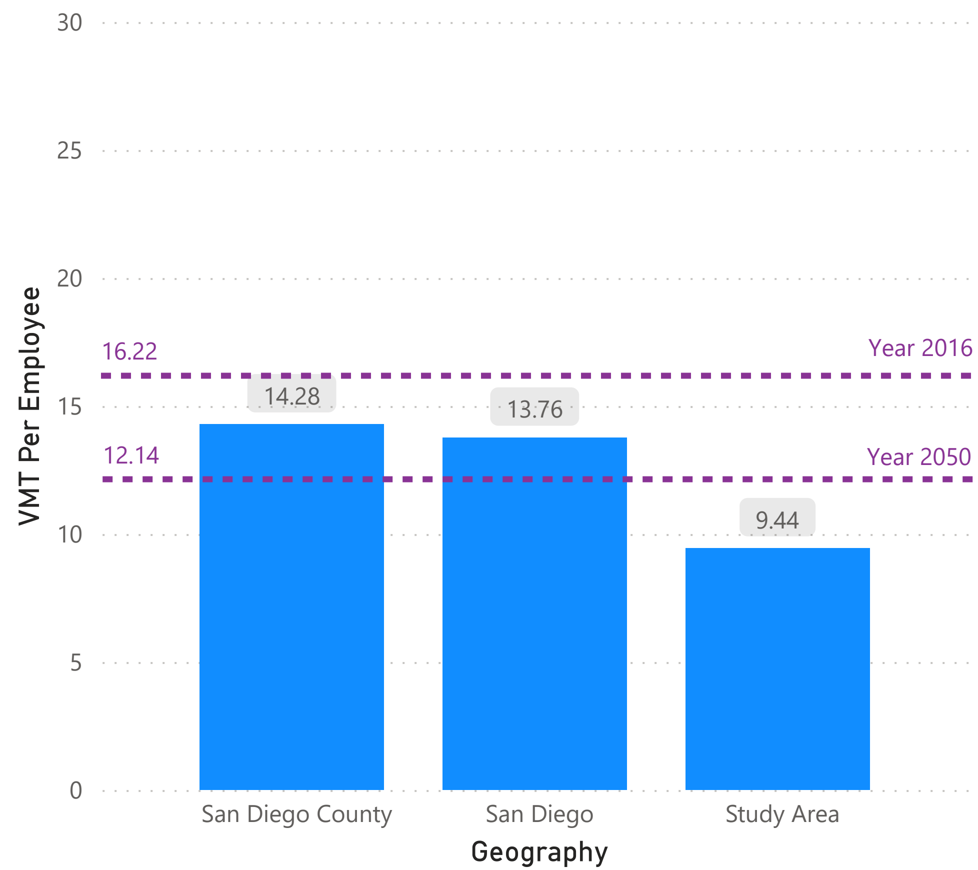
Regionwide Employee VMT Metrics

27,209,992 VMT

14.28 VMT Per Employee

Geography	Number of Employees
San Diego County	1,905,457
San Diego	1,112,581
Study Area	30,453

VMT Per Employee by Geography



TAZs in Study Area

(Hillcrest FPA)

TAZ
3325
3362
3373
3389
3419
3420
3425
3427
3444
3449
3450
3451
3462
3472
3483
3484
3485
3510
3512
3513
3515
3516
3522

Appendix F-4

SANDAG

SB 743 VMT Report

The original SANDAG-created report was modified to add the 85th percentile lines for Year 2016 (Appendix F-1) for comparative purposes.

Report Generated	ABM Version	Scenario ID	Scenario Name
12/12/2023	version_14_3_0	320	MR2v2_Final_2050

Purple dashed line indicates 85th percentile of regional per resident/per worker VMT.

Residents

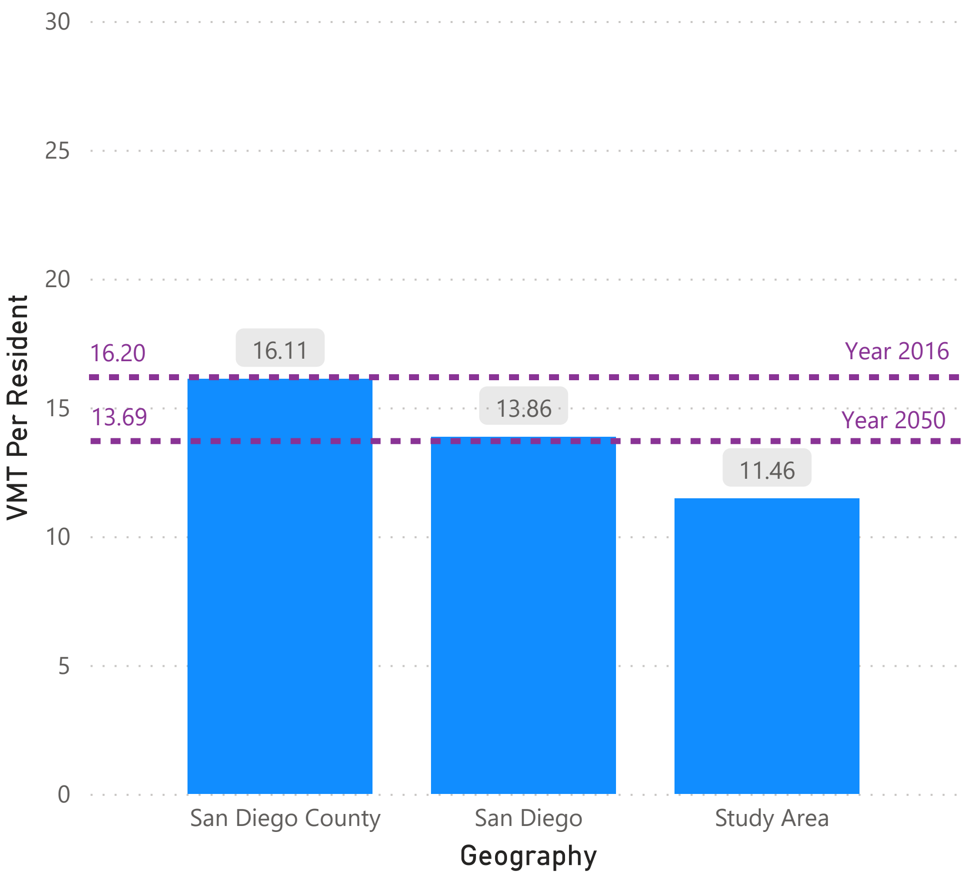
Regionwide Resident VMT Metrics

65,256,570
VMT

16.11
VMT Per Resident

Geography	Number of Residents
San Diego County	4,051,560
San Diego	1,983,908
Study Area	148,192

VMT Per Resident by Geography



Workers

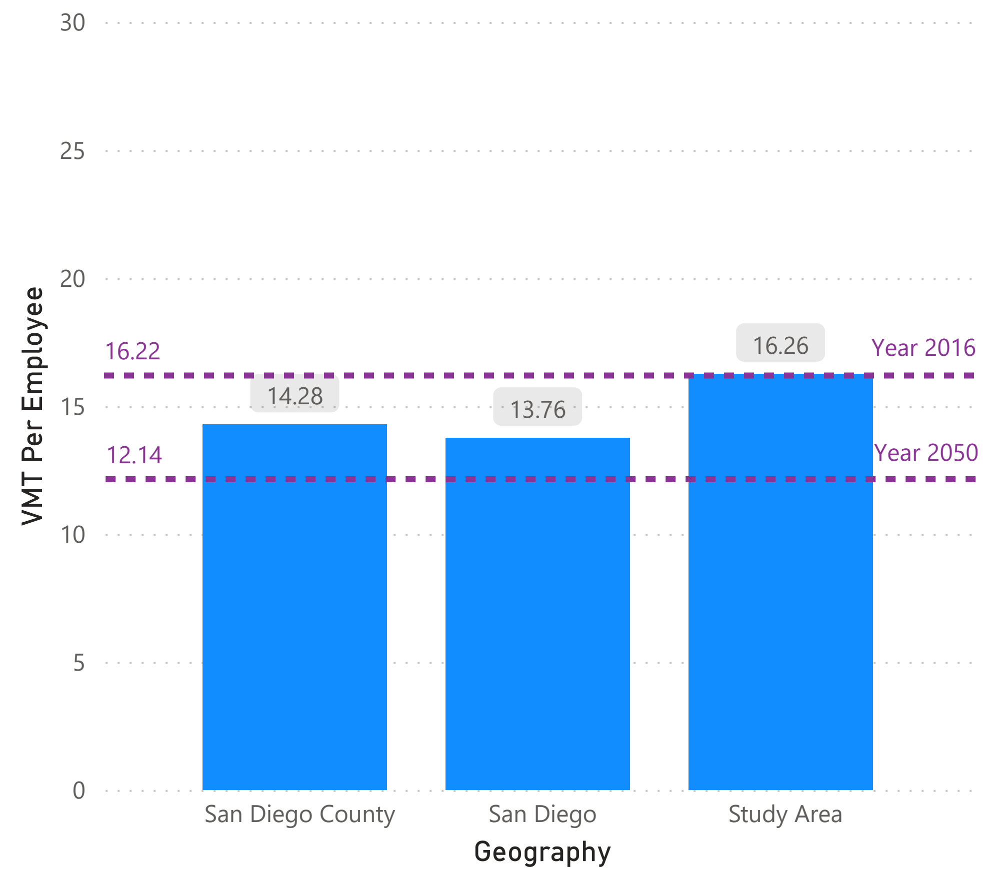
Regionwide Employee VMT Metrics

27,209,992
VMT

14.28
VMT Per Employee

Geography	Number of Employees
San Diego County	1,905,457
San Diego	1,112,581
Study Area	106,568

VMT Per Employee by Geography



TAZs in Study Area

TAZ (University CPU)
2034
2084
2130
2149
2160
2163
2173
2185
2199
2202
2204
2210
2213
2215
2218
2222
2228
2233
2234
2236
2239
2242
2246
2247

Appendix F-5

SB 743 VMT Report

The original SANDAG-created report was modified to add the 85th percentile lines for Year 2016 (Appendix F-1) for comparative purposes.

Report Generated	ABM Version	Scenario ID	Scenario Name
12/13/2023	version_14_3_0	321	MR3v2_Final_2050

Purple dashed line indicates 85th percentile of regional per resident/per worker VMT.

SANDAG

Residents

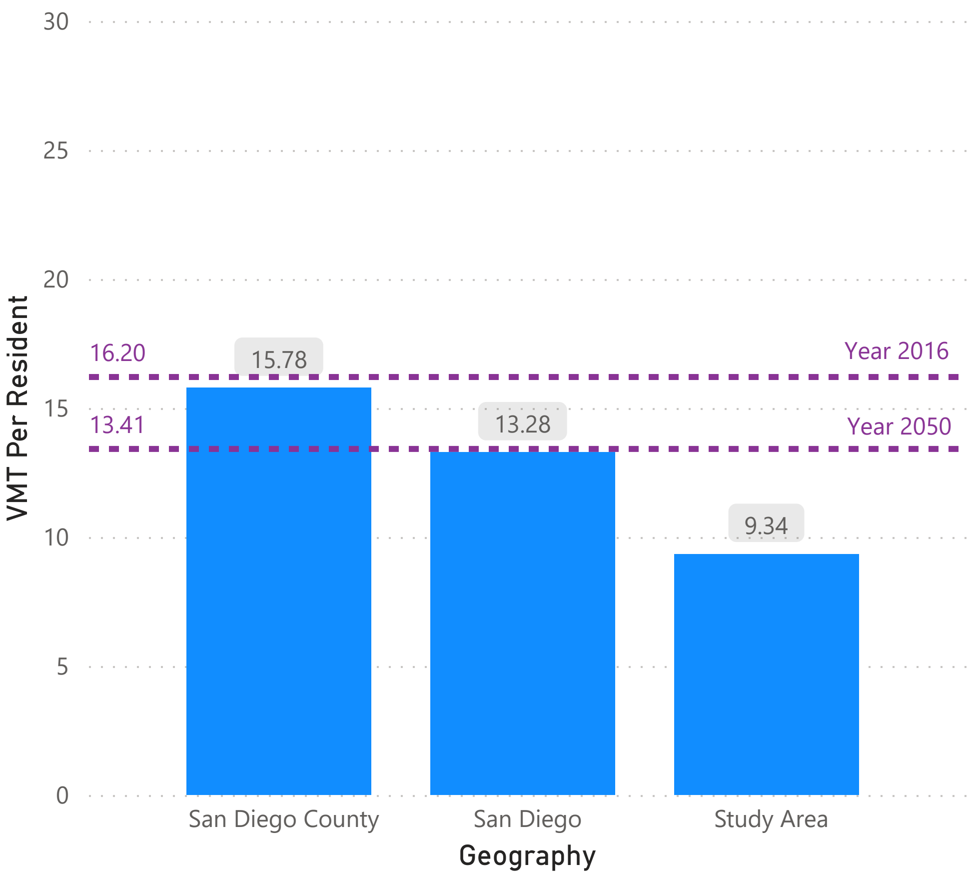
Regionwide Resident VMT Metrics

67,400,917 VMT

15.78 VMT Per Resident

Geography	Number of Residents
San Diego County	4,271,898
San Diego	2,204,246
Study Area	40,378

VMT Per Resident by Geography



Workers

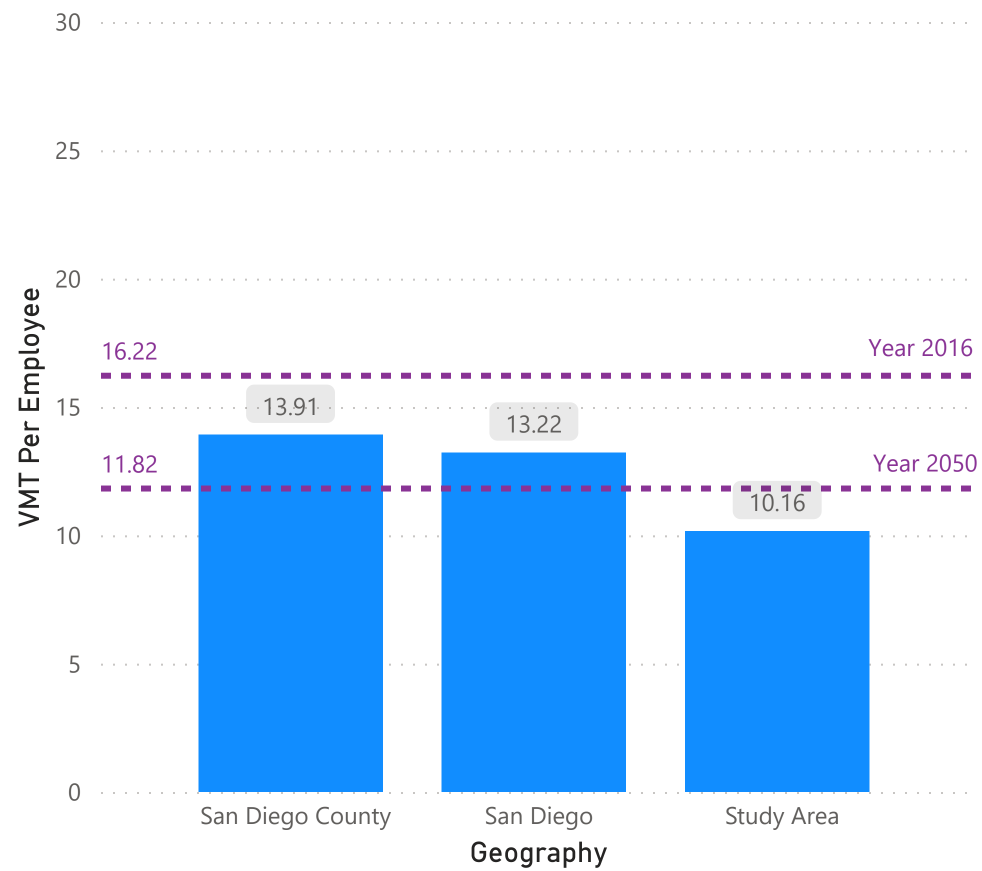
Regionwide Employee VMT Metrics

27,965,442 VMT

13.91 VMT Per Employee

Geography	Number of Employees
San Diego County	2,010,266
San Diego	1,218,295
Study Area	27,766

VMT Per Employee by Geography



TAZs in Study Area

(Hillcrest FPA)

TAZ
3325
3362
3373
3389
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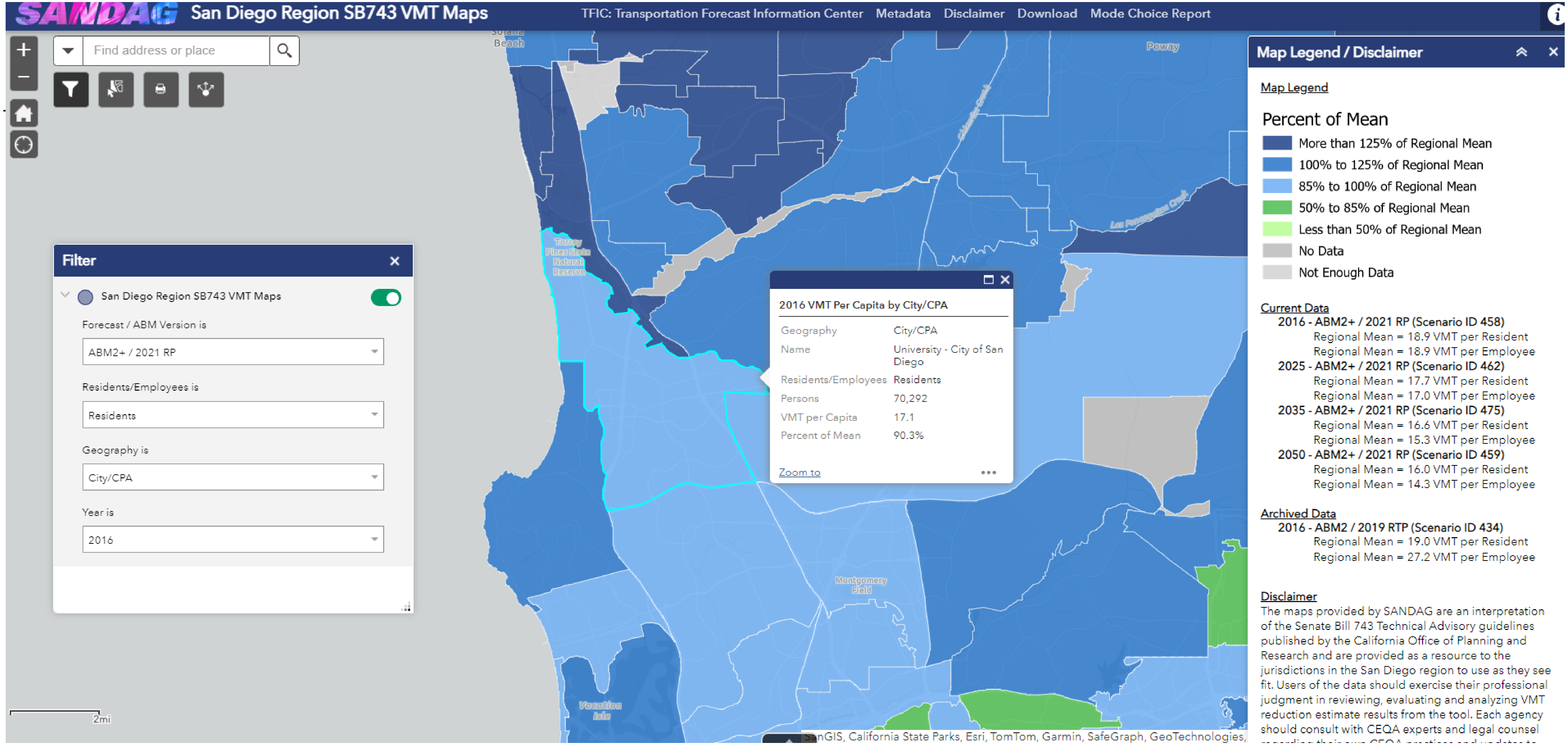
3420
3425
3427
3444
3449
3450
3451
3462
3472
3483
3484
3485
3510
3512
3513
3515
3516
3522
3547



Disclaimer

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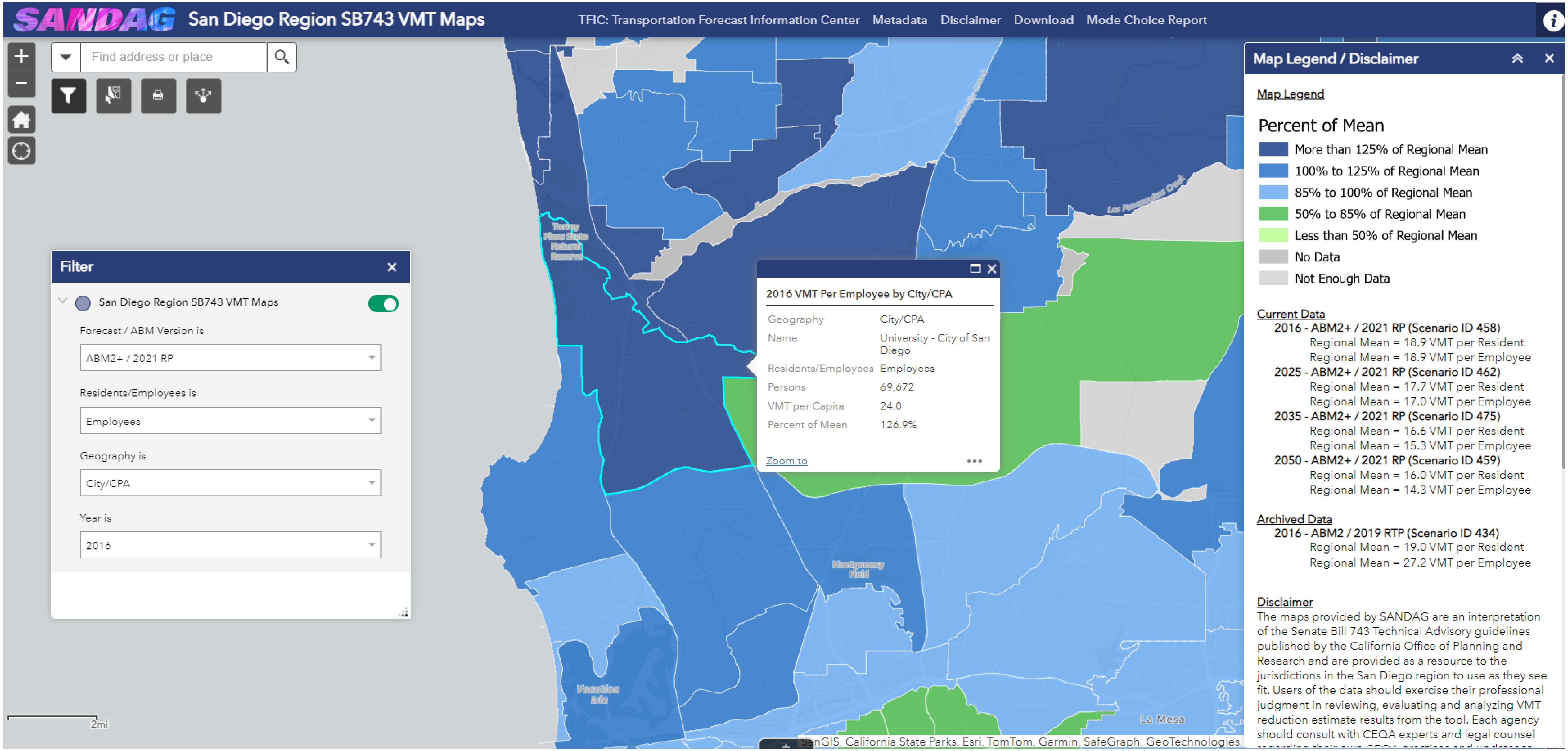

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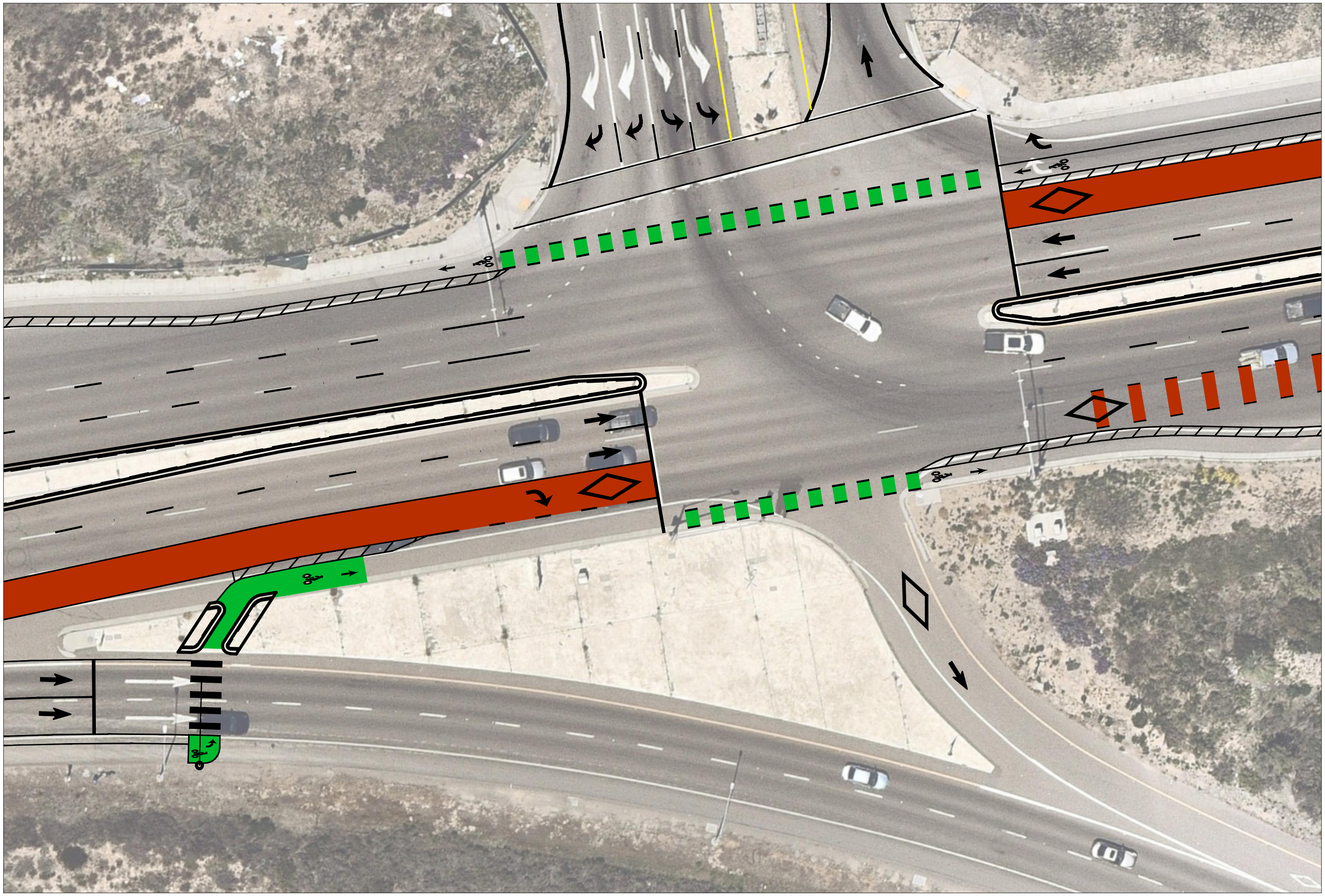
Appendix C
Intersection Concept Renderings

Group 2 Intersection: La Jolla Village Drive & I-805 Ramps



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May 2021

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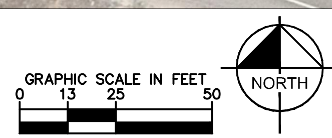
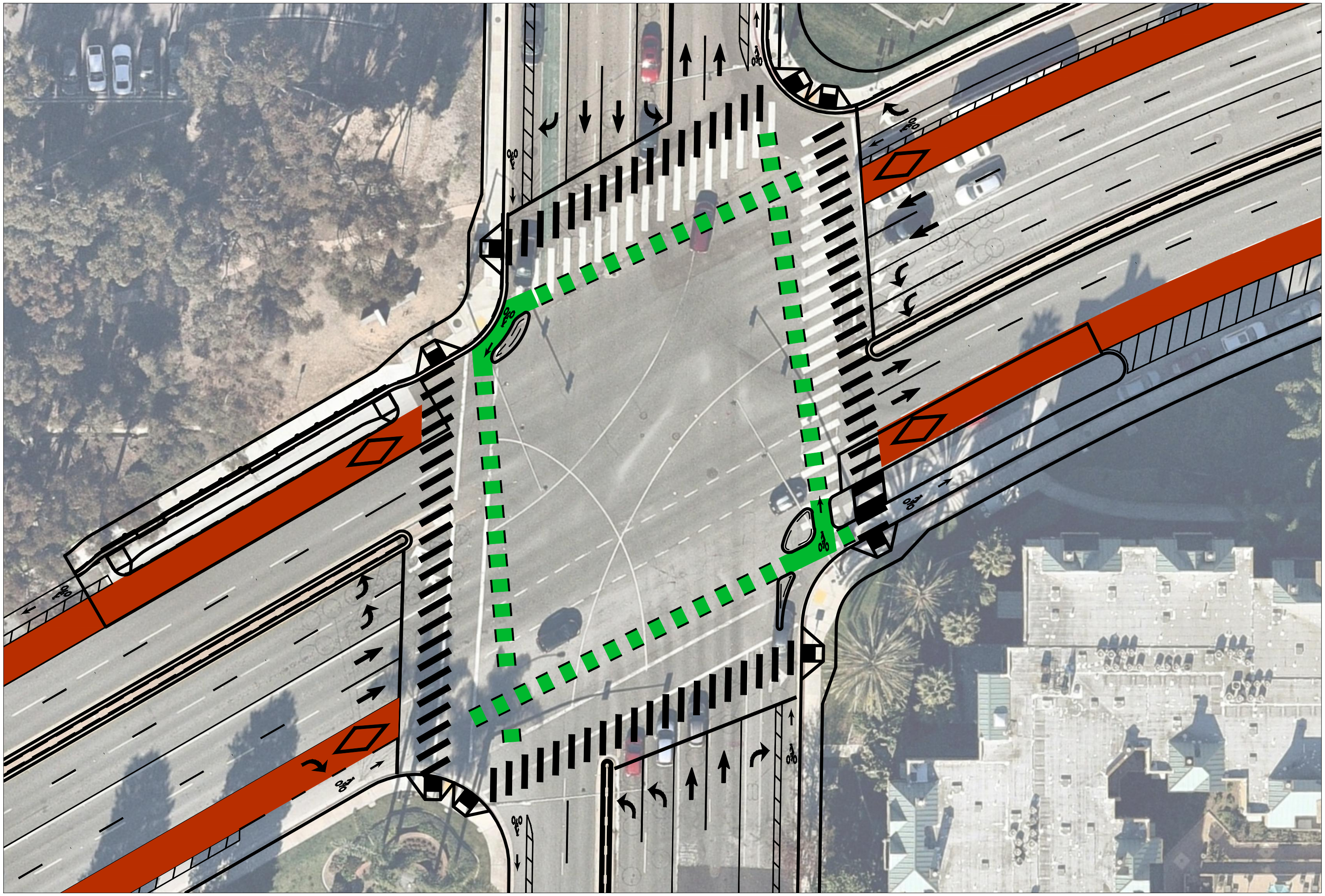


At the project/design-level when more information is available, modifications to these recommended classifications may be considered by the City.

Group 2 Intersection: La Jolla Village Drive & Regents Road



University CPU / Draft

May 2021

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GRAPHIC SCALE IN FEET

0 13 25 50

NORTH

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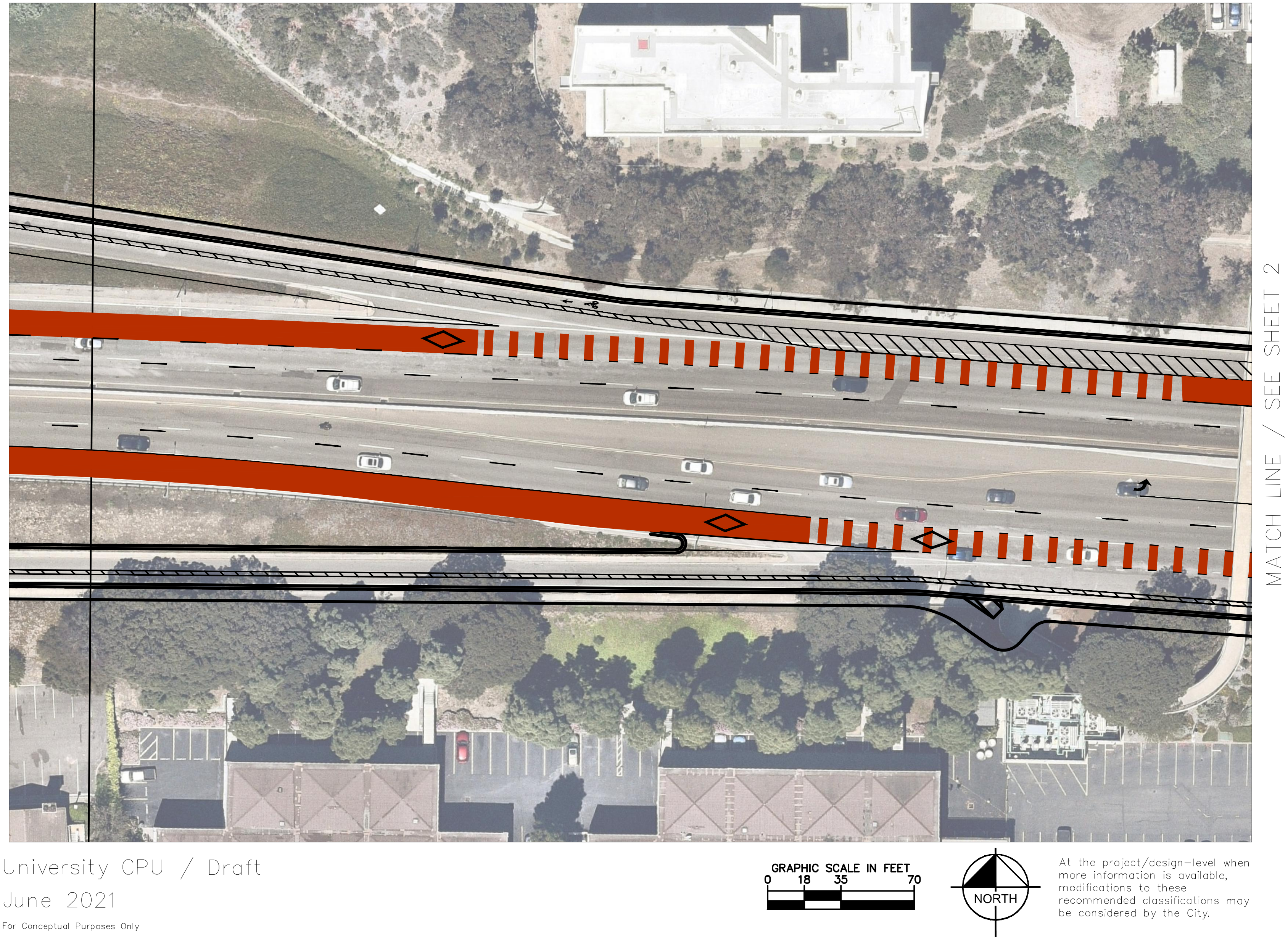
Group 2 Intersection: Villa La Jolla & La Jolla Village Drive
SHEET 1



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June 2021
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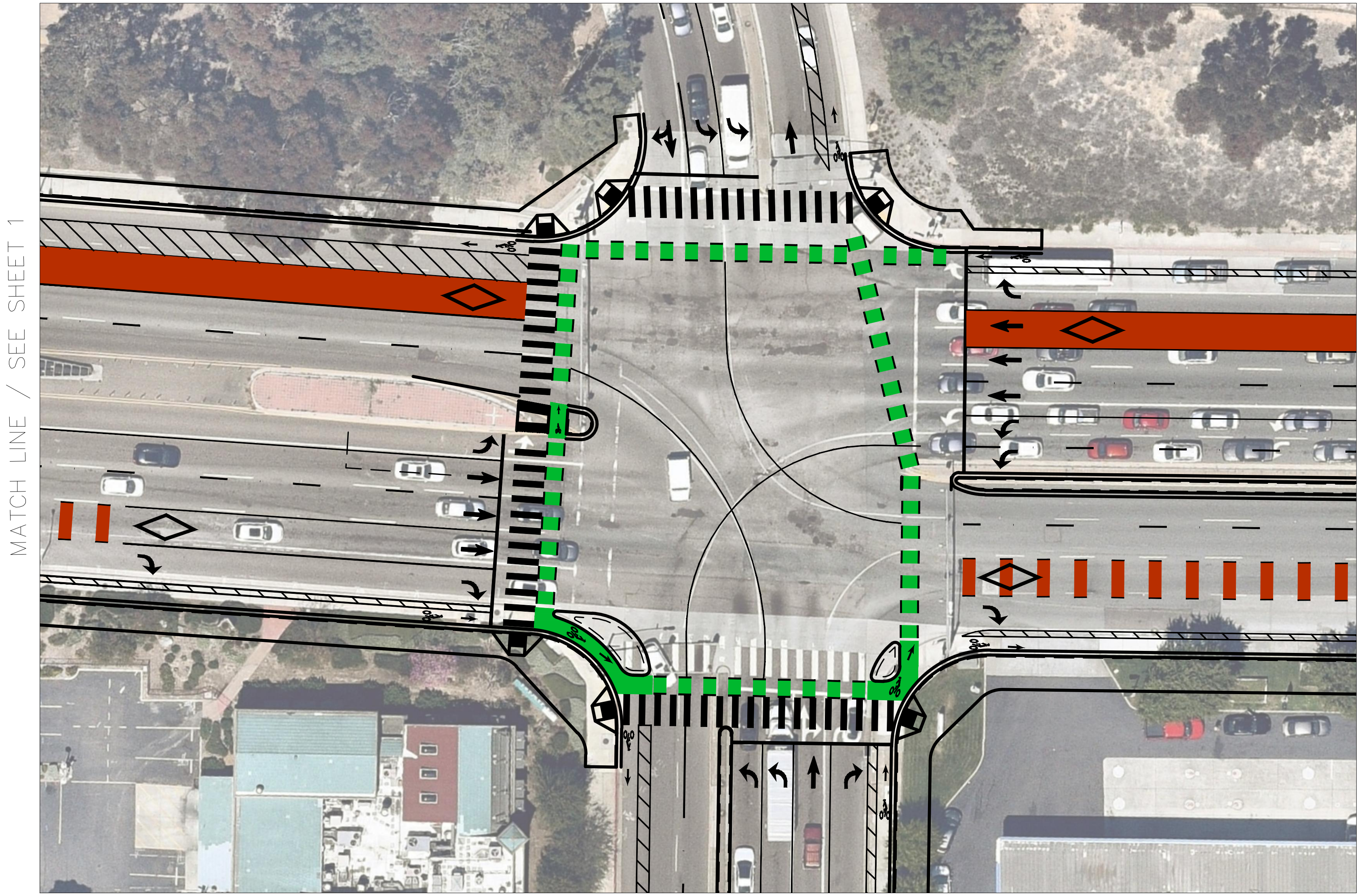
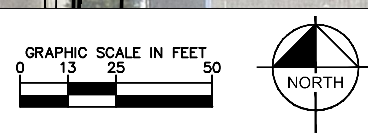
At the project/design-level when more information is available, modifications to these recommended classifications may be considered by the City.

Group 2 Intersection: Villa La Jolla & La Jolla Village Drive
SHEET 2





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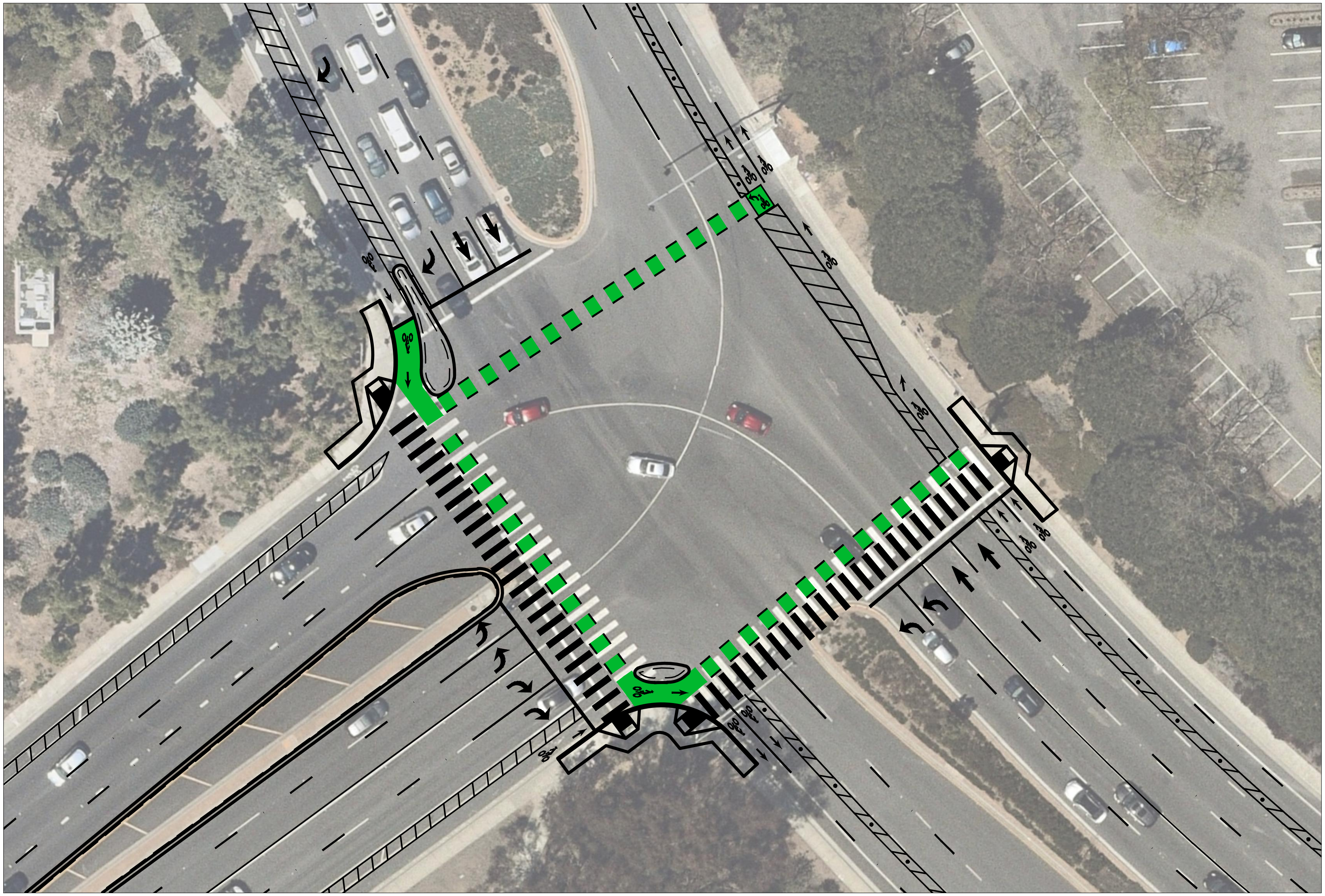
Group 2 Intersection: Genesee Avenue & N Torrey Pines



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GRAPHIC SCALE IN FEET
0 13 25 50

NORTH

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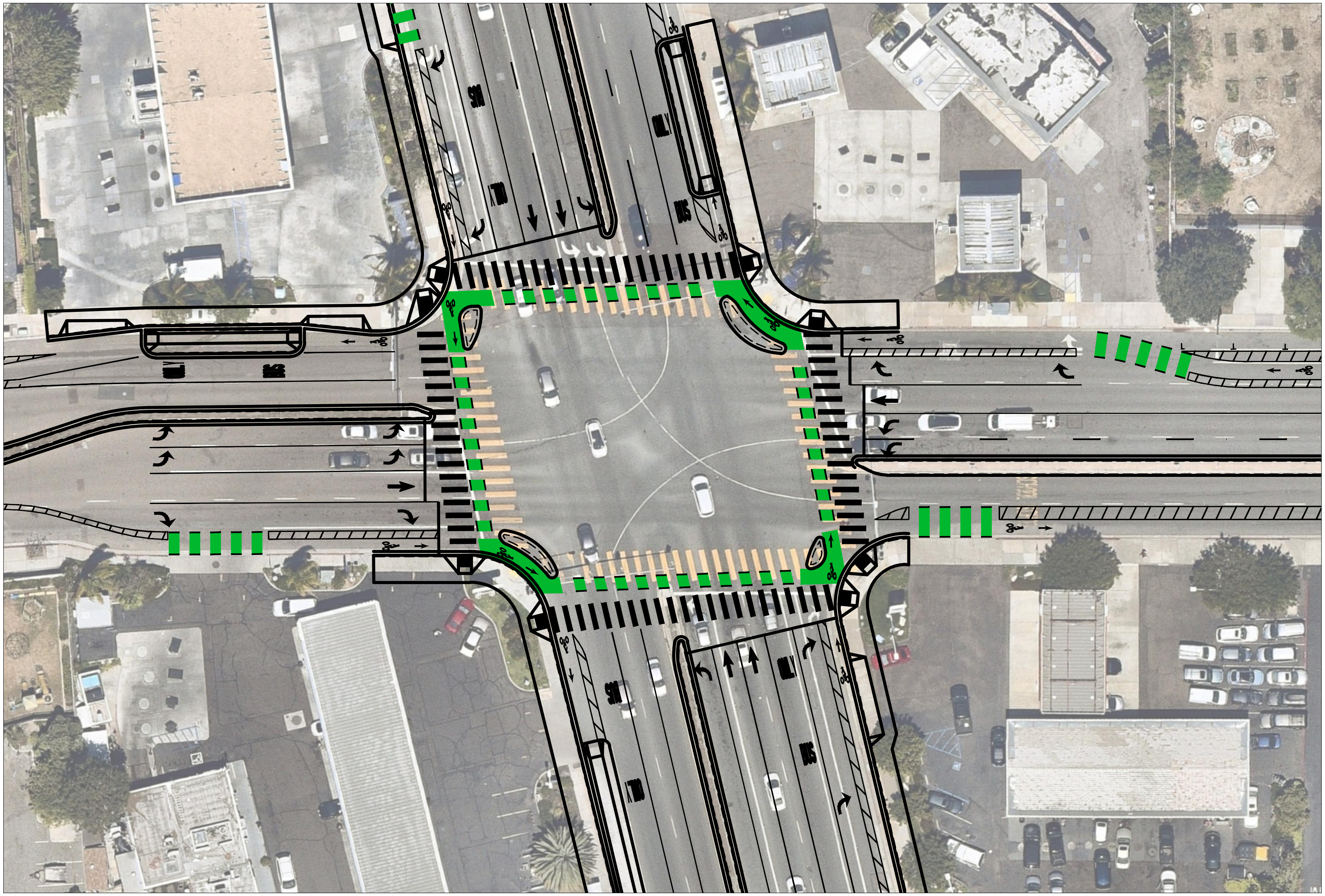
Group 2 Intersection: Genesee Ave & Governor Dr



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GRAPHIC SCALE IN FEET
0 15 30 60

NORTH

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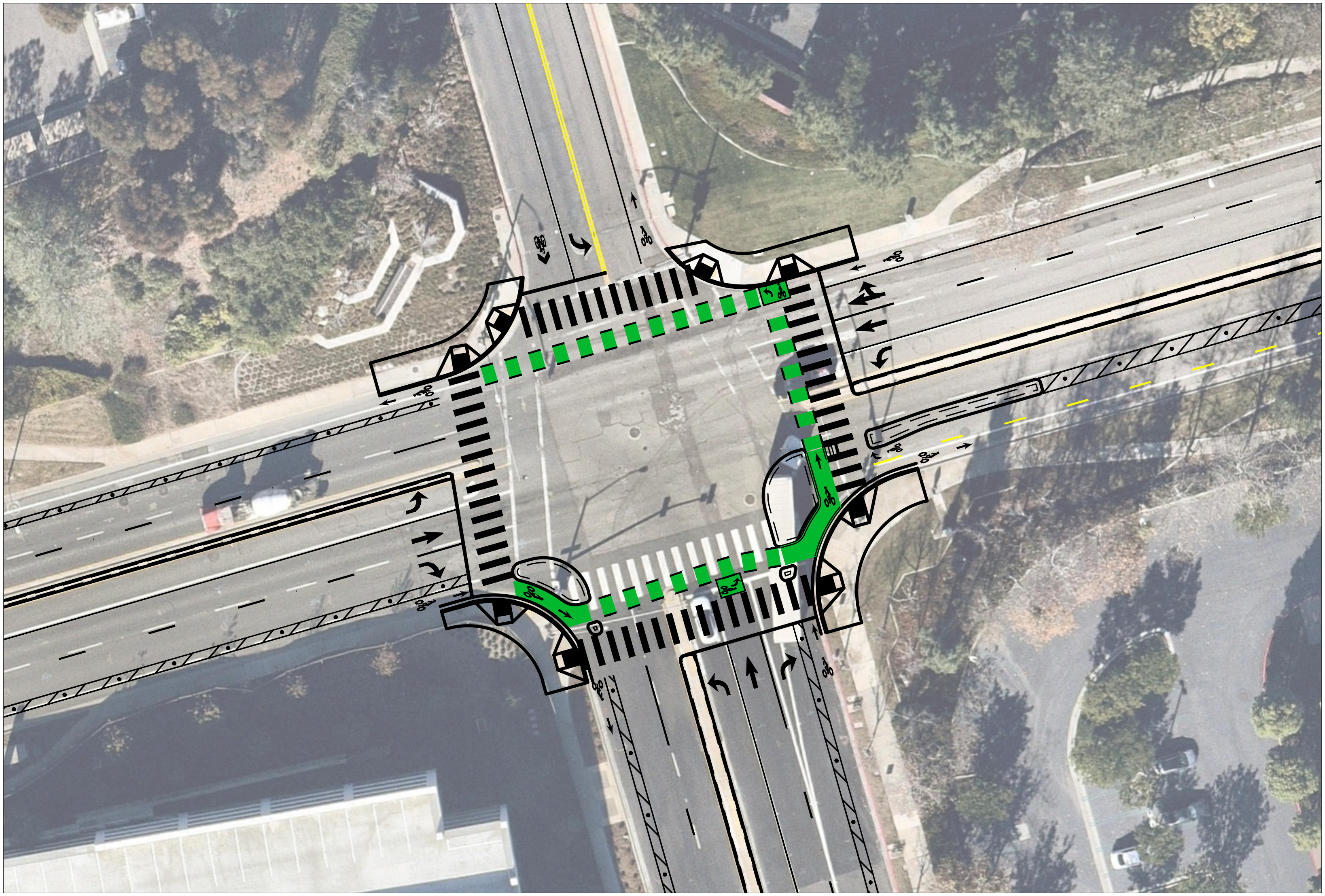
Group 1 Intersection: Eastgate Mall & Judicial Drive



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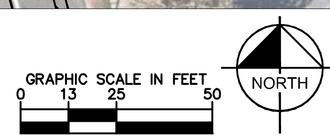
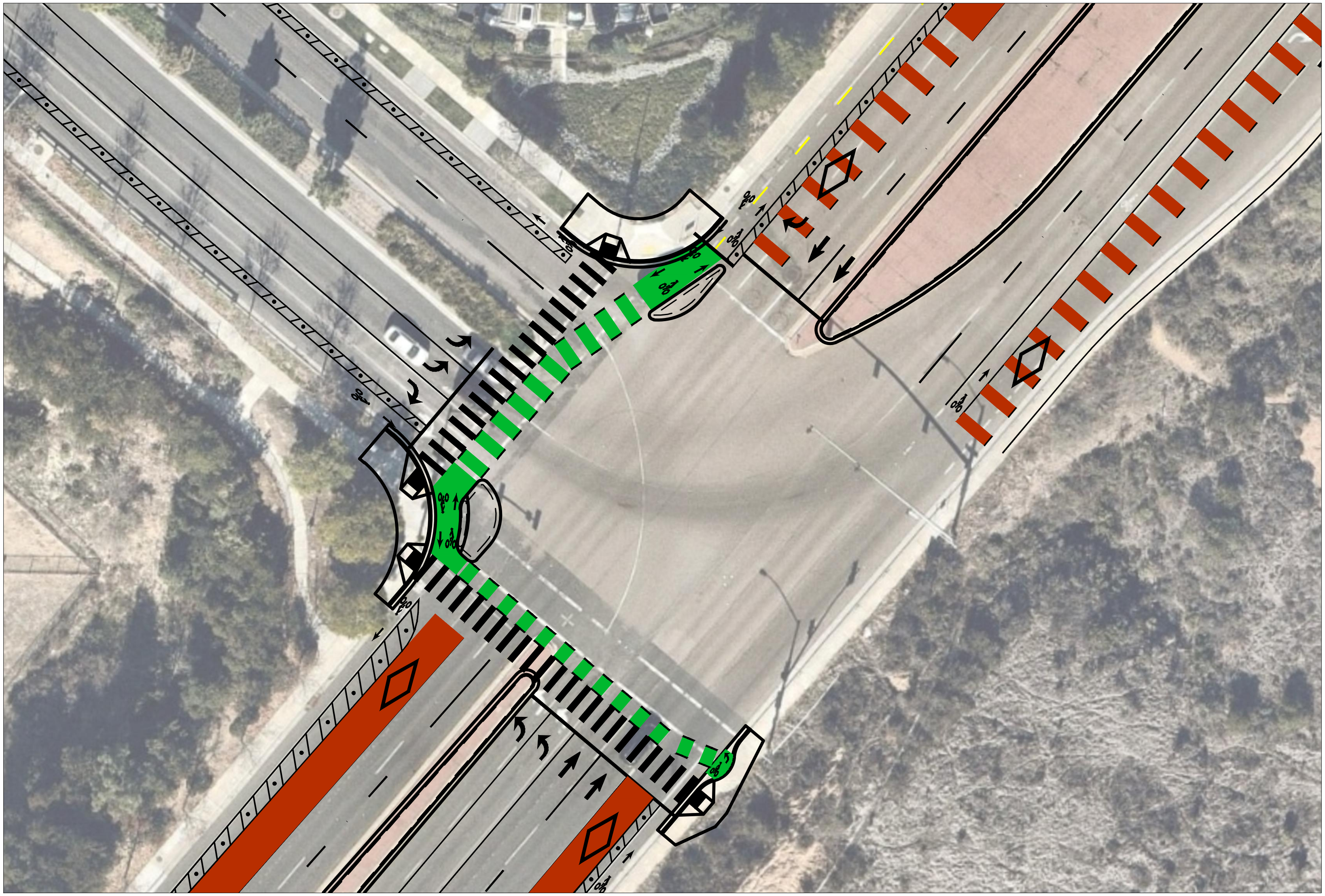


At the project/design-level when more information is available, modifications to these recommended classifications may be considered by the City.

Group 1 Intersection: Nobel Drive & Judicial Drive



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June 2021

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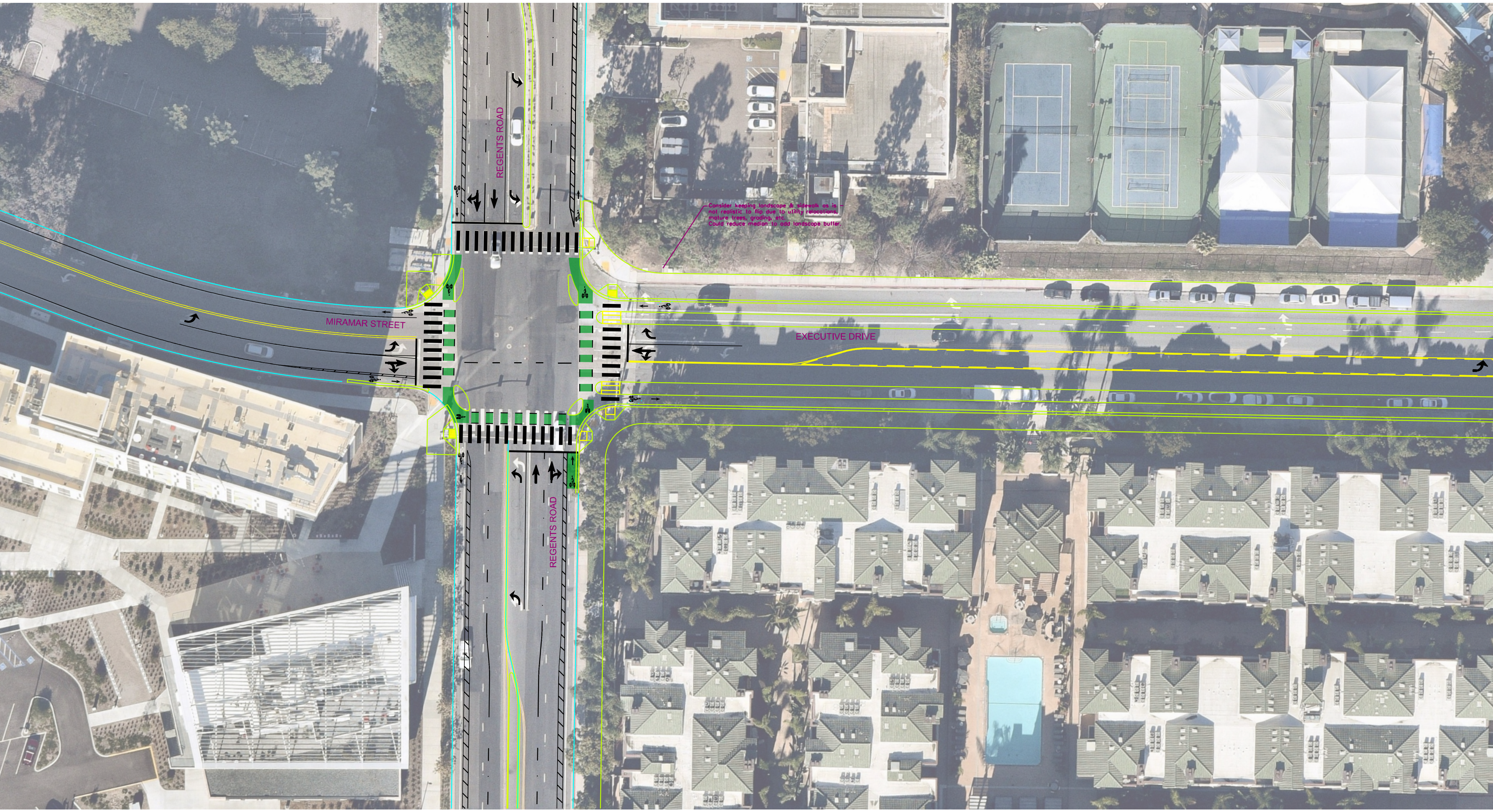
GRAPHIC SCALE IN FEET
0 13 25 50

NORTH

At the project/design-level when more information is available, modifications to these recommended classifications may be considered by the City.


REGENTS ROAD
Consider keeping landscape & sidewalk as is -
not realistic to flip due to utility relocations,
mature trees, grading, etc.
Could reduce median to add landscape buffer.
MIRAMAR STREET
EXECUTIVE DRIVE
REGENTS ROAD

Appendix D

Horizon Year Synchro Reports

Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations							
Traffic Volume (veh/h)	450	350	460	1030	500	310	
Future Volume (veh/h)	450	350	460	1030	500	310	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No			No	No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	489	380	500	1120	543	337	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	1837	819	551	2525	695	1006	
Arrive On Green	0.52	0.52	0.32	1.00	0.20	0.20	
Sat Flow, veh/h	3647	1585	3456	3647	3456	2790	
Grp Volume(v), veh/h	489	380	500	1120	543	337	
Grp Sat Flow(s),veh/h/ln	1777	1585	1728	1777	1728	1395	
Q Serve(g_s), s	10.0	19.8	18.0	0.0	19.4	11.4	
Cycle Q Clear(g_c), s	10.0	19.8	18.0	0.0	19.4	11.4	
Prop In Lane		1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	1837	819	551	2525	695	1006	
V/C Ratio(X)	0.27	0.46	0.91	0.44	0.78	0.33	
Avail Cap(c_a), veh/h	1837	819	787	2525	1135	1361	
HCM Platoon Ratio	1.00	1.00	2.00	2.00	1.00	1.00	
Upstream Filter(I)	1.00	1.00	0.95	0.95	0.92	0.92	
Uniform Delay (d), s/veh	17.6	19.9	43.3	0.0	49.2	30.2	
Incr Delay (d2), s/veh	0.4	1.9	8.3	0.5	2.4	0.2	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	4.0	7.4	6.8	0.2	8.4	3.8	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	17.9	21.8	51.6	0.5	51.6	30.5	
LnGrp LOS	B	C	D	A	D	C	
Approach Vol, veh/h	869			1620	880		
Approach Delay, s/veh	19.6			16.3	43.5		
Approach LOS	B			B	D		
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	25.1	73.4				98.6	31.4
Change Period (Y+Rc), s	4.4	6.2				* 6.2	5.3
Max Green Setting (Gmax), s	29.6	41.8				* 76	42.7
Max Q Clear Time (g_c+I1), s	20.0	21.8				2.0	21.4
Green Ext Time (p_c), s	0.7	6.2				13.6	4.8
Intersection Summary							
HCM 6th Ctrl Delay			24.3				
HCM 6th LOS			C				

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	110	650	1450	850	100	40
Future Volume (veh/h)	110	650	1450	850	100	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	707	1543	904	137	55
Peak Hour Factor	0.92	0.92	0.94	0.94	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	271	3040	4234	1043	191	329
Arrive On Green	0.30	1.00	0.66	0.66	0.06	0.06
Sat Flow, veh/h	1781	3647	6696	1585	3456	1585
Grp Volume(v), veh/h	120	707	1543	904	137	55
Grp Sat Flow(s),veh/h/ln	1781	1777	1609	1585	1728	1585
Q Serve(g_s), s	7.0	0.0	14.0	59.0	5.1	0.0
Cycle Q Clear(g_c), s	7.0	0.0	14.0	59.0	5.1	0.0
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	271	3040	4234	1043	191	329
V/C Ratio(X)	0.44	0.23	0.36	0.87	0.72	0.17
Avail Cap(c_a), veh/h	271	3040	4558	1123	215	340
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.8	0.0	10.0	17.7	60.4	42.3
Incr Delay (d2), s/veh	0.4	0.2	0.2	9.7	13.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.1	4.5	21.3	2.5	2.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.2	0.2	10.2	27.4	73.6	42.8
LnGrp LOS	D	A	B	C	E	D
Approach Vol, veh/h		827	2447		192	
Approach Delay, s/veh		6.1	16.6		64.8	
Approach LOS		A	B		E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		117.9		12.1	26.5	91.4
Change Period (Y+Rc), s		6.7		4.9	6.7	* 5.9
Max Green Setting (Gmax), s		110.3		8.1	14.6	* 92
Max Q Clear Time (g_c+I1), s		2.0		7.1	9.0	61.0
Green Ext Time (p_c), s		7.8		0.1	0.1	24.5

Intersection Summary			
HCM 6th Ctrl Delay			16.7
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	650	0	20	2220	300	0	0	0	30	0	80
Future Volume (veh/h)	100	650	0	20	2220	300	0	0	0	30	0	80
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	109	707	0	21	2337	316				43	0	114
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95				0.70	0.70	0.70
Percent Heavy Veh, %	2	2	0	2	2	2				2	2	2
Cap, veh/h	246	3056	0	29	2581	1257				119	0	106
Arrive On Green	0.14	0.86	0.00	0.02	0.73	0.73				0.07	0.00	0.07
Sat Flow, veh/h	1781	3647	0	1781	3554	1585				1781	0	1585
Grp Volume(v), veh/h	109	707	0	21	2337	316				43	0	114
Grp Sat Flow(s),veh/h/ln	1781	1777	0	1781	1777	1585				1781	0	1585
Q Serve(g_s), s	7.3	4.5	0.0	1.5	68.4	6.7				3.0	0.0	8.7
Cycle Q Clear(g_c), s	7.3	4.5	0.0	1.5	68.4	6.7				3.0	0.0	8.7
Prop In Lane	1.00		0.00	1.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	246	3056	0	29	2581	1257				119	0	106
V/C Ratio(X)	0.44	0.23	0.00	0.72	0.91	0.25				0.36	0.00	1.07
Avail Cap(c_a), veh/h	246	3056	0	79	2581	1257				119	0	106
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.09	0.09	0.09				1.00	0.00	1.00
Uniform Delay (d), s/veh	51.5	1.6	0.0	63.6	14.2	3.5				58.0	0.0	60.7
Incr Delay (d2), s/veh	1.3	0.2	0.0	3.0	0.6	0.0				1.8	0.0	108.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.7	0.0	0.7	21.8	2.5				1.4	0.0	6.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.7	1.8	0.0	66.7	14.8	3.5				59.8	0.0	169.6
LnGrp LOS	D	A	A	E	B	A				E	A	F
Approach Vol, veh/h		816			2674						157	
Approach Delay, s/veh		8.6			13.9						139.5	
Approach LOS		A			B						F	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	6.5	118.8		13.6	24.9	100.4
Change Period (Y+Rc), s	4.4	6.9		4.9	6.9	* 6
Max Green Setting (Gmax), s	5.8	99.3		8.7	11.6	* 94
Max Q Clear Time (g_c+I1), s	3.5	6.5		10.7	9.3	70.4
Green Ext Time (p_c), s	0.0	5.1		0.0	0.0	20.2

Intersection Summary	
HCM 6th Ctrl Delay	18.1
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	470	210	120	1700	0	0	0	0	1030	0	840
Future Volume (veh/h)	0	470	210	120	1700	0	0	0	0	1030	0	840
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	2116	1870	1870	2116	0				1870	1870	1870
Adj Flow Rate, veh/h	0	475	0	129	1828	0				1519	0	659
Peak Hour Factor	0.99	0.99	0.99	0.93	0.93	0.93				0.85	0.85	0.85
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1340		196	1778	0				1500	0	667
Arrive On Green	0.00	0.33	0.00	0.06	0.44	0.00				0.42	0.00	0.42
Sat Flow, veh/h	0	4127	1585	3456	4127	0				3563	0	1585
Grp Volume(v), veh/h	0	475	0	129	1828	0				1519	0	659
Grp Sat Flow(s),veh/h/ln	0	2011	1585	1728	2011	0				1781	0	1585
Q Serve(g_s), s	0.0	8.0	0.0	3.3	39.8	0.0				37.9	0.0	37.1
Cycle Q Clear(g_c), s	0.0	8.0	0.0	3.3	39.8	0.0				37.9	0.0	37.1
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1340		196	1778	0				1500	0	667
V/C Ratio(X)	0.00	0.35		0.66	1.03	0.00				1.01	0.00	0.99
Avail Cap(c_a), veh/h	0	1340		276	1778	0				1500	0	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.98	0.00	0.62	0.62	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	22.7	0.0	41.6	25.1	0.0				26.1	0.0	25.8
Incr Delay (d2), s/veh	0.0	0.7	0.0	0.9	24.5	0.0				26.4	0.0	31.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	3.7	0.0	1.4	22.6	0.0				20.5	0.0	18.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	23.4	0.0	42.5	49.6	0.0				52.4	0.0	57.3
LnGrp LOS	A	C		D	F	A				F	A	E
Approach Vol, veh/h		475			1957						2178	
Approach Delay, s/veh		23.4			49.1						53.9	
Approach LOS		C			D						D	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	9.8	37.2		43.0		47.0
Change Period (Y+Rc), s	* 4.7	7.2		5.1		7.2
Max Green Setting (Gmax), s	* 7.2	27.9		37.9		39.8
Max Q Clear Time (g_c+I1), s	5.3	10.0		39.9		41.8
Green Ext Time (p_c), s	0.0	1.7		0.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			48.7
HCM 6th LOS			D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	230	1270	0	0	580	460	1240	10	750	0	0	0
Future Volume (veh/h)	230	1270	0	0	580	460	1240	10	750	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	2116	0	0	2116	1870	1870	1870	1870			
Adj Flow Rate, veh/h	250	1380	0	0	630	500	1679	0	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	422	1503	0	0	1493	572	1744	0				
Arrive On Green	0.04	0.12	0.00	0.00	0.20	0.20	0.49	0.00	0.00			
Sat Flow, veh/h	3456	4127	0	0	7577	2790	3563	0	1585			
Grp Volume(v), veh/h	250	1380	0	0	630	500	1679	0	0			
Grp Sat Flow(s),veh/h/ln	1728	2011	0	0	1820	1395	1781	0	1585			
Q Serve(g_s), s	6.4	30.5	0.0	0.0	6.8	15.6	41.0	0.0	0.0			
Cycle Q Clear(g_c), s	6.4	30.5	0.0	0.0	6.8	15.6	41.0	0.0	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	422	1503	0	0	1493	572	1744	0				
V/C Ratio(X)	0.59	0.92	0.00	0.00	0.42	0.87	0.96	0.00				
Avail Cap(c_a), veh/h	445	1503	0	0	1493	572	1777	0				
HCM Platoon Ratio	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.48	0.48	0.00	0.00	0.95	0.95	1.00	0.00	0.00			
Uniform Delay (d), s/veh	41.0	38.1	0.0	0.0	31.1	34.7	22.2	0.0	0.0			
Incr Delay (d2), s/veh	0.6	5.6	0.0	0.0	0.8	16.2	13.4	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.8	17.3	0.0	0.0	2.9	6.3	18.9	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	43.7	0.0	0.0	32.0	50.8	35.6	0.0	0.0			
LnGrp LOS	D	D	A	A	C	D	D	A				
Approach Vol, veh/h		1630			1130			1679				
Approach Delay, s/veh		43.3			40.3			35.6				
Approach LOS		D			D			D				

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		40.8			15.2	25.6		49.2				
Change Period (Y+Rc), s		7.2			* 4.2	7.2		5.1				
Max Green Setting (Gmax), s		32.8			* 12	17.0		44.9				
Max Q Clear Time (g_c+I1), s		32.5			8.4	17.6		43.0				
Green Ext Time (p_c), s		0.2			0.1	0.0		1.1				

Intersection Summary		
HCM 6th Ctrl Delay		39.6
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	0	140	0	0	0	260	960	0	20	1570	550
Future Volume (veh/h)	80	0	140	0	0	0	260	960	0	20	1570	550
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870				1870	2116	0	1870	2116	1870
Adj Flow Rate, veh/h	119	0	209				283	1043	0	22	1707	598
Peak Hour Factor	0.67	0.92	0.67				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	421	0	193				310	3006	0	30	2373	935
Arrive On Green	0.12	0.00	0.12				0.12	0.50	0.00	0.02	0.59	0.59
Sat Flow, veh/h	3456	0	1585				1781	4127	0	1781	4021	1585
Grp Volume(v), veh/h	119	0	209				283	1043	0	22	1707	598
Grp Sat Flow(s),veh/h/ln	1728	0	1585				1781	2011	0	1781	2011	1585
Q Serve(g_s), s	4.1	0.0	16.1				20.7	20.7	0.0	1.6	39.9	32.8
Cycle Q Clear(g_c), s	4.1	0.0	16.1				20.7	20.7	0.0	1.6	39.9	32.8
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	421	0	193				310	3006	0	30	2373	935
V/C Ratio(X)	0.28	0.00	1.08				0.91	0.35	0.00	0.74	0.72	0.64
Avail Cap(c_a), veh/h	421	0	193				426	3006	0	80	2373	935
HCM Platoon Ratio	1.00	1.00	1.00				0.67	0.67	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.85	0.85	0.00	0.26	0.26	0.26
Uniform Delay (d), s/veh	52.7	0.0	57.9				57.3	13.5	0.0	64.6	19.3	17.8
Incr Delay (d2), s/veh	0.1	0.0	88.0				14.3	0.3	0.0	3.4	0.5	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	18.0				10.7	10.2	0.0	0.8	17.2	11.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	52.8	0.0	145.9				71.6	13.7	0.0	68.0	19.8	18.7
LnGrp LOS	D	A	F				E	B	A	E	B	B
Approach Vol, veh/h		328						1326			2327	
Approach Delay, s/veh		112.1						26.1			19.9	
Approach LOS		F						C			B	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	6.6	104.4		21.0	27.4	83.6
Change Period (Y+Rc), s	4.4	5.7		4.9	4.4	5.7
Max Green Setting (Gmax), s	5.9	95.0		16.1	31.6	69.3
Max Q Clear Time (g_c+I1), s	3.6	22.7		18.1	22.7	41.9
Green Ext Time (p_c), s	0.0	21.5		0.0	0.3	22.4

Intersection Summary		
HCM 6th Ctrl Delay		29.6
HCM 6th LOS		C

Notes
User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	50	130	30	30	80	410	960	400	360	800	550
Future Volume (veh/h)	180	50	130	30	30	80	410	960	400	360	800	550
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	128	157	144	36	36	96	446	1043	435	391	870	598
Peak Hour Factor	0.90	0.90	0.90	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	192	202	171	94	99	168	495	1605	717	965	2192	864
Arrive On Green	0.11	0.11	0.11	0.05	0.05	0.05	0.29	0.80	0.80	0.09	0.18	0.18
Sat Flow, veh/h	1781	1870	1585	1781	1870	3170	3456	4021	1585	3456	4021	1585
Grp Volume(v), veh/h	128	157	144	36	36	96	446	1043	435	391	870	598
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1728	2011	1585	1728	2011	1585
Q Serve(g_s), s	9.1	10.8	11.8	2.6	2.5	3.9	16.4	14.3	14.8	14.1	25.2	46.6
Cycle Q Clear(g_c), s	9.1	10.8	11.8	2.6	2.5	3.9	16.4	14.3	14.8	14.1	25.2	46.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	192	202	171	94	99	168	495	1605	717	965	2192	864
V/C Ratio(X)	0.67	0.78	0.84	0.38	0.36	0.57	0.90	0.65	0.61	0.41	0.40	0.69
Avail Cap(c_a), veh/h	247	259	220	250	262	444	652	1605	717	965	2192	864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.58	0.58	0.58	0.66	0.66	0.66
Uniform Delay (d), s/veh	56.6	57.3	57.8	60.4	60.4	61.0	46.2	9.4	8.0	49.6	35.0	43.7
Incr Delay (d2), s/veh	2.1	7.9	16.6	0.9	0.8	1.1	7.0	1.2	2.2	0.1	0.1	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	5.6	5.5	1.2	1.2	1.6	6.3	3.8	3.4	6.5	13.6	20.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	58.7	65.3	74.4	61.4	61.2	62.2	53.2	10.6	10.2	49.6	35.1	45.5
LnGrp LOS	E	E	E	E	E	E	D	B	B	D	D	D
Approach Vol, veh/h		429			168			1924			1859	
Approach Delay, s/veh		66.3			61.8			20.4			41.5	
Approach LOS		E			E			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	12.6	58.4		11.9	23.3	77.7		19.1
Change Period (Y+Rc), s	5.7	* 5.7		4.9	4.4	5.7		4.9
Max Green Setting (Gmax), s	22.6	* 53		18.5	24.9	50.4		18.3
Max Q Clear Time (g_c+I1), s	16.1	16.8		5.9	18.4	48.6		13.8
Green Ext Time (p_c), s	0.4	14.4		0.3	0.5	1.4		0.5

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	130	690	140	140	1370	0	230	0	110	0	0	0
Future Volume (veh/h)	130	690	140	140	1370	0	230	0	110	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	0	1945	1870	1870			
Adj Flow Rate, veh/h	141	750	152	152	1489	0	354	0	169			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.65	0.92	0.65			
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2			
Cap, veh/h	166	1886	743	177	1912	0	369	0	176			
Arrive On Green	0.09	0.47	0.47	0.10	0.48	0.00	0.32	0.00	0.32			
Sat Flow, veh/h	1781	4021	1585	1781	4127	0	1159	0	553			
Grp Volume(v), veh/h	141	750	152	152	1489	0	523	0	0			
Grp Sat Flow(s),veh/h/ln	1781	2011	1585	1781	2011	0	1713	0	0			
Q Serve(g_s), s	10.3	16.1	7.4	11.1	40.7	0.0	39.6	0.0	0.0			
Cycle Q Clear(g_c), s	10.3	16.1	7.4	11.1	40.7	0.0	39.6	0.0	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	0.68		0.32			
Lane Grp Cap(c), veh/h	166	1886	743	177	1912	0	544	0	0			
V/C Ratio(X)	0.85	0.40	0.20	0.86	0.78	0.00	0.96	0.00	0.00			
Avail Cap(c_a), veh/h	211	1886	743	273	1912	0	559	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.90	0.90	0.90	0.09	0.09	0.00	0.97	0.00	0.00			
Uniform Delay (d), s/veh	59.0	22.9	20.6	58.5	28.8	0.0	44.2	0.0	0.0			
Incr Delay (d2), s/veh	17.5	0.6	0.6	1.0	0.3	0.0	27.2	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	5.4	7.5	2.8	4.9	18.6	0.0	20.4	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.4	23.4	21.1	59.5	29.1	0.0	71.4	0.0	0.0			
LnGrp LOS	E	C	C	E	C	A	E	A	A			
Approach Vol, veh/h		1043			1641			523				
Approach Delay, s/veh		30.3			31.9			71.4				
Approach LOS		C			C			E				
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	17.5	67.6			16.7	68.5		46.9				
Change Period (Y+Rc), s	4.4	5.7			4.4	5.7		4.9				
Max Green Setting (Gmax), s	20.2	53.7			15.6	58.3		43.1				
Max Q Clear Time (g_c+I1), s	13.1	18.1			12.3	42.7		41.6				
Green Ext Time (p_c), s	0.1	12.1			0.0	10.9		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			37.8									
HCM 6th LOS			D									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	250	100	120	310	480	210	1180	290	230	390	130
Future Volume (veh/h)	100	250	100	120	310	480	210	1180	290	230	390	130
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	156	391	156	146	378	585	228	1283	315	250	424	141
Peak Hour Factor	0.64	0.64	0.64	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	497	421	167	509	431	345	1319	318	278	853	281
Arrive On Green	0.09	0.27	0.27	0.09	0.27	0.27	0.39	0.82	0.82	0.03	0.09	0.09
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3212	775	3456	2972	979
Grp Volume(v), veh/h	156	391	156	146	378	585	228	795	803	250	285	280
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	2011	1977	1728	2011	1940
Q Serve(g_s), s	11.6	25.6	6.6	10.7	24.3	35.9	13.9	44.5	51.2	9.5	17.8	18.1
Cycle Q Clear(g_c), s	11.6	25.6	6.6	10.7	24.3	35.9	13.9	44.5	51.2	9.5	17.8	18.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		0.50
Lane Grp Cap(c), veh/h	157	497	421	167	509	431	345	826	812	278	577	557
V/C Ratio(X)	1.00	0.79	0.37	0.87	0.74	1.36	0.66	0.96	0.99	0.90	0.49	0.50
Avail Cap(c_a), veh/h	157	500	424	167	509	431	364	827	813	278	577	557
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	0.33	0.33	0.33
Upstream Filter(I)	0.94	0.94	0.94	1.00	1.00	1.00	0.70	0.70	0.70	0.93	0.93	0.93
Uniform Delay (d), s/veh	60.2	45.0	15.3	59.0	43.8	48.0	36.8	10.9	11.5	63.7	50.6	50.8
Incr Delay (d2), s/veh	68.6	7.0	0.2	35.0	5.2	175.2	2.2	18.0	23.8	27.7	2.8	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	12.6	3.9	6.4	11.8	34.8	5.2	9.1	10.4	5.4	10.0	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	128.8	51.9	15.5	94.0	49.0	223.3	39.0	28.9	35.4	91.4	53.4	53.8
LnGrp LOS	F	D	B	F	D	F	D	C	D	F	D	D
Approach Vol, veh/h		703			1109			1826			815	
Approach Delay, s/veh		60.9			146.9			33.0			65.2	
Approach LOS		E			F			C			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	59.9	16.8	40.2	31.3	43.6	16.0	41.0
Change Period (Y+Rc), s	4.4	5.7	4.4	* 5.1	5.7	* 5.7	4.4	5.1
Max Green Setting (Gmax), s	10.6	54.3	12.4	* 35	27.0	* 38	11.6	35.9
Max Q Clear Time (g_c+I1), s	11.5	53.2	12.7	27.6	15.9	20.1	13.6	37.9
Green Ext Time (p_c), s	0.0	1.0	0.0	1.1	0.2	4.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	71.7
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	140	40	80	110	140	100	1230	300	100	400	80
Future Volume (veh/h)	40	140	40	80	110	140	100	1230	300	100	400	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	43	152	43	104	143	182	109	1337	326	109	435	87
Peak Hour Factor	0.92	0.92	0.92	0.77	0.77	0.77	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	318	87	152	228	204	156	2092	500	156	2173	431
Arrive On Green	0.03	0.12	0.12	0.04	0.13	0.13	0.09	1.00	1.00	0.09	1.00	1.00
Sat Flow, veh/h	1781	2755	756	3456	1777	1585	3456	3220	769	3456	3344	664
Grp Volume(v), veh/h	43	96	99	104	143	182	109	824	839	109	260	262
Grp Sat Flow(s),veh/h/ln	1781	1777	1734	1728	1777	1585	1728	2011	1978	1728	2011	1997
Q Serve(g_s), s	3.2	6.7	7.0	3.9	10.1	14.9	4.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	3.2	6.7	7.0	3.9	10.1	14.9	4.0	0.0	0.0	4.0	0.0	0.0
Prop In Lane	1.00		0.44	1.00		1.00	1.00		0.39	1.00		0.33
Lane Grp Cap(c), veh/h	55	205	200	152	228	204	156	1307	1285	156	1307	1298
V/C Ratio(X)	0.78	0.47	0.49	0.68	0.63	0.89	0.70	0.63	0.65	0.70	0.20	0.20
Avail Cap(c_a), veh/h	130	238	233	236	230	205	236	1307	1285	236	1307	1298
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.97	0.97	0.97	0.87	0.87	0.87	0.71	0.71	0.71	0.82	0.82	0.82
Uniform Delay (d), s/veh	63.5	54.6	54.8	62.2	54.5	56.6	59.2	0.0	0.0	59.2	0.0	0.0
Incr Delay (d2), s/veh	8.1	0.6	0.7	1.7	3.4	31.1	1.5	1.7	1.8	1.7	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	3.0	3.1	1.8	4.7	7.7	1.7	0.6	0.7	1.7	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.6	55.2	55.4	63.9	58.0	87.7	60.7	1.7	1.8	60.9	0.3	0.3
LnGrp LOS	E	E	E	E	E	F	E	A	A	E	A	A
Approach Vol, veh/h		238			429			1772			631	
Approach Delay, s/veh		58.3			72.0			5.4			10.8	
Approach LOS		E			E			A			B	
Timer - Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.4	91.3	10.2	20.1	10.4	91.3	8.5	21.9				
Change Period (Y+Rc), s	4.4	5.5	4.4	4.9	4.4	* 5.5	4.4	4.9				
Max Green Setting (Gmax), s	9.0	77.1	9.0	17.7	9.0	* 77	9.6	17.1				
Max Q Clear Time (g_c+I1), s	6.0	2.0	5.9	9.0	6.0	2.0	5.2	16.9				
Green Ext Time (p_c), s	0.0	26.7	0.0	0.4	0.0	4.4	0.0	0.0				
Intersection Summary												
HCM 6th Ctrl Delay			19.9									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	20	50	20	10	70	300	1520	220	50	430	40
Future Volume (veh/h)	40	20	50	20	10	70	300	1520	220	50	430	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	38	46	44	33	16	115	312	1583	229	54	467	43
Peak Hour Factor	0.87	0.87	0.87	0.61	0.61	0.61	0.96	0.96	0.96	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	76	80	68	170	19	136	367	2374	337	70	2252	207
Arrive On Green	0.04	0.04	0.04	0.10	0.10	0.10	0.11	0.67	0.67	0.01	0.20	0.20
Sat Flow, veh/h	1781	1870	1585	1781	197	1418	3456	3535	502	1781	3724	342
Grp Volume(v), veh/h	38	46	44	33	0	131	312	888	924	54	251	259
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1615	1728	2011	2026	1781	2011	2055
Q Serve(g_s), s	2.8	3.2	3.6	2.3	0.0	10.5	11.7	34.3	36.3	4.0	13.8	13.9
Cycle Q Clear(g_c), s	2.8	3.2	3.6	2.3	0.0	10.5	11.7	34.3	36.3	4.0	13.8	13.9
Prop In Lane	1.00		1.00	1.00		0.88	1.00		0.25	1.00		0.17
Lane Grp Cap(c), veh/h	76	80	68	170	0	154	367	1351	1361	70	1216	1243
V/C Ratio(X)	0.50	0.58	0.65	0.19	0.00	0.85	0.85	0.66	0.68	0.77	0.21	0.21
Avail Cap(c_a), veh/h	128	135	114	204	0	185	513	1351	1361	136	1216	1243
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.09	0.09	0.09	0.98	0.98	0.98
Uniform Delay (d), s/veh	61.8	62.0	62.2	55.0	0.0	58.7	58.0	12.7	13.1	64.6	26.4	26.4
Incr Delay (d2), s/veh	1.9	2.4	3.9	0.2	0.0	22.7	0.7	0.2	0.3	6.5	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	1.6	1.5	1.0	0.0	5.3	5.0	13.6	14.5	1.9	7.5	7.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.7	64.4	66.1	55.2	0.0	81.4	58.7	13.0	13.3	71.1	26.8	26.8
LnGrp LOS	E	E	E	E	A	F	E	B	B	E	C	C
Approach Vol, veh/h		128			164			2124			564	
Approach Delay, s/veh		64.8			76.1			19.8			31.0	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.6	94.4		10.5	18.4	85.5		17.5
Change Period (Y+Rc), s	4.4	5.7		4.9	4.4	5.7		4.9
Max Green Setting (Gmax), s	10.1	77.4		9.5	19.6	67.9		15.1
Max Q Clear Time (g_c+I1), s	6.0	38.3		5.6	13.7	15.9		12.5
Green Ext Time (p_c), s	0.0	25.6		0.1	0.3	1.9		0.1

Intersection Summary	
HCM 6th Ctrl Delay	27.0
HCM 6th LOS	C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	440	1530	130	160	1600	460	370	1140	130	200	220	80
Future Volume (veh/h)	440	1530	130	160	1600	460	370	1140	130	200	220	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	478	1663	141	174	1739	500	402	1239	141	217	239	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	410	1899	748	598	2144	942	448	1071	422	212	797	314
Arrive On Green	0.16	0.63	0.63	0.35	1.00	1.00	0.26	0.53	0.53	0.06	0.20	0.20
Sat Flow, veh/h	3456	4021	1585	3456	4021	1585	3456	4021	1585	3456	4021	1585
Grp Volume(v), veh/h	478	1663	141	174	1739	500	402	1239	141	217	239	87
Grp Sat Flow(s),veh/h/ln	1728	2011	1585	1728	2011	1585	1728	2011	1585	1728	2011	1585
Q Serve(g_s), s	16.6	47.9	4.5	5.1	0.0	0.0	15.7	37.3	5.8	8.6	7.1	6.5
Cycle Q Clear(g_c), s	16.6	47.9	4.5	5.1	0.0	0.0	15.7	37.3	5.8	8.6	7.1	6.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	410	1899	748	598	2144	942	448	1071	422	212	797	314
V/C Ratio(X)	1.17	0.88	0.19	0.29	0.81	0.53	0.90	1.16	0.33	1.02	0.30	0.28
Avail Cap(c_a), veh/h	410	1899	748	598	2144	942	597	1071	422	212	797	314
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.65	0.65	0.65	0.09	0.09	0.09	0.61	0.61	0.61	0.99	0.99	0.99
Uniform Delay (d), s/veh	59.0	22.7	10.8	39.5	0.0	0.0	50.9	32.7	17.3	65.7	47.9	47.6
Incr Delay (d2), s/veh	91.4	4.1	0.4	0.0	0.3	0.1	7.3	77.3	0.3	67.3	0.3	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.0	19.1	1.9	2.0	0.1	0.0	6.2	24.1	2.4	5.7	3.5	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	150.3	26.7	11.1	39.5	0.3	0.1	58.2	110.0	17.7	133.0	48.2	48.3
LnGrp LOS	F	C	B	D	A	A	E	F	B	F	D	D
Approach Vol, veh/h		2282			2413			1782			543	
Approach Delay, s/veh		51.6			3.1			91.0			82.1	
Approach LOS		D			A			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	29.8	71.4	22.6	33.4	21.0	80.2	13.0	43.0
Change Period (Y+Rc), s	5.5	* 5.3	4.4	* 5.7	4.4	5.5	4.4	5.7
Max Green Setting (Gmax), s	8.2	* 66	24.2	* 22	16.6	57.5	8.6	37.3
Max Q Clear Time (g_c+I1), s	17.1	49.9	17.7	9.1	18.6	2.0	10.6	39.3
Green Ext Time (p_c), s	0.0	15.1	0.5	1.9	0.0	49.7	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	47.3
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	10	60	100	50	180	110	1590	130	120	290	100
Future Volume (veh/h)	150	10	60	100	50	180	110	1590	130	120	290	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	215	0	82	123	186	182	120	1728	141	130	315	109
Peak Hour Factor	0.73	0.73	0.73	0.68	0.68	0.68	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	269	0	120	233	245	208	142	2407	949	175	1678	570
Arrive On Green	0.08	0.00	0.08	0.13	0.13	0.13	0.16	1.00	1.00	0.10	1.00	1.00
Sat Flow, veh/h	3563	0	1585	1781	1870	1585	1781	4021	1585	3456	2946	1001
Grp Volume(v), veh/h	215	0	82	123	186	182	120	1728	141	130	213	211
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	1870	1585	1781	2011	1585	1728	2011	1936
Q Serve(g_s), s	8.3	0.0	7.1	9.0	13.4	15.8	9.2	0.0	0.0	5.1	0.0	0.0
Cycle Q Clear(g_c), s	8.3	0.0	7.1	9.0	13.4	15.8	9.2	0.0	0.0	5.1	0.0	0.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.52
Lane Grp Cap(c), veh/h	269	0	120	233	245	208	142	2407	949	175	1145	1103
V/C Ratio(X)	0.80	0.00	0.68	0.53	0.76	0.88	0.85	0.72	0.15	0.74	0.19	0.19
Avail Cap(c_a), veh/h	384	0	171	281	295	250	225	2407	949	212	1145	1103
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	0.09	0.09	0.09	0.89	0.89	0.89
Uniform Delay (d), s/veh	63.7	0.0	63.1	56.8	58.7	59.7	58.0	0.0	0.0	62.0	0.0	0.0
Incr Delay (d2), s/veh	4.8	0.0	2.6	0.7	6.9	22.0	0.9	0.2	0.0	7.1	0.3	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	0.0	2.9	4.1	6.9	7.6	3.8	0.1	0.0	2.3	0.1	0.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	68.5	0.0	65.7	57.5	65.6	81.7	58.9	0.2	0.0	69.1	0.3	0.3
LnGrp LOS	E	A	E	E	E	F	E	A	A	E	A	A
Approach Vol, veh/h		297			491			1989			554	
Approach Delay, s/veh		67.7			69.5			3.7			16.5	
Approach LOS		E			E			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	89.8		15.5	15.5	85.8		23.2				
Change Period (Y+Rc), s	4.4	6.0		4.9	4.4	* 6		4.9				
Max Green Setting (Gmax), s	8.6	74.0		15.1	17.7	* 65		22.1				
Max Q Clear Time (g_c+I1), s	7.1	2.0		10.3	11.2	2.0		17.8				
Green Ext Time (p_c), s	0.0	32.9		0.3	0.1	3.9		0.6				

Intersection Summary	
HCM 6th Ctrl Delay	21.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	580	100	120	330	100	260	1530	330	120	250	80
Future Volume (veh/h)	180	580	100	120	330	100	260	1530	330	120	250	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	196	630	109	130	359	109	277	1628	351	130	272	87
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	163	470	352	114	324	98	326	1214	909	1336	3519	1387
Arrive On Green	0.05	0.22	0.22	0.03	0.21	0.21	0.13	0.76	0.76	0.77	1.00	1.00
Sat Flow, veh/h	3456	2116	1585	3456	1558	473	3456	2116	1585	3456	4021	1585
Grp Volume(v), veh/h	196	630	109	130	0	468	277	1628	351	130	272	87
Grp Sat Flow(s),veh/h/ln	1728	2116	1585	1728	0	2031	1728	2116	1585	1728	2011	1585
Q Serve(g_s), s	6.6	31.1	8.0	4.6	0.0	29.1	11.0	80.3	16.8	1.3	0.0	0.0
Cycle Q Clear(g_c), s	6.6	31.1	8.0	4.6	0.0	29.1	11.0	80.3	16.8	1.3	0.0	0.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	163	470	352	114	0	422	326	1214	909	1336	3519	1387
V/C Ratio(X)	1.20	1.34	0.31	1.14	0.00	1.11	0.85	1.34	0.39	0.10	0.08	0.06
Avail Cap(c_a), veh/h	163	470	352	114	0	422	439	1214	909	1336	3519	1387
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.33	1.33	1.33	2.00	2.00	2.00
Upstream Filter(I)	0.85	0.85	0.85	0.83	0.00	0.83	0.09	0.09	0.09	0.96	0.96	0.96
Uniform Delay (d), s/veh	66.7	54.5	45.5	67.7	0.0	55.5	60.2	16.6	21.6	9.9	0.0	0.0
Incr Delay (d2), s/veh	130.4	164.9	0.6	121.2	0.0	73.0	0.9	154.0	0.1	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	37.8	3.2	3.9	0.0	23.3	4.6	74.9	5.4	0.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	197.1	219.3	46.1	188.9	0.0	128.4	61.1	170.6	21.7	9.9	0.0	0.0
LnGrp LOS	F	F	D	F	A	F	E	F	C	A	A	A
Approach Vol, veh/h		935			598			2256			489	
Approach Delay, s/veh		194.5			141.6			134.0			2.6	
Approach LOS		F			F			F			A	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	86.0	9.0	36.2	17.6	129.5	11.0	34.2
Change Period (Y+Rc), s	5.9	* 5.7	4.4	* 5.1	4.4	5.9	4.4	5.1
Max Green Setting (Gmax), s	4.6	* 80	4.6	* 31	17.8	66.9	6.6	28.9
Max Q Clear Time (g_c+I1), s	3.3	82.3	6.6	33.1	13.0	2.0	8.6	31.1
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.2	3.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	133.3
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	80	200	70	50	110	200	1900	150	40	560	60
Future Volume (veh/h)	110	80	200	70	50	110	200	1900	150	40	560	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	131	104	232	82	59	129	215	2043	161	43	609	65
Peak Hour Factor	0.84	0.84	0.84	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	151	88	375	34	23	21	239	1307	103	51	1070	114
Arrive On Green	0.24	0.24	0.24	0.24	0.24	0.24	0.13	0.68	0.68	0.03	0.57	0.57
Sat Flow, veh/h	471	374	1585	0	97	89	1781	1936	153	1781	1880	201
Grp Volume(v), veh/h	235	0	232	270	0	0	215	0	2204	43	0	674
Grp Sat Flow(s),veh/h/ln	845	0	1585	185	0	0	1781	0	2089	1781	0	2080
Q Serve(g_s), s	0.0	0.0	18.3	0.0	0.0	0.0	16.6	0.0	94.5	3.4	0.0	28.9
Cycle Q Clear(g_c), s	33.1	0.0	18.3	33.1	0.0	0.0	16.6	0.0	94.5	3.4	0.0	28.9
Prop In Lane	0.56		1.00	0.30		0.48	1.00		0.07	1.00		0.10
Lane Grp Cap(c), veh/h	240	0	375	77	0	0	239	0	1410	51	0	1184
V/C Ratio(X)	0.98	0.00	0.62	3.49	0.00	0.00	0.90	0.00	1.56	0.84	0.00	0.57
Avail Cap(c_a), veh/h	240	0	375	77	0	0	341	0	1410	51	0	1184
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.09	0.00	0.09	0.91	0.00	0.91
Uniform Delay (d), s/veh	55.9	0.0	47.8	52.3	0.0	0.0	59.7	0.0	22.7	67.7	0.0	19.2
Incr Delay (d2), s/veh	52.0	0.0	2.3	1152.6	0.0	0.0	1.8	0.0	253.7	64.9	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.9	0.0	7.5	27.5	0.0	0.0	7.5	0.0	138.8	2.4	0.0	13.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	107.9	0.0	50.1	1204.9	0.0	0.0	61.5	0.0	276.4	132.6	0.0	21.0
LnGrp LOS	F	A	D	F	A	A	E	A	F	F	A	C
Approach Vol, veh/h		467			270			2419			717	
Approach Delay, s/veh		79.2			1204.9			257.3			27.7	
Approach LOS		E			F			F			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.2	85.8		38.0	8.4	100.6		38.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	4.4	* 5.9		4.9				
Max Green Setting (Gmax), s	26.8	64.9		33.1	4.0	* 88		33.1				
Max Q Clear Time (g_c+I1), s	18.6	30.9		35.1	5.4	96.5		35.1				
Green Ext Time (p_c), s	0.2	6.3		0.0	0.0	0.0		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			259.4
HCM 6th LOS			F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	360	0	300	0	1950	475	200	620	0
Future Volume (veh/h)	0	0	0	360	0	300	0	1950	475	200	620	0
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	0	1870	1870	2116	1870	1870	2116	0
Adj Flow Rate, veh/h				735	0	612	0	2097	511	217	674	0
Peak Hour Factor				0.49	0.92	0.49	0.93	0.93	0.93	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	2	2	2	2	2	0
Cap, veh/h				523	0	465	1	1533	1148	138	1684	0
Arrive On Green				0.29	0.00	0.29	0.00	0.72	0.72	0.08	1.00	0.00
Sat Flow, veh/h				1781	0	1585	1781	2116	1585	3456	2116	0
Grp Volume(v), veh/h				735	0	612	0	2097	511	217	674	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	2116	1585	1728	2116	0
Q Serve(g_s), s				41.1	0.0	41.1	0.0	101.4	18.4	5.6	0.0	0.0
Cycle Q Clear(g_c), s				41.1	0.0	41.1	0.0	101.4	18.4	5.6	0.0	0.0
Prop In Lane				1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h				523	0	465	1	1533	1148	138	1684	0
V/C Ratio(X)				1.41	0.00	1.32	0.00	1.37	0.45	1.57	0.40	0.00
Avail Cap(c_a), veh/h				523	0	465	51	1533	1148	138	1684	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.09	0.09	0.78	0.78	0.00
Uniform Delay (d), s/veh				49.4	0.0	49.5	0.0	19.3	7.9	64.4	0.0	0.0
Incr Delay (d2), s/veh				193.7	0.0	156.5	0.0	166.0	0.1	281.9	0.6	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				46.3	0.0	51.1	0.0	110.4	5.4	7.7	0.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				243.2	0.0	205.9	0.0	185.3	8.0	346.3	0.6	0.0
LnGrp LOS				F	A	F	A	F	A	F	A	A
Approach Vol, veh/h					1347			2608			891	
Approach Delay, s/veh					226.2			150.5			84.8	
Approach LOS					F			F			F	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	0.0	118.5		46.0	10.0	108.5
Change Period (Y+Rc), s	4.4	6.4		4.9	4.4	* 6.4
Max Green Setting (Gmax), s	4.0	79.2		41.1	5.6	* 78
Max Q Clear Time (g_c+I1), s	0.0	2.0		43.1	7.6	103.4
Green Ext Time (p_c), s	0.0	5.9		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	159.5
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	600	450	250	300	380	310	120	1430	260	210	550	300
Future Volume (veh/h)	600	450	250	300	380	310	120	1430	260	210	550	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1945	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	652	489	272	326	413	337	130	1554	283	228	598	326
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	336	488	413	334	506	412	152	930	696	126	899	673
Arrive On Green	0.10	0.26	0.26	0.10	0.26	0.26	0.09	0.44	0.44	0.07	0.42	0.42
Sat Flow, veh/h	3456	1870	1585	3456	1945	1585	1781	2116	1585	1781	2116	1585
Grp Volume(v), veh/h	652	489	272	326	413	337	130	1554	283	228	598	326
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1728	1945	1585	1781	2116	1585	1781	2116	1585
Q Serve(g_s), s	14.6	39.1	23.0	14.1	29.9	30.0	10.8	65.9	18.3	10.6	34.0	22.3
Cycle Q Clear(g_c), s	14.6	39.1	23.0	14.1	29.9	30.0	10.8	65.9	18.3	10.6	34.0	22.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	336	488	413	334	506	412	152	930	696	126	899	673
V/C Ratio(X)	1.94	1.00	0.66	0.98	0.82	0.82	0.86	1.67	0.41	1.81	0.67	0.48
Avail Cap(c_a), veh/h	336	488	413	334	506	412	175	930	696	126	899	673
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.7	55.5	49.5	67.6	52.1	52.2	67.7	42.0	28.7	69.7	34.6	31.2
Incr Delay (d2), s/veh	433.1	41.5	3.3	42.4	10.4	12.6	26.7	306.8	0.4	394.6	2.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	26.7	24.2	9.5	8.2	16.0	13.3	6.0	112.1	7.0	18.6	17.5	8.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	500.8	97.0	52.8	110.0	62.5	64.7	94.4	348.9	29.1	464.3	36.6	31.9
LnGrp LOS	F	F	D	F	E	E	F	F	C	F	D	C
Approach Vol, veh/h		1413			1076			1967			1152	
Approach Delay, s/veh		274.8			77.6			286.0			119.9	
Approach LOS		F			E			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	71.8	18.9	44.3	17.2	69.6	19.0	44.2
Change Period (Y+Rc), s	4.4	5.9	4.4	5.2	4.4	* 5.9	4.4	5.2
Max Green Setting (Gmax), s	10.6	65.9	14.5	39.1	14.7	* 62	14.6	39.0
Max Q Clear Time (g_c+I1), s	12.6	67.9	16.1	41.1	12.8	36.0	16.6	32.0
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	6.3	0.0	2.8

Intersection Summary	
HCM 6th Ctrl Delay	209.1
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	9.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	150	550	1110	1000	250
Future Vol, veh/h	0	150	550	1110	1000	250
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	-	0	265	-	-	160
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	188	598	1207	1087	272

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	-	1087	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.13	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.219	-	-	-
Pot Cap-1 Maneuver	0	0	640	-	-	0
Stage 1	0	0	-	-	-	0
Stage 2	0	0	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	-	640	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	15.5	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	640	-	-	-
HCM Lane V/C Ratio	0.934	-	-	-
HCM Control Delay (s)	46.6	-	0	-
HCM Lane LOS	E	-	A	-
HCM 95th %tile Q(veh)	12.6	-	-	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	170	210	1290	900	500	650
Future Volume (veh/h)	170	210	1290	900	500	650
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	2116	1870	1870	2116
Adj Flow Rate, veh/h	205	253	1402	0	543	707
Peak Hour Factor	0.83	0.83	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	177	157	1136		443	1728
Arrive On Green	0.10	0.10	0.54	0.00	0.25	0.82
Sat Flow, veh/h	1781	1585	2116	1585	1781	2116
Grp Volume(v), veh/h	205	253	1402	0	543	707
Grp Sat Flow(s),veh/h/ln	1781	1585	2116	1585	1781	2116
Q Serve(g_s), s	14.9	14.9	80.5	0.0	37.3	13.8
Cycle Q Clear(g_c), s	14.9	14.9	80.5	0.0	37.3	13.8
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	177	157	1136		443	1728
V/C Ratio(X)	1.16	1.61	1.23		1.23	0.41
Avail Cap(c_a), veh/h	177	157	1136		443	1728
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	67.6	67.6	34.8	0.0	56.3	3.8
Incr Delay (d2), s/veh	116.8	300.6	113.2	0.0	120.3	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	19.2	74.3	0.0	31.2	4.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	184.3	368.1	148.0	0.0	176.6	3.9
LnGrp LOS	F	F	F		F	A
Approach Vol, veh/h	458		1402			1250
Approach Delay, s/veh	285.9		148.0			79.0
Approach LOS	F		F			E
Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	42.0	88.0		20.0		130.0
Change Period (Y+Rc), s	* 4.7	7.5		5.1		7.5
Max Green Setting (Gmax), s	* 37	80.5		14.9		122.5
Max Q Clear Time (g_c+I1), s	39.3	82.5		16.9		15.8
Green Ext Time (p_c), s	0.0	0.0		0.0		5.2
Intersection Summary						
HCM 6th Ctrl Delay			140.5			
HCM 6th LOS			F			

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	410	80	1100	1520	270	1100
Future Volume (veh/h)	410	80	1100	1520	270	1100
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	446	87	1183	1634	321	1310
Peak Hour Factor	0.92	0.92	0.93	0.93	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	902	403	1252	2320	979	1801
Arrive On Green	0.08	0.08	0.72	1.00	0.28	0.28
Sat Flow, veh/h	3647	1585	3456	3647	3456	2790
Grp Volume(v), veh/h	446	87	1183	1634	321	1310
Grp Sat Flow(s),veh/h/ln	1777	1585	1728	1777	1728	1395
Q Serve(g_s), s	14.4	6.1	35.9	0.0	8.8	34.0
Cycle Q Clear(g_c), s	14.4	6.1	35.9	0.0	8.8	34.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	902	403	1252	2320	979	1801
V/C Ratio(X)	0.49	0.22	0.94	0.70	0.33	0.73
Avail Cap(c_a), veh/h	902	403	1440	2320	979	1801
HCM Platoon Ratio	0.33	0.33	2.00	2.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.09	0.09	1.00	1.00
Uniform Delay (d), s/veh	47.6	43.8	15.5	0.0	34.0	14.2
Incr Delay (d2), s/veh	1.1	0.7	1.4	0.2	0.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.0	2.5	5.5	0.1	3.6	29.9
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	48.7	44.5	16.9	0.2	34.0	15.5
LnGrp LOS	D	D	B	A	C	B
Approach Vol, veh/h	533			2817	1631	
Approach Delay, s/veh	48.0			7.2	19.2	
Approach LOS	D			A	B	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	47.9	35.9	39.6	83.9
Change Period (Y+Rc), s	4.4	5.4	5.6	* 5.4
Max Green Setting (Gmax), s	50.0	20.6	34.0	* 75
Max Q Clear Time (g_c+I1), s	37.9	16.4	36.0	2.0
Green Ext Time (p_c), s	2.2	1.9	0.0	65.1

Intersection Summary	
HCM 6th Ctrl Delay	15.5
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1440	70	350	2240	0	380	0	510	0	0	0
Future Volume (veh/h)	0	1440	70	350	2240	0	380	0	510	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	1565	76	365	2333	0	447	0	600	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.92	0.85	0.92	0.85	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	1998	97	392	2591	0	472	0	1127	0	544	0
Arrive On Green	0.00	0.77	0.77	0.11	0.73	0.00	0.29	0.00	0.29	0.00	0.00	0.00
Sat Flow, veh/h	0	3544	167	3456	3647	0	1418	0	2790	0	1870	0
Grp Volume(v), veh/h	0	803	838	365	2333	0	447	0	600	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1840	1728	1777	0	1418	0	1395	0	1870	0
Q Serve(g_s), s	0.0	31.2	31.8	12.6	62.1	0.0	34.9	0.0	19.6	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	31.2	31.8	12.6	62.1	0.0	34.9	0.0	19.6	0.0	0.0	0.0
Prop In Lane	0.00		0.09	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	1029	1066	392	2591	0	472	0	1127	0	544	0
V/C Ratio(X)	0.00	0.78	0.79	0.93	0.90	0.00	0.95	0.00	0.53	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1029	1066	392	2591	0	472	0	1127	0	560	0
HCM Platoon Ratio	1.00	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.71	0.71	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	9.4	9.5	52.7	12.8	0.0	43.9	0.0	27.1	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	4.2	4.2	28.5	5.6	0.0	28.1	0.0	0.3	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.3	7.6	6.8	20.6	0.0	17.2	0.0	6.5	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	13.6	13.7	81.3	18.4	0.0	72.0	0.0	27.4	0.0	0.0	0.0
LnGrp LOS	A	B	B	F	B	A	E	A	C	A	A	A
Approach Vol, veh/h		1641			2698			1047			0	
Approach Delay, s/veh		13.6			26.9			46.4			0.0	
Approach LOS		B			C			D				
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	18.0	75.6		40.4		93.6		40.4				
Change Period (Y+Rc), s	4.4	5.7		* 5.5		* 5.7		5.5				
Max Green Setting (Gmax), s	13.6	55.9		* 36		* 74		34.9				
Max Q Clear Time (g_c+I1), s	14.6	33.8		0.0		64.1		36.9				
Green Ext Time (p_c), s	0.0	15.5		0.0		10.1		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			26.7									
HCM 6th LOS			C									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					+		↰	↑↑			↓↓	↱
Traffic Volume (veh/h)	0	0	0	70	0	220	440	590	0	0	130	40
Future Volume (veh/h)	0	0	0	70	0	220	440	590	0	0	130	40
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				76	0	239	489	656	0	0	157	0
Peak Hour Factor				0.92	0.92	0.92	0.90	0.90	0.90	0.83	0.83	0.83
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				72	0	227	555	2097	0	0	687	
Arrive On Green				0.18	0.00	0.18	0.31	0.59	0.00	0.00	0.19	0.00
Sat Flow, veh/h				393	0	1235	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				315	0	0	489	656	0	0	157	0
Grp Sat Flow(s),veh/h/ln				1628	0	0	1781	1777	0	0	1777	1585
Q Serve(g_s), s				9.5	0.0	0.0	13.5	4.8	0.0	0.0	1.9	0.0
Cycle Q Clear(g_c), s				9.5	0.0	0.0	13.5	4.8	0.0	0.0	1.9	0.0
Prop In Lane				0.24		0.76	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				299	0	0	555	2097	0	0	687	
V/C Ratio(X)				1.05	0.00	0.00	0.88	0.31	0.00	0.00	0.23	
Avail Cap(c_a), veh/h				299	0	0	668	2384	0	0	687	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				21.1	0.0	0.0	16.9	5.3	0.0	0.0	17.6	0.0
Incr Delay (d2), s/veh				66.7	0.0	0.0	11.4	0.1	0.0	0.0	0.2	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				8.8	0.0	0.0	6.3	1.1	0.0	0.0	0.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				87.8	0.0	0.0	28.3	5.4	0.0	0.0	17.8	0.0
LnGrp LOS				F	A	A	C	A	A	A	B	
Approach Vol, veh/h					315			1145			157	
Approach Delay, s/veh					87.8			15.2			17.8	
Approach LOS					F			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		37.3			20.5	16.8		14.4				
Change Period (Y+Rc), s		* 6.8			4.4	6.8		4.9				
Max Green Setting (Gmax), s		* 35			19.4	10.0		9.5				
Max Q Clear Time (g_c+I1), s		6.8			15.5	3.9		11.5				
Green Ext Time (p_c), s		4.7			0.7	0.4		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			29.6									
HCM 6th LOS			C									

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	1250	50	400	1900	530	340	200	390	310	80	50
Future Volume (veh/h)	180	1250	50	400	1900	530	340	200	390	310	80	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	1359	54	435	2065	576	447	263	513	392	101	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.76	0.76	0.76	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	157	3166	1634	467	3332	1639	484	288	244	334	129	81
Arrive On Green	0.09	0.89	0.89	0.18	1.00	1.00	0.14	0.15	0.15	0.10	0.12	0.12
Sat Flow, veh/h	1781	3554	1585	3456	3554	1585	3456	1870	1585	3456	1077	672
Grp Volume(v), veh/h	196	1359	54	435	2065	576	447	263	513	392	0	164
Grp Sat Flow(s),veh/h/ln	1781	1777	1585	1728	1777	1585	1728	1870	1585	1728	0	1749
Q Serve(g_s), s	10.6	8.1	0.0	14.9	0.0	0.0	15.3	16.6	18.5	11.6	0.0	10.9
Cycle Q Clear(g_c), s	10.6	8.1	0.0	14.9	0.0	0.0	15.3	16.6	18.5	11.6	0.0	10.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.38
Lane Grp Cap(c), veh/h	157	3166	1634	467	3332	1639	484	288	244	334	0	210
V/C Ratio(X)	1.25	0.43	0.03	0.93	0.62	0.35	0.92	0.91	2.10	1.17	0.00	0.78
Avail Cap(c_a), veh/h	157	3166	1634	467	3332	1639	484	288	244	334	0	210
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.09	0.09	0.09	0.72	0.72	0.72	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.7	1.2	0.0	48.7	0.0	0.0	51.0	49.9	119.3	54.2	0.0	51.3
Incr Delay (d2), s/veh	152.6	0.4	0.0	3.7	0.1	0.1	18.3	24.8	504.6	105.1	0.0	15.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	11.3	0.3	0.0	6.2	0.0	0.0	7.8	9.7	34.3	9.9	0.0	5.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	207.3	1.6	0.0	52.4	0.1	0.1	69.2	74.8	623.9	159.3	0.0	67.0
LnGrp LOS	F	A	A	D	A	A	E	E	F	F	A	E
Approach Vol, veh/h		1609			3076			1223			556	
Approach Delay, s/veh		26.6			7.5			303.1			132.1	
Approach LOS		C			A			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.6	114.9	21.2	19.3	15.0	120.5	16.5	24.0
Change Period (Y+Rc), s	4.4	6.4	4.4	4.9	4.4	* 6.4	4.9	* 5.5
Max Green Setting (Gmax), s	16.2	53.0	16.8	13.9	10.6	* 60	11.6	* 19
Max Q Clear Time (g_c+I1), s	16.9	10.1	17.3	12.9	12.6	2.0	13.6	20.5
Green Ext Time (p_c), s	0.0	21.7	0.0	0.1	0.0	51.6	0.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		78.9
HCM 6th LOS		E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑↑	↱		↑↑	↱				↰↰		↱↱
Traffic Volume (veh/h)	0	1620	330	0	1410	510	0	0	0	690	0	1420
Future Volume (veh/h)	0	1620	330	0	1410	510	0	0	0	690	0	1420
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	0	2116	1870				1870	0	1870
Adj Flow Rate, veh/h	0	1742	0	0	1500	0				821	0	1690
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94				0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	0	2	2				2	0	2
Cap, veh/h	104	2639		0	1444					1552	0	1416
Arrive On Green	0.00	0.91	0.00	0.00	0.72	0.00				0.45	0.00	0.45
Sat Flow, veh/h	1781	5778	1585	0	4127	1585				3456	0	2790
Grp Volume(v), veh/h	0	1742	0	0	1500	0				821	0	1690
Grp Sat Flow(s),veh/h/ln	1781	1926	1585	0	2011	1585				1728	0	1395
Q Serve(g_s), s	0.0	7.9	0.0	0.0	43.1	0.0				20.6	0.0	53.9
Cycle Q Clear(g_c), s	0.0	7.9	0.0	0.0	43.1	0.0				20.6	0.0	53.9
Prop In Lane	1.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	104	2639		0	1444					1552	0	1416
V/C Ratio(X)	0.00	0.66		0.00	1.04					0.53	0.00	1.19
Avail Cap(c_a), veh/h	104	2639		0	1444					1552	0	1416
HCM Platoon Ratio	2.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.00	0.00	0.75	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	3.2	0.0	0.0	16.9	0.0				23.9	0.0	29.6
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	31.3	0.0				0.2	0.0	94.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	1.4	0.0	0.0	13.0	0.0				8.4	0.0	53.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	3.3	0.0	0.0	48.2	0.0				24.1	0.0	123.9
LnGrp LOS	A	A		A	F					C	A	F
Approach Vol, veh/h		1742			1500						2511	
Approach Delay, s/veh		3.3			48.2						91.3	
Approach LOS		A			D						F	

Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		61.0		59.0	11.7	49.3						
Change Period (Y+Rc), s		6.2		5.1	* 4.7	6.2						
Max Green Setting (Gmax), s		54.8		53.9	* 7	43.1						
Max Q Clear Time (g_c+I1), s		9.9		55.9	0.0	45.1						
Green Ext Time (p_c), s		10.7		0.0	0.0	0.0						

Intersection Summary			
HCM 6th Ctrl Delay			53.4
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1300	1010	0	1360	600	560	0	880	0	0	0
Future Volume (veh/h)	0	1300	1010	0	1360	600	560	0	880	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	2116	1870	1870	2116	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	1327	0	0	1478	0	609	0	957			
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	2	2	2	2	0	2			
Cap, veh/h	0	2775		1	2775		746	0	493			
Arrive On Green	0.00	1.00	0.00	0.00	0.69	0.00	0.22	0.00	0.22			
Sat Flow, veh/h	0	4127	1585	1781	4021	1585	3456	0	2790			
Grp Volume(v), veh/h	0	1327	0	0	1478	0	609	0	957			
Grp Sat Flow(s),veh/h/ln	0	2011	1585	1781	2011	1585	1728	0	1395			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	21.6	0.0	20.1	0.0	25.9			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	21.6	0.0	20.1	0.0	25.9			
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2775		1	2775		746	0	493			
V/C Ratio(X)	0.00	0.48		0.00	0.53		0.82	0.00	1.94			
Avail Cap(c_a), veh/h	0	2775		319	2775		746	0	493			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.75	0.00	0.00	0.48	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	9.1	0.0	44.8	0.0	71.7			
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.0	0.4	0.0	6.6	0.0	431.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	8.0	0.0	9.3	0.0	29.5			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.4	0.0	0.0	9.5	0.0	51.4	0.0	502.9			
LnGrp LOS	A	A		A	A		D	A	F			
Approach Vol, veh/h		1327			1478			1566				
Approach Delay, s/veh		0.4			9.5			327.3				
Approach LOS		A			A			F				

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	89.0				89.0		31.0
Change Period (Y+Rc), s	* 4.7	6.2				6.2		5.1
Max Green Setting (Gmax), s	* 23	56.6				82.8		25.9
Max Q Clear Time (g_c+I1), s	0.0	2.0				23.6		27.9
Green Ext Time (p_c), s	0.0	7.2				8.7		0.0

Intersection Summary	
HCM 6th Ctrl Delay	120.6
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1630	190	190	1350	50	580	30	250	50	10	30
Future Volume (veh/h)	40	1630	190	190	1350	50	580	30	250	50	10	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	1772	207	202	1436	53	690	0	322	63	13	38
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.84	0.84	0.84	0.79	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	2057	1184	188	2115	78	838	0	746	84	17	90
Arrive On Green	0.03	0.51	0.51	0.07	0.71	0.71	0.24	0.00	0.24	0.06	0.06	0.06
Sat Flow, veh/h	1781	4021	1585	3456	3955	146	3563	0	3170	1489	307	1585
Grp Volume(v), veh/h	43	1772	207	202	729	760	690	0	322	76	0	38
Grp Sat Flow(s),veh/h/ln	1781	2011	1585	1728	2011	2090	1781	0	1585	1796	0	1585
Q Serve(g_s), s	3.4	53.9	5.3	7.6	28.3	28.5	25.7	0.0	12.1	5.8	0.0	3.2
Cycle Q Clear(g_c), s	3.4	53.9	5.3	7.6	28.3	28.5	25.7	0.0	12.1	5.8	0.0	3.2
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.83		1.00
Lane Grp Cap(c), veh/h	55	2057	1184	188	1075	1118	838	0	746	102	0	90
V/C Ratio(X)	0.78	0.86	0.17	1.08	0.68	0.68	0.82	0.00	0.43	0.75	0.00	0.42
Avail Cap(c_a), veh/h	69	2057	1184	188	1075	1118	891	0	793	245	0	216
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.61	0.61	0.61	0.56	0.56	0.56	0.89	0.00	0.89	1.00	0.00	1.00
Uniform Delay (d), s/veh	67.3	29.9	5.2	64.9	13.5	13.5	50.8	0.0	45.6	65.0	0.0	63.8
Incr Delay (d2), s/veh	18.2	3.2	0.2	71.1	1.9	1.9	8.1	0.0	1.6	4.0	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	25.3	3.7	5.1	9.7	10.2	12.4	0.0	5.0	2.8	0.0	1.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	85.6	33.0	5.4	136.1	15.4	15.4	58.8	0.0	47.2	69.1	0.0	65.0
LnGrp LOS	F	C	A	F	B	B	E	A	D	E	A	E
Approach Vol, veh/h		2022			1691			1012			114	
Approach Delay, s/veh		31.3			29.8			55.1			67.7	
Approach LOS		C			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	12.0	77.3		12.8	8.7	80.6		37.9				
Change Period (Y+Rc), s	4.4	* 5.7		4.9	4.4	5.7		4.9				
Max Green Setting (Gmax), s	7.6	* 59		19.1	5.4	60.6		35.0				
Max Q Clear Time (g_c+I1), s	9.6	55.9		7.8	5.4	30.5		27.7				
Green Ext Time (p_c), s	0.0	2.9		0.2	0.0	23.1		5.2				

Intersection Summary		
HCM 6th Ctrl Delay		36.6
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	800	1110	60	160	750	280	260	510	140	130	170	290
Future Volume (veh/h)	800	1110	60	160	750	280	260	510	140	130	170	290
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	870	1207	65	174	815	304	361	708	194	178	233	397
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.72	0.72	0.72	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	930	1785	96	224	1029	406	410	763	340	201	769	343
Arrive On Green	0.09	0.15	0.15	0.06	0.26	0.26	0.12	0.21	0.21	0.11	0.22	0.22
Sat Flow, veh/h	3456	3881	209	3456	4021	1585	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	870	625	647	174	815	304	361	708	194	178	233	397
Grp Sat Flow(s),veh/h/ln	1728	2011	2079	1728	2011	1585	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	35.0	41.1	41.2	6.9	26.5	24.7	14.4	27.3	15.3	13.8	7.7	30.3
Cycle Q Clear(g_c), s	35.0	41.1	41.2	6.9	26.5	24.7	14.4	27.3	15.3	13.8	7.7	30.3
Prop In Lane	1.00		0.10	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	930	925	956	224	1029	406	410	763	340	201	769	343
V/C Ratio(X)	0.94	0.68	0.68	0.78	0.79	0.75	0.88	0.93	0.57	0.88	0.30	1.16
Avail Cap(c_a), veh/h	953	925	956	309	1029	406	444	779	348	211	769	343
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.11	0.11	0.11	0.14	0.14	0.14	0.95	0.95	0.95	0.80	0.80	0.80
Uniform Delay (d), s/veh	62.6	49.5	49.5	64.4	48.6	47.9	60.7	53.9	49.2	61.2	46.0	54.9
Incr Delay (d2), s/veh	2.5	0.4	0.4	1.2	0.9	1.8	16.5	16.4	2.0	27.1	0.2	94.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	16.6	22.3	23.1	3.0	13.1	9.8	7.2	13.8	6.2	7.7	3.4	20.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	65.1	49.9	50.0	65.7	49.5	49.8	77.2	70.2	51.2	88.2	46.2	149.2
LnGrp LOS	E	D	D	E	D	D	E	E	D	F	D	F
Approach Vol, veh/h		2142			1293			1263			808	
Approach Delay, s/veh		56.1			51.7			69.3			106.1	
Approach LOS		E			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.5	69.8	21.0	35.7	42.1	41.2	21.2	35.5
Change Period (Y+Rc), s	4.4	* 5.4	4.4	5.4	4.4	5.4	5.4	* 5.4
Max Green Setting (Gmax), s	12.5	* 60	18.0	30.2	38.6	33.6	16.6	* 31
Max Q Clear Time (g_c+I1), s	8.9	43.2	16.4	32.3	37.0	28.5	15.8	29.3
Green Ext Time (p_c), s	0.2	7.3	0.2	0.0	0.6	2.7	0.0	0.7

Intersection Summary		
HCM 6th Ctrl Delay		65.4
HCM 6th LOS		E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	1850	80	80	2270	490	30	60	120	100	60	40
Future Volume (veh/h)	180	1850	80	80	2270	490	30	60	120	100	60	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	2011	87	87	2467	533	35	71	141	149	90	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.67	0.67	0.67
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	122	2835	1118	123	2227	464	111	116	197	103	122	75
Arrive On Green	0.14	1.00	1.00	0.05	0.89	0.89	0.06	0.06	0.06	0.06	0.06	0.06
Sat Flow, veh/h	1781	4021	1585	3456	3313	690	1781	1870	3170	1781	2111	1301
Grp Volume(v), veh/h	196	2011	87	87	1462	1538	35	71	141	149	75	75
Grp Sat Flow(s),veh/h/ln	1781	2011	1585	1728	2011	1992	1781	1870	1585	1781	1777	1636
Q Serve(g_s), s	9.6	0.0	0.0	3.5	94.1	94.1	2.6	5.2	6.1	8.1	5.8	6.4
Cycle Q Clear(g_c), s	9.6	0.0	0.0	3.5	94.1	94.1	2.6	5.2	6.1	8.1	5.8	6.4
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		0.80
Lane Grp Cap(c), veh/h	122	2835	1118	123	1352	1339	111	116	197	103	103	95
V/C Ratio(X)	1.60	0.71	0.08	0.70	1.08	1.15	0.32	0.61	0.72	1.45	0.73	0.80
Avail Cap(c_a), veh/h	122	2835	1118	123	1352	1339	536	562	953	103	103	95
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.40	0.40	0.40	0.09	0.09	0.09	1.00	1.00	1.00	0.99	0.99	0.99
Uniform Delay (d), s/veh	60.4	0.0	0.0	65.9	7.4	7.4	62.8	64.0	64.4	65.9	64.9	65.1
Incr Delay (d2), s/veh	286.9	0.6	0.1	1.4	38.1	67.9	0.6	1.9	1.8	246.3	32.8	45.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.7	0.2	0.0	1.5	19.4	30.3	1.2	2.5	2.5	10.7	3.5	3.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	347.3	0.6	0.1	67.4	45.5	75.3	63.4	66.0	66.3	312.2	97.7	111.0
LnGrp LOS	F	A	A	E	F	F	E	E	E	F	F	F
Approach Vol, veh/h		2294			3087			247			299	
Approach Delay, s/veh		30.2			61.0			65.8			207.9	
Approach LOS		C			E			E			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	9.4	104.0		13.0	14.0	99.4		13.6				
Change Period (Y+Rc), s	4.4	5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	5.0	65.3		8.1	9.6	60.7		42.1				
Max Q Clear Time (g_c+I1), s	5.5	2.0		10.1	11.6	96.1		8.1				
Green Ext Time (p_c), s	0.0	56.4		0.0	0.0	0.0		0.6				

Intersection Summary		
HCM 6th Ctrl Delay		56.7
HCM 6th LOS		E

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	1620	70	200	2650	1080	150	330	340	220	50	40
Future Volume (veh/h)	380	1620	70	200	2650	1080	150	330	340	220	50	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	409	1742	75	217	2880	1174	192	423	436	239	54	43
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.78	0.78	0.78	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	514	2253	888	247	1916	1329	138	644	705	163	372	267
Arrive On Green	0.30	1.00	1.00	0.07	0.48	0.48	0.04	0.18	0.18	0.05	0.19	0.19
Sat Flow, veh/h	3456	4021	1585	3456	4021	2790	3456	3554	2790	3456	1975	1417
Grp Volume(v), veh/h	409	1742	75	217	2880	1174	192	423	436	239	48	49
Grp Sat Flow(s),veh/h/ln	1728	2011	1585	1728	2011	1395	1728	1777	1395	1728	1777	1615
Q Serve(g_s), s	15.2	0.0	0.0	8.7	66.7	41.4	5.6	15.5	19.4	6.6	3.2	3.6
Cycle Q Clear(g_c), s	15.2	0.0	0.0	8.7	66.7	41.4	5.6	15.5	19.4	6.6	3.2	3.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.88
Lane Grp Cap(c), veh/h	514	2253	888	247	1916	1329	138	644	705	163	335	304
V/C Ratio(X)	0.80	0.77	0.08	0.88	1.50	0.88	1.39	0.66	0.62	1.47	0.14	0.16
Avail Cap(c_a), veh/h	514	2253	888	247	1916	1329	138	939	937	163	478	435
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.23	0.23	0.23	1.00	1.00	1.00	0.80	0.80	0.80	0.96	0.96	0.96
Uniform Delay (d), s/veh	47.2	0.0	0.0	64.4	36.6	20.0	67.2	53.3	46.3	66.7	47.4	47.6
Incr Delay (d2), s/veh	2.1	0.6	0.0	28.3	229.2	8.8	206.6	0.9	0.7	239.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.2	0.0	4.7	91.7	14.3	6.4	6.9	6.7	8.3	1.4	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	49.3	0.6	0.0	92.7	265.9	28.8	273.8	54.2	47.1	306.1	47.6	47.8
LnGrp LOS	D	A	A	F	F	C	F	D	D	F	D	D
Approach Vol, veh/h		2226			4271			1051			336	
Approach Delay, s/veh		9.5			191.9			91.3			231.5	
Approach LOS		A			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.4	83.9	10.0	31.7	26.3	72.0	11.0	30.7
Change Period (Y+Rc), s	4.4	5.5	4.4	5.3	5.5	* 5.3	4.4	* 5.3
Max Green Setting (Gmax), s	10.0	67.1	5.6	37.7	10.6	* 67	6.6	* 37
Max Q Clear Time (g_c+I1), s	17.2	2.0	7.6	5.6	17.2	68.7	8.6	21.4
Green Ext Time (p_c), s	0.0	22.7	0.0	0.5	0.0	0.0	0.0	4.0

Intersection Summary	
HCM 6th Ctrl Delay	128.7
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1590	590	0	1990	620	0	0	0	860	0	1830
Future Volume (veh/h)	0	1590	590	0	1990	620	0	0	0	860	0	1830
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	0	2116	1870				1870	0	1870
Adj Flow Rate, veh/h	0	1728	641	0	2073	646				1117	0	2377
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96				0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	0	2	2				2	0	2
Cap, veh/h	479	1986	693	0	1491	923				731	0	1341
Arrive On Green	0.00	0.68	0.68	0.00	0.37	0.37				0.21	0.00	0.21
Sat Flow, veh/h	1781	2924	1020	0	4127	1585				3456	0	2790
Grp Volume(v), veh/h	0	1154	1215	0	2073	646				1117	0	2377
Grp Sat Flow(s),veh/h/ln	1781	2011	1933	0	2011	1585				1728	0	1395
Q Serve(g_s), s	0.0	51.9	65.1	0.0	44.5	34.5				25.4	0.0	25.4
Cycle Q Clear(g_c), s	0.0	51.9	65.1	0.0	44.5	34.5				25.4	0.0	25.4
Prop In Lane	1.00		0.53	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	479	1366	1313	0	1491	923				731	0	1341
V/C Ratio(X)	0.00	0.85	0.93	0.00	1.39	0.70				1.53	0.00	1.77
Avail Cap(c_a), veh/h	479	1366	1313	0	1491	923				731	0	1341
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	0.43	0.43				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	14.5	16.6	0.0	37.8	17.7				47.3	0.0	31.2
Incr Delay (d2), s/veh	0.0	6.6	12.4	0.0	177.4	1.9				244.1	0.0	350.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	21.8	27.8	0.0	57.4	19.5				35.7	0.0	99.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	21.1	29.0	0.0	215.1	19.6				291.4	0.0	381.6
LnGrp LOS	A	C	C	A	F	B				F	A	F
Approach Vol, veh/h		2369			2719						3494	
Approach Delay, s/veh		25.2			168.7						352.8	
Approach LOS		C			F						F	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		89.0		31.0	37.0	52.0
Change Period (Y+Rc), s		7.5		5.6	* 4.7	7.5
Max Green Setting (Gmax), s		81.5		25.4	* 32	44.5
Max Q Clear Time (g_c+I1), s		67.1		27.4	0.0	46.5
Green Ext Time (p_c), s		10.6		0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	204.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1470	980	0	1510	590	1100	0	710	0	0	0
Future Volume (veh/h)	0	1470	980	0	1510	590	1100	0	710	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	2116	1870	0	2116	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	1598	1065	0	1573	615	1250	0	807			
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.88	0.88	0.88			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	2228	1412	0	2286	866	1163	0	939			
Arrive On Green	0.00	1.00	1.00	0.00	0.55	0.55	0.34	0.00	0.34			
Sat Flow, veh/h	0	4127	1585	0	4315	1563	3456	0	2790			
Grp Volume(v), veh/h	0	1598	1065	0	1466	722	1250	0	807			
Grp Sat Flow(s),veh/h/ln	0	2011	1585	0	1926	1835	1728	0	1395			
Q Serve(g_s), s	0.0	0.0	66.5	0.0	32.9	34.7	40.4	0.0	32.4			
Cycle Q Clear(g_c), s	0.0	0.0	66.5	0.0	32.9	34.7	40.4	0.0	32.4			
Prop In Lane	0.00		1.00	0.00		0.85	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2228	1412	0	2135	1017	1163	0	939			
V/C Ratio(X)	0.00	0.72	0.75	0.00	0.69	0.71	1.07	0.00	0.86			
Avail Cap(c_a), veh/h	0	2228	1412	0	2135	1017	1163	0	939			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.09	0.09	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	19.3	19.7	39.8	0.0	37.1			
Incr Delay (d2), s/veh	0.0	0.2	0.4	0.0	1.8	4.2	48.8	0.0	7.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.0	13.6	14.3	24.7	0.0	11.9			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	0.4	0.0	21.1	23.9	88.6	0.0	44.9			
LnGrp LOS	A	A	A	A	C	C	F	A	D			
Approach Vol, veh/h		2663			2188			2057				
Approach Delay, s/veh		0.3			22.0			71.5				
Approach LOS		A			C			E				
Timer - Assigned Phs		2				6		8				
Phs Duration (G+Y+Rc), s		74.0				74.0		46.0				
Change Period (Y+Rc), s		7.5				7.5		5.6				
Max Green Setting (Gmax), s		46.0				66.5		40.4				
Max Q Clear Time (g_c+I1), s		68.5				36.7		42.4				
Green Ext Time (p_c), s		0.0				12.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			28.3									
HCM 6th LOS			C									

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	2020	160	360	2000	150	1050
Future Volume (veh/h)	2020	160	360	2000	150	1050
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	2196	174	391	2174	160	1117
Peak Hour Factor	0.92	0.92	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	2739	215	485	3884	197	701
Arrive On Green	0.57	0.57	0.14	0.76	0.11	0.11
Sat Flow, veh/h	4996	379	3456	5274	1781	2790
Grp Volume(v), veh/h	1542	828	391	2174	160	1117
Grp Sat Flow(s),veh/h/ln	1702	1802	1728	1702	1781	1395
Q Serve(g_s), s	29.8	30.6	9.1	14.8	7.3	9.2
Cycle Q Clear(g_c), s	29.8	30.6	9.1	14.8	7.3	9.2
Prop In Lane		0.21	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1931	1022	485	3884	197	701
V/C Ratio(X)	0.80	0.81	0.81	0.56	0.81	1.59
Avail Cap(c_a), veh/h	1931	1022	939	4323	197	701
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.2	14.4	34.6	4.1	36.1	31.1
Incr Delay (d2), s/veh	2.8	5.6	1.2	0.3	20.7	274.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	11.1	3.6	2.3	4.1	33.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	17.0	20.0	35.8	4.5	56.8	305.4
LnGrp LOS	B	C	D	A	E	F
Approach Vol, veh/h	2370			2565	1277	
Approach Delay, s/veh	18.1			9.3	274.3	
Approach LOS	B			A	F	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	16.1	53.5				69.6		13.6
Change Period (Y+Rc), s	4.4	6.3				* 6.3		4.4
Max Green Setting (Gmax), s	22.6	43.1				* 70		9.2
Max Q Clear Time (g_c+I1), s	11.1	32.6				16.8		11.2
Green Ext Time (p_c), s	0.6	10.1				46.5		0.0

Intersection Summary		
HCM 6th Ctrl Delay		67.1
HCM 6th LOS		E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	250	60	180	390	280	30	30	100	140	40	30
Future Volume (veh/h)	40	250	60	180	390	280	30	30	100	140	40	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	272	65	196	424	304	40	40	133	146	123	42
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.75	0.75	0.75	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	63	453	384	306	552	467	259	272	371	268	201	69
Arrive On Green	0.04	0.24	0.24	0.09	0.29	0.29	0.15	0.15	0.15	0.15	0.15	0.15
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585	1781	1870	1585	1781	1333	455
Grp Volume(v), veh/h	43	272	65	196	424	304	40	40	133	146	0	165
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585	1781	1870	1585	1781	0	1788
Q Serve(g_s), s	1.3	6.8	1.7	2.9	10.9	8.8	1.0	1.0	3.7	4.0	0.0	4.5
Cycle Q Clear(g_c), s	1.3	6.8	1.7	2.9	10.9	8.8	1.0	1.0	3.7	4.0	0.0	4.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	63	453	384	306	552	467	259	272	371	268	0	270
V/C Ratio(X)	0.68	0.60	0.17	0.64	0.77	0.65	0.15	0.15	0.36	0.54	0.00	0.61
Avail Cap(c_a), veh/h	170	659	558	408	688	583	271	285	382	275	0	276
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.0	17.7	15.7	23.1	16.9	16.1	19.6	19.6	16.8	20.6	0.0	20.9
Incr Delay (d2), s/veh	4.7	1.9	0.3	0.8	4.9	2.4	0.4	0.4	0.8	2.8	0.0	4.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.7	0.6	1.1	4.5	2.9	0.4	0.4	1.3	1.7	0.0	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	19.5	16.0	24.0	21.7	18.5	20.0	19.9	17.6	23.4	0.0	25.4
LnGrp LOS	C	B	B	C	C	B	B	B	B	C	A	C
Approach Vol, veh/h		380			924			213			311	
Approach Delay, s/veh		20.1			21.2			18.5			24.5	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.0	18.1		12.8	6.3	20.9		12.5
Change Period (Y+Rc), s	4.4	* 5.4		4.9	4.4	5.4		4.9
Max Green Setting (Gmax), s	6.2	* 19		8.1	5.0	19.3		8.0
Max Q Clear Time (g_c+I1), s	4.9	8.8		6.5	3.3	12.9		5.7
Green Ext Time (p_c), s	0.0	1.6		0.3	0.0	2.6		0.2

Intersection Summary		
HCM 6th Ctrl Delay		21.2
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	310	180	340	850	0	0
Future Volume (veh/h)	310	180	340	850	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870		
Adj Flow Rate, veh/h	337	196	370	924		
Peak Hour Factor	0.92	0.92	0.92	0.92		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	519	302	617	1527		
Arrive On Green	0.47	0.47	0.18	0.82		
Sat Flow, veh/h	1109	645	3456	1870		
Grp Volume(v), veh/h	0	533	370	924		
Grp Sat Flow(s),veh/h/ln	0	1754	1728	1870		
Q Serve(g_s), s	0.0	6.4	2.7	5.0		
Cycle Q Clear(g_c), s	0.0	6.4	2.7	5.0		
Prop In Lane		0.37	1.00			
Lane Grp Cap(c), veh/h	0	822	617	1527		
V/C Ratio(X)	0.00	0.65	0.60	0.61		
Avail Cap(c_a), veh/h	0	1346	1108	2426		
HCM Platoon Ratio	1.00	1.00	1.00	1.00		
Upstream Filter(I)	0.00	1.00	1.00	1.00		
Uniform Delay (d), s/veh	0.0	5.6	10.5	0.9		
Incr Delay (d2), s/veh	0.0	0.9	0.9	0.4		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	0.8	0.7	0.2		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	6.5	11.4	1.3		
LnGrp LOS	A	A	B	A		
Approach Vol, veh/h	533			1294		
Approach Delay, s/veh	6.5			4.2		
Approach LOS	A			A		
Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	9.7	18.1				27.8
Change Period (Y+Rc), s	* 4.7	5.1				* 5.1
Max Green Setting (Gmax), s	* 8.9	21.3				* 36
Max Q Clear Time (g_c+I1), s	4.7	8.4				7.0
Green Ext Time (p_c), s	0.5	2.7				7.8
Intersection Summary						
HCM 6th Ctrl Delay			4.9			
HCM 6th LOS			A			

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	310	0	0	720	30	370	280	450	0	0	100
Future Volume (veh/h)	0	310	0	0	720	30	370	280	450	0	0	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	0	0	2116	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	0	337	0	0	783	33	342	361	474	0	0	130
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	0	2	2
Cap, veh/h	3	951	0	0	906	38	609	717	608	0	717	467
Arrive On Green	0.00	0.45	0.00	0.00	0.45	0.45	0.38	0.38	0.38	0.00	0.00	0.38
Sat Flow, veh/h	1781	2116	0	0	2016	85	1260	1870	1585	0	1870	1585
Grp Volume(v), veh/h	0	337	0	0	0	816	342	361	474	0	0	130
Grp Sat Flow(s),veh/h/ln	1781	2116	0	0	0	2101	1260	1870	1585	0	1870	1585
Q Serve(g_s), s	0.0	6.0	0.0	0.0	0.0	20.1	13.2	8.5	15.1	0.0	0.0	8.7
Cycle Q Clear(g_c), s	0.0	6.0	0.0	0.0	0.0	20.1	13.2	8.5	15.1	0.0	0.0	8.7
Prop In Lane	1.00		0.00	0.00		0.04	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	3	951	0	0	0	944	609	717	608	0	717	467
V/C Ratio(X)	0.00	0.35	0.00	0.00	0.00	0.86	0.56	0.50	0.78	0.00	0.00	0.28
Avail Cap(c_a), veh/h	344	2408	0	0	0	1798	838	1058	896	0	717	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	0.00	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	10.4	0.0	0.0	0.0	14.2	15.0	13.5	15.6	0.0	0.0	61.9
Incr Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	1.0	0.8	0.5	2.7	0.0	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.2	0.0	0.0	0.0	7.5	3.4	3.2	5.2	0.0	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	10.4	0.0	0.0	0.0	15.2	15.8	14.1	18.2	0.0	0.0	62.3
LnGrp LOS	A	B	A	A	A	B	B	B	B	A	A	E
Approach Vol, veh/h		337			816			1177			130	
Approach Delay, s/veh		10.4			15.2			16.3			62.3	
Approach LOS		B			B			B			E	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		30.9		26.5	0.0	30.9		26.5				
Change Period (Y+Rc), s		5.1		4.5	5.1	5.1		4.5				
Max Green Setting (Gmax), s		65.4		18.0	11.1	49.2		32.5				
Max Q Clear Time (g_c+I1), s		8.0		10.7	0.0	22.1		17.1				
Green Ext Time (p_c), s		1.2		0.2	0.0	3.7		4.9				
Intersection Summary												
HCM 6th Ctrl Delay			17.5									
HCM 6th LOS			B									

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	600	100	50	660	30	40	10	30	10	20	50
Future Volume (veh/h)	60	600	100	50	660	30	40	10	30	10	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	652	109	54	710	32	51	13	38	16	32	79
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.78	0.78	0.78	0.63	0.63	0.63
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	84	1587	265	539	2834	128	109	28	51	51	48	100
Arrive On Green	0.05	0.46	0.46	0.30	0.72	0.72	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1781	3448	576	1781	3919	177	620	297	545	136	515	1072
Grp Volume(v), veh/h	65	380	381	54	364	378	102	0	0	127	0	0
Grp Sat Flow(s),veh/h/ln	1781	2011	2013	1781	2011	2085	1462	0	0	1724	0	0
Q Serve(g_s), s	3.8	13.3	13.4	2.3	6.5	6.5	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	3.8	13.3	13.4	2.3	6.5	6.5	7.2	0.0	0.0	7.5	0.0	0.0
Prop In Lane	1.00		0.29	1.00		0.08	0.50		0.37	0.13		0.62
Lane Grp Cap(c), veh/h	84	926	927	539	1454	1507	187	0	0	198	0	0
V/C Ratio(X)	0.77	0.41	0.41	0.10	0.25	0.25	0.55	0.00	0.00	0.64	0.00	0.00
Avail Cap(c_a), veh/h	296	926	927	539	1454	1507	408	0	0	446	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.88	0.88	0.88	0.83	0.83	0.83	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	49.9	19.0	19.0	26.6	5.0	5.0	46.7	0.0	0.0	47.1	0.0	0.0
Incr Delay (d2), s/veh	4.9	1.2	1.2	0.0	0.3	0.3	1.8	0.0	0.0	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	6.2	6.2	1.0	2.3	2.4	2.7	0.0	0.0	3.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	54.9	20.2	20.2	26.6	5.3	5.3	48.6	0.0	0.0	48.4	0.0	0.0
LnGrp LOS	D	C	C	C	A	A	D	A	A	D	A	A
Approach Vol, veh/h		826			796			102			127	
Approach Delay, s/veh		22.9			6.7			48.6			48.4	
Approach LOS		C			A			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	37.2	54.0		14.8	9.4	81.8		14.8
Change Period (Y+Rc), s	5.2	* 5.2		4.9	4.4	5.2		4.9
Max Green Setting (Gmax), s	16.6	* 49		26.1	17.6	47.8		26.1
Max Q Clear Time (g_c+I1), s	14.3	15.4		9.5	5.8	8.5		9.2
Green Ext Time (p_c), s	0.0	10.1		0.4	0.0	8.7		0.4

Intersection Summary		
HCM 6th Ctrl Delay		19.1
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	510	70	90	500	200	160	440	110	90	90	80
Future Volume (veh/h)	60	510	70	90	500	200	160	440	110	90	90	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	554	76	98	543	217	188	518	129	106	106	94
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	159	804	110	125	703	280	296	731	326	510	951	497
Arrive On Green	0.05	0.23	0.23	0.07	0.25	0.25	0.09	0.21	0.21	0.15	0.27	0.27
Sat Flow, veh/h	3456	3554	486	1781	2807	1118	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	65	313	317	98	388	372	188	518	129	106	106	94
Grp Sat Flow(s),veh/h/ln	1728	2011	2029	1781	2011	1915	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	1.0	7.7	7.7	2.9	9.7	9.7	2.8	7.3	3.8	1.5	1.2	2.3
Cycle Q Clear(g_c), s	1.0	7.7	7.7	2.9	9.7	9.7	2.8	7.3	3.8	1.5	1.2	2.3
Prop In Lane	1.00		0.24	1.00		0.58	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	455	459	125	503	479	296	731	326	510	951	497
V/C Ratio(X)	0.41	0.69	0.69	0.78	0.77	0.78	0.64	0.71	0.40	0.21	0.11	0.19
Avail Cap(c_a), veh/h	269	477	481	205	551	525	455	797	355	640	988	514
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.0	19.1	19.2	24.7	18.8	18.8	23.9	19.9	18.5	20.2	14.9	13.5
Incr Delay (d2), s/veh	0.6	4.8	4.8	4.0	7.1	7.6	0.8	5.7	3.5	0.1	0.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	3.7	3.7	1.2	4.8	4.7	1.1	3.3	1.6	0.5	0.5	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.6	23.9	24.0	28.6	25.9	26.4	24.7	25.6	22.0	20.3	15.1	14.0
LnGrp LOS	C	C	C	C	C	C	C	C	C	C	B	B
Approach Vol, veh/h		695			858			835			306	
Approach Delay, s/veh		24.1			26.4			24.9			16.6	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.2	17.4	9.0	19.3	6.9	18.7	12.4	16.0
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	5.2	4.4	4.9
Max Green Setting (Gmax), s	6.2	12.8	7.1	15.0	4.2	14.8	10.0	12.1
Max Q Clear Time (g_c+I1), s	4.9	9.7	4.8	4.3	3.0	11.7	3.5	9.3
Green Ext Time (p_c), s	0.0	1.5	0.1	1.3	0.0	1.8	0.1	1.8

Intersection Summary	
HCM 6th Ctrl Delay	24.2
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	500	60	180	440	160	110	290	190	70	200	60
Future Volume (veh/h)	190	500	60	180	440	160	110	290	190	70	200	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	196	515	62	196	478	174	153	403	264	99	282	85
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.72	0.72	0.72	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	260	1374	165	570	1020	764	245	649	302	125	400	179
Arrive On Green	0.08	0.38	0.38	0.05	0.16	0.16	0.14	0.19	0.19	0.07	0.11	0.11
Sat Flow, veh/h	3456	3615	434	3456	2116	1585	1781	3404	1585	1781	3554	1585
Grp Volume(v), veh/h	196	286	291	196	478	174	153	403	264	99	282	85
Grp Sat Flow(s),veh/h/ln	1728	2011	2038	1728	2116	1585	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	5.9	10.9	11.0	5.8	21.8	10.2	8.6	11.5	17.1	5.8	8.1	4.3
Cycle Q Clear(g_c), s	5.9	10.9	11.0	5.8	21.8	10.2	8.6	11.5	17.1	5.8	8.1	4.3
Prop In Lane	1.00		0.21	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	260	764	775	570	1020	764	245	649	302	125	400	179
V/C Ratio(X)	0.75	0.37	0.38	0.34	0.47	0.23	0.62	0.62	0.87	0.79	0.70	0.48
Avail Cap(c_a), veh/h	378	764	775	570	1020	764	313	668	311	229	520	232
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.91	0.91	0.91	0.75	0.75	0.75	0.75	0.75	0.75	0.99	0.99	0.99
Uniform Delay (d), s/veh	48.0	23.7	23.8	44.6	32.2	27.4	43.1	39.4	41.7	48.5	45.3	28.9
Incr Delay (d2), s/veh	2.1	1.3	1.3	0.1	1.2	0.5	0.7	2.5	20.5	4.2	8.9	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	5.2	5.3	2.5	12.6	4.2	3.7	4.9	8.2	2.7	4.0	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	50.2	25.0	25.0	44.7	33.4	27.9	43.9	41.9	62.2	52.8	54.2	36.7
LnGrp LOS	D	C	C	D	C	C	D	D	E	D	D	D
Approach Vol, veh/h		773			848			820			466	
Approach Delay, s/veh		31.4			34.9			48.8			50.7	
Approach LOS		C			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.8	25.4	22.8	46.0	19.8	17.4	12.4	56.4
Change Period (Y+Rc), s	4.4	5.2	5.3	* 5.7	5.2	* 5.5	4.4	5.3
Max Green Setting (Gmax), s	13.6	20.8	11.6	* 40	18.6	* 16	11.6	40.7
Max Q Clear Time (g_c+I1), s	7.8	19.1	7.8	13.0	10.6	10.1	7.9	23.8
Green Ext Time (p_c), s	0.0	1.0	0.1	5.7	0.1	1.8	0.1	7.5

Intersection Summary	
HCM 6th Ctrl Delay	40.4
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↱		↰	↑↱		↰	↱		↰	↱	
Traffic Volume (veh/h)	150	500	30	120	560	100	80	70	100	130	60	140
Future Volume (veh/h)	150	500	30	120	560	100	80	70	100	130	60	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	163	543	33	130	609	109	157	137	196	149	69	161
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.51	0.51	0.51	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	195	1450	88	159	1214	217	187	176	252	179	124	288
Arrive On Green	0.04	0.12	0.12	0.09	0.36	0.36	0.11	0.25	0.25	0.10	0.25	0.25
Sat Flow, veh/h	1781	3851	234	1781	3409	609	1781	696	995	1781	498	1163
Grp Volume(v), veh/h	163	283	293	130	359	359	157	0	333	149	0	230
Grp Sat Flow(s),veh/h/ln	1781	2011	2074	1781	2011	2007	1781	0	1691	1781	0	1661
Q Serve(g_s), s	9.6	13.7	13.8	7.6	14.8	14.9	9.2	0.0	19.4	8.7	0.0	12.8
Cycle Q Clear(g_c), s	9.6	13.7	13.8	7.6	14.8	14.9	9.2	0.0	19.4	8.7	0.0	12.8
Prop In Lane	1.00		0.11	1.00		0.30	1.00		0.59	1.00		0.70
Lane Grp Cap(c), veh/h	195	757	781	159	716	715	187	0	428	179	0	412
V/C Ratio(X)	0.83	0.37	0.38	0.82	0.50	0.50	0.84	0.00	0.78	0.83	0.00	0.56
Avail Cap(c_a), veh/h	262	757	781	259	716	715	262	0	428	245	0	412
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	0.36	0.36	0.36	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	50.1	34.9	35.0	47.4	26.7	26.8	46.5	0.0	36.8	46.8	0.0	34.8
Incr Delay (d2), s/veh	11.3	1.3	1.3	1.5	0.9	0.9	11.3	0.0	13.1	12.0	0.0	5.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	7.6	7.9	3.4	7.0	7.0	4.7	0.0	9.6	4.5	0.0	5.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	61.5	36.2	36.2	48.9	27.7	27.7	57.9	0.0	49.9	58.8	0.0	40.2
LnGrp LOS	E	D	D	D	C	C	E	A	D	E	A	D
Approach Vol, veh/h		739			848			490			379	
Approach Delay, s/veh		41.8			30.9			52.5			47.5	
Approach LOS		D			C			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.9	45.1	15.5	31.5	16.0	42.9	15.0	32.0
Change Period (Y+Rc), s	4.4	5.2	4.4	5.2	4.4	5.2	4.4	5.2
Max Green Setting (Gmax), s	15.4	30.0	15.6	25.8	15.6	29.8	14.6	26.8
Max Q Clear Time (g_c+I1), s	9.6	15.8	11.2	14.8	11.6	16.9	10.7	21.4
Green Ext Time (p_c), s	0.1	4.4	0.1	1.5	0.1	5.2	0.1	1.4

Intersection Summary	
HCM 6th Ctrl Delay	41.1
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	900	50	50	530	50	80	0	30	70	0	70
Future Volume (veh/h)	100	900	50	50	530	50	80	0	30	70	0	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	978	54	54	576	54	108	0	41	93	0	93
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.74	0.74	0.74	0.75	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	1131	62	68	1007	94	219	15	53	357	0	282
Arrive On Green	0.08	0.57	0.57	0.04	0.53	0.53	0.18	0.00	0.18	0.18	0.00	0.18
Sat Flow, veh/h	1781	1987	110	1781	1906	179	707	83	300	1366	0	1585
Grp Volume(v), veh/h	109	0	1032	54	0	630	149	0	0	93	0	93
Grp Sat Flow(s),veh/h/ln	1781	0	2097	1781	0	2084	1090	0	0	1366	0	1585
Q Serve(g_s), s	4.0	0.0	27.8	2.0	0.0	13.6	6.0	0.0	0.0	0.0	0.0	3.4
Cycle Q Clear(g_c), s	4.0	0.0	27.8	2.0	0.0	13.6	9.4	0.0	0.0	3.9	0.0	3.4
Prop In Lane	1.00		0.05	1.00		0.09	0.72		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	140	0	1193	68	0	1102	287	0	0	357	0	282
V/C Ratio(X)	0.78	0.00	0.86	0.80	0.00	0.57	0.52	0.00	0.00	0.26	0.00	0.33
Avail Cap(c_a), veh/h	238	0	1367	112	0	1215	622	0	0	690	0	669
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.1	0.0	12.2	31.8	0.0	10.6	27.2	0.0	0.0	24.1	0.0	23.9
Incr Delay (d2), s/veh	3.5	0.0	5.7	7.8	0.0	0.8	0.5	0.0	0.0	0.1	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	11.8	1.0	0.0	5.3	2.2	0.0	0.0	1.2	0.0	1.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.6	0.0	17.9	39.5	0.0	11.4	27.7	0.0	0.0	24.2	0.0	24.1
LnGrp LOS	C	A	B	D	A	B	C	A	A	C	A	C
Approach Vol, veh/h		1141			684			149			186	
Approach Delay, s/veh		19.4			13.6			27.7			24.2	
Approach LOS		B			B			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	42.9		16.7	9.6	40.2		16.7				
Change Period (Y+Rc), s	4.4	5.0		4.9	4.4	* 5		4.9				
Max Green Setting (Gmax), s	4.2	43.4		28.1	8.9	* 39		28.1				
Max Q Clear Time (g_c+I1), s	4.0	29.8		5.9	6.0	15.6		11.4				
Green Ext Time (p_c), s	0.0	8.1		0.5	0.0	6.9		0.5				

Intersection Summary			
HCM 6th Ctrl Delay			18.5
HCM 6th LOS			B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	400	590	40	20	220	90	60	170	150	70	80	240
Future Volume (veh/h)	400	590	40	20	220	90	60	170	150	70	80	240
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	435	641	43	22	239	98	77	218	192	85	98	293
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.78	0.78	0.78	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	558	759	51	36	1041	578	72	206	191	212	222	188
Arrive On Green	0.16	0.39	0.39	0.02	0.25	0.25	0.14	0.14	0.14	0.12	0.12	0.12
Sat Flow, veh/h	3456	1961	132	1781	4233	1585	531	1517	1412	1781	1870	1585
Grp Volume(v), veh/h	435	0	684	22	239	98	267	0	220	85	98	293
Grp Sat Flow(s),veh/h/ln	1728	0	2093	1781	2116	1585	1844	0	1616	1781	1870	1585
Q Serve(g_s), s	7.2	0.0	17.8	0.7	2.7	2.5	8.1	0.0	8.1	2.6	2.9	7.1
Cycle Q Clear(g_c), s	7.2	0.0	17.8	0.7	2.7	2.5	8.1	0.0	8.1	2.6	2.9	7.1
Prop In Lane	1.00		0.06	1.00		1.00	0.29		0.87	1.00		1.00
Lane Grp Cap(c), veh/h	558	0	810	36	1041	578	250	0	219	212	222	188
V/C Ratio(X)	0.78	0.00	0.84	0.60	0.23	0.17	1.07	0.00	1.00	0.40	0.44	1.56
Avail Cap(c_a), veh/h	804	0	900	119	1113	605	250	0	219	212	222	188
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.0	0.0	16.7	29.0	18.0	12.8	25.8	0.0	25.8	24.4	24.5	26.3
Incr Delay (d2), s/veh	1.8	0.0	7.9	5.8	0.1	0.2	76.3	0.0	61.6	1.7	2.0	274.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	0.0	9.0	0.3	1.2	1.0	8.7	0.0	6.7	1.1	1.3	16.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.8	0.0	24.6	34.8	18.1	13.0	102.1	0.0	87.4	26.1	26.4	300.5
LnGrp LOS	C	A	C	C	B	B	F	A	F	C	C	F
Approach Vol, veh/h		1119			359			487			476	
Approach Delay, s/veh		25.1			17.7			95.4			195.1	
Approach LOS		C			B			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	29.1		12.0	14.0	20.7		13.0				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	4.0	* 26		7.1	13.9	15.7		8.1				
Max Q Clear Time (g_c+I1), s	2.7	19.8		9.1	9.2	4.7		10.1				
Green Ext Time (p_c), s	0.0	3.3		0.0	0.4	1.4		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			71.2
HCM 6th LOS			E

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	730	40	60	230	90	50	30	110	180	30	50
Future Volume (veh/h)	40	730	40	60	230	90	50	30	110	180	30	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	793	43	65	250	98	57	34	125	209	35	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	62	1238	67	82	939	358	49	29	108	279	292	436
Arrive On Green	0.04	0.32	0.32	0.05	0.33	0.33	0.11	0.11	0.11	0.16	0.16	0.16
Sat Flow, veh/h	1781	3879	210	1781	2846	1086	442	263	969	1781	1870	2790
Grp Volume(v), veh/h	43	411	425	65	175	173	216	0	0	209	35	58
Grp Sat Flow(s),veh/h/ln	1781	2011	2079	1781	2011	1921	1674	0	0	1781	1870	1395
Q Serve(g_s), s	1.3	9.6	9.6	2.0	3.5	3.6	6.1	0.0	0.0	6.1	0.9	1.0
Cycle Q Clear(g_c), s	1.3	9.6	9.6	2.0	3.5	3.6	6.1	0.0	0.0	6.1	0.9	1.0
Prop In Lane	1.00		0.10	1.00		0.57	0.26		0.58	1.00		1.00
Lane Grp Cap(c), veh/h	62	642	664	82	664	634	186	0	0	279	292	436
V/C Ratio(X)	0.69	0.64	0.64	0.80	0.26	0.27	1.16	0.00	0.00	0.75	0.12	0.13
Avail Cap(c_a), veh/h	130	878	907	195	947	905	186	0	0	944	991	1478
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	15.9	15.9	25.9	13.5	13.5	24.3	0.0	0.0	22.1	19.9	19.9
Incr Delay (d2), s/veh	4.9	1.9	1.8	6.4	0.3	0.4	114.9	0.0	0.0	1.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	3.8	4.0	0.9	1.3	1.3	8.2	0.0	0.0	2.5	0.4	0.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.1	17.9	17.8	32.3	13.8	13.9	139.3	0.0	0.0	23.6	19.9	19.9
LnGrp LOS	C	B	B	C	B	B	F	A	A	C	B	B
Approach Vol, veh/h		879			413			216			302	
Approach Delay, s/veh		18.5			16.7			139.3			22.5	
Approach LOS		B			B			F			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.9	23.4		13.5	6.3	24.0		11.0				
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9				
Max Green Setting (Gmax), s	6.0	* 24		29.0	4.0	25.8		6.1				
Max Q Clear Time (g_c+I1), s	4.0	11.6		8.1	3.3	5.6		8.1				
Green Ext Time (p_c), s	0.0	5.9		0.5	0.0	2.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay 33.2

HCM 6th LOS C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	270	750	300	880	250	80
Future Volume (veh/h)	270	750	300	880	250	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	2116	2116	1870	1870	1870
Adj Flow Rate, veh/h	293	815	326	957	287	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	423	2497	818	730	499	229
Arrive On Green	0.12	0.62	0.41	0.41	0.14	0.14
Sat Flow, veh/h	3456	4127	2116	1794	3456	1585
Grp Volume(v), veh/h	293	815	326	957	287	92
Grp Sat Flow(s),veh/h/ln	1728	2011	2011	1794	1728	1585
Q Serve(g_s), s	3.9	4.6	5.5	19.6	3.7	2.5
Cycle Q Clear(g_c), s	3.9	4.6	5.5	19.6	3.7	2.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	423	2497	818	730	499	229
V/C Ratio(X)	0.69	0.33	0.40	1.31	0.57	0.40
Avail Cap(c_a), veh/h	545	2639	818	730	509	234
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.3	4.3	10.1	14.3	19.2	18.7
Incr Delay (d2), s/veh	1.4	0.2	0.8	149.6	2.1	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.8	1.9	35.7	1.4	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	21.7	4.5	10.9	163.9	21.3	20.6
LnGrp LOS	C	A	B	F	C	C
Approach Vol, veh/h		1108	1283		379	
Approach Delay, s/veh		9.1	125.0		21.2	
Approach LOS		A	F		C	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		35.9		12.3	10.3	25.6
Change Period (Y+Rc), s		6.0		5.3	4.4	6.0
Max Green Setting (Gmax), s		31.6		7.1	7.6	19.6
Max Q Clear Time (g_c+I1), s		6.6		5.7	5.9	21.6
Green Ext Time (p_c), s		11.0		0.3	0.1	0.0

Intersection Summary			
HCM 6th Ctrl Delay			64.4
HCM 6th LOS			E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	400	600	250	1180
Future Volume (veh/h)	0	0	400	600	250	1180
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			2116	1870	1870	2116
Adj Flow Rate, veh/h			435	652	269	1269
Peak Hour Factor			0.92	0.92	0.93	0.93
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			904	1192	540	3019
Arrive On Green			0.43	0.43	0.16	0.75
Sat Flow, veh/h			2116	2790	3456	4127
Grp Volume(v), veh/h			435	652	269	1269
Grp Sat Flow(s),veh/h/ln			2116	1395	1728	2011
Q Serve(g_s), s			4.2	4.9	2.0	3.2
Cycle Q Clear(g_c), s			4.2	4.9	2.0	3.2
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			904	1192	540	3019
V/C Ratio(X)			0.48	0.55	0.50	0.42
Avail Cap(c_a), veh/h			1507	1986	1021	5154
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			5.8	6.0	10.8	1.3
Incr Delay (d2), s/veh			0.4	0.4	0.7	0.1
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.6	0.5	0.5	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			6.2	6.4	11.6	1.4
LnGrp LOS			A	A	B	A
Approach Vol, veh/h			1087			1538
Approach Delay, s/veh			6.3			3.1
Approach LOS			A			A

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	9.1	19.0				28.1
Change Period (Y+Rc), s	* 4.7	7.0				* 7
Max Green Setting (Gmax), s	* 8.3	20.0				* 36
Max Q Clear Time (g_c+I1), s	4.0	6.9				5.2
Green Ext Time (p_c), s	0.3	4.4				10.4

Intersection Summary	
HCM 6th Ctrl Delay	4.5
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	910	0	820	0	390	0	0	510	0
Future Volume (veh/h)	0	0	0	910	0	820	0	390	0	0	510	0
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	0	1870	1870	2116	0	1870	2116	0
Adj Flow Rate, veh/h				938	0	845	0	424	0	0	554	0
Peak Hour Factor				0.97	0.92	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	2	2	0	2	2	0
Cap, veh/h				1082	0	1107	3	566	0	149	1882	0
Arrive On Green				0.31	0.00	0.31	0.00	0.27	0.00	0.00	0.47	0.00
Sat Flow, veh/h				3456	0	2790	1781	2116	0	1781	4127	0
Grp Volume(v), veh/h				938	0	845	0	424	0	0	554	0
Grp Sat Flow(s),veh/h/ln				1728	0	1395	1781	2116	0	1781	2011	0
Q Serve(g_s), s				15.3	0.0	10.7	0.0	11.0	0.0	0.0	5.1	0.0
Cycle Q Clear(g_c), s				15.3	0.0	10.7	0.0	11.0	0.0	0.0	5.1	0.0
Prop In Lane				1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h				1082	0	1107	3	566	0	149	1882	0
V/C Ratio(X)				0.87	0.00	0.76	0.00	0.75	0.00	0.00	0.29	0.00
Avail Cap(c_a), veh/h				1149	0	1161	149	612	0	149	1882	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				19.4	0.0	15.6	0.0	20.1	0.0	0.0	9.8	0.0
Incr Delay (d2), s/veh				6.5	0.0	2.6	0.0	4.0	0.0	0.0	0.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				6.5	0.0	2.8	0.0	5.2	0.0	0.0	1.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				25.8	0.0	18.2	0.0	24.1	0.0	0.0	9.9	0.0
LnGrp LOS				C	A	B	A	C	A	A	A	A
Approach Vol, veh/h					1783			424			554	
Approach Delay, s/veh					22.2			24.1			9.9	
Approach LOS					C			C			A	
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	12.0	23.0			0.0	35.0		24.8				
Change Period (Y+Rc), s	7.0	* 7			* 4.7	7.0		6.1				
Max Green Setting (Gmax), s	5.0	* 17			* 5	17.3		19.9				
Max Q Clear Time (g_c+I1), s	0.0	13.0			0.0	7.1		17.3				
Green Ext Time (p_c), s	0.0	0.6			0.0	1.6		1.4				
Intersection Summary												
HCM 6th Ctrl Delay			20.0									
HCM 6th LOS			C									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	10	10	1190	20	20	500
Future Volume (veh/h)	10	10	1190	20	20	500
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	2116	1870	1870	2116
Adj Flow Rate, veh/h	40	40	1293	22	21	515
Peak Hour Factor	0.25	0.25	0.92	0.92	0.97	0.97
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	50	50	1495	25	34	1690
Arrive On Green	0.06	0.06	0.72	0.72	0.02	0.80
Sat Flow, veh/h	829	829	2075	35	1781	2116
Grp Volume(v), veh/h	81	0	0	1315	21	515
Grp Sat Flow(s),veh/h/ln	1680	0	0	2110	1781	2116
Q Serve(g_s), s	3.6	0.0	0.0	34.6	0.9	4.9
Cycle Q Clear(g_c), s	3.6	0.0	0.0	34.6	0.9	4.9
Prop In Lane	0.49	0.49		0.02	1.00	
Lane Grp Cap(c), veh/h	101	0	0	1521	34	1690
V/C Ratio(X)	0.80	0.00	0.00	0.86	0.62	0.30
Avail Cap(c_a), veh/h	101	0	0	1595	98	1835
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.7	0.0	0.0	7.8	36.5	2.0
Incr Delay (d2), s/veh	33.4	0.0	0.0	5.7	6.8	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	0.0	0.0	10.3	0.4	0.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	68.2	0.0	0.0	13.5	43.3	2.2
LnGrp LOS	E	A	A	B	D	A
Approach Vol, veh/h	81		1315			536
Approach Delay, s/veh	68.2		13.5			3.8
Approach LOS	E		B			A

Timer - Assigned Phs	1	2	6	8
Phs Duration (G+Y+Rc), s	5.8	59.6	65.5	9.4
Change Period (Y+Rc), s	4.4	* 5.7	5.7	4.9
Max Green Setting (Gmax), s	4.1	* 57	64.9	4.5
Max Q Clear Time (g_c+I1), s	2.9	36.6	6.9	5.6
Green Ext Time (p_c), s	0.0	17.4	7.1	0.0

Intersection Summary	
HCM 6th Ctrl Delay	13.1
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	0	90	30	0	30	690	280	60	30	100	150
Future Volume (veh/h)	30	0	90	30	0	30	690	280	60	30	100	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	32	0	97	91	0	91	750	304	65	33	109	163
Peak Hour Factor	0.93	0.93	0.93	0.33	0.33	0.33	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	292	0	961	174	15	112	796	910	195	48	128	192
Arrive On Green	0.16	0.00	0.16	0.16	0.00	0.16	0.45	0.61	0.61	0.03	0.19	0.19
Sat Flow, veh/h	1182	0	1585	606	97	703	1781	1494	319	1781	677	1012
Grp Volume(v), veh/h	32	0	97	182	0	0	750	0	369	33	0	272
Grp Sat Flow(s),veh/h/ln	1182	0	1585	1406	0	0	1781	0	1813	1781	0	1688
Q Serve(g_s), s	0.0	0.0	1.8	7.1	0.0	0.0	28.0	0.0	6.9	1.3	0.0	10.8
Cycle Q Clear(g_c), s	1.7	0.0	1.8	8.7	0.0	0.0	28.0	0.0	6.9	1.3	0.0	10.8
Prop In Lane	1.00		1.00	0.50		0.50	1.00		0.18	1.00		0.60
Lane Grp Cap(c), veh/h	292	0	961	302	0	0	796	0	1105	48	0	320
V/C Ratio(X)	0.11	0.00	0.10	0.60	0.00	0.00	0.94	0.00	0.33	0.68	0.00	0.85
Avail Cap(c_a), veh/h	422	0	1119	444	0	0	1091	0	1353	151	0	369
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	25.3	0.0	5.7	28.3	0.0	0.0	18.4	0.0	6.7	33.5	0.0	27.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.7	0.0	0.0	11.0	0.0	0.2	6.2	0.0	16.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.5	2.9	0.0	0.0	11.9	0.0	2.0	0.6	0.0	5.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.3	0.0	5.8	29.0	0.0	0.0	29.4	0.0	6.9	39.7	0.0	43.4
LnGrp LOS	C	A	A	C	A	A	C	A	A	D	A	D
Approach Vol, veh/h		129			182			1119			305	
Approach Delay, s/veh		10.6			29.0			22.0			43.0	
Approach LOS		B			C			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.3	47.3		16.0	35.5	18.1		16.0				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9				
Max Green Setting (Gmax), s	5.9	51.9		18.0	42.6	15.2		18.0				
Max Q Clear Time (g_c+I1), s	3.3	8.9		3.8	30.0	12.8		10.7				
Green Ext Time (p_c), s	0.0	3.2		0.2	1.1	0.4		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			25.6									
HCM 6th LOS			C									

Notes

User approved pedestrian interval to be less than phase max green.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	220	260	700	340	60	160
Future Volume (veh/h)	220	260	700	340	60	160
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	306	361	761	370	65	174
Peak Hour Factor	0.72	0.72	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	480	427	973	825	248	973
Arrive On Green	0.27	0.27	0.52	0.52	0.52	0.52
Sat Flow, veh/h	1781	1585	1870	1585	498	1870
Grp Volume(v), veh/h	306	361	761	370	65	174
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	498	1870
Q Serve(g_s), s	7.1	10.2	15.5	6.9	5.7	2.3
Cycle Q Clear(g_c), s	7.1	10.2	15.5	6.9	21.2	2.3
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	480	427	973	825	248	973
V/C Ratio(X)	0.64	0.84	0.78	0.45	0.26	0.18
Avail Cap(c_a), veh/h	608	541	1348	1143	348	1348
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.2	16.3	9.1	7.1	17.7	6.0
Incr Delay (d2), s/veh	0.6	8.0	2.3	0.4	0.7	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.4	3.9	4.4	1.5	0.6	0.6
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	15.8	24.3	11.4	7.5	18.4	6.1
LnGrp LOS	B	C	B	A	B	A
Approach Vol, veh/h	667		1131			239
Approach Delay, s/veh	20.4		10.1			9.4
Approach LOS	C		B			A

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	29.5	29.5	17.6
Change Period (Y+Rc), s	5.0	5.0	4.9
Max Green Setting (Gmax), s	34.0	34.0	16.1
Max Q Clear Time (g_c+I1), s	17.5	23.2	12.2
Green Ext Time (p_c), s	6.9	1.3	0.6

Intersection Summary	
HCM 6th Ctrl Delay	13.4
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	10	40	40	140	100	870	120	70	280	30
Future Volume (veh/h)	20	10	10	40	40	140	100	870	120	70	280	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	30	15	15	49	49	171	109	946	130	76	304	33
Peak Hour Factor	0.67	0.67	0.67	0.82	0.82	0.82	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	228	107	65	241	189	277	138	1264	174	103	1239	133
Arrive On Green	0.17	0.17	0.17	0.17	0.17	0.17	0.08	0.40	0.40	0.06	0.38	0.38
Sat Flow, veh/h	508	611	373	583	1081	1585	1781	3138	431	1781	3236	349
Grp Volume(v), veh/h	60	0	0	98	0	171	109	535	541	76	166	171
Grp Sat Flow(s),veh/h/ln	1493	0	0	1663	0	1585	1781	1777	1793	1781	1777	1808
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.9	2.3	10.0	10.0	1.6	2.5	2.5
Cycle Q Clear(g_c), s	1.1	0.0	0.0	1.8	0.0	3.9	2.3	10.0	10.0	1.6	2.5	2.5
Prop In Lane	0.50		0.25	0.50		1.00	1.00		0.24	1.00		0.19
Lane Grp Cap(c), veh/h	400	0	0	429	0	277	138	716	722	103	680	692
V/C Ratio(X)	0.15	0.00	0.00	0.23	0.00	0.62	0.79	0.75	0.75	0.74	0.24	0.25
Avail Cap(c_a), veh/h	417	0	0	450	0	297	320	863	870	211	753	766
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	13.7	0.0	0.0	14.0	0.0	14.9	17.6	9.9	9.9	18.1	8.2	8.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.3	0.0	3.5	3.7	3.0	3.0	3.9	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.0	0.6	0.0	1.3	0.9	3.0	3.0	0.7	0.6	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.8	0.0	0.0	14.3	0.0	18.4	21.4	12.9	12.9	22.0	8.4	8.4
LnGrp LOS	B	A	A	B	A	B	C	B	B	C	A	A
Approach Vol, veh/h		60			269			1185			413	
Approach Delay, s/veh		13.8			16.9			13.7			10.9	
Approach LOS		B			B			B			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	20.6		11.7	7.4	19.8		11.7
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9
Max Green Setting (Gmax), s	4.6	18.9		7.3	7.0	16.5		7.3
Max Q Clear Time (g_c+I1), s	3.6	12.0		3.1	4.3	4.5		5.9
Green Ext Time (p_c), s	0.0	3.7		0.0	0.0	1.4		0.2

Intersection Summary			
HCM 6th Ctrl Delay			13.5
HCM 6th LOS			B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	50	210	110	50	120	300	860	310	60	270	40
Future Volume (veh/h)	100	50	210	110	50	120	300	860	310	60	270	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	103	52	216	145	66	158	326	935	337	65	293	43
Peak Hour Factor	0.97	0.97	0.97	0.76	0.76	0.76	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	268	82	340	228	126	303	576	1262	452	83	647	94
Arrive On Green	0.26	0.26	0.26	0.26	0.26	0.26	0.32	0.49	0.49	0.05	0.21	0.21
Sat Flow, veh/h	1157	317	1316	1111	489	1171	1781	2563	919	1781	3114	452
Grp Volume(v), veh/h	103	0	268	145	0	224	326	646	626	65	166	170
Grp Sat Flow(s),veh/h/ln	1157	0	1633	1111	0	1660	1781	1777	1705	1781	1777	1789
Q Serve(g_s), s	5.9	0.0	10.2	7.9	0.0	8.1	10.6	20.3	20.6	2.5	5.7	5.8
Cycle Q Clear(g_c), s	14.0	0.0	10.2	18.1	0.0	8.1	10.6	20.3	20.6	2.5	5.7	5.8
Prop In Lane	1.00		0.81	1.00		0.71	1.00		0.54	1.00		0.25
Lane Grp Cap(c), veh/h	268	0	422	228	0	429	576	874	839	83	369	372
V/C Ratio(X)	0.38	0.00	0.63	0.63	0.00	0.52	0.57	0.74	0.75	0.79	0.45	0.46
Avail Cap(c_a), veh/h	268	0	422	228	0	429	634	874	839	127	369	372
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.37	0.37	0.37	0.99	0.99	0.99
Uniform Delay (d), s/veh	28.2	0.0	23.0	31.6	0.0	22.2	19.6	14.2	14.3	33.0	24.2	24.3
Incr Delay (d2), s/veh	0.3	0.0	2.4	4.4	0.0	0.6	0.2	2.1	2.3	7.4	3.9	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	4.0	2.7	0.0	3.0	3.9	7.1	7.0	1.2	2.6	2.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.6	0.0	25.4	35.9	0.0	22.8	19.8	16.3	16.5	40.4	28.1	28.2
LnGrp LOS	C	A	C	D	A	C	B	B	B	D	C	C
Approach Vol, veh/h		371			369			1598			401	
Approach Delay, s/veh		26.3			28.0			17.1			30.2	
Approach LOS		C			C			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.7	39.3		23.0	27.6	19.4		23.0
Change Period (Y+Rc), s	4.4	4.9		4.9	4.9	* 4.9		4.9
Max Green Setting (Gmax), s	5.0	32.7		18.1	24.9	* 13		18.1
Max Q Clear Time (g_c+I1), s	4.5	22.6		16.0	12.6	7.8		20.1
Green Ext Time (p_c), s	0.0	6.7		0.3	0.4	1.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	21.7
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	40	30	40	60	180	60	670	50	100	190	100
Future Volume (veh/h)	95	40	30	40	60	180	60	670	50	100	190	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	122	51	38	49	74	222	65	728	54	109	207	109
Peak Hour Factor	0.78	0.78	0.78	0.81	0.81	0.81	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	289	97	49	248	298	480	95	1375	101	137	701	354
Arrive On Green	0.23	0.23	0.23	0.23	0.23	0.23	0.05	0.28	0.28	0.08	0.31	0.31
Sat Flow, veh/h	565	431	219	466	1319	1585	1781	4852	358	1781	2284	1155
Grp Volume(v), veh/h	211	0	0	123	0	222	65	510	272	109	159	157
Grp Sat Flow(s),veh/h/ln	1214	0	0	1784	0	1585	1781	1702	1806	1781	1777	1662
Q Serve(g_s), s	4.0	0.0	0.0	0.0	0.0	4.0	1.3	4.5	4.5	2.1	2.4	2.5
Cycle Q Clear(g_c), s	5.9	0.0	0.0	1.9	0.0	4.0	1.3	4.5	4.5	2.1	2.4	2.5
Prop In Lane	0.58		0.18	0.40		1.00	1.00		0.20	1.00		0.69
Lane Grp Cap(c), veh/h	435	0	0	546	0	480	95	965	512	137	545	510
V/C Ratio(X)	0.48	0.00	0.00	0.23	0.00	0.46	0.68	0.53	0.53	0.80	0.29	0.31
Avail Cap(c_a), veh/h	477	0	0	597	0	531	202	1119	594	242	620	580
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	12.9	0.0	0.0	11.3	0.0	10.0	16.4	10.7	10.7	16.0	9.3	9.4
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.1	0.0	0.3	3.2	0.8	1.5	4.0	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	0.0	0.6	0.0	1.1	0.5	1.2	1.4	0.8	0.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	13.2	0.0	0.0	11.4	0.0	10.2	19.6	11.4	12.1	20.0	9.8	9.9
LnGrp LOS	B	A	A	B	A	B	B	B	B	B	A	A
Approach Vol, veh/h		211			345			847			425	
Approach Delay, s/veh		13.2			10.6			12.3			12.4	
Approach LOS		B			B			B			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	15.3		12.9	6.3	16.1		12.9				
Change Period (Y+Rc), s	4.4	* 5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	4.8	* 12		9.1	4.0	12.3		9.1				
Max Q Clear Time (g_c+I1), s	4.1	6.5		7.9	3.3	4.5		6.0				
Green Ext Time (p_c), s	0.0	2.8		0.1	0.0	1.4		0.3				
Intersection Summary												
HCM 6th Ctrl Delay			12.1									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	90	140	260	130	300	190
Future Volume (veh/h)	90	140	260	130	300	190
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	176	275	283	141	326	207
Peak Hour Factor	0.51	0.51	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	199	310	414	201	387	1735
Arrive On Green	0.31	0.31	0.18	0.18	0.22	0.49
Sat Flow, veh/h	645	1008	2413	1125	1781	3647
Grp Volume(v), veh/h	452	0	215	209	326	207
Grp Sat Flow(s),veh/h/ln	1657	0	1777	1668	1781	1777
Q Serve(g_s), s	12.3	0.0	5.4	5.6	8.3	1.5
Cycle Q Clear(g_c), s	12.3	0.0	5.4	5.6	8.3	1.5
Prop In Lane	0.39	0.61		0.67	1.00	
Lane Grp Cap(c), veh/h	510	0	317	298	387	1735
V/C Ratio(X)	0.89	0.00	0.68	0.70	0.84	0.12
Avail Cap(c_a), veh/h	613	0	404	379	472	2070
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	15.7	0.0	18.3	18.3	17.8	6.6
Incr Delay (d2), s/veh	11.6	0.0	4.0	5.1	9.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	2.2	2.2	3.8	0.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	27.2	0.0	22.3	23.4	27.3	6.7
LnGrp LOS	C	A	C	C	C	A
Approach Vol, veh/h	452		424			533
Approach Delay, s/veh	27.2		22.8			19.3
Approach LOS	C		C			B

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	14.7	13.8				28.5		19.0
Change Period (Y+Rc), s	4.4	* 5.3				5.3		4.4
Max Green Setting (Gmax), s	12.6	* 11				27.7		17.6
Max Q Clear Time (g_c+I1), s	10.3	7.6				3.5		14.3
Green Ext Time (p_c), s	0.1	0.9				1.5		0.3

Intersection Summary		
HCM 6th Ctrl Delay		22.9
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	100	20	50	180	150	20	70	30	200	20	100
Future Volume (veh/h)	170	100	20	50	180	150	20	70	30	200	20	100
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	215	127	25	63	228	190	22	76	33	217	22	109
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	270	868	167	84	353	281	38	137	60	272	453	624
Arrive On Green	0.15	0.29	0.29	0.05	0.19	0.19	0.02	0.11	0.11	0.15	0.24	0.24
Sat Flow, veh/h	1781	2973	572	1781	1880	1497	1781	1237	537	1781	1870	1585
Grp Volume(v), veh/h	215	75	77	63	215	203	22	0	109	217	22	109
Grp Sat Flow(s),veh/h/ln	1781	1777	1767	1781	1777	1601	1781	0	1774	1781	1870	1585
Q Serve(g_s), s	5.7	1.5	1.6	1.7	5.4	5.7	0.6	0.0	2.8	5.7	0.4	2.2
Cycle Q Clear(g_c), s	5.7	1.5	1.6	1.7	5.4	5.7	0.6	0.0	2.8	5.7	0.4	2.2
Prop In Lane	1.00		0.32	1.00		0.94	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	270	519	516	84	334	301	38	0	197	272	453	624
V/C Ratio(X)	0.80	0.14	0.15	0.75	0.64	0.68	0.58	0.00	0.55	0.80	0.05	0.17
Avail Cap(c_a), veh/h	426	596	593	235	406	366	147	0	259	426	539	697
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.9	12.7	12.7	22.9	18.2	18.3	23.6	0.0	20.4	19.9	14.1	9.6
Incr Delay (d2), s/veh	2.3	0.5	0.6	4.9	7.1	9.1	5.2	0.0	4.7	2.5	0.1	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	0.6	0.6	0.8	2.6	2.6	0.3	0.0	1.3	2.2	0.2	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	22.2	13.3	13.3	27.8	25.3	27.4	28.8	0.0	25.1	22.4	14.2	9.8
LnGrp LOS	C	B	B	C	C	C	C	A	C	C	B	A
Approach Vol, veh/h		367			481			131			348	
Approach Delay, s/veh		18.5			26.5			25.7			17.9	
Approach LOS		B			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.7	19.1	5.4	17.4	11.7	14.0	11.8	11.0
Change Period (Y+Rc), s	4.4	4.9	4.4	5.6	4.4	4.9	4.4	* 5.6
Max Green Setting (Gmax), s	6.4	16.3	4.0	14.0	11.6	11.1	11.6	* 7.1
Max Q Clear Time (g_c+I1), s	3.7	3.6	2.6	4.2	7.7	7.7	7.7	4.8
Green Ext Time (p_c), s	0.0	1.4	0.0	0.4	0.1	1.4	0.1	0.1

Intersection Summary		
HCM 6th Ctrl Delay		22.0
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	220	70	400	220	50	80	150	400	60	70	40
Future Volume (veh/h)	50	220	70	400	220	50	80	150	400	60	70	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	239	76	435	239	54	87	163	435	65	76	43
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	77	340	288	501	786	666	357	407	345	270	244	138
Arrive On Green	0.04	0.18	0.18	0.28	0.42	0.42	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1273	1870	1585	820	1122	635
Grp Volume(v), veh/h	54	239	76	435	239	54	87	163	435	65	0	119
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1273	1870	1585	820	0	1756
Q Serve(g_s), s	1.4	5.7	1.9	11.0	4.0	1.0	2.9	3.5	10.3	3.5	0.0	2.7
Cycle Q Clear(g_c), s	1.4	5.7	1.9	11.0	4.0	1.0	5.6	3.5	10.3	7.0	0.0	2.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.36
Lane Grp Cap(c), veh/h	77	340	288	501	786	666	357	407	345	270	0	382
V/C Ratio(X)	0.71	0.70	0.26	0.87	0.30	0.08	0.24	0.40	1.26	0.24	0.00	0.31
Avail Cap(c_a), veh/h	222	470	399	666	937	794	357	407	345	275	0	393
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	22.3	18.2	16.6	16.2	9.1	8.2	17.9	15.9	18.5	18.9	0.0	15.5
Incr Delay (d2), s/veh	4.4	4.6	0.8	7.5	0.5	0.1	0.6	1.1	138.6	0.2	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.6	0.7	4.9	1.5	0.3	0.7	1.3	16.1	0.5	0.0	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.7	22.8	17.5	23.7	9.6	8.3	18.5	17.0	157.1	19.0	0.0	15.7
LnGrp LOS	C	C	B	C	A	A	B	B	F	B	A	B
Approach Vol, veh/h		369			728			685			184	
Approach Delay, s/veh		22.3			17.9			106.1			16.9	
Approach LOS		C			B			F			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.7	13.5		16.1	6.4	24.8		16.1				
Change Period (Y+Rc), s	4.4	4.9		* 5.8	4.4	4.9		5.8				
Max Green Setting (Gmax), s	17.7	11.9		* 11	5.9	23.7		10.3				
Max Q Clear Time (g_c+I1), s	13.0	7.7		9.0	3.4	6.0		12.3				
Green Ext Time (p_c), s	0.4	0.9		0.1	0.0	2.7		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			49.4									
HCM 6th LOS			D									

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	380	10	220	720	790	0	0	400	500
Future Volume (veh/h)	0	0	0	380	10	220	720	790	0	0	400	500
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				655	17	0	750	823	0	0	435	0
Peak Hour Factor				0.58	0.58	0.58	0.96	0.96	0.96	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				685	18		787	1859	0	0	932	
Arrive On Green				0.39	0.39	0.00	0.46	1.00	0.00	0.00	0.26	0.00
Sat Flow, veh/h				1738	45	1585	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				672	0	0	750	823	0	0	435	0
Grp Sat Flow(s),veh/h/ln				1783	0	1585	1728	1777	0	0	1777	1585
Q Serve(g_s), s				52.0	0.0	0.0	29.7	0.0	0.0	0.0	14.6	0.0
Cycle Q Clear(g_c), s				52.0	0.0	0.0	29.7	0.0	0.0	0.0	14.6	0.0
Prop In Lane				0.97		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				702	0		787	1859	0	0	932	
V/C Ratio(X)				0.96	0.00		0.95	0.44	0.00	0.00	0.47	
Avail Cap(c_a), veh/h				765	0		859	1859	0	0	932	
HCM Platoon Ratio				1.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.36	0.36	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				41.9	0.0	0.0	37.9	0.0	0.0	0.0	44.0	0.0
Incr Delay (d2), s/veh				21.1	0.0	0.0	9.0	0.3	0.0	0.0	1.7	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				26.8	0.0	0.0	10.2	0.1	0.0	0.0	6.5	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				62.9	0.0	0.0	46.9	0.3	0.0	0.0	45.7	0.0
LnGrp LOS				E	A		D	A	A	A	D	
Approach Vol, veh/h					672			1573			435	
Approach Delay, s/veh					62.9			22.5			45.7	
Approach LOS					E			C			D	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		81.0			37.0	43.9		61.0				
Change Period (Y+Rc), s		6.7			* 4.7	6.7		5.1				
Max Green Setting (Gmax), s		68.8			* 35	28.8		60.9				
Max Q Clear Time (g_c+I1), s		2.0			31.7	16.6		54.0				
Green Ext Time (p_c), s		5.9			0.7	1.9		1.9				
Intersection Summary												
HCM 6th Ctrl Delay			36.4									
HCM 6th LOS			D									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	320	0	230	0	0	0	0	1190	530	400	380	0
Future Volume (veh/h)	320	0	230	0	0	0	0	1190	530	400	380	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	410	0	0				0	1293	0	435	413	0
Peak Hour Factor	0.78	0.78	0.78				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	778	0					0	1406		480	2483	0
Arrive On Green	0.22	0.00	0.00				0.00	0.40	0.00	0.09	0.23	0.00
Sat Flow, veh/h	3563	0	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	410	0	0				0	1293	0	435	413	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	14.4	0.0	0.0				0.0	49.1	0.0	34.4	13.2	0.0
Cycle Q Clear(g_c), s	14.4	0.0	0.0				0.0	49.1	0.0	34.4	13.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	778	0					0	1406		480	2483	0
V/C Ratio(X)	0.53	0.00					0.00	0.92		0.91	0.17	0.00
Avail Cap(c_a), veh/h	778	0					0	1406		480	2483	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	0.33	0.33	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.85	0.85	0.00
Uniform Delay (d), s/veh	49.0	0.0	0.0				0.0	40.7	0.0	62.9	21.5	0.0
Incr Delay (d2), s/veh	2.5	0.0	0.0				0.0	11.2	0.0	20.6	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	0.0	0.0				0.0	22.5	0.0	19.2	6.1	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	51.6	0.0	0.0				0.0	51.9	0.0	83.4	21.7	0.0
LnGrp LOS	D	A					A	D		F	C	A
Approach Vol, veh/h		410						1293			848	
Approach Delay, s/veh		51.6						51.9			53.4	
Approach LOS		D						D			D	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	43.0	62.9	36.1	105.9
Change Period (Y+Rc), s	* 4.7	6.7	5.1	6.7
Max Green Setting (Gmax), s	* 38	55.7	31.0	98.7
Max Q Clear Time (g_c+I1), s	36.4	51.1	16.4	15.2
Green Ext Time (p_c), s	0.3	3.1	0.7	2.6

Intersection Summary	
HCM 6th Ctrl Delay	52.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	640	20	170	20	30	100	240	980	20	20	310	280
Future Volume (veh/h)	640	20	170	20	30	100	240	980	20	20	310	280
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	736	23	195	32	48	161	255	1043	21	22	337	304
Peak Hour Factor	0.87	0.87	0.87	0.62	0.62	0.62	0.94	0.94	0.94	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	217	5	1503	38	66	133	698	2044	41	32	327	290
Arrive On Green	0.56	0.56	0.56	0.56	0.56	0.56	0.39	0.57	0.57	0.02	0.18	0.18
Sat Flow, veh/h	272	9	1585	0	119	239	1781	3563	72	1781	1783	1580
Grp Volume(v), veh/h	759	0	195	241	0	0	255	520	544	22	336	305
Grp Sat Flow(s),veh/h/ln	281	0	1585	358	0	0	1781	1777	1857	1781	1777	1586
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	11.0	19.1	19.1	1.3	19.8	19.8
Cycle Q Clear(g_c), s	60.1	0.0	0.0	60.1	0.0	0.0	11.0	19.1	19.1	1.3	19.8	19.8
Prop In Lane	0.97		1.00	0.13		0.67	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	222	0	1503	237	0	0	698	1020	1066	32	326	291
V/C Ratio(X)	3.42	0.00	0.13	1.02	0.00	0.00	0.37	0.51	0.51	0.69	1.03	1.05
Avail Cap(c_a), veh/h	222	0	1503	237	0	0	698	1020	1066	66	326	291
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	0.0	0.2	38.9	0.0	0.0	23.3	13.9	13.9	52.7	44.1	44.1
Incr Delay (d2), s/veh	1099.7	0.0	0.1	63.0	0.0	0.0	0.1	1.8	1.7	9.5	58.1	66.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	73.9	0.0	0.0	9.4	0.0	0.0	4.3	7.1	7.5	0.7	13.5	12.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	1132.5	0.0	0.2	101.9	0.0	0.0	23.4	15.7	15.6	62.2	102.2	110.5
LnGrp LOS	F	A	A	F	A	A	C	B	B	E	F	F
Approach Vol, veh/h		954			241			1319			663	
Approach Delay, s/veh		901.1			101.9			17.2			104.7	
Approach LOS		F			F			B			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	68.2		65.0	48.5	26.0		65.0
Change Period (Y+Rc), s	4.4	5.3		4.9	5.3	* 6.2		4.9
Max Green Setting (Gmax), s	4.0	29.3		60.1	12.6	* 20		60.1
Max Q Clear Time (g_c+I1), s	3.3	21.1		62.1	13.0	21.8		62.1
Green Ext Time (p_c), s	0.0	5.2		0.0	0.0	0.0		0.0

Intersection Summary		
HCM 6th Ctrl Delay		307.3
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1010	100	50	720	130	90	10	50	90	10	60
Future Volume (veh/h)	70	1010	100	50	720	130	90	10	50	90	10	60
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	1098	109	54	783	141	161	18	89	100	11	67
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.56	0.56	0.56	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	96	1083	107	69	974	175	150	12	58	267	27	324
Arrive On Green	0.05	0.65	0.65	0.04	0.63	0.63	0.20	0.20	0.20	0.20	0.20	0.20
Sat Flow, veh/h	1781	1674	166	1781	1543	278	514	57	284	1046	131	1585
Grp Volume(v), veh/h	76	0	1207	54	0	924	268	0	0	111	0	67
Grp Sat Flow(s),veh/h/ln	1781	0	1840	1781	0	1820	855	0	0	1177	0	1585
Q Serve(g_s), s	5.5	0.0	83.7	3.9	0.0	49.2	15.9	0.0	0.0	0.0	0.0	4.5
Cycle Q Clear(g_c), s	5.5	0.0	83.7	3.9	0.0	49.2	26.5	0.0	0.0	10.6	0.0	4.5
Prop In Lane	1.00		0.09	1.00		0.15	0.60		0.33	0.90		1.00
Lane Grp Cap(c), veh/h	96	0	1190	69	0	1150	220	0	0	294	0	324
V/C Ratio(X)	0.79	0.00	1.01	0.78	0.00	0.80	1.22	0.00	0.00	0.38	0.00	0.21
Avail Cap(c_a), veh/h	125	0	1190	77	0	1150	220	0	0	294	0	324
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.5	0.0	22.9	61.6	0.0	17.8	58.4	0.0	0.0	45.1	0.0	42.7
Incr Delay (d2), s/veh	16.7	0.0	29.7	31.1	0.0	4.3	133.0	0.0	0.0	0.8	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	43.7	2.4	0.0	21.2	15.4	0.0	0.0	3.2	0.0	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.2	0.0	52.5	92.8	0.0	22.1	191.4	0.0	0.0	45.9	0.0	43.1
LnGrp LOS	E	A	F	F	A	C	F	A	A	D	A	D
Approach Vol, veh/h		1283			978			268			178	
Approach Delay, s/veh		54.0			26.0			191.4			44.8	
Approach LOS		D			C			F			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.4	88.6		31.4	11.4	86.7		31.4
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9
Max Green Setting (Gmax), s	5.6	83.7		26.5	9.1	80.2		26.5
Max Q Clear Time (g_c+I1), s	5.9	85.7		12.6	7.5	51.2		28.5
Green Ext Time (p_c), s	0.0	0.0		0.6	0.0	10.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	56.9
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	1060	80	80	790	20	70	10	80	20	10	40
Future Volume (veh/h)	20	1060	80	80	790	20	70	10	80	20	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	22	1152	87	87	859	22	171	24	195	41	20	82
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.41	0.41	0.41	0.49	0.49	0.49
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	29	1020	77	78	1129	29	196	23	185	123	69	216
Arrive On Green	0.02	0.59	0.59	0.04	0.62	0.62	0.27	0.27	0.27	0.27	0.27	0.27
Sat Flow, veh/h	1781	1717	130	1781	1815	46	604	87	690	344	258	809
Grp Volume(v), veh/h	22	0	1239	87	0	881	390	0	0	143	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1847	1781	0	1862	1381	0	0	1411	0	0
Q Serve(g_s), s	1.8	0.0	89.1	6.6	0.0	50.9	28.6	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	1.8	0.0	89.1	6.6	0.0	50.9	40.1	0.0	0.0	11.5	0.0	0.0
Prop In Lane	1.00		0.07	1.00		0.02	0.44		0.50	0.29		0.57
Lane Grp Cap(c), veh/h	29	0	1097	78	0	1158	404	0	0	408	0	0
V/C Ratio(X)	0.77	0.00	1.13	1.11	0.00	0.76	0.97	0.00	0.00	0.35	0.00	0.00
Avail Cap(c_a), veh/h	62	0	1097	78	0	1158	404	0	0	408	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	73.5	0.0	30.5	71.7	0.0	20.3	56.7	0.0	0.0	44.2	0.0	0.0
Incr Delay (d2), s/veh	15.0	0.0	70.1	134.7	0.0	3.0	35.7	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	59.9	6.0	0.0	22.9	19.0	0.0	0.0	4.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	88.5	0.0	100.5	206.4	0.0	23.4	92.4	0.0	0.0	44.4	0.0	0.0
LnGrp LOS	F	A	F	F	A	C	F	A	A	D	A	A
Approach Vol, veh/h		1261			968			390			143	
Approach Delay, s/veh		100.3			39.8			92.4			44.4	
Approach LOS		F			D			F			D	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	11.0	94.0	45.0	6.8	98.2	45.0
Change Period (Y+Rc), s	4.4	4.9	4.9	4.4	4.9	4.9
Max Green Setting (Gmax), s	6.6	89.1	40.1	5.2	90.5	40.1
Max Q Clear Time (g_c+I1), s	3.8	91.1	13.5	3.8	52.9	42.1
Green Ext Time (p_c), s	0.0	0.0	0.6	0.0	9.4	0.0

Intersection Summary	
HCM 6th Ctrl Delay	75.1
HCM 6th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	1110	20	40	810	40	10	0	0	60	0	50
Future Volume (veh/h)	40	1110	20	40	810	40	10	0	0	60	0	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	43	1207	22	43	880	43	20	0	0	78	0	65
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.50	0.50	0.50	0.77	0.77	0.77
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	55	1296	24	55	1251	61	215	0	0	145	8	80
Arrive On Green	0.03	0.71	0.71	0.03	0.71	0.71	0.12	0.00	0.00	0.12	0.00	0.12
Sat Flow, veh/h	1781	1831	33	1781	1768	86	1222	0	0	762	70	693
Grp Volume(v), veh/h	43	0	1229	43	0	923	20	0	0	143	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1864	1781	0	1855	1222	0	0	1526	0	0
Q Serve(g_s), s	2.3	0.0	55.3	2.3	0.0	28.3	0.0	0.0	0.0	7.4	0.0	0.0
Cycle Q Clear(g_c), s	2.3	0.0	55.3	2.3	0.0	28.3	1.5	0.0	0.0	8.9	0.0	0.0
Prop In Lane	1.00		0.02	1.00		0.05	1.00		0.00	0.55		0.45
Lane Grp Cap(c), veh/h	55	0	1319	55	0	1312	215	0	0	233	0	0
V/C Ratio(X)	0.79	0.00	0.93	0.79	0.00	0.70	0.09	0.00	0.00	0.61	0.00	0.00
Avail Cap(c_a), veh/h	113	0	1602	102	0	1584	417	0	0	459	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	47.1	0.0	12.3	47.1	0.0	8.3	38.9	0.0	0.0	42.1	0.0	0.0
Incr Delay (d2), s/veh	9.0	0.0	8.7	9.0	0.0	1.0	0.1	0.0	0.0	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	22.2	1.2	0.0	10.1	0.4	0.0	0.0	3.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	56.0	0.0	21.0	56.1	0.0	9.3	39.0	0.0	0.0	43.0	0.0	0.0
LnGrp LOS	E	A	C	E	A	A	D	A	A	D	A	A
Approach Vol, veh/h		1272			966			20			143	
Approach Delay, s/veh		22.2			11.4			39.0			43.0	
Approach LOS		C			B			D			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	7.4	74.2		16.2	7.4	74.2		16.2
Change Period (Y+Rc), s	4.4	5.0		4.9	4.4	* 5		4.9
Max Green Setting (Gmax), s	5.6	84.0		26.1	6.2	* 84		26.1
Max Q Clear Time (g_c+I1), s	4.3	57.3		10.9	4.3	30.3		3.5
Green Ext Time (p_c), s	0.0	11.9		0.4	0.0	8.6		0.0

Intersection Summary	
HCM 6th Ctrl Delay	19.2
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	1030	100	70	740	30	70	10	120	70	10	20
Future Volume (veh/h)	70	1030	100	70	740	30	70	10	120	70	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	1120	109	76	804	33	113	16	194	97	14	28
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.62	0.62	0.62	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	95	1070	104	91	1133	47	147	22	206	169	27	39
Arrive On Green	0.05	0.64	0.64	0.05	0.64	0.64	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1781	1678	163	1781	1784	73	532	104	956	593	125	181
Grp Volume(v), veh/h	76	0	1229	76	0	837	323	0	0	139	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1841	1781	0	1857	1592	0	0	899	0	0
Q Serve(g_s), s	6.2	0.0	94.0	6.2	0.0	44.1	7.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.2	0.0	94.0	6.2	0.0	44.1	29.3	0.0	0.0	21.8	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.04	0.35		0.60	0.70		0.20
Lane Grp Cap(c), veh/h	95	0	1174	91	0	1180	375	0	0	235	0	0
V/C Ratio(X)	0.80	0.00	1.05	0.84	0.00	0.71	0.86	0.00	0.00	0.59	0.00	0.00
Avail Cap(c_a), veh/h	135	0	1174	91	0	1180	402	0	0	258	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	69.0	0.0	26.7	69.4	0.0	17.9	56.7	0.0	0.0	53.5	0.0	0.0
Incr Delay (d2), s/veh	12.8	0.0	39.4	44.8	0.0	2.3	15.2	0.0	0.0	1.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	0.0	52.3	4.0	0.0	19.4	13.4	0.0	0.0	4.9	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	81.7	0.0	66.1	114.2	0.0	20.2	71.9	0.0	0.0	55.2	0.0	0.0
LnGrp LOS	F	A	F	F	A	C	E	A	A	E	A	A
Approach Vol, veh/h		1305			913			323			139	
Approach Delay, s/veh		67.0			28.0			71.9			55.2	
Approach LOS		E			C			E			E	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.9	98.9		36.6	12.3	98.5		36.6
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9
Max Green Setting (Gmax), s	7.5	94.0		34.3	11.2	90.3		34.3
Max Q Clear Time (g_c+I1), s	8.2	96.0		23.8	8.2	46.1		31.3
Green Ext Time (p_c), s	0.0	0.0		0.4	0.0	14.4		0.4

Intersection Summary		
HCM 6th Ctrl Delay		53.7
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	1250	10	10	1390	140	0	0	20	110	0	90
Future Volume (veh/h)	190	1250	10	10	1390	140	0	0	20	110	0	90
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	207	1359	11	11	1511	152	0	0	53	180	0	148
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.38	0.38	0.38	0.61	0.61	0.61
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	140	1401	11	26	758	76	0	0	277	246	0	277
Arrive On Green	0.08	0.76	0.76	0.65	0.65	0.65	0.00	0.00	0.17	0.17	0.00	0.17
Sat Flow, veh/h	1781	1853	15	2	1170	117	0	0	1585	1131	0	1585
Grp Volume(v), veh/h	207	0	1370	1674	0	0	0	0	53	180	0	148
Grp Sat Flow(s),veh/h/ln	1781	0	1868	1289	0	0	0	0	1585	1131	0	1585
Q Serve(g_s), s	11.6	0.0	99.3	12.5	0.0	0.0	0.0	0.0	4.2	19.4	0.0	12.6
Cycle Q Clear(g_c), s	11.6	0.0	99.3	95.8	0.0	0.0	0.0	0.0	4.2	23.6	0.0	12.6
Prop In Lane	1.00		0.01	0.01		0.09	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	140	0	1412	859	0	0	0	0	277	246	0	277
V/C Ratio(X)	1.48	0.00	0.97	1.95	0.00	0.00	0.00	0.00	0.19	0.73	0.00	0.53
Avail Cap(c_a), veh/h	140	0	1412	859	0	0	0	0	300	266	0	300
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	68.1	0.0	16.5	28.6	0.0	0.0	0.0	0.0	52.1	62.2	0.0	55.5
Incr Delay (d2), s/veh	250.8	0.0	17.2	430.9	0.0	0.0	0.0	0.0	0.1	7.5	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.0	0.0	42.3	125.9	0.0	0.0	0.0	0.0	1.7	7.2	0.0	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	319.0	0.0	33.7	459.5	0.0	0.0	0.0	0.0	52.2	69.7	0.0	56.1
LnGrp LOS	F	A	C	F	A	A	A	A	D	E	A	E
Approach Vol, veh/h		1577			1674			53			328	
Approach Delay, s/veh		71.2			459.5			52.2			63.6	
Approach LOS		E			F			D			E	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		117.1		30.8	16.0	101.1		30.8				
Change Period (Y+Rc), s		5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s		111.8		28.0	11.6	95.8		28.0				
Max Q Clear Time (g_c+I1), s		101.3		25.6	13.6	97.8		6.2				
Green Ext Time (p_c), s		7.2		0.2	0.0	0.0		0.1				

Intersection Summary			
HCM 6th Ctrl Delay			249.2
HCM 6th LOS			F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1310	50	40	1460	110	80
Future Volume (veh/h)	1310	50	40	1460	110	80
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1424	54	43	1587	147	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.75	0.75
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1386	53	55	1563	171	152
Arrive On Green	0.77	0.77	0.03	0.84	0.10	0.10
Sat Flow, veh/h	1790	68	1781	1870	1781	1585
Grp Volume(v), veh/h	0	1478	43	1587	147	107
Grp Sat Flow(s),veh/h/ln	0	1858	1781	1870	1781	1585
Q Serve(g_s), s	0.0	113.1	3.5	122.0	11.9	9.6
Cycle Q Clear(g_c), s	0.0	113.1	3.5	122.0	11.9	9.6
Prop In Lane		0.04	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1439	55	1563	171	152
V/C Ratio(X)	0.00	1.03	0.78	1.02	0.86	0.70
Avail Cap(c_a), veh/h	0	1439	66	1563	220	195
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.5	70.2	12.0	65.0	64.0
Incr Delay (d2), s/veh	0.0	31.0	31.2	26.7	19.2	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	50.9	2.1	45.6	6.3	4.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	47.5	101.4	38.8	84.2	68.5
LnGrp LOS	A	F	F	F	F	E
Approach Vol, veh/h	1478			1630	254	
Approach Delay, s/veh	47.5			40.4	77.6	
Approach LOS	D			D	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	8.9	118.2				127.1		18.9
Change Period (Y+Rc), s	4.4	* 5.1				5.1		4.9
Max Green Setting (Gmax), s	5.4	* 1.1E2				122.0		18.0
Max Q Clear Time (g_c+I1), s	5.5	115.1				124.0		13.9
Green Ext Time (p_c), s	0.0	0.0				0.0		0.2

Intersection Summary	
HCM 6th Ctrl Delay	46.3
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1720	10	10	980	40	20	0	20	120	0	150
Future Volume (veh/h)	60	1720	10	10	980	40	20	0	20	120	0	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	1870	11	11	1065	43	29	0	29	164	0	205
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.69	0.69	0.69	0.73	0.73	0.73
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	83	1263	7	18	1149	46	37	0	150	126	0	230
Arrive On Green	0.05	0.68	0.68	0.01	0.64	0.64	0.02	0.00	0.09	0.07	0.00	0.15
Sat Flow, veh/h	1781	1857	11	1781	1785	72	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	65	0	1881	11	0	1108	29	0	29	164	0	205
Grp Sat Flow(s),veh/h/ln	1781	0	1868	1781	0	1857	1781	0	1585	1781	0	1585
Q Serve(g_s), s	4.9	0.0	92.2	0.8	0.0	71.5	2.2	0.0	2.3	9.6	0.0	17.2
Cycle Q Clear(g_c), s	4.9	0.0	92.2	0.8	0.0	71.5	2.2	0.0	2.3	9.6	0.0	17.2
Prop In Lane	1.00		0.01	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	83	0	1270	18	0	1195	37	0	150	126	0	230
V/C Ratio(X)	0.79	0.00	1.48	0.62	0.00	0.93	0.79	0.00	0.19	1.30	0.00	0.89
Avail Cap(c_a), veh/h	87	0	1270	67	0	1242	88	0	280	126	0	309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.0	0.0	21.7	66.9	0.0	21.4	66.1	0.0	56.6	63.0	0.0	56.9
Incr Delay (d2), s/veh	32.2	0.0	220.7	12.2	0.0	12.0	13.1	0.0	0.2	181.4	0.0	18.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	0.0	113.4	0.4	0.0	32.3	1.1	0.0	0.9	10.7	0.0	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	96.2	0.0	242.4	79.1	0.0	33.3	79.2	0.0	56.8	244.4	0.0	74.9
LnGrp LOS	F	A	F	E	A	C	E	A	E	F	A	E
Approach Vol, veh/h		1946			1119			58			369	
Approach Delay, s/veh		237.5			33.8			68.0			150.2	
Approach LOS		F			C			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	97.6	7.2	25.1	10.7	92.7	14.0	18.3
Change Period (Y+Rc), s	4.4	5.4	4.4	5.4	4.4	5.4	4.4	* 5.4
Max Green Setting (Gmax), s	5.1	92.2	6.7	26.4	6.6	90.7	9.6	* 24
Max Q Clear Time (g_c+I1), s	2.8	94.2	4.2	19.2	6.9	73.5	11.6	4.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.5	0.0	11.1	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	160.2
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1780	90	270	910	10	30
Future Volume (veh/h)	1780	90	270	910	10	30
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1854	94	284	958	14	43
Peak Hour Factor	0.96	0.96	0.95	0.95	0.70	0.70
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1369	69	229	1638	129	59
Arrive On Green	0.78	0.78	0.07	0.88	0.04	0.04
Sat Flow, veh/h	1765	89	3456	1870	3456	1585
Grp Volume(v), veh/h	0	1948	284	958	14	43
Grp Sat Flow(s),veh/h/ln	0	1854	1728	1870	1728	1585
Q Serve(g_s), s	0.0	100.7	8.6	16.9	0.5	3.5
Cycle Q Clear(g_c), s	0.0	100.7	8.6	16.9	0.5	3.5
Prop In Lane		0.05	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1438	229	1638	129	59
V/C Ratio(X)	0.00	1.35	1.24	0.58	0.11	0.73
Avail Cap(c_a), veh/h	0	1438	229	1638	692	317
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	14.6	60.6	2.1	60.4	61.8
Incr Delay (d2), s/veh	0.0	164.2	139.8	1.3	0.1	6.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	97.6	8.2	3.3	0.2	1.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	178.8	200.4	3.3	60.6	68.1
LnGrp LOS	A	F	F	A	E	E
Approach Vol, veh/h	1948			1242	57	
Approach Delay, s/veh	178.8			48.4	66.2	
Approach LOS	F			D	E	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	13.0	107.1				120.1		9.7
Change Period (Y+Rc), s	4.4	* 6.4				6.4		4.9
Max Green Setting (Gmax), s	8.6	* 1E2				112.7		26.0
Max Q Clear Time (g_c+I1), s	10.6	102.7				18.9		5.5
Green Ext Time (p_c), s	0.0	0.0				35.4		0.1

Intersection Summary		
HCM 6th Ctrl Delay		126.9
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	850	860	520	300	590	460
Future Volume (veh/h)	850	860	520	300	590	460
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	895	905	565	326	656	511
Peak Hour Factor	0.95	0.95	0.92	0.92	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1290	575	898	2384	837	1401
Arrive On Green	0.36	0.36	0.43	1.00	0.24	0.24
Sat Flow, veh/h	3647	1585	3456	3647	3456	2790
Grp Volume(v), veh/h	895	905	565	326	656	511
Grp Sat Flow(s),veh/h/ln	1777	1585	1728	1777	1728	1395
Q Serve(g_s), s	27.9	47.2	16.5	0.0	23.1	0.0
Cycle Q Clear(g_c), s	27.9	47.2	16.5	0.0	23.1	0.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1290	575	898	2384	837	1401
V/C Ratio(X)	0.69	1.57	0.63	0.14	0.78	0.36
Avail Cap(c_a), veh/h	1290	575	898	2384	1178	1676
HCM Platoon Ratio	1.00	1.00	1.67	1.67	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.98	0.98	0.87	0.87
Uniform Delay (d), s/veh	35.2	41.4	31.9	0.0	46.1	19.7
Incr Delay (d2), s/veh	3.1	266.0	1.0	0.1	2.4	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.2	60.1	5.8	0.0	9.9	4.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	38.3	307.4	32.9	0.1	48.5	19.9
LnGrp LOS	D	F	C	A	D	B
Approach Vol, veh/h	1800			891	1167	
Approach Delay, s/veh	173.6			20.9	36.0	
Approach LOS	F			C	D	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	39.8	53.4				93.2		36.8
Change Period (Y+Rc), s	6.0	* 6.2				6.0		5.3
Max Green Setting (Gmax), s	22.6	* 47				74.4		44.3
Max Q Clear Time (g_c+I1), s	18.5	49.2				2.0		25.1
Green Ext Time (p_c), s	0.5	0.0				2.8		6.4

Intersection Summary	
HCM 6th Ctrl Delay	96.7
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	60	1250	670	130	570	150
Future Volume (veh/h)	60	1250	670	130	570	150
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	1359	728	141	750	197
Peak Hour Factor	0.92	0.92	0.92	0.92	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	83	2278	3609	889	932	427
Arrive On Green	0.09	1.00	0.56	0.56	0.27	0.27
Sat Flow, veh/h	1781	3647	6696	1585	3456	1585
Grp Volume(v), veh/h	65	1359	728	141	750	197
Grp Sat Flow(s),veh/h/ln	1781	1777	1609	1585	1728	1585
Q Serve(g_s), s	4.6	0.0	7.3	5.6	26.3	13.5
Cycle Q Clear(g_c), s	4.6	0.0	7.3	5.6	26.3	13.5
Prop In Lane	1.00			1.00	1.00	1.00
Lane Grp Cap(c), veh/h	83	2278	3609	889	932	427
V/C Ratio(X)	0.79	0.60	0.20	0.16	0.80	0.46
Avail Cap(c_a), veh/h	159	2278	3609	889	1172	538
HCM Platoon Ratio	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.86	0.86	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.3	0.0	14.1	13.8	44.3	39.6
Incr Delay (d2), s/veh	5.3	1.0	0.1	0.4	4.6	1.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.3	2.5	2.0	11.6	12.5
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	63.6	1.0	14.3	14.1	48.9	41.2
LnGrp LOS	E	A	B	B	D	D
Approach Vol, veh/h		1424	869		947	
Approach Delay, s/veh		3.9	14.2		47.3	
Approach LOS		A	B		D	
Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		90.0		40.0	10.4	79.6
Change Period (Y+Rc), s		6.7		4.9	4.4	* 6.7
Max Green Setting (Gmax), s		74.3		44.1	11.6	* 59
Max Q Clear Time (g_c+I1), s		2.0		28.3	6.6	9.3
Green Ext Time (p_c), s		21.9		6.7	0.0	8.3
Intersection Summary						
HCM 6th Ctrl Delay			19.3			
HCM 6th LOS			B			

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1720	0	40	710	380	0	0	0	330	0	90
Future Volume (veh/h)	100	1720	0	40	710	380	0	0	0	330	0	90
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	0	1870	1870	1870				1870	1870	1870
Adj Flow Rate, veh/h	103	1773	0	43	772	413				234	187	100
Peak Hour Factor	0.97	0.97	0.92	0.92	0.92	0.92				0.90	0.92	0.90
Percent Heavy Veh, %	2	2	0	2	2	2				2	2	2
Cap, veh/h	127	2569	0	176	2195	1273				330	213	114
Arrive On Green	0.07	0.72	0.00	0.62	0.62	0.62				0.19	0.19	0.19
Sat Flow, veh/h	1781	3647	0	269	3554	1585				1781	1147	613
Grp Volume(v), veh/h	103	1773	0	43	772	413				234	0	287
Grp Sat Flow(s),veh/h/ln	1781	1777	0	269	1777	1585				1781	0	1760
Q Serve(g_s), s	7.4	35.6	0.0	13.6	13.7	9.0				15.9	0.0	20.5
Cycle Q Clear(g_c), s	7.4	35.6	0.0	35.6	13.7	9.0				15.9	0.0	20.5
Prop In Lane	1.00		0.00	1.00		1.00				1.00		0.35
Lane Grp Cap(c), veh/h	127	2569	0	176	2195	1273				330	0	326
V/C Ratio(X)	0.81	0.69	0.00	0.24	0.35	0.32				0.71	0.00	0.88
Avail Cap(c_a), veh/h	202	2569	0	176	2195	1273				402	0	397
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.84	0.84	0.84				1.00	0.00	1.00
Uniform Delay (d), s/veh	59.0	9.9	0.0	23.5	12.1	3.4				49.3	0.0	51.1
Incr Delay (d2), s/veh	12.3	1.5	0.0	2.8	0.4	0.6				4.4	0.0	17.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.7	11.9	0.0	1.0	5.1	17.9				7.5	0.0	10.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	71.4	11.4	0.0	26.2	12.4	4.0				53.7	0.0	68.3
LnGrp LOS	E	B	A	C	B	A				D	A	E
Approach Vol, veh/h		1876			1228						521	
Approach Delay, s/veh		14.7			10.1						61.8	
Approach LOS		B			B						E	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		100.2		28.8	13.6	86.6						
Change Period (Y+Rc), s		6.9		4.9	4.4	* 6.9						
Max Green Setting (Gmax), s		88.2		29.1	14.6	* 70						
Max Q Clear Time (g_c+I1), s		37.6		22.5	9.4	37.6						
Green Ext Time (p_c), s		21.1		1.5	0.1	8.8						

Intersection Summary			
HCM 6th Ctrl Delay			19.9
HCM 6th LOS			B

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1350	700	360	630	0	0	0	0	930	290	500
Future Volume (veh/h)	0	1350	700	360	630	0	0	0	0	930	290	500
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	0	2116	1870	1870	2116	0				1870	1870	1870
Adj Flow Rate, veh/h	0	1421	0	391	685	0				716	838	478
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92				0.90	0.90	0.90
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	1331		357	1957	0				671	705	597
Arrive On Green	0.00	0.33	0.00	0.21	0.97	0.00				0.38	0.38	0.38
Sat Flow, veh/h	0	4127	1585	3456	4127	0				1781	1870	1585
Grp Volume(v), veh/h	0	1421	0	391	685	0				716	838	478
Grp Sat Flow(s),veh/h/ln	0	2011	1585	1728	2011	0				1781	1870	1585
Q Serve(g_s), s	0.0	29.8	0.0	9.3	0.6	0.0				33.9	33.9	24.2
Cycle Q Clear(g_c), s	0.0	29.8	0.0	9.3	0.6	0.0				33.9	33.9	24.2
Prop In Lane	0.00		1.00	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1331		357	1957	0				671	705	597
V/C Ratio(X)	0.00	1.07		1.09	0.35	0.00				1.07	1.19	0.80
Avail Cap(c_a), veh/h	0	1331		357	1957	0				671	705	597
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.62	0.00	0.89	0.89	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	30.1	0.0	35.7	0.6	0.0				28.0	28.0	25.0
Incr Delay (d2), s/veh	0.0	40.3	0.0	73.0	0.4	0.0				54.0	99.1	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	20.5	0.0	6.9	0.3	0.0				23.7	33.7	9.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	70.4	0.0	108.7	1.1	0.0				82.1	127.1	32.1
LnGrp LOS	A	F		F	A	A				F	F	C
Approach Vol, veh/h		1421			1076						2032	
Approach Delay, s/veh		70.4			40.2						88.9	
Approach LOS		E			D						F	
Timer - Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	14.0	37.0		39.0		51.0						
Change Period (Y+Rc), s	* 4.7	7.2		5.1		7.2						
Max Green Setting (Gmax), s	* 9.3	29.8		33.9		43.8						
Max Q Clear Time (g_c+I1), s	11.3	31.8		35.9		2.6						
Green Ext Time (p_c), s	0.0	0.0		0.0		2.9						
Intersection Summary												
HCM 6th Ctrl Delay			71.5									
HCM 6th LOS			E									

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	900	1380	0	0	610	1050	380	90	150	0	0	0
Future Volume (veh/h)	900	1380	0	0	610	1050	380	90	150	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	2116	0	0	2116	1870	1870	1870	1870			
Adj Flow Rate, veh/h	947	1453	0	0	663	1141	270	327	0			
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.91	0.91	0.91			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	998	2761	0	0	2556	979	315	330				
Arrive On Green	0.38	0.91	0.00	0.00	0.35	0.35	0.18	0.18	0.00			
Sat Flow, veh/h	3456	4127	0	0	7577	2790	1781	1870	1585			
Grp Volume(v), veh/h	947	1453	0	0	663	1141	270	327	0			
Grp Sat Flow(s),veh/h/ln	1728	2011	0	0	1820	1395	1781	1870	1585			
Q Serve(g_s), s	23.9	5.4	0.0	0.0	5.9	31.6	13.2	15.7	0.0			
Cycle Q Clear(g_c), s	23.9	5.4	0.0	0.0	5.9	31.6	13.2	15.7	0.0			
Prop In Lane	1.00		0.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	998	2761	0	0	2556	979	315	330				
V/C Ratio(X)	0.95	0.53	0.00	0.00	0.26	1.16	0.86	0.99				
Avail Cap(c_a), veh/h	998	2761	0	0	2556	979	315	330				
HCM Platoon Ratio	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.75	0.75	1.00	1.00	0.00			
Uniform Delay (d), s/veh	27.1	1.5	0.0	0.0	20.8	29.2	36.0	37.0	0.0			
Incr Delay (d2), s/veh	2.7	0.1	0.0	0.0	0.2	82.9	19.5	46.5	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	8.3	1.0	0.0	0.0	2.3	20.8	7.3	11.3	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.7	1.5	0.0	0.0	21.0	112.1	55.5	83.5	0.0			
LnGrp LOS	C	A	A	A	C	F	E	F				
Approach Vol, veh/h		2400			1804			597				
Approach Delay, s/veh		12.7			78.6			70.8				
Approach LOS		B			E			E				
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		69.0			30.2	38.8		21.0				
Change Period (Y+Rc), s		7.2			* 4.2	7.2		5.1				
Max Green Setting (Gmax), s		61.8			* 26	31.6		15.9				
Max Q Clear Time (g_c+I1), s		7.4			25.9	33.6		17.7				
Green Ext Time (p_c), s		8.4			0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			44.7									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	510	0	350	0	0	0	200	1150	0	70	1650	120
Future Volume (veh/h)	510	0	350	0	0	0	200	1150	0	70	1650	120
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	0	1870				1870	2116	0	1870	2116	1870
Adj Flow Rate, veh/h	580	0	398				217	1250	0	76	1793	130
Peak Hour Factor	0.88	0.92	0.88				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	0	2				2	2	0	2	2	2
Cap, veh/h	709	0	325				238	2522	0	96	2200	867
Arrive On Green	0.21	0.00	0.21				0.27	1.00	0.00	0.05	0.55	0.55
Sat Flow, veh/h	3456	0	1585				1781	4127	0	1781	4021	1585
Grp Volume(v), veh/h	580	0	398				217	1250	0	76	1793	130
Grp Sat Flow(s),veh/h/ln	1728	0	1585				1781	2011	0	1781	2011	1585
Q Serve(g_s), s	21.2	0.0	27.1				15.6	0.0	0.0	5.6	48.1	5.3
Cycle Q Clear(g_c), s	21.2	0.0	27.1				15.6	0.0	0.0	5.6	48.1	5.3
Prop In Lane	1.00		1.00				1.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	709	0	325				238	2522	0	96	2200	867
V/C Ratio(X)	0.82	0.00	1.22				0.91	0.50	0.00	0.79	0.81	0.15
Avail Cap(c_a), veh/h	709	0	325				291	2522	0	165	2200	867
HCM Platoon Ratio	1.00	1.00	1.00				2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00				0.84	0.84	0.00	0.84	0.84	0.84
Uniform Delay (d), s/veh	50.1	0.0	52.5				47.6	0.0	0.0	61.7	24.4	14.7
Incr Delay (d2), s/veh	7.0	0.0	124.8				22.0	0.6	0.0	4.5	2.9	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	32.7				7.2	0.2	0.0	2.6	22.0	1.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	57.0	0.0	177.2				69.5	0.6	0.0	66.3	27.3	15.0
LnGrp LOS	E	A	F				E	A	A	E	C	B
Approach Vol, veh/h		978						1467			1999	
Approach Delay, s/veh		106.0						10.8			28.0	
Approach LOS		F						B			C	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	11.5	88.5		32.0	22.1	77.9
Change Period (Y+Rc), s	4.4	5.7		4.9	4.4	5.7
Max Green Setting (Gmax), s	12.3	77.7		27.1	21.6	68.3
Max Q Clear Time (g_c+I1), s	17.6	2.0		29.1	17.6	50.1
Green Ext Time (p_c), s	0.0	29.6		0.0	0.1	14.9

Intersection Summary			
HCM 6th Ctrl Delay			39.5
HCM 6th LOS			D

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	390	80	370	430	80	350	200	610	70	80	1760	160
Future Volume (veh/h)	390	80	370	430	80	350	200	610	70	80	1760	160
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	497	0	411	560	0	402	217	663	76	85	1872	170
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	596	0	265	596	0	531	225	1852	995	152	1807	712
Arrive On Green	0.17	0.00	0.17	0.17	0.00	0.17	0.13	0.92	0.92	0.04	0.45	0.45
Sat Flow, veh/h	3563	0	1585	3563	0	3170	3456	4021	1585	3456	4021	1585
Grp Volume(v), veh/h	497	0	411	560	0	402	217	663	76	85	1872	170
Grp Sat Flow(s),veh/h/ln	1781	0	1585	1781	0	1585	1728	2011	1585	1728	2011	1585
Q Serve(g_s), s	17.8	0.0	22.1	20.5	0.0	16.0	8.2	2.6	0.4	3.2	59.3	8.7
Cycle Q Clear(g_c), s	17.8	0.0	22.1	20.5	0.0	16.0	8.2	2.6	0.4	3.2	59.3	8.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	596	0	265	596	0	531	225	1852	995	152	1807	712
V/C Ratio(X)	0.83	0.00	1.55	0.94	0.00	0.76	0.96	0.36	0.08	0.56	1.04	0.24
Avail Cap(c_a), veh/h	596	0	265	596	0	531	225	1852	995	186	1807	712
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	0.96	0.96	0.96	0.47	0.47	0.47
Uniform Delay (d), s/veh	53.2	0.0	54.9	54.3	0.0	52.4	57.2	2.9	1.3	61.8	36.4	22.4
Incr Delay (d2), s/veh	9.3	0.0	264.8	22.6	0.0	5.6	48.2	0.5	0.1	0.6	25.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	0.0	28.3	11.0	0.0	6.8	4.8	0.9	0.2	1.4	33.6	3.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	62.5	0.0	319.7	76.9	0.0	58.0	105.4	3.4	1.5	62.4	61.4	22.5
LnGrp LOS	E	A	F	E	A	E	F	A	A	E	F	C
Approach Vol, veh/h		908			962			956			2127	
Approach Delay, s/veh		178.9			69.0			26.4			58.3	
Approach LOS		F			E			C			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	11.5	66.5		27.0	13.0	65.0		27.0				
Change Period (Y+Rc), s	5.7	* 5.7		4.9	4.4	5.7		4.9				
Max Green Setting (Gmax), s	7.1	* 61		22.1	8.6	59.3		22.1				
Max Q Clear Time (g_c+I1), s	15.2	4.6		22.5	10.2	61.3		24.1				
Green Ext Time (p_c), s	0.0	6.7		0.0	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			76.3									
HCM 6th LOS			E									

Notes

User approved pedestrian interval to be less than phase max green.

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	1800	700	90	720	0	110	0	70	0	0	0
Future Volume (veh/h)	60	1800	700	90	720	0	110	0	70	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	0	1945	1870	1870			
Adj Flow Rate, veh/h	62	1875	729	96	766	0	125	0	80			
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.88	0.92	0.88			
Percent Heavy Veh, %	2	2	2	2	2	0	2	2	2			
Cap, veh/h	79	2742	1081	118	2830	0	143	0	91			
Arrive On Green	0.04	0.68	0.68	0.07	0.70	0.00	0.14	0.00	0.14			
Sat Flow, veh/h	1781	4021	1585	1781	4127	0	1036	0	663			
Grp Volume(v), veh/h	62	1875	729	96	766	0	205	0	0			
Grp Sat Flow(s),veh/h/ln	1781	2011	1585	1781	2011	0	1699	0	0			
Q Serve(g_s), s	4.5	36.7	35.8	7.0	9.2	0.0	15.6	0.0	0.0			
Cycle Q Clear(g_c), s	4.5	36.7	35.8	7.0	9.2	0.0	15.6	0.0	0.0			
Prop In Lane	1.00		1.00	1.00		0.00	0.61		0.39			
Lane Grp Cap(c), veh/h	79	2742	1081	118	2830	0	234	0	0			
V/C Ratio(X)	0.78	0.68	0.67	0.81	0.27	0.00	0.87	0.00	0.00			
Avail Cap(c_a), veh/h	138	2742	1081	170	2830	0	425	0	0			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.09	0.09	0.09	0.82	0.82	0.00	0.99	0.00	0.00			
Uniform Delay (d), s/veh	62.4	12.5	12.4	60.8	7.1	0.0	55.8	0.0	0.0			
Incr Delay (d2), s/veh	0.6	0.1	0.3	9.5	0.2	0.0	4.0	0.0	0.0			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	14.3	11.0	3.4	3.5	0.0	6.8	0.0	0.0			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	63.0	12.6	12.7	70.3	7.3	0.0	59.8	0.0	0.0			
LnGrp LOS	E	B	B	E	A	A	E	A	A			
Approach Vol, veh/h		2666			862			205				
Approach Delay, s/veh		13.8			14.4			59.8				
Approach LOS		B			B			E				
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	13.2	95.7			10.3	98.6		23.1				
Change Period (Y+Rc), s	4.4	5.7			4.4	5.7		4.9				
Max Green Setting (Gmax), s	12.6	71.4			10.2	73.8		33.0				
Max Q Clear Time (g_c+I1), s	9.0	38.7			6.5	11.2		17.6				
Green Ext Time (p_c), s	0.0	30.7			0.0	8.3		0.6				
Intersection Summary												
HCM 6th Ctrl Delay			16.5									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	250	90	260	300	240	50	500	130	550	1000	80
Future Volume (veh/h)	80	250	90	260	300	240	50	500	130	550	1000	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	87	272	98	317	366	293	52	521	135	579	1053	84
Peak Hour Factor	0.92	0.92	0.92	0.82	0.82	0.82	0.96	0.96	0.96	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	109	307	260	340	550	466	67	656	169	631	1292	103
Arrive On Green	0.06	0.16	0.16	0.19	0.29	0.29	0.04	0.21	0.21	0.06	0.11	0.11
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	3164	816	3456	3772	301
Grp Volume(v), veh/h	87	272	98	317	366	293	52	330	326	579	561	576
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	2011	1970	1728	2011	2062
Q Serve(g_s), s	6.4	18.8	5.3	23.1	22.7	21.1	3.8	20.6	20.7	22.0	36.0	36.0
Cycle Q Clear(g_c), s	6.4	18.8	5.3	23.1	22.7	21.1	3.8	20.6	20.7	22.0	36.0	36.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		0.15
Lane Grp Cap(c), veh/h	109	307	260	340	550	466	67	417	408	631	688	706
V/C Ratio(X)	0.80	0.89	0.38	0.93	0.67	0.63	0.78	0.79	0.80	0.92	0.81	0.82
Avail Cap(c_a), veh/h	175	482	408	359	672	569	92	417	409	644	688	706
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33
Upstream Filter(I)	0.99	0.99	0.99	1.00	1.00	1.00	0.97	0.97	0.97	0.52	0.52	0.52
Uniform Delay (d), s/veh	61.2	54.0	26.2	52.6	40.9	40.3	63.0	49.6	49.7	61.0	54.5	54.5
Incr Delay (d2), s/veh	5.0	7.8	0.3	29.1	1.1	0.7	15.9	10.4	11.0	10.5	5.6	5.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	9.4	2.8	12.9	10.4	8.2	2.0	11.3	11.2	11.1	20.4	21.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	66.2	61.8	26.5	81.7	41.9	41.0	78.9	60.0	60.7	71.5	60.1	60.0
LnGrp LOS	E	E	C	F	D	D	E	E	E	E	E	E
Approach Vol, veh/h		457			976			708			1716	
Approach Delay, s/veh		55.0			54.6			61.7			63.9	
Approach LOS		E			D			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	28.5	33.1	29.6	26.8	10.7	50.9	12.5	43.9
Change Period (Y+Rc), s	4.4	5.7	4.4	* 5.1	5.7	* 5.7	4.4	5.1
Max Green Setting (Gmax), s	24.6	27.4	26.6	* 34	6.8	* 45	13.0	47.4
Max Q Clear Time (g_c+I1), s	24.0	22.7	25.1	20.8	5.8	38.0	8.4	24.7
Green Ext Time (p_c), s	0.1	2.1	0.1	0.9	0.0	4.9	0.0	1.7

Intersection Summary	
HCM 6th Ctrl Delay	60.1
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	150	100	150	300	140	105	360	85	200	1350	80
Future Volume (veh/h)	40	150	100	150	300	140	105	360	85	200	1350	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	67	250	167	163	326	152	114	391	92	217	1467	87
Peak Hour Factor	0.60	0.60	0.60	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	301	194	209	375	171	157	1909	445	264	2395	142
Arrive On Green	0.05	0.15	0.15	0.06	0.16	0.16	0.09	1.00	1.00	0.08	0.62	0.62
Sat Flow, veh/h	1781	2072	1335	3456	2370	1083	3456	3237	754	3456	3858	228
Grp Volume(v), veh/h	67	213	204	163	243	235	114	241	242	217	762	792
Grp Sat Flow(s),veh/h/ln	1781	1777	1630	1728	1777	1675	1728	2011	1981	1728	2011	2075
Q Serve(g_s), s	5.6	17.5	18.3	7.0	20.0	20.6	4.8	0.0	0.0	9.3	34.7	35.1
Cycle Q Clear(g_c), s	5.6	17.5	18.3	7.0	20.0	20.6	4.8	0.0	0.0	9.3	34.7	35.1
Prop In Lane	1.00		0.82	1.00		0.65	1.00		0.38	1.00		0.11
Lane Grp Cap(c), veh/h	85	258	237	209	281	265	157	1186	1168	264	1248	1288
V/C Ratio(X)	0.79	0.82	0.86	0.78	0.86	0.89	0.73	0.20	0.21	0.82	0.61	0.61
Avail Cap(c_a), veh/h	153	344	315	299	345	325	244	1186	1168	382	1248	1288
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.68	0.68	0.68
Uniform Delay (d), s/veh	70.7	62.2	62.6	69.5	61.6	61.8	67.3	0.0	0.0	68.3	17.4	17.4
Incr Delay (d2), s/veh	5.9	8.6	13.2	4.6	14.5	18.7	2.3	0.4	0.4	4.2	1.5	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	8.4	8.4	3.2	10.2	10.2	2.1	0.1	0.1	4.2	15.5	16.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	76.5	70.9	75.8	74.1	76.0	80.5	69.6	0.4	0.4	72.4	18.9	18.9
LnGrp LOS	E	E	E	E	E	F	E	A	A	E	B	B
Approach Vol, veh/h		484			641			597			1771	
Approach Delay, s/veh		73.7			77.2			13.6			25.5	
Approach LOS		E			E			B			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.9	94.0	13.5	26.7	11.2	98.6	11.5	28.6
Change Period (Y+Rc), s	4.4	5.5	4.4	4.9	4.4	* 5.5	4.4	4.9
Max Green Setting (Gmax), s	16.6	72.2	13.0	29.0	10.6	* 78	12.9	29.1
Max Q Clear Time (g_c+I1), s	11.3	2.0	9.0	20.3	6.8	37.1	7.6	22.6
Green Ext Time (p_c), s	0.2	3.7	0.1	1.0	0.1	20.1	0.0	1.1

Intersection Summary	
HCM 6th Ctrl Delay	39.6
HCM 6th LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	50	200	150	40	40	70	450	60	20	1550	30
Future Volume (veh/h)	60	50	200	150	40	40	70	450	60	20	1550	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	75	162	167	153	119	53	76	489	65	22	1685	33
Peak Hour Factor	0.76	0.76	0.76	0.75	0.75	0.75	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	173	182	154	197	136	60	146	1810	240	35	1954	38
Arrive On Green	0.10	0.10	0.10	0.11	0.11	0.11	0.08	1.00	1.00	0.03	0.64	0.64
Sat Flow, veh/h	1781	1870	1585	1781	1226	546	3456	3570	472	1781	4034	79
Grp Volume(v), veh/h	75	162	167	153	0	172	76	275	279	22	838	880
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	0	1772	1728	2011	2031	1781	2011	2102
Q Serve(g_s), s	3.0	6.4	7.3	6.3	0.0	7.2	1.6	0.0	0.0	0.9	25.0	25.2
Cycle Q Clear(g_c), s	3.0	6.4	7.3	6.3	0.0	7.2	1.6	0.0	0.0	0.9	25.0	25.2
Prop In Lane	1.00		1.00	1.00		0.31	1.00		0.23	1.00		0.04
Lane Grp Cap(c), veh/h	173	182	154	197	0	196	146	1020	1030	35	974	1018
V/C Ratio(X)	0.43	0.89	1.08	0.78	0.00	0.88	0.52	0.27	0.27	0.63	0.86	0.86
Avail Cap(c_a), veh/h	173	182	154	197	0	196	184	1020	1030	95	974	1018
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.33	1.33	1.33
Upstream Filter(I)	1.00	1.00	1.00	1.00	0.00	1.00	0.87	0.87	0.87	0.70	0.70	0.70
Uniform Delay (d), s/veh	31.9	33.5	33.8	32.4	0.0	32.8	33.6	0.0	0.0	36.3	11.3	11.4
Incr Delay (d2), s/veh	0.6	36.6	96.2	16.1	0.0	32.1	0.9	0.6	0.6	4.8	7.2	7.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	4.7	6.8	3.5	0.0	4.7	0.6	0.2	0.2	0.4	7.8	8.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.5	70.1	130.0	48.5	0.0	64.9	34.5	0.6	0.6	41.0	18.5	18.4
LnGrp LOS	C	E	F	D	A	E	C	A	A	D	B	B
Approach Vol, veh/h		404			325			630			1740	
Approach Delay, s/veh		87.9			57.2			4.7			18.8	
Approach LOS		F			E			A			B	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.9	43.7		12.2	7.6	42.0		13.2
Change Period (Y+Rc), s	4.4	5.7		4.9	4.4	5.7		4.9
Max Green Setting (Gmax), s	4.0	35.5		7.3	4.0	35.5		8.3
Max Q Clear Time (g_c+I1), s	2.9	2.0		9.3	3.6	27.2		9.2
Green Ext Time (p_c), s	0.0	4.6		0.0	0.0	5.1		0.0

Intersection Summary		
HCM 6th Ctrl Delay		28.9
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	1240	220	350	1450	130	380	290	110	550	1050	300
Future Volume (veh/h)	160	1240	220	350	1450	130	380	290	110	550	1050	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	174	1348	239	380	1576	141	413	315	120	591	1129	323
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	721	2051	808	387	1633	934	429	903	356	634	1142	450
Arrive On Green	0.42	1.00	1.00	0.15	0.54	0.54	0.21	0.37	0.37	0.37	0.57	0.57
Sat Flow, veh/h	3456	4021	1585	3456	4021	1585	3456	4021	1585	3456	4021	1585
Grp Volume(v), veh/h	174	1348	239	380	1576	141	413	315	120	591	1129	323
Grp Sat Flow(s),veh/h/ln	1728	2011	1585	1728	2011	1585	1728	2011	1585	1728	2011	1585
Q Serve(g_s), s	4.9	0.0	0.0	16.4	56.5	3.1	17.8	8.4	8.1	24.7	41.5	18.6
Cycle Q Clear(g_c), s	4.9	0.0	0.0	16.4	56.5	3.1	17.8	8.4	8.1	24.7	41.5	18.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	721	2051	808	387	1633	934	429	903	356	634	1142	450
V/C Ratio(X)	0.24	0.66	0.30	0.98	0.97	0.15	0.96	0.35	0.34	0.93	0.99	0.72
Avail Cap(c_a), veh/h	721	2051	808	387	1633	934	429	903	356	811	1142	450
HCM Platoon Ratio	2.00	2.00	2.00	1.33	1.33	1.33	1.67	1.67	1.67	2.00	2.00	2.00
Upstream Filter(I)	0.09	0.09	0.09	0.09	0.09	0.09	0.85	0.85	0.85	0.45	0.45	0.45
Uniform Delay (d), s/veh	36.0	0.0	0.0	63.7	33.5	8.0	59.1	39.0	38.9	46.6	32.2	19.4
Incr Delay (d2), s/veh	0.0	0.2	0.1	9.9	2.4	0.0	30.7	0.2	0.6	7.1	15.2	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	0.0	7.4	24.3	0.8	8.8	3.9	3.0	9.3	16.4	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	36.0	0.2	0.1	73.6	35.9	8.1	89.9	39.2	39.5	53.7	47.4	22.2
LnGrp LOS	D	A	A	E	D	A	F	D	D	D	D	C
Approach Vol, veh/h		1761			2097			848			2043	
Approach Delay, s/veh		3.7			40.8			63.9			45.2	
Approach LOS		A			D			E			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.2	82.1	23.0	48.3	36.9	66.4	31.9	39.4
Change Period (Y+Rc), s	4.4	5.3	4.4	* 5.7	5.3	* 5.5	4.4	5.7
Max Green Setting (Gmax), s	16.8	52.5	18.6	* 43	8.2	* 61	35.2	25.7
Max Q Clear Time (g_c+I1), s	18.4	2.0	19.8	43.5	6.9	58.5	26.7	10.4
Green Ext Time (p_c), s	0.0	36.6	0.0	0.0	0.0	2.3	0.8	2.3

Intersection Summary	
HCM 6th Ctrl Delay	35.4
HCM 6th LOS	D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	190	80	220	270	120	310	130	620	210	300	1150	170
Future Volume (veh/h)	190	80	220	270	120	310	130	620	210	300	1150	170
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	182	212	297	265	307	289	141	674	228	326	1250	185
Peak Hour Factor	0.74	0.74	0.74	0.83	0.83	0.83	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	251	263	223	354	371	315	206	1686	665	369	1414	208
Arrive On Green	0.14	0.14	0.14	0.20	0.20	0.20	0.23	0.84	0.84	0.21	0.80	0.80
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1781	4021	1585	3456	3516	517
Grp Volume(v), veh/h	182	212	297	265	307	289	141	674	228	326	712	723
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1781	2011	1585	1728	2011	2023
Q Serve(g_s), s	14.7	16.5	21.1	21.0	23.6	26.8	10.8	6.1	4.9	13.7	35.6	36.9
Cycle Q Clear(g_c), s	14.7	16.5	21.1	21.0	23.6	26.8	10.8	6.1	4.9	13.7	35.6	36.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.26
Lane Grp Cap(c), veh/h	251	263	223	354	371	315	206	1686	665	369	808	813
V/C Ratio(X)	0.73	0.81	1.33	0.75	0.83	0.92	0.69	0.40	0.34	0.88	0.88	0.89
Avail Cap(c_a), veh/h	251	263	223	386	405	343	206	1686	665	495	808	813
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.40	0.40	0.40	0.30	0.30	0.30
Uniform Delay (d), s/veh	61.7	62.5	64.4	56.6	57.6	58.9	55.2	7.5	7.4	58.1	12.3	12.4
Incr Delay (d2), s/veh	8.8	15.5	176.8	6.1	11.2	26.5	3.1	0.3	0.6	3.8	4.5	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	9.0	19.5	10.1	12.4	13.1	4.6	2.1	1.5	5.5	6.6	6.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	70.5	78.0	241.2	62.7	68.9	85.5	58.3	7.8	8.0	61.9	16.8	17.3
LnGrp LOS	E	E	F	E	E	F	E	A	A	E	B	B
Approach Vol, veh/h		691			861			1043			1761	
Approach Delay, s/veh		146.2			72.5			14.7			25.3	
Approach LOS		F			E			B			C	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	20.4	68.9		26.0	23.3	66.0		34.7
Change Period (Y+Rc), s	4.4	6.0		4.9	6.0	* 5.7		4.9
Max Green Setting (Gmax), s	21.5	54.7		21.1	16.2	* 60		32.5
Max Q Clear Time (g_c+I1), s	15.7	8.1		23.1	12.8	38.9		28.8
Green Ext Time (p_c), s	0.3	7.8		0.0	0.1	13.5		1.0

Intersection Summary		
HCM 6th Ctrl Delay		51.3
HCM 6th LOS		D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	280	440	180	300	700	100	255	500	175	180	1280	180
Future Volume (veh/h)	280	440	180	300	700	100	255	500	175	180	1280	180
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	304	478	196	326	761	109	277	543	190	196	1391	196
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	304	751	563	374	680	97	276	710	532	239	1306	515
Arrive On Green	0.03	0.12	0.12	0.11	0.38	0.38	0.05	0.22	0.22	0.09	0.43	0.43
Sat Flow, veh/h	3456	2116	1585	3456	1810	259	3456	2116	1585	3456	4021	1585
Grp Volume(v), veh/h	304	478	196	326	0	870	277	543	190	196	1391	196
Grp Sat Flow(s),veh/h/ln	1728	2116	1585	1728	0	2070	1728	2116	1585	1728	2011	1585
Q Serve(g_s), s	13.2	32.3	17.1	13.9	0.0	56.3	12.0	36.0	15.2	8.4	48.7	12.6
Cycle Q Clear(g_c), s	13.2	32.3	17.1	13.9	0.0	56.3	12.0	36.0	15.2	8.4	48.7	12.6
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	304	751	563	374	0	777	276	710	532	239	1306	515
V/C Ratio(X)	1.00	0.64	0.35	0.87	0.00	1.12	1.00	0.76	0.36	0.82	1.07	0.38
Avail Cap(c_a), veh/h	304	751	563	488	0	777	276	710	532	263	1306	515
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	0.67	0.67	0.67	1.33	1.33	1.33
Upstream Filter(I)	0.77	0.77	0.77	0.09	0.00	0.09	0.25	0.25	0.25	0.42	0.42	0.42
Uniform Delay (d), s/veh	72.8	57.0	50.2	65.8	0.0	46.9	71.0	52.6	44.5	67.2	42.6	32.4
Incr Delay (d2), s/veh	45.2	1.6	0.4	1.1	0.0	55.8	27.5	2.0	0.5	7.0	37.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	18.8	7.4	6.2	0.0	40.5	6.4	20.0	6.3	3.8	28.4	4.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	118.0	58.6	50.6	67.0	0.0	102.7	98.5	54.6	45.0	74.2	79.6	33.3
LnGrp LOS	F	E	D	E	A	F	F	D	D	E	F	C
Approach Vol, veh/h		978			1196			1010			1783	
Approach Delay, s/veh		75.5			92.9			64.9			73.9	
Approach LOS		E			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.8	56.2	20.6	58.4	16.4	54.6	17.6	61.4
Change Period (Y+Rc), s	4.4	* 5.9	4.4	* 5.1	4.4	5.9	4.4	5.1
Max Green Setting (Gmax), s	11.4	* 50	21.2	* 49	12.0	48.7	13.2	56.3
Max Q Clear Time (g_c+I1), s	10.4	38.0	15.9	34.3	14.0	50.7	15.2	58.3
Green Ext Time (p_c), s	0.0	7.9	0.3	4.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	76.9
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	80	310	310	50	60	200	810	40	100	1950	80
Future Volume (veh/h)	60	80	310	310	50	60	200	810	40	100	1950	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	71	244	265	392	63	76	217	880	43	109	2120	87
Peak Hour Factor	0.85	0.85	0.85	0.79	0.79	0.79	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	153	495	561	203	26	31	114	946	46	369	1260	52
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.13	0.95	0.95	0.21	0.62	0.62
Sat Flow, veh/h	348	1399	1585	455	73	88	1781	2001	98	1781	2019	83
Grp Volume(v), veh/h	315	0	265	531	0	0	217	0	923	109	0	2207
Grp Sat Flow(s),veh/h/ln	1747	0	1585	616	0	0	1781	0	2099	1781	0	2102
Q Serve(g_s), s	0.0	0.0	19.5	32.1	0.0	0.0	9.6	0.0	29.9	7.8	0.0	93.6
Cycle Q Clear(g_c), s	21.0	0.0	19.5	53.1	0.0	0.0	9.6	0.0	29.9	7.8	0.0	93.6
Prop In Lane	0.23		1.00	0.74		0.14	1.00		0.05	1.00		0.04
Lane Grp Cap(c), veh/h	648	0	561	260	0	0	114	0	992	369	0	1312
V/C Ratio(X)	0.49	0.00	0.47	2.04	0.00	0.00	1.90	0.00	0.93	0.30	0.00	1.68
Avail Cap(c_a), veh/h	648	0	561	260	0	0	114	0	992	369	0	1312
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	0.67	0.00	0.67	0.22	0.00	0.22
Uniform Delay (d), s/veh	37.9	0.0	37.6	61.5	0.0	0.0	65.4	0.0	3.0	50.3	0.0	28.2
Incr Delay (d2), s/veh	0.2	0.0	0.2	483.4	0.0	0.0	427.7	0.0	11.8	0.0	0.0	307.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	0.0	7.7	44.9	0.0	0.0	17.5	0.0	5.1	3.4	0.0	154.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	38.2	0.0	37.8	544.9	0.0	0.0	493.1	0.0	14.8	50.3	0.0	336.0
LnGrp LOS	D	A	D	F	A	A	F	A	B	D	A	F
Approach Vol, veh/h		580			531			1140			2316	
Approach Delay, s/veh		38.0			544.9			105.8			322.5	
Approach LOS		D			F			F			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	14.0	99.7		58.0	37.1	76.6		58.0				
Change Period (Y+Rc), s	4.4	5.9		4.9	5.9	* 5.7		4.9				
Max Green Setting (Gmax), s	9.6	72.1		53.1	11.0	* 71		53.1				
Max Q Clear Time (g_c+I1), s	11.6	95.6		55.1	9.8	31.9		23.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	13.6		1.7				

Intersection Summary		
HCM 6th Ctrl Delay		258.2
HCM 6th LOS		F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	150	0	50	0	1000	100	180	2390	0
Future Volume (veh/h)	0	0	0	150	0	50	0	1000	100	180	2390	0
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	0	1870	1870	2116	1870	1870	2116	0
Adj Flow Rate, veh/h				188	0	62	0	1087	109	191	2543	0
Peak Hour Factor				0.80	0.92	0.80	0.92	0.92	0.92	0.94	0.94	0.92
Percent Heavy Veh, %				2	0	2	2	2	2	2	2	0
Cap, veh/h				156	0	138	1	1565	1172	237	1772	0
Arrive On Green				0.09	0.00	0.09	0.00	0.74	0.74	0.07	0.84	0.00
Sat Flow, veh/h				1781	0	1585	1781	2116	1585	3456	2116	0
Grp Volume(v), veh/h				188	0	62	0	1087	109	191	2543	0
Grp Sat Flow(s),veh/h/ln				1781	0	1585	1781	2116	1585	1728	2116	0
Q Serve(g_s), s				13.1	0.0	5.6	0.0	41.3	2.9	8.2	125.6	0.0
Cycle Q Clear(g_c), s				13.1	0.0	5.6	0.0	41.3	2.9	8.2	125.6	0.0
Prop In Lane				1.00		1.00	1.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h				156	0	138	1	1565	1172	237	1772	0
V/C Ratio(X)				1.21	0.00	0.45	0.00	0.69	0.09	0.81	1.43	0.00
Avail Cap(c_a), veh/h				156	0	138	48	1565	1172	325	1772	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	0.09	0.09	0.09	0.09	0.00
Uniform Delay (d), s/veh				68.4	0.0	65.0	0.0	10.5	5.5	68.9	12.2	0.0
Incr Delay (d2), s/veh				139.1	0.0	0.8	0.0	0.2	0.0	0.7	196.0	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				12.0	0.0	5.0	0.0	16.4	0.9	3.6	131.9	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				207.5	0.0	65.9	0.0	10.7	5.5	69.6	208.2	0.0
LnGrp LOS				F	A	E	A	B	A	E	F	A
Approach Vol, veh/h					250			1196			2734	
Approach Delay, s/veh					172.4			10.2			198.5	
Approach LOS					F			B			F	

Timer - Assigned Phs	1	2		4	5	6
Phs Duration (G+Y+Rc), s	0.0	132.0		18.0	14.7	117.3
Change Period (Y+Rc), s	4.4	6.4		4.9	4.4	* 6.4
Max Green Setting (Gmax), s	4.0	117.2		13.1	14.1	* 1.1E2
Max Q Clear Time (g_c+I1), s	0.0	127.6		15.1	10.2	43.3
Green Ext Time (p_c), s	0.0	0.0		0.0	0.1	22.8

Intersection Summary		
HCM 6th Ctrl Delay		143.1
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	440	230	370	490	170	200	550	280	450	1480	520
Future Volume (veh/h)	310	440	230	370	490	170	200	550	280	450	1480	520
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1945	1870	1870	2116	1870	1870	2116	1870
Adj Flow Rate, veh/h	326	463	242	425	563	195	217	598	304	506	1663	584
Peak Hour Factor	0.95	0.95	0.95	0.87	0.87	0.87	0.92	0.92	0.92	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	211	402	340	266	457	372	137	852	638	596	1415	1059
Arrive On Green	0.06	0.21	0.21	0.08	0.23	0.23	0.08	0.40	0.40	0.33	0.67	0.67
Sat Flow, veh/h	3456	1870	1585	3456	1945	1585	1781	2116	1585	1781	2116	1585
Grp Volume(v), veh/h	326	463	242	425	563	195	217	598	304	506	1663	584
Grp Sat Flow(s),veh/h/ln	1728	1870	1585	1728	1945	1585	1781	2116	1585	1781	2116	1585
Q Serve(g_s), s	11.6	40.8	27.4	14.6	44.6	13.8	14.6	44.7	26.9	50.1	127.0	36.8
Cycle Q Clear(g_c), s	11.6	40.8	27.4	14.6	44.6	13.8	14.6	44.7	26.9	50.1	127.0	36.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	211	402	340	266	457	372	137	852	638	596	1415	1059
V/C Ratio(X)	1.55	1.15	0.71	1.60	1.23	0.52	1.59	0.70	0.48	0.85	1.18	0.55
Avail Cap(c_a), veh/h	211	402	340	266	457	372	137	852	638	596	1415	1059
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.62	0.62	0.62	0.09	0.09	0.09	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	89.2	74.6	71.9	87.7	72.7	29.1	87.7	47.3	42.0	58.7	31.5	16.5
Incr Delay (d2), s/veh	259.5	85.6	3.9	271.8	106.7	0.2	295.2	2.6	0.5	1.1	79.7	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.9	29.4	11.6	16.6	35.8	5.4	17.9	23.9	10.8	22.5	90.8	13.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	348.7	160.2	75.8	359.5	179.4	29.2	382.9	49.8	42.5	59.8	111.2	16.7
LnGrp LOS	F	F	E	F	F	C	F	D	D	E	F	B
Approach Vol, veh/h		1031			1183			1119			2753	
Approach Delay, s/veh		200.0			219.4			112.4			81.7	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	69.2	83.0	19.8	46.0	19.0	133.2	16.0	49.8
Change Period (Y+Rc), s	5.4	* 5.9	5.2	* 5.2	4.4	5.4	4.4	5.2
Max Green Setting (Gmax), s	59.2	* 56	14.6	* 41	14.6	100.6	11.6	43.8
Max Q Clear Time (g_c+I1), s	52.1	46.7	16.6	42.8	16.6	129.0	13.6	46.6
Green Ext Time (p_c), s	0.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	134.2
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Intersection						
Int Delay, s/veh	30.6					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	470	400	500	1660	500
Future Vol, veh/h	0	470	400	500	1660	500
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Free	-	None	-	Free
Storage Length	-	0	265	-	-	160
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	91	91	91	91
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	580	440	549	1824	549

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	-	1824	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.13	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.219	-	-	-
Pot Cap-1 Maneuver	0	0	~ 333	-	-	0
Stage 1	0	0	-	-	-	0
Stage 2	0	0	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	-	-	~ 333	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	86.9	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT
Capacity (veh/h)	~ 333	-	-	-
HCM Lane V/C Ratio	1.32	-	-	-
HCM Control Delay (s)	195.5	-	0	-
HCM Lane LOS	F	-	A	-
HCM 95th %tile Q(veh)	21.1	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	400	300	610	360	800	1330
Future Volume (veh/h)	400	300	610	360	800	1330
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	2116	1870	1870	2116
Adj Flow Rate, veh/h	465	349	670	0	870	1446
Peak Hour Factor	0.86	0.86	0.91	0.91	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	483	430	1008		241	1362
Arrive On Green	0.27	0.27	0.48	0.00	0.14	0.64
Sat Flow, veh/h	1781	1585	2116	1585	1781	2116
Grp Volume(v), veh/h	465	349	670	0	870	1446
Grp Sat Flow(s),veh/h/ln	1781	1585	2116	1585	1781	2116
Q Serve(g_s), s	38.0	30.4	35.8	0.0	20.0	95.0
Cycle Q Clear(g_c), s	38.0	30.4	35.8	0.0	20.0	95.0
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	483	430	1008		241	1362
V/C Ratio(X)	0.96	0.81	0.66		3.60	1.06
Avail Cap(c_a), veh/h	483	430	1008		241	1362
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	53.1	50.3	29.6	0.0	63.8	26.3
Incr Delay (d2), s/veh	31.6	11.3	1.7	0.0	1182.2	42.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.4	13.5	18.0	0.0	88.2	58.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	84.7	61.6	31.3	0.0	1246.0	68.8
LnGrp LOS	F	E	C		F	F
Approach Vol, veh/h	814		670			2316
Approach Delay, s/veh	74.8		31.3			511.0
Approach LOS	E		C			F

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	24.7	77.8		45.1		102.5
Change Period (Y+Rc), s	* 4.7	7.5		5.1		7.5
Max Green Setting (Gmax), s	* 20	30.0		40.0		95.0
Max Q Clear Time (g_c+I1), s	22.0	37.8		40.0		97.0
Green Ext Time (p_c), s	0.0	0.0		0.0		0.0

Intersection Summary			
HCM 6th Ctrl Delay			333.0
HCM 6th LOS			F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [NBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1690	350	1110	700	140	880
Future Volume (veh/h)	1690	350	1110	700	140	880
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1878	389	1247	787	154	967
Peak Hour Factor	0.90	0.90	0.89	0.89	0.91	0.91
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1815	809	853	2811	890	1408
Arrive On Green	0.51	0.51	0.25	0.79	0.26	0.26
Sat Flow, veh/h	3647	1585	3456	3647	3456	2790
Grp Volume(v), veh/h	1878	389	1247	787	154	967
Grp Sat Flow(s),veh/h/ln	1777	1585	1728	1777	1728	1395
Q Serve(g_s), s	67.4	21.0	32.6	7.9	4.6	34.0
Cycle Q Clear(g_c), s	67.4	21.0	32.6	7.9	4.6	34.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1815	809	853	2811	890	1408
V/C Ratio(X)	1.03	0.48	1.46	0.28	0.17	0.69
Avail Cap(c_a), veh/h	1815	809	853	2811	890	1408
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.68	0.68	1.00	1.00
Uniform Delay (d), s/veh	32.3	20.9	49.7	3.7	38.1	24.8
Incr Delay (d2), s/veh	18.0	0.2	212.0	0.2	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	31.2	7.4	38.7	2.1	1.9	26.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	50.3	21.1	261.7	3.9	38.1	26.0
LnGrp LOS	F	C	F	A	D	C
Approach Vol, veh/h	2267			2034	1121	
Approach Delay, s/veh	45.3			161.9	27.6	
Approach LOS	D			F	C	

Timer - Assigned Phs	1	2		4		6
Phs Duration (G+Y+Rc), s	37.0	73.3		39.6		110.3
Change Period (Y+Rc), s	4.4	5.4		5.6		* 5.4
Max Green Setting (Gmax), s	32.6	50.4		34.0		* 88
Max Q Clear Time (g_c+I1), s	34.6	69.4		36.0		9.9
Green Ext Time (p_c), s	0.0	0.0		0.0		29.2

Intersection Summary	
HCM 6th Ctrl Delay	85.4
HCM 6th LOS	F

Notes
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2430	100	440	1740	0	70	0	280	0	0	0
Future Volume (veh/h)	0	2430	100	440	1740	0	70	0	280	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	0	1870	1870	1870	1870	0	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	0	2641	109	478	1891	0	84	0	337	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.83	0.92	0.83	0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0	2	2	2	2	2	2
Cap, veh/h	0	2258	93	359	2795	0	236	0	647	0	239	0
Arrive On Green	0.00	0.65	0.65	0.10	0.79	0.00	0.13	0.00	0.13	0.00	0.00	0.00
Sat Flow, veh/h	0	3572	143	3456	3647	0	1418	0	2790	0	1870	0
Grp Volume(v), veh/h	0	1340	1410	478	1891	0	84	0	337	0	0	0
Grp Sat Flow(s),veh/h/ln	0	1777	1845	1728	1777	0	1418	0	1395	0	1870	0
Q Serve(g_s), s	0.0	85.0	85.0	13.6	31.8	0.0	7.2	0.0	13.8	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	85.0	85.0	13.6	31.8	0.0	7.2	0.0	13.8	0.0	0.0	0.0
Prop In Lane	0.00		0.08	1.00		0.00	1.00		1.00	0.00		0.00
Lane Grp Cap(c), veh/h	0	1153	1197	359	2795	0	236	0	647	0	239	0
V/C Ratio(X)	0.00	1.16	1.18	1.33	0.68	0.00	0.36	0.00	0.52	0.00	0.00	0.00
Avail Cap(c_a), veh/h	0	1153	1197	359	2795	0	380	0	928	0	443	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	23.0	23.0	58.7	6.4	0.0	52.9	0.0	44.0	0.0	0.0	0.0
Incr Delay (d2), s/veh	0.0	73.7	80.9	167.5	1.3	0.0	0.3	0.0	0.2	0.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	53.9	58.3	14.2	9.0	0.0	2.6	0.0	4.8	0.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	96.7	103.9	226.2	7.7	0.0	53.3	0.0	44.2	0.0	0.0	0.0
LnGrp LOS	A	F	F	F	A	A	D	A	D	A	A	A
Approach Vol, veh/h		2750			2369			421			0	
Approach Delay, s/veh		100.4			51.8			46.0			0.0	
Approach LOS		F			D			D				
Timer - Assigned Phs	1	2		4		6		8				
Phs Duration (G+Y+Rc), s	18.0	90.7		22.3		108.7		22.3				
Change Period (Y+Rc), s	4.4	5.7		* 5.5		* 5.7		5.5				
Max Green Setting (Gmax), s	13.6	71.5		* 31		* 90		30.0				
Max Q Clear Time (g_c+I1), s	15.6	87.0		0.0		33.8		15.8				
Green Ext Time (p_c), s	0.0	0.0		0.0		48.5		0.9				
Intersection Summary												
HCM 6th Ctrl Delay			75.5									
HCM 6th LOS			E									

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	90	0	120	170	290	0	0	1040	150
Future Volume (veh/h)	0	0	0	90	0	120	170	290	0	0	1040	150
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				108	0	145	205	349	0	0	1072	0
Peak Hour Factor				0.83	0.83	0.83	0.83	0.83	0.83	0.97	0.97	0.97
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				126	0	169	257	2109	0	0	1292	
Arrive On Green				0.18	0.00	0.18	0.14	0.59	0.00	0.00	0.36	0.00
Sat Flow, veh/h				710	0	953	1781	3647	0	0	3647	1585
Grp Volume(v), veh/h				253	0	0	205	349	0	0	1072	0
Grp Sat Flow(s),veh/h/ln				1663	0	0	1781	1777	0	0	1777	1585
Q Serve(g_s), s				7.5	0.0	0.0	5.7	2.3	0.0	0.0	14.1	0.0
Cycle Q Clear(g_c), s				7.5	0.0	0.0	5.7	2.3	0.0	0.0	14.1	0.0
Prop In Lane				0.43		0.57	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				296	0	0	257	2109	0	0	1292	
V/C Ratio(X)				0.86	0.00	0.00	0.80	0.17	0.00	0.00	0.83	
Avail Cap(c_a), veh/h				296	0	0	334	2437	0	0	1403	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				20.4	0.0	0.0	21.2	4.7	0.0	0.0	14.8	0.0
Incr Delay (d2), s/veh				21.1	0.0	0.0	9.9	0.0	0.0	0.0	4.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				4.4	0.0	0.0	2.8	0.5	0.0	0.0	5.3	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				41.5	0.0	0.0	31.0	4.7	0.0	0.0	18.9	0.0
LnGrp LOS				D	A	A	C	A	A	A	B	
Approach Vol, veh/h					253			554			1072	
Approach Delay, s/veh					41.5			14.5			18.9	
Approach LOS					D			B			B	
Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		37.2			11.8	25.4		14.0				
Change Period (Y+Rc), s		* 6.8			4.4	6.8		4.9				
Max Green Setting (Gmax), s		* 35			9.6	20.2		9.1				
Max Q Clear Time (g_c+I1), s		4.3			7.7	16.1		9.5				
Green Ext Time (p_c), s		2.3			0.1	2.5		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			20.6									
HCM 6th LOS			C									

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	120	2200	100	500	1250	280	440	130	550	850	610	150
Future Volume (veh/h)	120	2200	100	500	1250	280	440	130	550	850	610	150
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	130	2391	109	543	1359	304	537	159	671	1037	744	183
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.82	0.82	0.82	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	145	2776	1308	316	2817	1370	466	440	373	566	395	97
Arrive On Green	0.08	0.69	0.69	0.18	1.00	1.00	0.13	0.24	0.24	0.16	0.27	0.27
Sat Flow, veh/h	1781	4021	1585	3456	4021	1585	3456	1870	1585	3456	1450	357
Grp Volume(v), veh/h	130	2391	109	543	1359	304	537	159	671	1037	0	927
Grp Sat Flow(s),veh/h/ln	1781	2011	1585	1728	2011	1585	1728	1870	1585	1728	0	1806
Q Serve(g_s), s	10.0	62.7	1.8	12.6	0.0	0.0	18.6	9.8	32.5	22.6	0.0	37.6
Cycle Q Clear(g_c), s	10.0	62.7	1.8	12.6	0.0	0.0	18.6	9.8	32.5	22.6	0.0	37.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.20
Lane Grp Cap(c), veh/h	145	2776	1308	316	2817	1370	466	440	373	566	0	492
V/C Ratio(X)	0.90	0.86	0.08	1.72	0.48	0.22	1.15	0.36	1.80	1.83	0.00	1.88
Avail Cap(c_a), veh/h	145	2776	1308	316	2817	1370	466	440	373	566	0	492
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.64	0.64	0.64	0.09	0.09	0.09	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.8	16.3	2.3	56.4	0.0	0.0	59.7	44.1	108.5	57.7	0.0	50.2
Incr Delay (d2), s/veh	45.3	3.8	0.1	332.9	0.4	0.2	71.3	0.1	359.9	381.4	0.0	405.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.3	26.0	0.5	19.4	0.1	0.1	12.7	4.6	37.3	39.8	0.0	72.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	108.1	20.1	2.4	389.3	0.4	0.2	131.0	44.1	468.4	439.1	0.0	455.5
LnGrp LOS	F	C	A	F	A	A	F	D	F	F	A	F
Approach Vol, veh/h		2630			2206			1367			1964	
Approach Delay, s/veh		23.7			96.1			286.5			446.9	
Approach LOS		C			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	103.3	23.0	42.5	15.6	104.7	27.5	38.0
Change Period (Y+Rc), s	4.4	6.4	4.4	4.9	4.4	* 6.4	4.9	* 5.5
Max Green Setting (Gmax), s	12.6	49.6	18.6	37.1	11.2	* 52	22.6	* 33
Max Q Clear Time (g_c+I1), s	14.6	64.7	20.6	39.6	12.0	2.0	24.6	34.5
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	29.1	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	189.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2650	950	0	1320	1190	0	0	0	750	0	725
Future Volume (veh/h)	0	2650	950	0	1320	1190	0	0	0	750	0	725
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	0	2116	1870				1870	0	1870
Adj Flow Rate, veh/h	0	2849	1022	0	1404	0				893	0	863
Peak Hour Factor	0.93	0.93	0.93	0.94	0.94	0.94				0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	0	2	2				2	0	2
Cap, veh/h	26	3634	997	0	2334					999	0	847
Arrive On Green	0.00	1.00	1.00	0.00	1.00	0.00				0.29	0.00	0.29
Sat Flow, veh/h	1781	5778	1585	0	4127	1585				3456	0	2790
Grp Volume(v), veh/h	0	2849	1022	0	1404	0				893	0	863
Grp Sat Flow(s),veh/h/ln	1781	1926	1585	0	2011	1585				1728	0	1395
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0				34.2	0.0	39.9
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0				34.2	0.0	39.9
Prop In Lane	1.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	26	3634	997	0	2334					999	0	847
V/C Ratio(X)	0.00	0.78	1.03	0.00	0.60					0.89	0.00	1.02
Avail Cap(c_a), veh/h	26	3634	997	0	2334					999	0	847
HCM Platoon Ratio	2.00	2.00	2.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.09	0.09	0.00	0.54	0.00				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0				47.0	0.0	48.0
Incr Delay (d2), s/veh	0.0	0.2	16.0	0.0	0.6	0.0				10.1	0.0	35.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.1	4.4	0.0	0.2	0.0				16.1	0.0	31.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.2	16.0	0.0	0.6	0.0				57.1	0.0	83.8
LnGrp LOS	A	A	F	A	A					E	A	F
Approach Vol, veh/h		3871			1404						1756	
Approach Delay, s/veh		4.3			0.6						70.2	
Approach LOS		A			A						E	

Timer - Assigned Phs		2		4	5	6
Phs Duration (G+Y+Rc), s		93.0		45.0	6.7	86.3
Change Period (Y+Rc), s		6.2		5.1	* 4.7	6.2
Max Green Setting (Gmax), s		86.8		39.9	* 2	80.1
Max Q Clear Time (g_c+I1), s		2.0		41.9	0.0	2.0
Green Ext Time (p_c), s		49.3		0.0	0.0	8.0

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1810	1590	0	2200	600	350	0	320	0	0	0
Future Volume (veh/h)	0	1810	1590	0	2200	600	350	0	320	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	2116	1870	1870	2116	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	1847	0	0	2391	0	380	0	348			
Peak Hour Factor	0.98	0.98	0.98	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	2	2	2	2	2	2	0	2			
Cap, veh/h	0	3252		1	3252		378	0	202			
Arrive On Green	0.00	1.00	0.00	0.00	0.81	0.00	0.11	0.00	0.11			
Sat Flow, veh/h	0	4127	1585	1781	4021	1585	3456	0	2790			
Grp Volume(v), veh/h	0	1847	0	0	2391	0	380	0	348			
Grp Sat Flow(s),veh/h/ln	0	2011	1585	1781	2011	1585	1728	0	1395			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	38.7	0.0	15.1	0.0	15.1			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	38.7	0.0	15.1	0.0	15.1			
Prop In Lane	0.00		1.00	1.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3252		1	3252		378	0	202			
V/C Ratio(X)	0.00	0.57		0.00	0.74		1.00	0.00	1.72			
Avail Cap(c_a), veh/h	0	3252		65	3252		378	0	202			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.48	0.00	0.00	0.09	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	6.2	0.0	61.5	0.0	130.5			
Incr Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.1	0.0	47.5	0.0	344.7			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.2	0.0	0.0	11.2	0.0	9.1	0.0	9.7			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	0.3	0.0	0.0	6.4	0.0	109.0	0.0	475.2			
LnGrp LOS	A	A		A	A		F	A	F			
Approach Vol, veh/h		1847			2391			728				
Approach Delay, s/veh		0.3			6.4			284.0				
Approach LOS		A			A			F				

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	0.0	117.8				117.8		20.2
Change Period (Y+Rc), s	5.1	6.2				6.2		5.1
Max Green Setting (Gmax), s	5.0	101.5				111.6		15.1
Max Q Clear Time (g_c+I1), s	0.0	2.0				40.7		17.1
Green Ext Time (p_c), s	0.0	13.8				25.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	44.8
HCM 6th LOS	D

Notes

Unsignalized Delay for [EBR, WBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	80	2300	300	320	2240	80	520	30	200	70	20	40
Future Volume (veh/h)	80	2300	300	320	2240	80	520	30	200	70	20	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	85	2447	319	348	2435	87	627	0	265	140	40	80
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.83	0.83	0.83	0.50	0.50	0.50
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	1907	752	267	2010	71	766	0	682	141	40	160
Arrive On Green	0.04	0.47	0.47	0.08	0.51	0.51	0.22	0.00	0.22	0.10	0.10	0.10
Sat Flow, veh/h	1781	4021	1585	3456	3961	141	3563	0	3170	1400	400	1585
Grp Volume(v), veh/h	85	2447	319	348	1229	1293	627	0	265	180	0	80
Grp Sat Flow(s),veh/h/ln	1781	2011	1585	1728	2011	2091	1781	0	1585	1800	0	1585
Q Serve(g_s), s	6.6	71.1	19.9	11.6	76.1	76.1	25.1	0.0	10.7	15.0	0.0	7.2
Cycle Q Clear(g_c), s	6.6	71.1	19.9	11.6	76.1	76.1	25.1	0.0	10.7	15.0	0.0	7.2
Prop In Lane	1.00		1.00	1.00		0.07	1.00		1.00	0.78		1.00
Lane Grp Cap(c), veh/h	78	1907	752	267	1020	1061	766	0	682	181	0	160
V/C Ratio(X)	1.08	1.28	0.42	1.30	1.20	1.22	0.82	0.00	0.39	0.99	0.00	0.50
Avail Cap(c_a), veh/h	78	1907	752	267	1020	1061	831	0	740	181	0	160
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.74	0.74	0.74	0.09	0.09	0.09	0.90	0.00	0.90	1.00	0.00	1.00
Uniform Delay (d), s/veh	71.7	39.4	26.0	69.2	36.9	36.9	56.1	0.0	50.4	67.4	0.0	63.9
Incr Delay (d2), s/veh	112.0	130.6	1.3	138.5	92.8	99.2	8.6	0.0	1.5	64.7	0.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	67.9	7.6	10.2	61.4	65.8	12.3	0.0	4.4	10.2	0.0	3.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	183.7	170.0	27.3	207.7	129.7	136.2	64.7	0.0	51.9	132.1	0.0	64.8
LnGrp LOS	F	F	C	F	F	F	E	A	D	F	A	E
Approach Vol, veh/h		2851			2870			892			260	
Approach Delay, s/veh		154.4			142.1			60.9			111.4	
Approach LOS		F			F			E			F	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.0	76.8		20.0	11.0	81.8		37.2
Change Period (Y+Rc), s	4.4	* 5.7		4.9	4.4	5.7		4.9
Max Green Setting (Gmax), s	11.6	* 69		15.1	6.6	73.4		35.0
Max Q Clear Time (g_c+I1), s	13.6	73.1		17.0	8.6	78.1		27.1
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		5.1

Intersection Summary	
HCM 6th Ctrl Delay	135.5
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	560	1730	180	390	1750	150	310	350	80	250	800	900
Future Volume (veh/h)	560	1730	180	390	1750	150	310	350	80	250	800	900
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	583	1802	188	424	1902	163	378	427	98	281	899	1011
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.82	0.82	0.82	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	359	1399	143	290	1448	571	267	922	411	301	1249	557
Arrive On Green	0.14	0.51	0.51	0.08	0.36	0.36	0.13	0.43	0.43	0.17	0.35	0.35
Sat Flow, veh/h	3456	3682	377	3456	4021	1585	3456	3554	1585	1781	3554	1585
Grp Volume(v), veh/h	583	969	1021	424	1902	163	378	427	98	281	899	1011
Grp Sat Flow(s),veh/h/ln	1728	2011	2049	1728	2011	1585	1728	1777	1585	1781	1777	1585
Q Serve(g_s), s	15.6	57.0	57.0	12.6	54.0	11.0	11.6	12.8	5.9	23.3	33.0	52.7
Cycle Q Clear(g_c), s	15.6	57.0	57.0	12.6	54.0	11.0	11.6	12.8	5.9	23.3	33.0	52.7
Prop In Lane	1.00		0.18	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	359	764	778	290	1448	571	267	922	411	301	1249	557
V/C Ratio(X)	1.62	1.27	1.31	1.46	1.31	0.29	1.41	0.46	0.24	0.93	0.72	1.82
Avail Cap(c_a), veh/h	359	764	778	290	1448	571	267	922	411	306	1249	557
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.28	0.28	0.28	1.00	1.00	1.00	0.09	0.09	0.09
Uniform Delay (d), s/veh	64.6	37.1	37.1	68.7	48.0	34.2	65.3	35.1	33.1	61.5	42.2	48.6
Incr Delay (d2), s/veh	281.1	122.0	140.8	212.7	142.7	0.4	207.2	0.4	0.3	5.5	0.2	367.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.5	50.4	55.4	14.1	54.8	4.3	12.5	5.0	2.2	10.9	14.3	77.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	345.8	159.1	177.9	281.4	190.7	34.6	272.5	35.5	33.4	66.9	42.4	416.3
LnGrp LOS	F	F	F	F	F	C	F	D	C	E	D	F
Approach Vol, veh/h		2573			2489			903			2191	
Approach Delay, s/veh		208.8			195.9			134.5			218.1	
Approach LOS		F			F			F			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.0	62.5	16.0	58.0	20.0	59.5	29.8	44.2
Change Period (Y+Rc), s	4.4	* 5.4	4.4	5.3	4.4	5.4	4.4	5.3
Max Green Setting (Gmax), s	12.6	* 54	11.6	52.7	15.6	50.6	25.8	38.5
Max Q Clear Time (g_c+I1), s	14.6	59.0	13.6	54.7	17.6	56.0	25.3	14.8
Green Ext Time (p_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0

Intersection Summary	
HCM 6th Ctrl Delay	199.1
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	1600	290	370	1540	110	200	50	270	360	150	260
Future Volume (veh/h)	100	1600	290	370	1540	110	200	50	270	360	150	260
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	1739	315	402	1674	120	140	174	303	429	179	310
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.89	0.89	0.89	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	1415	558	812	2065	147	207	218	369	286	285	255
Arrive On Green	0.02	0.12	0.12	0.16	0.36	0.36	0.12	0.12	0.12	0.16	0.16	0.16
Sat Flow, veh/h	1781	4021	1585	3456	3808	271	1781	1870	3170	1781	1777	1585
Grp Volume(v), veh/h	109	1739	315	402	877	917	140	174	303	429	179	310
Grp Sat Flow(s),veh/h/ln	1781	2011	1585	1728	2011	2068	1781	1870	1585	1781	1777	1585
Q Serve(g_s), s	7.6	52.8	28.2	15.9	58.9	60.3	11.3	13.6	14.0	24.1	14.1	24.1
Cycle Q Clear(g_c), s	7.6	52.8	28.2	15.9	58.9	60.3	11.3	13.6	14.0	24.1	14.1	24.1
Prop In Lane	1.00		1.00	1.00		0.13	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	90	1415	558	812	1090	1121	207	218	369	286	285	255
V/C Ratio(X)	1.21	1.23	0.56	0.50	0.80	0.82	0.68	0.80	0.82	1.50	0.63	1.22
Avail Cap(c_a), veh/h	90	1415	558	812	1090	1121	487	511	866	286	285	255
HCM Platoon Ratio	0.33	0.33	0.33	0.67	0.67	0.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.33	0.33	0.33	0.09	0.09	0.09	1.00	1.00	1.00	0.75	0.75	0.75
Uniform Delay (d), s/veh	73.7	66.3	55.4	55.1	40.6	41.0	63.6	64.6	64.8	63.0	58.8	63.0
Incr Delay (d2), s/veh	122.6	105.1	1.4	0.0	0.6	0.6	1.4	2.6	1.8	237.9	6.7	121.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	49.2	12.2	7.1	30.1	31.7	5.2	6.6	5.7	29.8	6.9	18.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	196.4	171.3	56.8	55.1	41.2	41.7	65.0	67.1	66.5	300.9	65.4	184.6
LnGrp LOS	F	F	E	E	D	D	E	E	E	F	E	F
Approach Vol, veh/h		2163			2196			617			918	
Approach Delay, s/veh		155.9			43.9			66.3			215.7	
Approach LOS		F			D			E			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	40.5	58.1		29.0	12.0	86.6		22.4				
Change Period (Y+Rc), s	5.3	* 5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	12.6	* 53		24.1	7.6	57.8		41.0				
Max Q Clear Time (g_c+I1), s	17.9	54.8		26.1	9.6	62.3		16.0				
Green Ext Time (p_c), s	0.0	0.0		0.0	0.0	0.0		1.4				

Intersection Summary	
HCM 6th Ctrl Delay	114.1
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	2020	150	320	1670	285	210	130	520	830	390	140
Future Volume (veh/h)	60	2020	150	320	1670	285	210	130	520	830	390	140
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	65	2196	163	348	1815	310	266	165	658	954	448	161
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.79	0.79	0.79	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	2547	1004	244	2724	1890	317	877	885	567	829	296
Arrive On Green	0.04	0.84	0.84	0.07	0.68	0.68	0.09	0.25	0.25	0.16	0.32	0.32
Sat Flow, veh/h	3456	4021	1585	3456	4021	2790	3456	3554	2790	3456	2568	915
Grp Volume(v), veh/h	65	2196	163	348	1815	310	266	165	658	954	309	300
Grp Sat Flow(s),veh/h/ln	1728	2011	1585	1728	2011	1395	1728	1777	1395	1728	1777	1706
Q Serve(g_s), s	2.8	47.2	2.8	10.6	39.8	6.3	11.4	5.5	31.0	24.6	21.4	21.7
Cycle Q Clear(g_c), s	2.8	47.2	2.8	10.6	39.8	6.3	11.4	5.5	31.0	24.6	21.4	21.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	92	2547	1004	244	2724	1890	317	877	885	567	574	551
V/C Ratio(X)	0.71	0.86	0.16	1.43	0.67	0.16	0.84	0.19	0.74	1.68	0.54	0.54
Avail Cap(c_a), veh/h	92	2547	1004	244	2724	1890	419	877	885	567	574	551
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	1.00	1.00	1.00	0.88	0.88	0.88	0.43	0.43	0.43
Uniform Delay (d), s/veh	71.8	8.1	4.6	69.7	14.2	9.5	67.0	44.6	48.0	62.7	41.6	41.7
Incr Delay (d2), s/veh	2.2	0.4	0.0	213.4	1.3	0.2	9.9	0.4	5.0	310.8	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	7.5	0.9	11.9	16.8	1.8	5.4	2.5	11.2	35.3	9.5	9.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	74.0	8.5	4.6	283.1	15.5	9.7	76.9	45.1	52.9	373.5	42.0	42.2
LnGrp LOS	E	A	A	F	B	A	E	D	D	F	D	D
Approach Vol, veh/h		2424			2473			1089			1563	
Approach Delay, s/veh		9.9			52.5			57.6			244.4	
Approach LOS		A			D			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.0	101.6	18.1	53.8	8.4	108.2	29.9	42.0
Change Period (Y+Rc), s	4.4	5.5	4.4	5.3	4.4	* 5.5	5.3	* 5
Max Green Setting (Gmax), s	10.6	58.5	18.2	43.1	4.0	* 65	24.6	* 37
Max Q Clear Time (g_c+I1), s	12.6	49.2	13.4	23.7	4.8	41.8	26.6	33.0
Green Ext Time (p_c), s	0.0	8.2	0.4	3.7	0.0	16.0	0.0	1.5

Intersection Summary	
HCM 6th Ctrl Delay	79.3
HCM 6th LOS	E

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	2320	1050	0	1670	780	0	0	0	330	0	600
Future Volume (veh/h)	0	2320	1050	0	1670	780	0	0	0	330	0	600
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Work Zone On Approach		No			No						No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870				1870	0	1870
Adj Flow Rate, veh/h	0	2522	1141	0	1815	848				388	0	706
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.85	0.85	0.85
Percent Heavy Veh, %	2	2	2	0	2	2				2	0	2
Cap, veh/h	250	1970	827	0	2251	1158				336	0	663
Arrive On Green	0.00	0.81	0.81	0.00	1.00	1.00				0.10	0.00	0.10
Sat Flow, veh/h	1781	2439	1024	0	3647	1585				3456	0	2790
Grp Volume(v), veh/h	0	1785	1878	0	1815	848				388	0	706
Grp Sat Flow(s),veh/h/ln	1781	1777	1686	0	1777	1585				1728	0	1395
Q Serve(g_s), s	0.0	111.5	111.5	0.0	0.0	0.0				13.4	0.0	13.4
Cycle Q Clear(g_c), s	0.0	111.5	111.5	0.0	0.0	0.0				13.4	0.0	13.4
Prop In Lane	1.00		0.61	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	250	1436	1362	0	2251	1158				336	0	663
V/C Ratio(X)	0.00	1.24	1.38	0.00	0.81	0.73				1.16	0.00	1.06
Avail Cap(c_a), veh/h	250	1436	1362	0	2251	1158				336	0	663
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	0.23	0.23				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.3	13.3	0.0	0.0	0.0				62.3	0.0	52.6
Incr Delay (d2), s/veh	0.0	115.4	175.2	0.0	0.8	1.0				98.6	0.0	53.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	74.5	93.3	0.0	0.2	0.3				10.5	0.0	27.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	128.7	188.5	0.0	0.8	1.0				160.9	0.0	106.1
LnGrp LOS	A	F	F	A	A	A				F	A	F
Approach Vol, veh/h		3663			2663						1094	
Approach Delay, s/veh		159.3			0.8						125.5	
Approach LOS		F			A						F	
Timer - Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		119.0		19.0	24.1	94.9						
Change Period (Y+Rc), s		7.5		5.6	* 4.7	7.5						
Max Green Setting (Gmax), s		111.5		13.4	* 19	87.4						
Max Q Clear Time (g_c+I1), s		113.5		15.4	0.0	2.0						
Green Ext Time (p_c), s		0.0		0.0	0.0	19.0						

Intersection Summary			
HCM 6th Ctrl Delay			97.5
HCM 6th LOS			F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1150	1500	0	1850	580	600	0	200	0	0	0
Future Volume (veh/h)	0	1150	1500	0	1850	580	600	0	200	0	0	0
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Work Zone On Approach		No			No			No				
Adj Sat Flow, veh/h/ln	0	2116	1870	1870	2116	1870	1870	0	1870			
Adj Flow Rate, veh/h	0	1250	1630	0	2011	630	706	0	235			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85			
Percent Heavy Veh, %	0	2	2	2	2	2	2	0	2			
Cap, veh/h	0	2725	1435	1	3004	882	786	0	544			
Arrive On Green	0.00	0.90	0.90	0.00	0.68	0.68	0.23	0.00	0.23			
Sat Flow, veh/h	0	4127	1585	1781	4433	1301	3456	0	2790			
Grp Volume(v), veh/h	0	1250	1630	0	1730	911	706	0	235			
Grp Sat Flow(s),veh/h/ln	0	2011	1585	1781	1926	1882	1728	0	1395			
Q Serve(g_s), s	0.0	7.2	93.5	0.0	36.3	41.8	27.4	0.0	14.7			
Cycle Q Clear(g_c), s	0.0	7.2	93.5	0.0	36.3	41.8	27.4	0.0	14.7			
Prop In Lane	0.00		1.00	1.00		0.69	1.00		1.00			
Lane Grp Cap(c), veh/h	0	2725	1435	1	2610	1275	786	0	544			
V/C Ratio(X)	0.00	0.46	1.14	0.00	0.66	0.71	0.90	0.00	0.43			
Avail Cap(c_a), veh/h	0	2725	1435	65	2610	1275	1618	0	1215			
HCM Platoon Ratio	1.00	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.09	0.09	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	2.6	1.6	0.0	13.0	13.9	51.7	0.0	92.6			
Incr Delay (d2), s/veh	0.0	0.1	62.2	0.0	1.3	3.4	1.6	0.0	0.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	1.9	66.3	0.0	13.9	16.4	12.0	0.0	5.3			
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	0.0	2.6	63.8	0.0	14.4	17.3	53.3	0.0	92.8			
LnGrp LOS	A	A	F	A	B	B	D	A	F			
Approach Vol, veh/h		2880			2641			941				
Approach Delay, s/veh		37.2			15.4			63.2				
Approach LOS		D			B			E				
Timer - Assigned Phs	1	2				6		8				
Phs Duration (G+Y+Rc), s	0.0	101.0				101.0		37.0				
Change Period (Y+Rc), s	4.5	7.5				7.5		5.6				
Max Green Setting (Gmax), s	5.0	50.8				60.3		64.6				
Max Q Clear Time (g_c+I1), s	0.0	95.5				43.8		29.4				
Green Ext Time (p_c), s	0.0	0.0				11.6		2.0				

Intersection Summary			
HCM 6th Ctrl Delay			32.1
HCM 6th LOS			C

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1610	100	950	2230	250	700
Future Volume (veh/h)	1610	100	950	2230	250	700
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	2116	1870	1870	2116	1870	1870
Adj Flow Rate, veh/h	1750	109	1033	2424	294	824
Peak Hour Factor	0.92	0.92	0.92	0.92	0.85	0.85
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1872	116	1088	4048	321	1382
Arrive On Green	0.34	0.34	0.31	0.70	0.18	0.18
Sat Flow, veh/h	5751	346	3456	5968	1781	2790
Grp Volume(v), veh/h	1211	648	1033	2424	294	824
Grp Sat Flow(s),veh/h/ln	1926	2054	1728	1926	1781	1395
Q Serve(g_s), s	27.3	27.4	26.2	19.4	14.6	16.2
Cycle Q Clear(g_c), s	27.3	27.4	26.2	19.4	14.6	16.2
Prop In Lane		0.17	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	1297	692	1088	4048	321	1382
V/C Ratio(X)	0.93	0.94	0.95	0.60	0.92	0.60
Avail Cap(c_a), veh/h	1299	693	1092	4076	321	1382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.8	28.9	30.1	6.9	36.2	16.2
Incr Delay (d2), s/veh	12.7	20.6	16.2	0.4	29.1	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.6	16.1	12.3	5.3	8.5	5.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	41.6	49.5	46.3	7.4	65.3	16.7
LnGrp LOS	D	D	D	A	E	B
Approach Vol, veh/h	1859			3457	1118	
Approach Delay, s/veh	44.3			19.0	29.5	
Approach LOS	D			B	C	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	32.7	36.6				69.3		20.6
Change Period (Y+Rc), s	4.4	6.3				* 6.3		4.4
Max Green Setting (Gmax), s	28.4	30.3				* 63		16.2
Max Q Clear Time (g_c+I1), s	28.2	29.4				21.4		18.2
Green Ext Time (p_c), s	0.1	0.8				39.3		0.0

Intersection Summary		
HCM 6th Ctrl Delay		28.1
HCM 6th LOS		C

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	550	110	360	500	400	130	140	320	350	100	50
Future Volume (veh/h)	30	550	110	360	500	400	130	140	320	350	100	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	33	598	120	391	543	435	148	159	364	290	279	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.88	0.88	0.88	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	42	768	650	432	957	811	227	238	400	368	310	65
Arrive On Green	0.02	0.41	0.41	0.21	0.85	0.85	0.13	0.13	0.13	0.21	0.21	0.21
Sat Flow, veh/h	1781	1870	1585	3456	1870	1585	1781	1870	1585	1781	1502	312
Grp Volume(v), veh/h	33	598	120	391	543	435	148	159	364	290	0	337
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1728	1870	1585	1781	1870	1585	1781	0	1814
Q Serve(g_s), s	2.8	41.6	7.2	16.6	12.3	11.1	11.9	12.2	19.1	23.1	0.0	27.1
Cycle Q Clear(g_c), s	2.8	41.6	7.2	16.6	12.3	11.1	11.9	12.2	19.1	23.1	0.0	27.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.17
Lane Grp Cap(c), veh/h	42	768	650	432	957	811	227	238	400	368	0	375
V/C Ratio(X)	0.78	0.78	0.18	0.91	0.57	0.54	0.65	0.67	0.91	0.79	0.00	0.90
Avail Cap(c_a), veh/h	83	768	650	475	957	811	227	238	400	405	0	412
HCM Platoon Ratio	1.00	1.00	1.00	1.67	1.67	1.67	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.09	0.74	0.74	0.74	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	72.8	38.3	28.2	58.5	6.2	6.1	62.3	62.4	54.4	56.4	0.0	58.0
Incr Delay (d2), s/veh	1.1	0.7	0.1	14.8	1.8	1.9	7.4	7.8	24.7	10.0	0.0	21.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	18.8	2.8	7.5	3.5	2.8	5.9	6.3	16.1	11.5	0.0	14.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	73.9	39.1	28.3	73.3	8.0	8.0	69.7	70.2	79.2	66.4	0.0	79.6
LnGrp LOS	E	D	C	E	A	A	E	E	E	E	A	E
Approach Vol, veh/h		751			1369			671			627	
Approach Delay, s/veh		38.9			26.7			75.0			73.5	
Approach LOS		D			C			E			E	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	23.1	67.0		35.9	8.0	82.1		24.0				
Change Period (Y+Rc), s	4.4	* 5.4		4.9	4.4	5.4		4.9				
Max Green Setting (Gmax), s	20.6	* 57		34.1	7.0	70.2		19.1				
Max Q Clear Time (g_c+I1), s	18.6	43.6		29.1	4.8	14.3		21.1				
Green Ext Time (p_c), s	0.2	4.9		1.8	0.0	9.3		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			47.4									
HCM 6th LOS			D									

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	780	440	850	1260	0	0
Future Volume (veh/h)	780	440	850	1260	0	0
Initial Q (Qb), veh	0	0	0	0		
Ped-Bike Adj(A_pbT)		1.00	1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00		
Work Zone On Approach	No			No		
Adj Sat Flow, veh/h/ln	2116	1870	1870	2116		
Adj Flow Rate, veh/h	821	463	895	1326		
Peak Hour Factor	0.95	0.95	0.95	0.95		
Percent Heavy Veh, %	2	2	2	2		
Cap, veh/h	774	437	1995	2655		
Arrive On Green	1.00	1.00	0.58	1.00		
Sat Flow, veh/h	1271	717	3456	2116		
Grp Volume(v), veh/h	0	1284	895	1326		
Grp Sat Flow(s),veh/h/ln	0	1987	1728	2116		
Q Serve(g_s), s	0.0	42.5	11.1	0.0		
Cycle Q Clear(g_c), s	0.0	42.5	11.1	0.0		
Prop In Lane		0.36	1.00			
Lane Grp Cap(c), veh/h	0	1211	1995	2655		
V/C Ratio(X)	0.00	1.06	0.45	0.50		
Avail Cap(c_a), veh/h	0	1211	1995	2655		
HCM Platoon Ratio	2.00	2.00	1.00	1.00		
Upstream Filter(I)	0.00	0.55	0.09	0.09		
Uniform Delay (d), s/veh	0.0	0.0	9.0	0.0		
Incr Delay (d2), s/veh	0.0	37.5	0.0	0.1		
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0		
%ile BackOfQ(50%),veh/ln	0.0	12.6	3.3	0.0		
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	37.5	9.1	0.1		
LnGrp LOS	A	F	A	A		
Approach Vol, veh/h	1284			2221		
Approach Delay, s/veh	37.5			3.7		
Approach LOS	D			A		

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	48.7	50.8				99.5
Change Period (Y+Rc), s	4.7	* 5.1				* 4.7
Max Green Setting (Gmax), s	19.5	* 46				* 71
Max Q Clear Time (g_c+I1), s	13.1	44.5				2.0
Green Ext Time (p_c), s	2.0	1.0				22.6

Intersection Summary	
HCM 6th Ctrl Delay	16.1
HCM 6th LOS	B

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	750	0	0	1460	20	350	50	330	0	0	300
Future Volume (veh/h)	30	750	0	0	1460	20	350	50	330	0	0	300
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	0	0	2116	1870	1870	1870	1870	0	1870	1870
Adj Flow Rate, veh/h	32	806	0	0	1537	21	443	0	379	0	0	357
Peak Hour Factor	0.93	0.93	0.93	0.95	0.95	0.95	0.87	0.87	0.87	0.84	0.84	0.84
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	0	2	2
Cap, veh/h	91	1618	0	0	1379	19	417	0	209	0	246	579
Arrive On Green	0.05	0.76	0.00	0.00	0.66	0.66	0.13	0.00	0.13	0.00	0.00	0.13
Sat Flow, veh/h	1781	2116	0	0	2083	28	2049	0	1585	0	1870	3170
Grp Volume(v), veh/h	32	806	0	0	0	1558	443	0	379	0	0	357
Grp Sat Flow(s),veh/h/ln	1781	2116	0	0	0	2111	1024	0	1585	0	1870	1585
Q Serve(g_s), s	1.7	14.2	0.0	0.0	0.0	64.9	12.9	0.0	12.9	0.0	0.0	10.2
Cycle Q Clear(g_c), s	1.7	14.2	0.0	0.0	0.0	64.9	12.9	0.0	12.9	0.0	0.0	10.2
Prop In Lane	1.00		0.00	0.00		0.01	1.00		1.00	0.00		1.00
Lane Grp Cap(c), veh/h	91	1618	0	0	0	1398	417	0	209	0	246	579
V/C Ratio(X)	0.35	0.50	0.00	0.00	0.00	1.11	1.06	0.00	1.82	0.00	0.00	0.62
Avail Cap(c_a), veh/h	91	1618	0	0	0	1398	417	0	209	0	344	744
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.09	0.09	0.00	0.00	0.00	0.69	1.00	0.00	1.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	44.9	4.4	0.0	0.0	0.0	16.6	44.8	0.0	42.5	0.0	0.0	36.9
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.0	59.0	61.9	0.0	385.6	0.0	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.7	4.1	0.0	0.0	0.0	47.3	8.6	0.0	27.3	0.0	0.0	4.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	45.0	4.5	0.0	0.0	0.0	75.5	106.7	0.0	428.2	0.0	0.0	38.0
LnGrp LOS	D	A	A	A	A	F	F	A	F	A	A	D
Approach Vol, veh/h		838			1558			822			357	
Approach Delay, s/veh		6.0			75.5			254.9			38.0	
Approach LOS		A			E			F			D	

Timer - Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		80.0		18.0	10.0	70.0		18.0
Change Period (Y+Rc), s		5.1		* 5.1	5.0	5.1		5.1
Max Green Setting (Gmax), s		52.9		* 18	5.0	42.9		11.9
Max Q Clear Time (g_c+I1), s		16.2		12.2	3.7	66.9		14.9
Green Ext Time (p_c), s		3.7		0.7	0.0	0.0		0.0

Intersection Summary	
HCM 6th Ctrl Delay	96.7
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	960	50	30	1250	50	150	30	140	20	20	80
Future Volume (veh/h)	70	960	50	30	1250	50	150	30	140	20	20	80
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	73	1000	52	32	1316	53	183	37	171	27	27	108
Peak Hour Factor	0.96	0.96	0.96	0.95	0.95	0.95	0.82	0.82	0.82	0.74	0.74	0.74
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	92	2216	115	41	2133	86	230	40	183	92	101	329
Arrive On Green	0.05	0.57	0.57	0.02	0.54	0.54	0.31	0.31	0.31	0.31	0.31	0.31
Sat Flow, veh/h	1781	3889	202	1781	3940	158	628	130	589	206	324	1061
Grp Volume(v), veh/h	73	517	535	32	671	698	391	0	0	162	0	0
Grp Sat Flow(s),veh/h/ln	1781	2011	2080	1781	2011	2088	1346	0	0	1591	0	0
Q Serve(g_s), s	6.1	22.3	22.3	2.7	34.4	34.6	31.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.1	22.3	22.3	2.7	34.4	34.6	42.7	0.0	0.0	11.2	0.0	0.0
Prop In Lane	1.00		0.10	1.00		0.08	0.47		0.44	0.17		0.67
Lane Grp Cap(c), veh/h	92	1146	1185	41	1089	1130	453	0	0	522	0	0
V/C Ratio(X)	0.80	0.45	0.45	0.78	0.62	0.62	0.86	0.00	0.00	0.31	0.00	0.00
Avail Cap(c_a), veh/h	138	1146	1185	88	1089	1130	573	0	0	650	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.69	0.69	0.69	0.65	0.65	0.65	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	70.4	18.7	18.7	72.9	23.7	23.7	51.4	0.0	0.0	39.5	0.0	0.0
Incr Delay (d2), s/veh	12.2	0.9	0.9	18.5	1.7	1.7	10.0	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	10.5	10.8	1.4	16.4	17.1	15.6	0.0	0.0	4.7	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	82.6	19.6	19.5	91.4	25.4	25.4	61.4	0.0	0.0	39.6	0.0	0.0
LnGrp LOS	F	B	B	F	C	C	E	A	A	D	A	A
Approach Vol, veh/h		1125			1401			391			162	
Approach Delay, s/veh		23.6			26.9			61.4			39.6	
Approach LOS		C			C			E			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.9	90.7		51.5	12.1	86.4		51.5				
Change Period (Y+Rc), s	4.4	5.2		4.9	4.4	5.2		4.9				
Max Green Setting (Gmax), s	7.4	69.0		59.1	11.6	64.8		59.1				
Max Q Clear Time (g_c+I1), s	4.7	24.3		13.2	8.1	36.6		44.7				
Green Ext Time (p_c), s	0.0	17.2		0.7	0.0	17.0		1.9				
Intersection Summary												
HCM 6th Ctrl Delay			30.8									
HCM 6th LOS			C									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	110	850	160	140	960	110	150	260	70	130	270	220
Future Volume (veh/h)	110	850	160	140	960	110	150	260	70	130	270	220
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	120	924	174	152	1043	120	156	271	73	203	422	344
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.64	0.64	0.64
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	199	1094	206	184	1343	154	244	444	198	526	734	419
Arrive On Green	0.06	0.32	0.32	0.10	0.37	0.37	0.07	0.12	0.12	0.15	0.21	0.21
Sat Flow, veh/h	3456	3377	636	1781	3634	418	3456	3554	1585	3456	3554	1585
Grp Volume(v), veh/h	120	550	548	152	577	586	156	271	73	203	422	344
Grp Sat Flow(s),veh/h/ln	1728	2011	2002	1781	2011	2041	1728	1777	1585	1728	1777	1585
Q Serve(g_s), s	2.2	16.3	16.3	5.3	16.2	16.2	2.8	4.6	2.7	3.4	6.8	13.0
Cycle Q Clear(g_c), s	2.2	16.3	16.3	5.3	16.2	16.2	2.8	4.6	2.7	3.4	6.8	13.0
Prop In Lane	1.00		0.32	1.00		0.20	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	199	651	649	184	743	755	244	444	198	526	734	419
V/C Ratio(X)	0.60	0.84	0.85	0.83	0.78	0.78	0.64	0.61	0.37	0.39	0.58	0.82
Avail Cap(c_a), veh/h	249	676	673	184	743	755	270	445	198	541	734	419
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	20.1	20.1	28.1	17.8	17.8	28.9	26.5	25.7	24.4	22.8	22.1
Incr Delay (d2), s/veh	1.1	10.0	10.1	24.2	5.7	5.7	2.9	6.1	5.2	0.2	2.2	14.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	8.4	8.4	3.3	7.5	7.6	1.2	2.2	1.2	1.3	2.9	6.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	30.5	30.1	30.2	52.3	23.5	23.5	31.8	32.6	30.8	24.6	25.0	36.5
LnGrp LOS	C	C	C	D	C	C	C	C	C	C	C	D
Approach Vol, veh/h		1218			1315			500			969	
Approach Delay, s/veh		30.2			26.8			32.1			29.0	
Approach LOS		C			C			C			C	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	25.9	8.9	18.1	8.1	28.8	14.1	12.9
Change Period (Y+Rc), s	4.4	5.2	4.4	4.9	4.4	5.2	4.4	4.9
Max Green Setting (Gmax), s	6.6	21.5	5.0	13.0	4.6	23.5	10.0	8.0
Max Q Clear Time (g_c+I1), s	7.3	18.3	4.8	15.0	4.2	18.2	5.4	6.6
Green Ext Time (p_c), s	0.0	2.4	0.0	0.0	0.0	3.9	0.2	0.5

Intersection Summary	
HCM 6th Ctrl Delay	29.0
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	770	130	250	860	110	100	130	120	300	520	270
Future Volume (veh/h)	200	770	130	250	860	110	100	130	120	300	520	270
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	213	819	138	275	945	121	105	137	126	366	634	329
Peak Hour Factor	0.94	0.94	0.94	0.91	0.91	0.91	0.95	0.95	0.95	0.82	0.82	0.82
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	198	1219	205	329	830	621	127	835	389	316	1249	557
Arrive On Green	0.06	0.35	0.35	0.03	0.13	0.13	0.07	0.25	0.25	0.30	0.59	0.59
Sat Flow, veh/h	3456	3443	580	3456	2116	1585	1781	3404	1585	1781	3554	1585
Grp Volume(v), veh/h	213	478	479	275	945	121	105	137	126	366	634	329
Grp Sat Flow(s),veh/h/ln	1728	2011	2012	1728	2116	1585	1781	1702	1585	1781	1777	1585
Q Serve(g_s), s	8.6	30.2	30.2	11.9	58.8	10.2	8.7	4.7	9.8	26.6	15.7	19.7
Cycle Q Clear(g_c), s	8.6	30.2	30.2	11.9	58.8	10.2	8.7	4.7	9.8	26.6	15.7	19.7
Prop In Lane	1.00		0.29	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	198	712	713	329	830	621	127	835	389	316	1249	557
V/C Ratio(X)	1.08	0.67	0.67	0.84	1.14	0.19	0.83	0.16	0.32	1.16	0.51	0.59
Avail Cap(c_a), veh/h	198	712	713	429	830	621	195	835	389	316	1249	557
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.67	1.67	1.67
Upstream Filter(I)	0.66	0.66	0.66	0.53	0.53	0.53	0.98	0.98	0.98	0.69	0.69	0.69
Uniform Delay (d), s/veh	70.7	41.0	41.0	71.5	65.3	44.2	68.7	44.5	46.4	52.8	23.3	24.2
Incr Delay (d2), s/veh	73.3	1.6	1.6	6.0	70.9	0.1	15.4	0.4	2.2	93.4	1.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	15.1	15.1	5.8	49.9	4.3	4.5	2.1	4.1	18.8	5.6	6.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	144.0	42.7	42.7	77.5	136.2	44.2	84.2	44.9	48.6	146.1	24.4	27.3
LnGrp LOS	F	D	D	E	F	D	F	D	D	F	C	C
Approach Vol, veh/h		1170			1341			368			1329	
Approach Delay, s/veh		61.1			115.9			57.4			58.6	
Approach LOS		E			F			E			E	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.0	42.0	18.7	58.3	15.1	57.9	13.0	64.0
Change Period (Y+Rc), s	4.4	5.2	4.4	5.2	4.4	5.2	4.4	5.2
Max Green Setting (Gmax), s	26.6	36.8	18.6	48.8	16.4	47.0	8.6	58.8
Max Q Clear Time (g_c+I1), s	28.6	11.8	13.9	32.2	10.7	21.7	10.6	60.8
Green Ext Time (p_c), s	0.0	1.5	0.4	5.4	0.1	5.5	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay	77.5
HCM 6th LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	710	100	180	900	190	120	90	100	160	80	200
Future Volume (veh/h)	200	710	100	180	900	190	120	90	100	160	80	200
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	211	747	105	196	978	207	145	108	120	184	92	230
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.83	0.83	0.83	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	1518	213	221	1394	294	167	164	183	207	107	267
Arrive On Green	0.13	0.43	0.43	0.04	0.14	0.14	0.09	0.20	0.20	0.12	0.23	0.23
Sat Flow, veh/h	1781	3540	497	1781	3303	698	1781	809	899	1781	474	1184
Grp Volume(v), veh/h	211	424	428	196	595	590	145	0	228	184	0	322
Grp Sat Flow(s),veh/h/ln	1781	2011	2027	1781	2011	1991	1781	0	1709	1781	0	1657
Q Serve(g_s), s	17.5	22.9	22.9	16.4	42.3	42.4	12.0	0.0	18.4	15.3	0.0	28.0
Cycle Q Clear(g_c), s	17.5	22.9	22.9	16.4	42.3	42.4	12.0	0.0	18.4	15.3	0.0	28.0
Prop In Lane	1.00		0.25	1.00		0.35	1.00		0.53	1.00		0.71
Lane Grp Cap(c), veh/h	233	862	869	221	848	840	167	0	347	207	0	373
V/C Ratio(X)	0.90	0.49	0.49	0.89	0.70	0.70	0.87	0.00	0.66	0.89	0.00	0.86
Avail Cap(c_a), veh/h	292	862	869	322	848	840	209	0	347	268	0	373
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.59	0.59	0.59	0.14	0.14	0.14	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	64.3	31.0	31.0	70.9	55.5	55.6	67.0	0.0	54.9	65.4	0.0	55.9
Incr Delay (d2), s/veh	15.5	1.2	1.2	2.4	0.7	0.7	22.4	0.0	9.3	21.0	0.0	22.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	11.3	11.4	8.1	23.1	22.9	6.6	0.0	8.9	8.2	0.0	14.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	79.8	32.2	32.2	73.3	56.2	56.3	89.4	0.0	64.3	86.4	0.0	78.1
LnGrp LOS	E	C	C	E	E	E	F	A	E	F	A	E
Approach Vol, veh/h		1063			1381			373			506	
Approach Delay, s/veh		41.6			58.7			74.1			81.1	
Approach LOS		D			E			E			F	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	23.0	69.5	18.5	39.0	24.0	68.5	21.8	35.7
Change Period (Y+Rc), s	4.4	5.2	4.4	5.2	4.4	5.2	4.4	5.2
Max Green Setting (Gmax), s	27.1	52.3	17.6	33.8	24.6	54.8	22.6	28.8
Max Q Clear Time (g_c+I1), s	18.4	24.9	14.0	30.0	19.5	44.4	17.3	20.4
Green Ext Time (p_c), s	0.2	9.4	0.1	1.0	0.1	7.2	0.1	1.2

Intersection Summary	
HCM 6th Ctrl Delay	58.4
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	550	50	30	1250	90	40	10	20	100	10	230
Future Volume (veh/h)	220	550	50	30	1250	90	40	10	20	100	10	230
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	239	598	54	33	1359	98	58	14	29	139	14	319
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.69	0.69	0.69	0.72	0.72	0.72
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	209	1314	119	42	1158	83	38	13	5	256	13	296
Arrive On Green	0.12	0.69	0.69	0.02	0.59	0.59	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1781	1913	173	1781	1950	141	0	65	26	1364	67	1528
Grp Volume(v), veh/h	239	0	652	33	0	1457	101	0	0	139	0	333
Grp Sat Flow(s),veh/h/ln	1781	0	2085	1781	0	2091	91	0	0	1364	0	1595
Q Serve(g_s), s	17.6	0.0	21.4	2.8	0.0	89.1	0.0	0.0	0.0	0.0	0.0	29.1
Cycle Q Clear(g_c), s	17.6	0.0	21.4	2.8	0.0	89.1	29.1	0.0	0.0	18.0	0.0	29.1
Prop In Lane	1.00		0.08	1.00		0.07	0.57		0.29	1.00		0.96
Lane Grp Cap(c), veh/h	209	0	1433	42	0	1241	55	0	0	256	0	309
V/C Ratio(X)	1.14	0.00	0.46	0.78	0.00	1.17	1.83	0.00	0.00	0.54	0.00	1.08
Avail Cap(c_a), veh/h	209	0	1433	83	0	1241	55	0	0	256	0	309
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	66.2	0.0	10.7	72.9	0.0	30.5	66.0	0.0	0.0	56.0	0.0	60.5
Incr Delay (d2), s/veh	106.6	0.0	0.3	10.9	0.0	87.0	433.2	0.0	0.0	1.3	0.0	73.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.2	0.0	9.5	1.4	0.0	72.2	8.8	0.0	0.0	5.0	0.0	18.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	172.8	0.0	11.0	83.8	0.0	117.5	499.2	0.0	0.0	57.3	0.0	133.6
LnGrp LOS	F	A	B	F	A	F	F	A	A	E	A	F
Approach Vol, veh/h		891			1490			101			472	
Approach Delay, s/veh		54.4			116.7			499.2			111.1	
Approach LOS		D			F			F			F	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.0	108.1		34.0	22.0	94.1		34.0				
Change Period (Y+Rc), s	4.4	5.0		4.9	4.4	* 5		4.9				
Max Green Setting (Gmax), s	7.0	99.6		29.1	17.6	* 89		29.1				
Max Q Clear Time (g_c+I1), s	4.8	23.4		31.1	19.6	91.1		31.1				
Green Ext Time (p_c), s	0.0	7.1		0.0	0.0	0.0		0.0				

Intersection Summary	
HCM 6th Ctrl Delay	110.1
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	310	350	40	160	780	60	30	40	30	100	260	580
Future Volume (veh/h)	310	350	40	160	780	60	30	40	30	100	260	580
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	337	380	43	174	848	65	38	51	38	116	302	674
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.78	0.78	0.78	0.86	0.86	0.86
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	418	481	54	211	1027	897	54	74	56	553	581	492
Arrive On Green	0.12	0.26	0.26	0.12	0.26	0.26	0.05	0.05	0.05	0.31	0.31	0.31
Sat Flow, veh/h	3456	1867	211	1781	4021	1585	1029	1402	1066	1781	1870	1585
Grp Volume(v), veh/h	337	0	423	174	848	65	67	0	60	116	302	674
Grp Sat Flow(s),veh/h/ln	1728	0	2078	1781	2011	1585	1819	0	1679	1781	1870	1585
Q Serve(g_s), s	7.4	0.0	14.7	7.4	15.4	1.4	2.8	0.0	2.7	3.7	10.3	24.1
Cycle Q Clear(g_c), s	7.4	0.0	14.7	7.4	15.4	1.4	2.8	0.0	2.7	3.7	10.3	24.1
Prop In Lane	1.00		0.10	1.00		1.00	0.57		0.63	1.00		1.00
Lane Grp Cap(c), veh/h	418	0	536	211	1027	897	96	0	89	553	581	492
V/C Ratio(X)	0.81	0.00	0.79	0.82	0.83	0.07	0.70	0.00	0.67	0.21	0.52	1.37
Avail Cap(c_a), veh/h	428	0	587	225	1140	942	96	0	89	553	581	492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	26.8	33.4	27.3	7.6	36.1	0.0	36.1	19.7	22.0	26.7
Incr Delay (d2), s/veh	9.8	0.0	8.0	18.9	4.8	0.0	17.2	0.0	15.3	0.3	1.1	178.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	0.0	8.0	4.1	7.4	0.9	1.7	0.0	1.5	1.5	4.3	33.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	0.0	34.8	52.3	32.1	7.7	53.3	0.0	51.4	20.0	23.1	205.5
LnGrp LOS	D	A	C	D	C	A	D	A	D	B	C	F
Approach Vol, veh/h		760			1087			127			1092	
Approach Delay, s/veh		38.5			33.8			52.4			135.3	
Approach LOS		D			C			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	13.6	26.0		29.0	13.8	25.8		9.0				
Change Period (Y+Rc), s	4.4	* 6		4.9	4.4	6.0		4.9				
Max Green Setting (Gmax), s	9.8	* 22		24.1	9.6	22.0		4.1				
Max Q Clear Time (g_c+I1), s	9.4	16.7		26.1	9.4	17.4		4.8				
Green Ext Time (p_c), s	0.0	1.8		0.0	0.0	2.4		0.0				

Intersection Summary		
HCM 6th Ctrl Delay		71.9
HCM 6th LOS		E

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	340	50	50	920	240	30	20	20	170	20	50
Future Volume (veh/h)	90	340	50	50	920	240	30	20	20	170	20	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	2116	1870	1870	2116	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	370	54	54	1000	261	32	22	22	246	29	72
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.69	0.69	0.69
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	126	1545	224	68	1282	333	41	28	28	304	319	476
Arrive On Green	0.07	0.44	0.44	0.04	0.41	0.41	0.06	0.06	0.06	0.17	0.17	0.17
Sat Flow, veh/h	1781	3525	510	1781	3158	821	734	505	505	1781	1870	2790
Grp Volume(v), veh/h	98	210	214	54	635	626	76	0	0	246	29	72
Grp Sat Flow(s),veh/h/ln	1781	2011	2025	1781	2011	1969	1743	0	0	1781	1870	1395
Q Serve(g_s), s	3.7	4.4	4.5	2.0	18.6	18.7	2.9	0.0	0.0	9.0	0.9	1.5
Cycle Q Clear(g_c), s	3.7	4.4	4.5	2.0	18.6	18.7	2.9	0.0	0.0	9.0	0.9	1.5
Prop In Lane	1.00		0.25	1.00		0.42	0.42		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	126	881	887	68	816	799	97	0	0	304	319	476
V/C Ratio(X)	0.78	0.24	0.24	0.80	0.78	0.78	0.78	0.00	0.00	0.81	0.09	0.15
Avail Cap(c_a), veh/h	168	881	887	190	894	876	240	0	0	766	804	1200
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	11.9	11.9	32.3	17.5	17.5	31.5	0.0	0.0	27.0	23.6	23.9
Incr Delay (d2), s/veh	10.6	0.2	0.2	7.6	4.6	4.9	5.0	0.0	0.0	2.0	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	1.7	1.7	1.0	8.1	8.0	1.3	0.0	0.0	3.8	0.4	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.5	12.2	12.2	39.9	22.1	22.4	36.5	0.0	0.0	29.0	23.7	23.9
LnGrp LOS	D	B	B	D	C	C	D	A	A	C	C	C
Approach Vol, veh/h		522			1315			76			347	
Approach Delay, s/veh		17.7			23.0			36.5			27.5	
Approach LOS		B			C			D			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.0	35.6		16.4	9.2	33.4		8.7				
Change Period (Y+Rc), s	4.4	* 5.9		4.9	4.4	5.9		4.9				
Max Green Setting (Gmax), s	7.2	* 29		29.1	6.4	30.1		9.3				
Max Q Clear Time (g_c+I1), s	4.0	6.5		11.0	5.7	20.7		4.9				
Green Ext Time (p_c), s	0.0	3.9		0.6	0.0	6.7		0.1				

Intersection Summary		
HCM 6th Ctrl Delay		22.9
HCM 6th LOS		C

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	100	430	960	250	500	250
Future Volume (veh/h)	100	430	960	250	500	250
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No	No		No	
Adj Sat Flow, veh/h/ln	1870	2116	2116	1870	1870	1870
Adj Flow Rate, veh/h	106	457	1043	272	595	298
Peak Hour Factor	0.94	0.94	0.92	0.92	0.84	0.84
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	203	2242	1321	343	811	372
Arrive On Green	0.06	0.56	0.42	0.42	0.23	0.23
Sat Flow, veh/h	3456	4127	3266	820	3456	1585
Grp Volume(v), veh/h	106	457	662	653	595	298
Grp Sat Flow(s),veh/h/ln	1728	2011	2011	1969	1728	1585
Q Serve(g_s), s	1.6	3.1	15.5	15.7	8.7	9.6
Cycle Q Clear(g_c), s	1.6	3.1	15.5	15.7	8.7	9.6
Prop In Lane	1.00			0.42	1.00	1.00
Lane Grp Cap(c), veh/h	203	2242	841	823	811	372
V/C Ratio(X)	0.52	0.20	0.79	0.79	0.73	0.80
Avail Cap(c_a), veh/h	444	2586	872	854	870	399
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	6.0	13.7	13.8	19.3	19.6
Incr Delay (d2), s/veh	0.8	0.1	5.9	6.3	3.5	11.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	0.8	6.5	6.5	3.3	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	25.7	6.1	19.6	20.1	22.8	31.2
LnGrp LOS	C	A	B	C	C	C
Approach Vol, veh/h		563	1315		893	
Approach Delay, s/veh		9.8	19.9		25.6	
Approach LOS		A	B		C	

Timer - Assigned Phs	2	4	5	6
Phs Duration (G+Y+Rc), s	36.4	18.1	7.6	28.8
Change Period (Y+Rc), s	6.0	5.3	4.4	6.0
Max Green Setting (Gmax), s	35.0	13.7	7.0	23.6
Max Q Clear Time (g_c+I1), s	5.1	11.6	3.6	17.7
Green Ext Time (p_c), s	6.2	1.1	0.0	5.0

Intersection Summary	
HCM 6th Ctrl Delay	19.7
HCM 6th LOS	B

Notes

User approved pedestrian interval to be less than phase max green.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	0	450	480	350	1210
Future Volume (veh/h)	0	0	450	480	350	1210
Initial Q (Qb), veh			0	0	0	0
Ped-Bike Adj(A_pbT)				1.00	1.00	
Parking Bus, Adj			1.00	1.00	1.00	1.00
Work Zone On Approach			No			No
Adj Sat Flow, veh/h/ln			2116	1870	1870	2116
Adj Flow Rate, veh/h			464	495	376	1301
Peak Hour Factor			0.97	0.97	0.93	0.93
Percent Heavy Veh, %			2	2	2	2
Cap, veh/h			913	1203	637	3154
Arrive On Green			0.43	0.43	0.18	0.78
Sat Flow, veh/h			2116	2790	3456	4127
Grp Volume(v), veh/h			464	495	376	1301
Grp Sat Flow(s),veh/h/ln			2116	1395	1728	2011
Q Serve(g_s), s			4.4	3.4	2.8	2.9
Cycle Q Clear(g_c), s			4.4	3.4	2.8	2.9
Prop In Lane				1.00	1.00	
Lane Grp Cap(c), veh/h			913	1203	637	3154
V/C Ratio(X)			0.51	0.41	0.59	0.41
Avail Cap(c_a), veh/h			1445	1905	1279	5202
HCM Platoon Ratio			1.00	1.00	1.00	1.00
Upstream Filter(I)			1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh			5.8	5.5	10.4	1.0
Incr Delay (d2), s/veh			0.4	0.2	0.9	0.1
Initial Q Delay(d3),s/veh			0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln			0.6	0.3	0.7	0.0
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh			6.2	5.7	11.3	1.0
LnGrp LOS			A	A	B	A
Approach Vol, veh/h			959			1677
Approach Delay, s/veh			5.9			3.3
Approach LOS			A			A

Timer - Assigned Phs	1	2				6
Phs Duration (G+Y+Rc), s	9.8	18.0				27.8
Change Period (Y+Rc), s	* 4.7	6.0				* 6
Max Green Setting (Gmax), s	* 16	19.0				* 36
Max Q Clear Time (g_c+I1), s	4.8	6.4				4.9
Green Ext Time (p_c), s	0.7	3.9				10.8

Intersection Summary	
HCM 6th Ctrl Delay	4.3
HCM 6th LOS	A

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	560	0	500	0	450	0	0	1000	0
Future Volume (veh/h)	0	0	0	560	0	500	0	450	0	0	1000	0
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	0	1870	1870	2116	0	1870	2116	0
Adj Flow Rate, veh/h				651	0	581	0	474	0	0	1087	0
Peak Hour Factor				0.86	0.92	0.86	0.92	0.95	0.95	0.92	0.92	0.92
Percent Heavy Veh, %				2	0	2	2	2	0	2	2	0
Cap, veh/h				838	0	1013	3	638	0	215	2054	0
Arrive On Green				0.24	0.00	0.24	0.00	0.30	0.00	0.00	0.51	0.00
Sat Flow, veh/h				3456	0	2790	1781	2116	0	1781	4127	0
Grp Volume(v), veh/h				651	0	581	0	474	0	0	1087	0
Grp Sat Flow(s),veh/h/ln				1728	0	1395	1781	2116	0	1781	2011	0
Q Serve(g_s), s				9.3	0.0	8.9	0.0	10.7	0.0	0.0	9.6	0.0
Cycle Q Clear(g_c), s				9.3	0.0	8.9	0.0	10.7	0.0	0.0	9.6	0.0
Prop In Lane				1.00		1.00	1.00		0.00	1.00		0.00
Lane Grp Cap(c), veh/h				838	0	1013	3	638	0	215	2054	0
V/C Ratio(X)				0.78	0.00	0.57	0.00	0.74	0.00	0.00	0.53	0.00
Avail Cap(c_a), veh/h				1036	0	1172	168	794	0	215	2054	0
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				18.8	0.0	13.6	0.0	16.7	0.0	0.0	8.7	0.0
Incr Delay (d2), s/veh				2.3	0.0	0.2	0.0	2.1	0.0	0.0	0.1	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				3.6	0.0	2.4	0.0	4.5	0.0	0.0	2.7	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				21.1	0.0	13.8	0.0	18.7	0.0	0.0	8.8	0.0
LnGrp LOS				C	A	B	A	B	A	A	A	A
Approach Vol, veh/h					1232			474			1087	
Approach Delay, s/veh					17.6			18.7			8.8	
Approach LOS					B			B			A	
Timer - Assigned Phs	1	2			5	6		8				
Phs Duration (G+Y+Rc), s	11.1	23.0			0.0	34.1		19.0				
Change Period (Y+Rc), s	* 4.7	7.0			* 4.7	7.0		6.1				
Max Green Setting (Gmax), s	* 6.4	19.9			* 5	21.3		15.9				
Max Q Clear Time (g_c+I1), s	0.0	12.7			0.0	11.6		11.3				
Green Ext Time (p_c), s	0.0	1.0			0.0	3.5		1.5				
Intersection Summary												
HCM 6th Ctrl Delay			14.4									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	20	20	930	20	70	980
Future Volume (veh/h)	20	20	930	20	70	980
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	2116	1870	1870	2116
Adj Flow Rate, veh/h	27	27	1011	22	74	1043
Peak Hour Factor	0.75	0.75	0.92	0.92	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	34	34	1333	29	94	3117
Arrive On Green	0.04	0.04	0.65	0.65	0.05	0.78
Sat Flow, veh/h	825	825	2063	45	1781	4127
Grp Volume(v), veh/h	55	0	0	1033	74	1043
Grp Sat Flow(s),veh/h/ln	1681	0	0	2108	1781	2011
Q Serve(g_s), s	1.9	0.0	0.0	19.6	2.4	4.5
Cycle Q Clear(g_c), s	1.9	0.0	0.0	19.6	2.4	4.5
Prop In Lane	0.49	0.49		0.02	1.00	
Lane Grp Cap(c), veh/h	68	0	0	1362	94	3117
V/C Ratio(X)	0.81	0.00	0.00	0.76	0.79	0.33
Avail Cap(c_a), veh/h	704	0	0	1674	167	3864
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	0.0	0.0	7.1	26.9	2.0
Incr Delay (d2), s/veh	8.0	0.0	0.0	2.5	13.5	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	5.2	1.2	0.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	35.4	0.0	0.0	9.6	40.4	2.1
LnGrp LOS	D	A	A	A	D	A
Approach Vol, veh/h	55		1033			1117
Approach Delay, s/veh	35.4		9.6			4.6
Approach LOS	D		A			A

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.4	42.9				50.3		7.2
Change Period (Y+Rc), s	4.4	* 5.7				5.7		4.9
Max Green Setting (Gmax), s	5.4	* 46				55.3		24.1
Max Q Clear Time (g_c+I1), s	4.4	21.6				6.5		3.9
Green Ext Time (p_c), s	0.0	15.6				17.6		0.1

Intersection Summary	
HCM 6th Ctrl Delay	7.7
HCM 6th LOS	A

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	60	10	360	40	10	10	200	110	70	20	740	30
Future Volume (veh/h)	60	10	360	40	10	10	200	110	70	20	740	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	88	15	529	80	20	20	217	120	76	22	804	33
Peak Hour Factor	0.68	0.68	0.68	0.50	0.50	0.50	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	48	559	170	43	29	254	649	411	34	861	35
Arrive On Green	0.21	0.21	0.21	0.21	0.21	0.21	0.14	0.61	0.61	0.02	0.48	0.48
Sat Flow, veh/h	1139	229	1585	478	203	136	1781	1070	678	1781	1784	73
Grp Volume(v), veh/h	103	0	529	120	0	0	217	0	196	22	0	837
Grp Sat Flow(s),veh/h/ln	1368	0	1585	817	0	0	1781	0	1748	1781	0	1857
Q Serve(g_s), s	0.0	0.0	18.1	7.7	0.0	0.0	10.3	0.0	4.3	1.1	0.0	36.6
Cycle Q Clear(g_c), s	5.6	0.0	18.1	13.2	0.0	0.0	10.3	0.0	4.3	1.1	0.0	36.6
Prop In Lane	0.85		1.00	0.67		0.17	1.00		0.39	1.00		0.04
Lane Grp Cap(c), veh/h	365	0	559	241	0	0	254	0	1060	34	0	897
V/C Ratio(X)	0.28	0.00	0.95	0.50	0.00	0.00	0.85	0.00	0.18	0.65	0.00	0.93
Avail Cap(c_a), veh/h	365	0	559	241	0	0	285	0	1060	112	0	945
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.1	0.0	27.1	33.2	0.0	0.0	36.1	0.0	7.5	42.0	0.0	21.0
Incr Delay (d2), s/veh	0.2	0.0	25.1	0.6	0.0	0.0	18.2	0.0	0.1	7.6	0.0	15.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	13.9	2.4	0.0	0.0	5.5	0.0	1.4	0.5	0.0	17.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	29.2	0.0	52.3	33.8	0.0	0.0	54.2	0.0	7.6	49.6	0.0	36.5
LnGrp LOS	C	A	D	C	A	A	D	A	A	D	A	D
Approach Vol, veh/h		632			120			413			859	
Approach Delay, s/veh		48.5			33.8			32.1			36.9	
Approach LOS		D			C			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.0	57.2		23.0	16.7	46.5		23.0
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9
Max Green Setting (Gmax), s	5.4	52.3		18.1	13.8	43.9		18.1
Max Q Clear Time (g_c+I1), s	3.1	6.3		20.1	12.3	38.6		15.2
Green Ext Time (p_c), s	0.0	1.6		0.0	0.1	3.0		0.1

Intersection Summary			
HCM 6th Ctrl Delay			39.4
HCM 6th LOS			D

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	320	110	280	140	150	990
Future Volume (veh/h)	320	110	280	140	150	990
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00	
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No		No			No
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	368	126	304	152	163	1076
Peak Hour Factor	0.87	0.87	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	411	366	1202	1019	628	1202
Arrive On Green	0.23	0.23	0.64	0.64	0.64	0.64
Sat Flow, veh/h	1781	1585	1870	1585	935	1870
Grp Volume(v), veh/h	368	126	304	152	163	1076
Grp Sat Flow(s),veh/h/ln	1781	1585	1870	1585	935	1870
Q Serve(g_s), s	15.7	5.2	5.4	3.0	7.1	37.9
Cycle Q Clear(g_c), s	15.7	5.2	5.4	3.0	12.5	37.9
Prop In Lane	1.00	1.00		1.00	1.00	
Lane Grp Cap(c), veh/h	411	366	1202	1019	628	1202
V/C Ratio(X)	0.90	0.34	0.25	0.15	0.26	0.89
Avail Cap(c_a), veh/h	502	447	1384	1173	719	1384
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.2	25.2	6.0	5.5	8.6	11.8
Incr Delay (d2), s/veh	14.5	0.2	0.1	0.1	0.3	7.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.9	1.9	1.7	0.8	1.2	13.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	43.8	25.4	6.1	5.6	8.9	19.2
LnGrp LOS	D	C	A	A	A	B
Approach Vol, veh/h	494		456			1239
Approach Delay, s/veh	39.1		5.9			17.8
Approach LOS	D		A			B

Timer - Assigned Phs	2	6	8
Phs Duration (G+Y+Rc), s	55.4	55.4	23.0
Change Period (Y+Rc), s	5.0	5.0	4.9
Max Green Setting (Gmax), s	58.0	58.0	22.1
Max Q Clear Time (g_c+I1), s	7.4	39.9	17.7
Green Ext Time (p_c), s	2.8	10.5	0.4

Intersection Summary	
HCM 6th Ctrl Delay	20.1
HCM 6th LOS	C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	10	50	250	30	100	50	330	110	60	1200	50
Future Volume (veh/h)	20	10	50	250	30	100	50	330	110	60	1200	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	29	14	72	309	37	123	54	359	120	62	1250	52
Peak Hour Factor	0.69	0.69	0.69	0.81	0.81	0.81	0.92	0.92	0.92	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	74	57	95	289	21	473	70	1113	367	78	1489	62
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.04	0.42	0.42	0.04	0.43	0.43
Sat Flow, veh/h	0	191	320	591	71	1585	1781	2626	865	1781	3477	145
Grp Volume(v), veh/h	115	0	0	346	0	123	54	241	238	62	638	664
Grp Sat Flow(s),veh/h/ln	511	0	0	662	0	1585	1781	1777	1715	1781	1777	1844
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	3.6	1.8	5.5	5.6	2.1	19.5	19.5
Cycle Q Clear(g_c), s	18.1	0.0	0.0	18.1	0.0	3.6	1.8	5.5	5.6	2.1	19.5	19.5
Prop In Lane	0.25		0.63	0.89		1.00	1.00		0.50	1.00		0.08
Lane Grp Cap(c), veh/h	227	0	0	310	0	473	70	753	727	78	761	790
V/C Ratio(X)	0.51	0.00	0.00	1.12	0.00	0.26	0.77	0.32	0.33	0.79	0.84	0.84
Avail Cap(c_a), veh/h	227	0	0	310	0	473	117	764	737	194	840	872
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.3	0.0	0.0	24.6	0.0	16.2	28.9	11.7	11.7	28.7	15.5	15.5
Incr Delay (d2), s/veh	0.8	0.0	0.0	86.6	0.0	0.3	6.5	0.3	0.3	6.7	7.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	0.0	11.6	0.0	1.2	0.8	1.8	1.8	1.0	7.8	8.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.1	0.0	0.0	111.1	0.0	16.5	35.3	11.9	12.0	35.4	22.5	22.4
LnGrp LOS	B	A	A	F	A	B	D	B	B	D	C	C
Approach Vol, veh/h		115			469			533			1364	
Approach Delay, s/veh		18.1			86.3			14.3			23.0	
Approach LOS		B			F			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	7.1	30.6		23.0	6.8	30.9		23.0				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9				
Max Green Setting (Gmax), s	6.6	26.1		18.1	4.0	28.7		18.1				
Max Q Clear Time (g_c+I1), s	4.1	7.6		20.1	3.8	21.5		20.1				
Green Ext Time (p_c), s	0.0	2.6		0.0	0.0	4.5		0.0				

Intersection Summary			
HCM 6th Ctrl Delay			32.9
HCM 6th LOS			C

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	40	10	220	170	10	80	150	550	120	60	1560	40
Future Volume (veh/h)	40	10	220	170	10	80	150	550	120	60	1560	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	46	11	253	230	14	108	163	598	130	65	1696	43
Peak Hour Factor	0.87	0.87	0.87	0.74	0.74	0.74	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	347	19	435	219	53	406	181	1598	347	83	1754	44
Arrive On Green	0.28	0.28	0.28	0.28	0.28	0.28	0.10	0.55	0.55	0.05	0.50	0.50
Sat Flow, veh/h	1269	66	1529	1115	185	1428	1781	2904	630	1781	3542	90
Grp Volume(v), veh/h	46	0	264	230	0	122	163	365	363	65	849	890
Grp Sat Flow(s),veh/h/ln	1269	0	1595	1115	0	1613	1781	1777	1757	1781	1777	1854
Q Serve(g_s), s	3.5	0.0	17.0	17.1	0.0	7.0	10.8	14.0	14.0	4.3	55.3	55.9
Cycle Q Clear(g_c), s	10.5	0.0	17.0	34.1	0.0	7.0	10.8	14.0	14.0	4.3	55.3	55.9
Prop In Lane	1.00		0.96	1.00		0.89	1.00		0.36	1.00		0.05
Lane Grp Cap(c), veh/h	347	0	454	219	0	459	181	978	967	83	880	918
V/C Ratio(X)	0.13	0.00	0.58	1.05	0.00	0.27	0.90	0.37	0.38	0.78	0.96	0.97
Avail Cap(c_a), veh/h	347	0	454	219	0	459	181	978	967	149	882	920
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.3	0.0	36.8	53.7	0.0	33.2	53.2	15.3	15.3	56.5	29.2	29.4
Incr Delay (d2), s/veh	0.1	0.0	1.3	74.5	0.0	0.1	38.8	0.3	0.3	5.8	22.1	22.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	6.8	11.2	0.0	2.8	6.7	5.4	5.4	2.0	27.3	28.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	0.0	38.0	128.2	0.0	33.3	92.0	15.6	15.6	62.3	51.3	51.9
LnGrp LOS	D	A	D	F	A	C	F	B	B	E	D	D
Approach Vol, veh/h		310			352			891			1804	
Approach Delay, s/veh		37.9			95.3			29.6			52.0	
Approach LOS		D			F			C			D	

Timer - Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.0	70.8		39.0	16.6	64.3		39.0
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9
Max Green Setting (Gmax), s	10.6	61.7		34.1	12.2	59.5		34.1
Max Q Clear Time (g_c+I1), s	6.3	16.0		19.0	12.8	57.9		36.1
Green Ext Time (p_c), s	0.0	6.8		1.1	0.0	1.5		0.0

Intersection Summary	
HCM 6th Ctrl Delay	49.3
HCM 6th LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	70	30	50	70	80	60	280	50	100	1150	120
Future Volume (veh/h)	50	70	30	50	70	80	60	280	50	100	1150	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	61	85	37	68	95	108	65	304	54	108	1237	129
Peak Hour Factor	0.82	0.82	0.82	0.74	0.74	0.74	0.92	0.92	0.92	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	110	126	43	155	186	422	83	2363	406	138	1852	193
Arrive On Green	0.19	0.19	0.19	0.19	0.19	0.19	0.09	1.00	1.00	0.08	0.57	0.57
Sat Flow, veh/h	243	665	230	463	986	1585	1781	4385	754	1781	3249	338
Grp Volume(v), veh/h	183	0	0	163	0	108	65	234	124	108	675	691
Grp Sat Flow(s),veh/h/ln	1138	0	0	1449	0	1585	1781	1702	1735	1781	1777	1810
Q Serve(g_s), s	5.0	0.0	0.0	0.0	0.0	4.0	2.7	0.0	0.0	4.5	19.7	19.9
Cycle Q Clear(g_c), s	12.4	0.0	0.0	7.4	0.0	4.0	2.7	0.0	0.0	4.5	19.7	19.9
Prop In Lane	0.33		0.20	0.42		1.00	1.00		0.43	1.00		0.19
Lane Grp Cap(c), veh/h	279	0	0	342	0	422	83	1835	935	138	1013	1032
V/C Ratio(X)	0.66	0.00	0.00	0.48	0.00	0.26	0.79	0.13	0.13	0.78	0.67	0.67
Avail Cap(c_a), veh/h	318	0	0	382	0	463	133	1835	935	247	1013	1032
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	1.00	0.94	0.94	0.94	0.18	0.18	0.18
Uniform Delay (d), s/veh	29.8	0.0	0.0	27.4	0.0	21.7	33.7	0.0	0.0	34.0	11.2	11.2
Incr Delay (d2), s/veh	2.6	0.0	0.0	0.4	0.0	0.1	5.8	0.1	0.3	0.7	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	2.6	0.0	1.4	1.2	0.0	0.1	1.8	6.3	6.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	32.4	0.0	0.0	27.8	0.0	21.8	39.4	0.1	0.3	34.6	11.8	11.8
LnGrp LOS	C	A	A	C	A	C	D	A	A	C	B	B
Approach Vol, veh/h		183			271			423			1474	
Approach Delay, s/veh		32.4			25.4			6.2			13.5	
Approach LOS		C			C			A			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	45.7		19.1	7.9	48.1		19.1				
Change Period (Y+Rc), s	4.4	* 5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s	10.4	* 34		16.1	5.6	38.7		16.1				
Max Q Clear Time (g_c+I1), s	6.5	2.0		14.4	4.7	21.9		9.4				
Green Ext Time (p_c), s	0.0	3.7		0.1	0.0	11.2		0.4				
Intersection Summary												
HCM 6th Ctrl Delay			15.0									
HCM 6th LOS			B									

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	40	30	200	30	200	600	
Future Volume (veh/h)	40	30	200	30	200	600	
Initial Q (Qb), veh	0	0	0	0	0	0	
Ped-Bike Adj(A_pbT)	1.00	1.00		1.00	1.00		
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	
Work Zone On Approach	No		No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	
Adj Flow Rate, veh/h	52	39	217	33	215	645	
Peak Hour Factor	0.77	0.77	0.92	0.92	0.93	0.93	
Percent Heavy Veh, %	2	2	2	2	2	2	
Cap, veh/h	72	54	698	105	278	1959	
Arrive On Green	0.07	0.07	0.23	0.23	0.16	0.55	
Sat Flow, veh/h	957	718	3192	465	1781	3647	
Grp Volume(v), veh/h	92	0	123	127	215	645	
Grp Sat Flow(s),veh/h/ln	1693	0	1777	1787	1781	1777	
Q Serve(g_s), s	1.4	0.0	1.5	1.5	3.0	2.6	
Cycle Q Clear(g_c), s	1.4	0.0	1.5	1.5	3.0	2.6	
Prop In Lane	0.57	0.42		0.26	1.00		
Lane Grp Cap(c), veh/h	127	0	400	403	278	1959	
V/C Ratio(X)	0.73	0.00	0.31	0.32	0.77	0.33	
Avail Cap(c_a), veh/h	431	0	603	606	728	3247	
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
Upstream Filter(I)	1.00	0.00	1.00	1.00	1.00	1.00	
Uniform Delay (d), s/veh	11.7	0.0	8.4	8.4	10.5	3.2	
Incr Delay (d2), s/veh	3.0	0.0	0.6	0.6	1.7	0.1	
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.4	0.4	0.8	0.0	
Unsig. Movement Delay, s/veh							
LnGrp Delay(d),s/veh	14.7	0.0	9.0	9.0	12.2	3.3	
LnGrp LOS	B	A	A	A	B	A	
Approach Vol, veh/h	92		250			860	
Approach Delay, s/veh	14.7		9.0			5.5	
Approach LOS	B		A			A	
Timer - Assigned Phs	1	2				6	8
Phs Duration (G+Y+Rc), s	8.5	11.1				19.6	6.3
Change Period (Y+Rc), s	4.4	* 5.3				5.3	4.4
Max Green Setting (Gmax), s	10.6	* 8.8				23.7	6.6
Max Q Clear Time (g_c+I1), s	5.0	3.5				4.6	3.4
Green Ext Time (p_c), s	0.1	0.7				5.0	0.0

Intersection Summary		
HCM 6th Ctrl Delay		7.0
HCM 6th LOS		A

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	160	30	20	140	70	60	65	60	250	50	330
Future Volume (veh/h)	100	160	30	20	140	70	60	65	60	250	50	330
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	111	178	33	24	167	83	65	71	65	272	54	359
Peak Hour Factor	0.90	0.90	0.90	0.84	0.84	0.84	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	141	632	115	41	361	171	89	117	107	335	502	551
Arrive On Green	0.08	0.21	0.21	0.02	0.15	0.15	0.05	0.13	0.13	0.19	0.27	0.27
Sat Flow, veh/h	1781	3003	546	1781	2338	1110	1781	899	823	1781	1870	1585
Grp Volume(v), veh/h	111	104	107	24	125	125	65	0	136	272	54	359
Grp Sat Flow(s),veh/h/ln	1781	1777	1772	1781	1777	1671	1781	0	1722	1781	1870	1585
Q Serve(g_s), s	2.6	2.1	2.2	0.6	2.8	2.9	1.6	0.0	3.2	6.3	0.9	8.2
Cycle Q Clear(g_c), s	2.6	2.1	2.2	0.6	2.8	2.9	1.6	0.0	3.2	6.3	0.9	8.2
Prop In Lane	1.00		0.31	1.00		0.66	1.00		0.48	1.00		1.00
Lane Grp Cap(c), veh/h	141	374	373	41	274	258	89	0	225	335	502	551
V/C Ratio(X)	0.79	0.28	0.29	0.58	0.46	0.48	0.73	0.00	0.60	0.81	0.11	0.65
Avail Cap(c_a), veh/h	240	388	387	165	313	295	252	0	280	455	502	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.5	14.3	14.3	20.8	16.6	16.7	20.2	0.0	17.7	16.8	11.9	11.9
Incr Delay (d2), s/veh	3.6	1.7	1.8	4.7	4.0	4.8	4.2	0.0	5.0	5.7	0.2	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.9	0.9	0.3	1.3	1.3	0.6	0.0	1.4	2.6	0.3	2.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.1	16.0	16.1	25.6	20.6	21.4	24.3	0.0	22.7	22.5	12.0	15.2
LnGrp LOS	C	B	B	C	C	C	C	A	C	C	B	B
Approach Vol, veh/h		322			274			201			685	
Approach Delay, s/veh		18.5			21.4			23.2			17.8	
Approach LOS		B			C			C			B	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.4	14.0	6.6	17.2	7.8	11.5	12.5	11.2
Change Period (Y+Rc), s	4.4	4.9	4.4	5.6	4.4	4.9	4.4	* 5.6
Max Green Setting (Gmax), s	4.0	9.4	6.1	11.2	5.8	7.6	11.0	* 7
Max Q Clear Time (g_c+I1), s	2.6	4.2	3.6	10.2	4.6	4.9	8.3	5.2
Green Ext Time (p_c), s	0.0	1.0	0.0	0.3	0.0	0.6	0.1	0.2

Intersection Summary		
HCM 6th Ctrl Delay		19.4
HCM 6th LOS		B

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	200	50	450	250	40	60	100	370	30	60	20
Future Volume (veh/h)	50	200	50	450	250	40	60	100	370	30	60	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	54	217	54	489	272	43	63	105	389	33	65	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	78	314	266	559	819	694	335	321	272	276	230	78
Arrive On Green	0.04	0.17	0.17	0.31	0.44	0.44	0.17	0.17	0.17	0.17	0.17	0.17
Sat Flow, veh/h	1781	1870	1585	1781	1870	1585	1310	1870	1585	903	1337	452
Grp Volume(v), veh/h	54	217	54	489	272	43	63	105	389	33	0	87
Grp Sat Flow(s),veh/h/ln	1781	1870	1585	1781	1870	1585	1310	1870	1585	903	0	1789
Q Serve(g_s), s	1.3	4.8	1.3	11.3	4.2	0.7	1.9	2.1	7.5	1.5	0.0	1.8
Cycle Q Clear(g_c), s	1.3	4.8	1.3	11.3	4.2	0.7	3.8	2.1	7.5	3.6	0.0	1.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.25
Lane Grp Cap(c), veh/h	78	314	266	559	819	694	335	321	272	276	0	307
V/C Ratio(X)	0.69	0.69	0.20	0.87	0.33	0.06	0.19	0.33	1.43	0.12	0.00	0.28
Avail Cap(c_a), veh/h	237	420	356	718	926	785	335	321	272	282	0	320
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	20.6	17.1	15.6	14.1	8.1	7.1	17.4	15.9	18.1	17.4	0.0	15.7
Incr Delay (d2), s/veh	4.0	4.8	0.6	8.1	0.5	0.1	0.5	1.0	212.5	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	2.1	0.4	5.1	1.4	0.2	0.5	0.8	18.1	0.2	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	24.5	21.9	16.3	22.2	8.6	7.2	17.8	16.9	230.6	17.5	0.0	15.9
LnGrp LOS	C	C	B	C	A	A	B	B	F	B	A	B
Approach Vol, veh/h		325			804			557			120	
Approach Delay, s/veh		21.4			16.8			166.2			16.3	
Approach LOS		C			B			F			B	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	18.1	12.2		13.3	6.3	24.0		13.3				
Change Period (Y+Rc), s	4.4	4.9		* 5.8	4.4	4.9		5.8				
Max Green Setting (Gmax), s	17.6	9.8		* 7.8	5.8	21.6		7.5				
Max Q Clear Time (g_c+I1), s	13.3	6.8		5.6	3.3	6.2		9.5				
Green Ext Time (p_c), s	0.4	0.6		0.1	0.0	2.8		0.0				

Intersection Summary

HCM 6th Ctrl Delay	63.7
HCM 6th LOS	E

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	600	10	270	445	485	0	0	400	350
Future Volume (veh/h)	0	0	0	600	10	270	445	485	0	0	400	350
Initial Q (Qb), veh				0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)				1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach					No			No			No	
Adj Sat Flow, veh/h/ln				1870	1870	1870	1870	1870	0	0	1870	1870
Adj Flow Rate, veh/h				652	11	0	484	527	0	0	435	0
Peak Hour Factor				0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %				2	2	2	2	2	0	0	2	2
Cap, veh/h				689	12		536	1881	0	0	1216	
Arrive On Green				0.39	0.39	0.00	0.16	0.53	0.00	0.00	0.34	0.00
Sat Flow, veh/h				1753	30	1585	3456	3647	0	0	3647	1585
Grp Volume(v), veh/h				663	0	0	484	527	0	0	435	0
Grp Sat Flow(s),veh/h/ln				1783	0	1585	1728	1777	0	0	1777	1585
Q Serve(g_s), s				52.5	0.0	0.0	20.1	12.0	0.0	0.0	13.4	0.0
Cycle Q Clear(g_c), s				52.5	0.0	0.0	20.1	12.0	0.0	0.0	13.4	0.0
Prop In Lane				0.98		1.00	1.00		0.00	0.00		1.00
Lane Grp Cap(c), veh/h				701	0		536	1881	0	0	1216	
V/C Ratio(X)				0.95	0.00		0.90	0.28	0.00	0.00	0.36	
Avail Cap(c_a), veh/h				878	0		670	1881	0	0	1216	
HCM Platoon Ratio				1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)				1.00	0.00	0.00	0.79	0.79	0.00	0.00	1.00	0.00
Uniform Delay (d), s/veh				42.8	0.0	0.0	60.6	19.0	0.0	0.0	36.0	0.0
Incr Delay (d2), s/veh				15.2	0.0	0.0	9.9	0.3	0.0	0.0	0.8	0.0
Initial Q Delay(d3),s/veh				0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln				25.9	0.0	0.0	9.3	4.8	0.0	0.0	5.8	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh				57.9	0.0	0.0	70.5	19.3	0.0	0.0	36.8	0.0
LnGrp LOS				E	A		E	B	A	A	D	
Approach Vol, veh/h					663			1011			435	
Approach Delay, s/veh					57.9			43.8			36.8	
Approach LOS					E			D			D	

Timer - Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		83.5			27.3	56.1		62.5				
Change Period (Y+Rc), s		6.2			* 4.7	6.2		5.1				
Max Green Setting (Gmax), s		63.3			* 28	30.3		71.9				
Max Q Clear Time (g_c+I1), s		14.0			22.1	15.4		54.5				
Green Ext Time (p_c), s		2.0			0.6	1.4		3.0				

Intersection Summary			
HCM 6th Ctrl Delay			46.8
HCM 6th LOS			D

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Unsignalized Delay for [WBR, SBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	330	10	700	0	0	0	0	600	380	150	850	0
Future Volume (veh/h)	330	10	700	0	0	0	0	600	380	150	850	0
Initial Q (Qb), veh	0	0	0				0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00				1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No						No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870				0	1870	1870	1870	1870	0
Adj Flow Rate, veh/h	379	0	0				0	652	0	163	924	0
Peak Hour Factor	0.89	0.89	0.89				0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2				0	2	2	2	2	0
Cap, veh/h	1804	0					0	971		192	1472	0
Arrive On Green	0.51	0.00	0.00				0.00	0.27	0.00	0.11	0.41	0.00
Sat Flow, veh/h	3563	0	1585				0	3647	1585	1781	3647	0
Grp Volume(v), veh/h	379	0	0				0	652	0	163	924	0
Grp Sat Flow(s),veh/h/ln	1781	0	1585				0	1777	1585	1781	1777	0
Q Serve(g_s), s	8.3	0.0	0.0				0.0	23.2	0.0	12.8	29.2	0.0
Cycle Q Clear(g_c), s	8.3	0.0	0.0				0.0	23.2	0.0	12.8	29.2	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1804	0					0	971		192	1472	0
V/C Ratio(X)	0.21	0.00					0.00	0.67		0.85	0.63	0.00
Avail Cap(c_a), veh/h	1804	0					0	971		192	1472	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00				0.00	1.00	0.00	0.91	0.91	0.00
Uniform Delay (d), s/veh	19.4	0.0	0.0				0.0	45.9	0.0	62.2	32.9	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0				0.0	3.7	0.0	32.5	1.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	0.0	0.0				0.0	10.4	0.0	7.4	12.4	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	19.6	0.0	0.0				0.0	49.6	0.0	94.7	34.8	0.0
LnGrp LOS	B	A					A	D		F	C	A
Approach Vol, veh/h		379						652			1087	
Approach Delay, s/veh		19.6						49.6			43.8	
Approach LOS		B						D			D	

Timer - Assigned Phs	1	2	4	6
Phs Duration (G+Y+Rc), s	20.0	45.0	77.0	65.0
Change Period (Y+Rc), s	* 4.7	6.2	5.1	6.2
Max Green Setting (Gmax), s	* 15	38.3	71.9	58.3
Max Q Clear Time (g_c+I1), s	14.8	25.2	10.3	31.2
Green Ext Time (p_c), s	0.0	2.1	0.7	3.9

Intersection Summary	
HCM 6th Ctrl Delay	41.3
HCM 6th LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.
Unsignalized Delay for [NBR, EBR] is excluded from calculations of the approach delay and intersection delay.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	420	20	190	10	30	30	180	400	20	60	900	530
Future Volume (veh/h)	420	20	190	10	30	30	180	400	20	60	900	530
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	447	21	202	12	37	37	196	435	22	64	957	564
Peak Hour Factor	0.94	0.94	0.94	0.81	0.81	0.81	0.92	0.92	0.92	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	164	5	733	33	93	70	201	1655	84	82	903	516
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	0.11	0.48	0.48	0.05	0.41	0.41
Sat Flow, veh/h	308	14	1585	0	267	201	1781	3442	174	1781	2179	1244
Grp Volume(v), veh/h	468	0	202	86	0	0	196	224	233	64	775	746
Grp Sat Flow(s),veh/h/ln	322	0	1585	468	0	0	1781	1777	1839	1781	1777	1646
Q Serve(g_s), s	0.0	0.0	9.9	0.0	0.0	0.0	13.8	9.4	9.5	4.5	52.2	52.2
Cycle Q Clear(g_c), s	44.1	0.0	9.9	44.1	0.0	0.0	13.8	9.4	9.5	4.5	52.2	52.2
Prop In Lane	0.96		1.00	0.14		0.43	1.00		0.09	1.00		0.76
Lane Grp Cap(c), veh/h	169	0	733	196	0	0	201	855	884	82	736	682
V/C Ratio(X)	2.77	0.00	0.28	0.44	0.00	0.00	0.98	0.26	0.26	0.78	1.05	1.09
Avail Cap(c_a), veh/h	169	0	733	196	0	0	201	855	884	143	736	682
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	48.3	0.0	20.8	32.1	0.0	0.0	55.7	19.4	19.4	59.5	36.9	36.9
Incr Delay (d2), s/veh	815.1	0.0	0.3	0.6	0.0	0.0	56.3	0.7	0.7	5.9	47.8	63.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	43.6	0.0	3.8	1.8	0.0	0.0	9.1	3.9	4.0	2.1	30.8	31.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	863.3	0.0	21.1	32.7	0.0	0.0	112.0	20.2	20.2	65.4	84.7	99.9
LnGrp LOS	F	A	C	C	A	A	F	C	C	E	F	F
Approach Vol, veh/h		670			86			653			1585	
Approach Delay, s/veh		609.4			32.7			47.7			91.1	
Approach LOS		F			C			D			F	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	10.2	66.8		49.0	18.6	58.4		49.0				
Change Period (Y+Rc), s	4.4	* 6.2		4.9	4.4	6.2		4.9				
Max Green Setting (Gmax), s	10.1	* 57		44.1	14.2	52.2		44.1				
Max Q Clear Time (g_c+I1), s	16.5	11.5		46.1	15.8	54.2		46.1				
Green Ext Time (p_c), s	0.0	4.4		0.0	0.0	0.0		0.0				

Intersection Summary

HCM 6th Ctrl Delay			195.9
HCM 6th LOS			F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	610	110	60	1170	170	50	10	20	40	410	190
Future Volume (veh/h)	100	610	110	60	1170	170	50	10	20	40	410	190
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	109	663	120	65	1272	185	60	12	24	43	436	202
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	101	781	141	83	793	115	85	22	14	75	490	458
Arrive On Green	0.06	0.51	0.51	0.05	0.50	0.50	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1781	1541	279	1781	1596	232	70	76	49	109	1698	1585
Grp Volume(v), veh/h	109	0	783	65	0	1457	96	0	0	479	0	202
Grp Sat Flow(s),veh/h/ln	1781	0	1820	1781	0	1829	195	0	0	1806	0	1585
Q Serve(g_s), s	5.1	0.0	33.5	3.2	0.0	44.7	3.0	0.0	0.0	0.0	0.0	9.3
Cycle Q Clear(g_c), s	5.1	0.0	33.5	3.2	0.0	44.7	26.0	0.0	0.0	23.0	0.0	9.3
Prop In Lane	1.00		0.15	1.00		0.13	0.62		0.25	0.09		1.00
Lane Grp Cap(c), veh/h	101	0	922	83	0	908	121	0	0	565	0	458
V/C Ratio(X)	1.08	0.00	0.85	0.78	0.00	1.60	0.79	0.00	0.00	0.85	0.00	0.44
Avail Cap(c_a), veh/h	101	0	922	107	0	908	121	0	0	565	0	458
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	42.5	0.0	19.2	42.4	0.0	22.7	38.2	0.0	0.0	30.8	0.0	26.1
Incr Delay (d2), s/veh	112.8	0.0	7.6	18.0	0.0	277.1	26.8	0.0	0.0	11.5	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	15.3	1.8	0.0	87.8	3.0	0.0	0.0	11.5	0.0	3.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	155.2	0.0	26.8	60.4	0.0	299.7	65.0	0.0	0.0	42.3	0.0	26.7
LnGrp LOS	F	A	C	E	A	F	E	A	A	D	A	C
Approach Vol, veh/h		892			1522			96			681	
Approach Delay, s/veh		42.5			289.5			65.0			37.7	
Approach LOS		D			F			E			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	8.6	50.5		30.9	9.5	49.6		30.9				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9				
Max Green Setting (Gmax), s	5.4	44.4		26.0	5.1	44.7		26.0				
Max Q Clear Time (g_c+I1), s	5.2	35.5		25.0	7.1	46.7		28.0				
Green Ext Time (p_c), s	0.0	4.1		0.4	0.0	0.0		0.0				
Intersection Summary												
HCM 6th Ctrl Delay			160.0									
HCM 6th LOS			F									

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	830	30	40	1370	10	50	10	40	0	10	20
Future Volume (veh/h)	10	830	30	40	1370	10	50	10	40	0	10	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	11	902	33	43	1489	11	60	12	48	0	12	24
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.84	0.84	0.84	0.83	0.83	0.83
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	20	1157	42	59	1236	9	148	28	64	0	61	123
Arrive On Green	0.01	0.65	0.65	0.03	0.67	0.67	0.11	0.11	0.11	0.00	0.11	0.11
Sat Flow, veh/h	1781	1793	66	1781	1854	14	613	256	579	0	557	1113
Grp Volume(v), veh/h	11	0	935	43	0	1500	120	0	0	0	0	36
Grp Sat Flow(s),veh/h/ln	1781	0	1859	1781	0	1868	1448	0	0	0	0	1670
Q Serve(g_s), s	0.4	0.0	24.1	1.6	0.0	44.7	4.1	0.0	0.0	0.0	0.0	1.3
Cycle Q Clear(g_c), s	0.4	0.0	24.1	1.6	0.0	44.7	5.5	0.0	0.0	0.0	0.0	1.3
Prop In Lane	1.00		0.04	1.00		0.01	0.50		0.40	0.00		0.67
Lane Grp Cap(c), veh/h	20	0	1199	59	0	1246	240	0	0	0	0	184
V/C Ratio(X)	0.56	0.00	0.78	0.73	0.00	1.20	0.50	0.00	0.00	0.00	0.00	0.20
Avail Cap(c_a), veh/h	136	0	1237	138	0	1246	654	0	0	0	0	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	0.00	1.00
Uniform Delay (d), s/veh	33.0	0.0	8.5	32.1	0.0	11.2	29.0	0.0	0.0	0.0	0.0	27.1
Incr Delay (d2), s/veh	8.9	0.0	3.3	6.5	0.0	99.7	0.6	0.0	0.0	0.0	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	8.5	0.8	0.0	47.8	1.8	0.0	0.0	0.0	0.0	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	41.9	0.0	11.8	38.6	0.0	110.9	29.6	0.0	0.0	0.0	0.0	27.3
LnGrp LOS	D	A	B	D	A	F	C	A	A	A	A	C
Approach Vol, veh/h		946			1543			120			36	
Approach Delay, s/veh		12.2			108.9			29.6			27.3	
Approach LOS		B			F			C			C	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.6	48.1		12.3	5.1	49.6		12.3				
Change Period (Y+Rc), s	4.4	4.9		4.9	4.4	4.9		4.9				
Max Green Setting (Gmax), s	5.2	44.6		26.0	5.1	44.7		26.0				
Max Q Clear Time (g_c+I1), s	3.6	26.1		3.3	2.4	46.7		7.5				
Green Ext Time (p_c), s	0.0	9.3		0.1	0.0	0.0		0.4				

Intersection Summary			
HCM 6th Ctrl Delay			69.6
HCM 6th LOS			E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	770	20	30	1410	40	10	0	10	30	0	50
Future Volume (veh/h)	70	770	20	30	1410	40	10	0	10	30	0	50
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	837	22	33	1533	43	40	0	40	32	0	54
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.25	0.25	0.25	0.93	0.93	0.93
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	1222	32	49	1171	33	141	8	68	116	9	84
Arrive On Green	0.05	0.67	0.67	0.03	0.65	0.65	0.08	0.00	0.08	0.08	0.00	0.08
Sat Flow, veh/h	1781	1814	48	1781	1810	51	724	104	829	507	106	1035
Grp Volume(v), veh/h	76	0	859	33	0	1576	80	0	0	86	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1862	1781	0	1861	1657	0	0	1648	0	0
Q Serve(g_s), s	2.8	0.0	18.4	1.2	0.0	42.6	0.0	0.0	0.0	0.3	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	18.4	1.2	0.0	42.6	2.8	0.0	0.0	3.1	0.0	0.0
Prop In Lane	1.00		0.03	1.00		0.03	0.50		0.50	0.37		0.63
Lane Grp Cap(c), veh/h	97	0	1254	49	0	1204	217	0	0	209	0	0
V/C Ratio(X)	0.78	0.00	0.68	0.67	0.00	1.31	0.37	0.00	0.00	0.41	0.00	0.00
Avail Cap(c_a), veh/h	165	0	1254	189	0	1204	698	0	0	703	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.8	0.0	6.5	31.7	0.0	11.6	29.1	0.0	0.0	29.2	0.0	0.0
Incr Delay (d2), s/veh	5.1	0.0	1.4	5.8	0.0	145.2	0.4	0.0	0.0	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	5.7	0.6	0.0	61.5	1.2	0.0	0.0	1.3	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	35.8	0.0	7.9	37.6	0.0	156.9	29.5	0.0	0.0	29.7	0.0	0.0
LnGrp LOS	D	A	A	D	A	F	C	A	A	C	A	A
Approach Vol, veh/h		935			1609			80			86	
Approach Delay, s/veh		10.2			154.4			29.5			29.7	
Approach LOS		B			F			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	6.2	49.4		10.3	8.0	47.6		10.3				
Change Period (Y+Rc), s	4.4	5.0		4.9	4.4	* 5		4.9				
Max Green Setting (Gmax), s	7.0	41.6		27.1	6.1	* 43		27.1				
Max Q Clear Time (g_c+I1), s	3.2	20.4		5.1	4.8	44.6		4.8				
Green Ext Time (p_c), s	0.0	5.7		0.3	0.0	0.0		0.2				

Intersection Summary		
HCM 6th Ctrl Delay		97.0
HCM 6th LOS		F

Notes

User approved pedestrian interval to be less than phase max green.
* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	680	70	120	1410	110	70	10	20	30	10	40
Future Volume (veh/h)	70	680	70	120	1410	110	70	10	20	30	10	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	76	739	76	129	1516	118	78	11	22	33	11	44
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.90	0.90	0.90	0.90	0.90	0.90
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	1014	104	163	1105	86	194	18	30	119	34	81
Arrive On Green	0.05	0.61	0.61	0.09	0.64	0.64	0.10	0.10	0.10	0.10	0.10	0.10
Sat Flow, veh/h	1781	1668	172	1781	1713	133	1103	193	320	497	355	852
Grp Volume(v), veh/h	76	0	815	129	0	1634	111	0	0	88	0	0
Grp Sat Flow(s),veh/h/ln	1781	0	1839	1781	0	1846	1616	0	0	1704	0	0
Q Serve(g_s), s	2.9	0.0	21.6	4.9	0.0	44.6	1.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.9	0.0	21.6	4.9	0.0	44.6	4.3	0.0	0.0	3.3	0.0	0.0
Prop In Lane	1.00		0.09	1.00		0.07	0.70		0.20	0.37		0.50
Lane Grp Cap(c), veh/h	97	0	1118	163	0	1191	242	0	0	234	0	0
V/C Ratio(X)	0.78	0.00	0.73	0.79	0.00	1.37	0.46	0.00	0.00	0.38	0.00	0.00
Avail Cap(c_a), veh/h	157	0	1173	170	0	1191	832	0	0	863	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	32.3	0.0	9.5	30.8	0.0	12.3	30.2	0.0	0.0	29.8	0.0	0.0
Incr Delay (d2), s/veh	5.0	0.0	2.6	19.4	0.0	173.0	0.5	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	8.0	2.9	0.0	71.2	1.7	0.0	0.0	1.4	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	37.3	0.0	12.2	50.1	0.0	185.2	30.7	0.0	0.0	30.2	0.0	0.0
LnGrp LOS	D	A	B	D	A	F	C	A	A	C	A	A
Approach Vol, veh/h		891			1763			111			88	
Approach Delay, s/veh		14.3			175.4			30.7			30.2	
Approach LOS		B			F			C			C	

Timer - Assigned Phs	1	2	4	5	6	8
Phs Duration (G+Y+Rc), s	10.7	47.0	11.5	8.2	49.5	11.5
Change Period (Y+Rc), s	4.4	4.9	4.9	4.4	4.9	4.9
Max Green Setting (Gmax), s	6.6	44.1	35.1	6.1	44.6	35.1
Max Q Clear Time (g_c+I1), s	6.9	23.6	5.3	4.9	46.6	6.3
Green Ext Time (p_c), s	0.0	10.2	0.3	0.0	0.0	0.4

Intersection Summary	
HCM 6th Ctrl Delay	115.0
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1750	0	0	1210	60	0	0	20	30	0	30
Future Volume (veh/h)	90	1750	0	0	1210	60	0	0	20	30	0	30
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	0	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	1902	0	0	1301	65	0	0	30	38	0	38
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.67	0.67	0.67	0.78	0.78	0.78
Percent Heavy Veh, %	2	2	2	0	2	2	2	2	2	2	2	2
Cap, veh/h	126	1448	0	0	1122	56	0	0	106	179	0	106
Arrive On Green	0.07	0.77	0.00	0.00	0.64	0.64	0.00	0.00	0.07	0.07	0.00	0.07
Sat Flow, veh/h	1781	1870	0	0	1766	88	0	0	1585	1007	0	1585
Grp Volume(v), veh/h	98	1902	0	0	0	1366	0	0	30	38	0	38
Grp Sat Flow(s),veh/h/ln	1781	1870	0	0	0	1854	0	0	1585	1007	0	1585
Q Serve(g_s), s	3.5	49.7	0.0	0.0	0.0	40.8	0.0	0.0	1.2	1.7	0.0	1.5
Cycle Q Clear(g_c), s	3.5	49.7	0.0	0.0	0.0	40.8	0.0	0.0	1.2	2.9	0.0	1.5
Prop In Lane	1.00		0.00	0.00		0.05	0.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	1448	0	0	0	1178	0	0	106	179	0	106
V/C Ratio(X)	0.78	1.31	0.00	0.00	0.00	1.16	0.00	0.00	0.28	0.21	0.00	0.36
Avail Cap(c_a), veh/h	211	1448	0	0	0	1178	0	0	743	734	0	743
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.3	7.2	0.0	0.0	0.0	11.7	0.0	0.0	28.5	29.9	0.0	28.6
Incr Delay (d2), s/veh	3.9	146.0	0.0	0.0	0.0	81.6	0.0	0.0	0.5	0.2	0.0	0.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	64.6	0.0	0.0	0.0	37.7	0.0	0.0	0.4	0.6	0.0	0.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	33.2	153.2	0.0	0.0	0.0	93.3	0.0	0.0	29.0	30.1	0.0	29.4
LnGrp LOS	C	F	A	A	A	F	A	A	C	C	A	C
Approach Vol, veh/h		2000			1366			30			76	
Approach Delay, s/veh		147.3			93.3			29.0			29.7	
Approach LOS		F			F			C			C	
Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		55.0		9.2	8.9	46.1		9.2				
Change Period (Y+Rc), s		5.3		4.9	4.4	5.3		4.9				
Max Green Setting (Gmax), s		49.7		30.1	7.6	37.7		30.1				
Max Q Clear Time (g_c+I1), s		51.7		4.9	5.5	42.8		3.2				
Green Ext Time (p_c), s		0.0		0.2	0.0	0.0		0.1				
Intersection Summary												
HCM 6th Ctrl Delay			122.5									
HCM 6th LOS			F									
Notes												

User approved pedestrian interval to be less than phase max green.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1620	100	50	1200	120	40
Future Volume (veh/h)	1620	100	50	1200	120	40
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1761	109	54	1304	152	51
Peak Hour Factor	0.92	0.92	0.92	0.92	0.79	0.79
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1106	68	68	1380	201	179
Arrive On Green	0.63	0.63	0.04	0.74	0.11	0.11
Sat Flow, veh/h	1743	108	1781	1870	1781	1585
Grp Volume(v), veh/h	0	1870	54	1304	152	51
Grp Sat Flow(s),veh/h/ln	0	1851	1781	1870	1781	1585
Q Serve(g_s), s	0.0	42.6	2.0	40.5	5.6	2.0
Cycle Q Clear(g_c), s	0.0	42.6	2.0	40.5	5.6	2.0
Prop In Lane		0.06	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1174	68	1380	201	179
V/C Ratio(X)	0.00	1.59	0.80	0.94	0.75	0.28
Avail Cap(c_a), veh/h	0	1174	135	1448	478	425
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.3	32.0	7.6	28.9	27.3
Incr Delay (d2), s/veh	0.0	270.7	7.7	12.2	2.2	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	100.2	1.0	12.3	2.4	0.7
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	282.9	39.8	19.9	31.0	27.6
LnGrp LOS	A	F	D	B	C	C
Approach Vol, veh/h	1870			1358	203	
Approach Delay, s/veh	282.9			20.6	30.2	
Approach LOS	F			C	C	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	7.0	47.7				54.7		12.5
Change Period (Y+Rc), s	4.4	* 5.1				5.1		4.9
Max Green Setting (Gmax), s	5.1	* 43				52.0		18.0
Max Q Clear Time (g_c+I1), s	4.0	44.6				42.5		7.6
Green Ext Time (p_c), s	0.0	0.0				5.6		0.2

Intersection Summary	
HCM 6th Ctrl Delay	164.2
HCM 6th LOS	F

Notes

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	1490	30	20	1340	90	20	0	30	60	0	70
Future Volume (veh/h)	90	1490	30	20	1340	90	20	0	30	60	0	70
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	98	1620	33	22	1457	98	31	0	47	67	0	79
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.64	0.64	0.64	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	115	1151	23	35	1014	68	45	0	85	86	0	122
Arrive On Green	0.06	0.63	0.63	0.02	0.59	0.59	0.02	0.00	0.05	0.05	0.00	0.08
Sat Flow, veh/h	1781	1826	37	1781	1733	117	1781	0	1585	1781	0	1585
Grp Volume(v), veh/h	98	0	1653	22	0	1555	31	0	47	67	0	79
Grp Sat Flow(s),veh/h/ln	1781	0	1864	1781	0	1849	1781	0	1585	1781	0	1585
Q Serve(g_s), s	4.3	0.0	49.8	1.0	0.0	46.2	1.4	0.0	2.3	2.9	0.0	3.8
Cycle Q Clear(g_c), s	4.3	0.0	49.8	1.0	0.0	46.2	1.4	0.0	2.3	2.9	0.0	3.8
Prop In Lane	1.00		0.02	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	115	0	1175	35	0	1082	45	0	85	86	0	122
V/C Ratio(X)	0.85	0.00	1.41	0.64	0.00	1.44	0.70	0.00	0.55	0.78	0.00	0.65
Avail Cap(c_a), veh/h	115	0	1175	115	0	1082	115	0	492	115	0	482
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	36.6	0.0	14.6	38.4	0.0	16.4	38.2	0.0	36.4	37.2	0.0	35.4
Incr Delay (d2), s/veh	40.6	0.0	188.4	7.0	0.0	202.0	7.1	0.0	2.0	15.0	0.0	2.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.1	0.0	77.3	0.5	0.0	76.3	0.7	0.0	0.9	1.6	0.0	1.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	77.2	0.0	203.0	45.5	0.0	218.4	45.3	0.0	38.5	52.2	0.0	37.5
LnGrp LOS	E	A	F	D	A	F	D	A	D	D	A	D
Approach Vol, veh/h		1751			1577			78			146	
Approach Delay, s/veh		195.9			215.9			41.2			44.3	
Approach LOS		F			F			D			D	

Timer - Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.9	55.2	6.4	11.5	9.5	51.6	8.2	9.7
Change Period (Y+Rc), s	4.4	5.4	4.4	5.4	4.4	5.4	4.4	* 5.4
Max Green Setting (Gmax), s	5.1	46.2	5.1	24.0	5.1	46.2	5.1	* 25
Max Q Clear Time (g_c+I1), s	3.0	51.8	3.4	5.8	6.3	48.2	4.9	4.3
Green Ext Time (p_c), s	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1

Intersection Summary	
HCM 6th Ctrl Delay	195.2
HCM 6th LOS	F

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1440	80	20	1290	140	190
Future Volume (veh/h)	1440	80	20	1290	140	190
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	1565	87	22	1387	197	268
Peak Hour Factor	0.92	0.92	0.93	0.93	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2
Cap, veh/h	1029	57	67	1236	682	313
Arrive On Green	0.59	0.59	0.02	0.66	0.20	0.20
Sat Flow, veh/h	1755	98	3456	1870	3456	1585
Grp Volume(v), veh/h	0	1652	22	1387	197	268
Grp Sat Flow(s),veh/h/ln	0	1853	1728	1870	1728	1585
Q Serve(g_s), s	0.0	46.8	0.5	52.7	3.9	13.0
Cycle Q Clear(g_c), s	0.0	46.8	0.5	52.7	3.9	13.0
Prop In Lane		0.05	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	0	1086	67	1236	682	313
V/C Ratio(X)	0.00	1.52	0.33	1.12	0.29	0.86
Avail Cap(c_a), veh/h	0	1086	221	1236	1127	517
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	16.5	38.6	13.5	27.2	30.9
Incr Delay (d2), s/veh	0.0	239.0	1.1	66.0	0.1	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	88.0	0.2	38.7	1.6	5.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d),s/veh	0.0	255.5	39.6	79.5	27.3	34.6
LnGrp LOS	A	F	D	F	C	C
Approach Vol, veh/h	1652			1409	465	
Approach Delay, s/veh	255.5			78.9	31.5	
Approach LOS	F			E	C	

Timer - Assigned Phs	1	2				6		8
Phs Duration (G+Y+Rc), s	5.9	53.2				59.1		20.6
Change Period (Y+Rc), s	4.4	* 6.4				6.4		4.9
Max Green Setting (Gmax), s	5.1	* 44				52.7		26.0
Max Q Clear Time (g_c+I1), s	2.5	48.8				54.7		15.0
Green Ext Time (p_c), s	0.0	0.0				0.0		0.7

Intersection Summary	
HCM 6th Ctrl Delay	155.4
HCM 6th LOS	F

Notes

User approved pedestrian interval to be less than phase max green.

* HCM 6th computational engine requires equal clearance times for the phases crossing the barrier.

Appendix E

Horizon Year Synchro Arterial Reports

Arterial Level of Service: NB Genesee Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Governor Drive	II	45	63.9	339.3	403.2	0.80	7.1	F
Centurion Square	II	45	43.1	379.0	422.1	0.54	4.6	F
Decoro Street	II	45	29.2	329.1	358.3	0.30	3.0	F
Nobel Drive	II	45	20.8	177.5	198.3	0.19	3.5	F
Esplanade Court	II	45	22.3	12.2	34.5	0.20	21.3	D
La Jolla Village Dri	II	45	20.3	118.7	139.0	0.19	4.8	F
Executive Square	II	45	11.2	14.9	26.1	0.10	14.2	E
Executive Drive	II	45	8.4	10.6	19.0	0.08	14.6	E
Eastgate Mall	II	45	17.9	46.1	64.0	0.16	9.3	F
Regents Road (N)	II	45	33.5	24.3	57.8	0.35	21.7	D
Campus Point Drive	II	45	16.8	10.0	26.8	0.15	20.7	D
Scripps Hospital	II	45	23.2	2.6	25.8	0.21	29.8	B
I-5 NB Ramps	II	45	31.5	33.4	64.9	0.33	18.2	D
I-5 SB Ramps	II	45	11.8	46.1	57.9	0.11	6.7	F
Science Center Drive	II	45	31.1	20.1	51.2	0.31	22.1	C
John Hopkins Drive	II	45	34.5	1.6	36.1	0.36	35.9	A
N. Torrey Pines Rd.	II	45	9.8	11.8	21.6	0.09	15.0	E
Total	II		429.3	1577.3	2006.6	4.48	8.0	F

Arterial Level of Service: SB Genesee Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N. Torrey Pines Rd.	II	45	17.1	23.1	40.2	0.16	14.0	E
John Hopkins Drive	II	45	9.8	1.7	11.5	0.09	28.1	B
Science Center Drive	II	45	34.5	2.0	36.5	0.36	35.5	A
I-5 SB Ramps	II	45	31.1	25.2	56.3	0.31	20.1	D
I-5 NB Ramps	II	45	11.8	29.3	41.1	0.11	9.5	F
Scripps Hospital	II	45	31.5	20.9	52.4	0.33	22.5	C
Campus Point Drive	II	45	23.2	9.3	32.5	0.21	23.6	C
Regents Road (N)	II	45	16.8	37.2	54.0	0.15	10.3	F
Eastgate Mall	II	45	33.5	28.8	62.3	0.35	20.2	D
Executive Drive	II	45	17.9	5.8	23.7	0.16	25.0	C
Executive Square	II	45	8.4	8.1	16.5	0.08	16.8	E
La Jolla Village Dri	II	45	11.2	51.8	63.0	0.10	5.9	F
Esplanade Court	II	45	20.3	7.2	27.5	0.19	24.4	C
Nobel Drive	II	45	22.3	30.4	52.7	0.20	13.9	E
Decoro Street	II	45	20.8	28.0	48.8	0.19	14.1	E
Centurion Square	II	45	29.2	17.4	46.6	0.30	22.8	C
Governor Drive	II	45	43.1	39.7	82.8	0.54	23.4	C
SR-52 EB Ramps	II	45	63.9	4.6	68.5	0.80	42.0	A
Total	II		446.4	370.5	816.9	4.63	20.4	D

Arterial Level of Service: EB Governor Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Regents Road (S)	III	30	12.9	26.3	39.2	0.09	8.4	F
Scripps Street	III	25	19.4	49.5	68.9	0.09	4.6	F
Stadium Street	III	25	25.0	100.7	125.7	0.11	3.3	F
Mercer Street	III	25	36.8	23.8	60.6	0.22	13.2	E
Radcliffe Drive	III	25	43.8	65.4	109.2	0.29	9.4	F
Genesee Ave	III	25	19.1	97.2	116.3	0.09	2.7	F
Edmonton Avenue	III	35	22.6	31.0	53.6	0.19	12.7	E
Agee Street	III	35	10.6	49.6	60.2	0.08	4.7	F
Gullstrand Street	III	35	57.2	255.3	312.5	0.56	6.4	F
Greenwich Drive	III	35	41.3	173.4	214.7	0.34	5.8	F
Total	III		288.7	872.2	1160.9	2.06	6.4	F

Arterial Level of Service: WB Governor Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Greenwich Drive	III	32	31.6	3.7	35.3	0.25	25.4	B
Gullstrand Street	III	35	41.3	46.0	87.3	0.34	14.2	D
Agee Street	III	35	57.2	45.2	102.4	0.56	19.6	C
Edmonton Avenue	III	35	10.6	498.4	509.0	0.08	0.6	F
Genesee Ave	III	35	22.6	61.0	83.6	0.19	8.1	F
Radcliffe Drive	III	25	19.1	24.4	43.5	0.09	7.2	F
Mercer Street	III	25	43.8	12.6	56.4	0.29	18.3	C
Stadium Street	III	25	36.8	25.8	62.6	0.22	12.8	E
Scripps Street	III	25	25.0	24.6	49.6	0.11	8.2	F
Regents Road (S)	III	25	19.4	12.3	31.7	0.09	10.0	E
Total	III		307.4	754.0	1061.4	2.21	7.5	F

Arterial Level of Service: EB La Jolla Village Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Torrey Pines Road	I	45	9.0	38.6	47.6	0.09	6.6	F
La Jolla Scenic Driv	I	45	8.7	56.8	65.5	0.08	4.6	F
Villa La Jolla Drive	I	45	39.7	24.0	63.7	0.44	24.6	D
I-5 SB Off-Ramps	I	45	19.1	18.6	37.7	0.18	17.5	E
I-5 NB Ramps	I	45	18.9	17.7	36.6	0.18	17.9	E
Lebon Drive	I	45	28.4	76.9	105.3	0.27	9.3	F
Regents Road (N)	I	45	31.9	61.8	93.7	0.33	12.6	F
Genesee Ave	I	45	26.6	55.1	81.7	0.26	11.3	F
Executive Way	I	45	27.4	36.8	64.2	0.26	14.8	F
Towne Center Drive	I	45	14.5	7.0	21.5	0.14	23.3	D
I-805 SB Ramps	I	45	36.2	21.0	57.2	0.39	24.2	D
I-805 NB Ramps	I	45	20.6	60.7	81.3	0.20	8.8	F
Nobel Drive	I	50	32.6	37.9	70.5	0.38	19.4	E
Total	I		313.6	512.9	826.5	3.19	13.9	F

Arterial Level of Service: WB La Jolla Village Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-805 NB Ramps	I	50	32.6	19.7	52.3	0.38	26.1	D
I-805 SB Ramps	I	45	20.6	208.6	229.2	0.20	3.1	F
Towne Center Drive	I	45	36.2	150.9	187.1	0.39	7.4	F
Executive Way	I	45	14.5	363.6	378.1	0.14	1.3	F
Genesee Ave	I	45	27.4	66.2	93.6	0.26	10.1	F
Regents Road (N)	I	45	26.6	28.6	55.2	0.26	16.7	E
Lebon Drive	I	45	31.9	28.8	60.7	0.33	19.5	E
I-5 NB Ramps	I	45	28.4	10.0	38.4	0.27	25.6	D
I-5 SB Off-Ramps	I	45	18.9	71.4	90.3	0.18	7.3	F
Villa La Jolla Drive	I	45	19.1	106.6	125.7	0.18	5.3	F
La Jolla Scenic Driv	I	45	39.7	68.2	107.9	0.44	14.5	F
Torrey Pines Road	I	45	8.7	11.7	20.4	0.08	14.8	F
Revelle College Driv	I	45	9.0	167.2	176.2	0.09	1.8	F
Total	I		313.6	1301.5	1615.1	3.19	7.1	F

Arterial Level of Service: EB Nobel Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Villa La Jolla Drive	II	30	5.2	56.0	61.2	0.03	2.0	F
La Jolla Village Squ	II	40	14.2	26.1	40.3	0.12	11.0	F
I-5 SB Ramps	II	40	7.0	8.2	15.2	0.06	14.5	E
I-5 NB Ramps	II	40	8.4	14.2	22.6	0.07	11.6	F
Caminito Plaza Centr	II	40	12.4	13.3	25.7	0.11	15.1	E
Lebon Drive	II	40	15.3	24.9	40.2	0.13	11.9	F
Regents Road (N)	II	40	34.1	23.0	57.1	0.34	21.7	D
Cargill Ave	II	40	19.6	41.6	61.2	0.17	10.0	F
Genesee Ave	II	40	19.6	211.0	230.6	0.17	2.7	F
Lombard Place	II	35	14.3	20.7	35.0	0.11	11.8	F
Towne Center Drive	II	35	26.8	23.7	50.5	0.23	16.1	E
Shoreline Drive	II	45	42.4	21.8	64.2	0.48	27.0	C
Judicial Drive	II	45	29.6	7.7	37.3	0.30	28.8	B
I-805 SB On-ramp	II	45	15.6	7.3	22.9	0.14	22.5	C
I-805 N Off-ramps	II	45	15.0	26.9	41.9	0.14	11.8	F
Avenue of Flags	II	45	22.0	11.2	33.2	0.20	21.9	D
Miramar Road	II	45	27.4	85.4	112.8	0.26	8.4	F
Total	II		328.9	623.0	951.9	3.08	11.7	F

Arterial Level of Service: WB Nobel Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Avenue of Flags	II	45	27.4	2.2	29.6	0.26	32.0	B
I-805 N Off-ramps	II	45	22.0	11.0	33.0	0.20	22.1	C
I-805 SB On-ramp	II	45	15.0	0.2	15.2	0.14	32.5	B
Judicial Drive	II	45	15.6	12.2	27.8	0.14	18.6	D
Shoreline Drive	II	45	29.6	13.7	43.3	0.30	24.8	C
Towne Center Drive	II	45	42.4	23.7	66.1	0.48	26.2	C
Lombard Place	II	35	26.8	14.9	41.7	0.23	19.5	D
Genesee Ave	II	35	14.3	121.7	136.0	0.11	3.0	F
Costa Verde Boulevar	II	40	19.6	33.4	53.0	0.17	11.6	F
Regents Road (N)	II	40	19.6	35.3	54.9	0.17	11.2	F
Lebon Drive	II	40	34.1	22.4	56.5	0.34	21.9	D
Caminito Plaza Centr	II	40	15.3	10.2	25.5	0.13	18.8	D
I-5 NB Ramps	II	40	12.4	53.0	65.4	0.11	5.9	F
I-5 SB Ramps	II	40	8.4	0.9	9.3	0.07	28.3	B
La Jolla Village Squ	II	40	7.0	25.5	32.5	0.06	6.8	F
Villa La Jolla Drive	II	40	14.2	20.5	34.7	0.12	12.8	F
Total	II		323.7	400.8	724.5	3.05	15.2	E

Arterial Level of Service: NB Regents Road (N)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ariba Street	II	40	23.1	24.0	47.1	0.20	15.4	E
Berino Court	II	40	19.7	20.9	40.6	0.17	15.2	E
Nobel Drive	II	40	32.6	32.4	65.0	0.33	18.2	D
Plaza De Palmas	II	40	16.7	13.9	30.6	0.14	17.0	D
La Jolla Village Dri	II	40	14.8	72.5	87.3	0.13	5.3	F
Regents Park Row	II	40	9.8	19.1	28.9	0.08	10.6	F
Executive Drive	II	40	19.6	13.5	33.1	0.17	18.5	D
Eastgate Mall	II	40	13.8	18.9	32.7	0.12	13.2	E
Health Science Drive	II	40	14.2	6.1	20.3	0.12	21.9	D
Genesee Ave	II	40	17.6	0.0	17.6	0.15	31.3	B
Total	II		181.9	221.3	403.2	1.63	14.5	E

Arterial Level of Service: SB Regents Road (N)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Health Science Drive	II	40	17.6	30.3	47.9	0.15	11.5	F
Eastgate Mall	II	40	14.2	8.2	22.4	0.12	19.8	D
Executive Drive	II	40	13.8	10.5	24.3	0.12	17.7	D
Miramar Street	II	40	19.6	24.6	44.2	0.17	13.9	E
La Jolla Village Dri	II	40	9.8	50.7	60.5	0.08	5.0	F
Plaza De Palmas	II	40	14.8	8.5	23.3	0.13	19.9	D
Nobel Drive	II	40	16.7	47.1	63.8	0.14	8.2	F
Berino Court	II	40	32.6	12.0	44.6	0.33	26.6	C
Ariba Street	II	40	19.7	22.6	42.3	0.17	14.6	E
Total	II		158.8	214.5	373.3	1.43	13.7	E

Arterial Level of Service: NB Regents Road (S)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Luna Ave	I	50	12.3	54.1	66.4	0.12	6.6	F
SR-52 EB On	I	50	53.6	53.4	107.0	0.74	25.0	D
SR-52 WB OFF	I	50	9.0	48.9	57.9	0.09	5.6	F
Governor Drive	I	50	50.6	24.0	74.6	0.70	33.9	C
Total	I		125.5	180.4	305.9	1.66	19.5	E

Arterial Level of Service: SB Regents Road (S)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Governor Drive	I	50	6.9	15.7	22.6	0.07	11.0	F
SR-52 WB On	I	50	50.6	50.6	101.2	0.70	25.0	D
SR-52 EB Off	I	50	9.0	7.4	16.4	0.09	19.8	E
Luna Ave	I	50	53.6	42.2	95.8	0.74	28.0	C
Total	I		120.1	115.9	236.0	1.61	24.5	D

Arterial Level of Service: NB Genesee Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Governor Drive	II	45	63.9	96.9	160.8	0.80	17.9	D
Centurion Square	II	45	42.6	14.6	57.2	0.53	33.5	B
Decoro Street	II	45	29.2	39.6	68.8	0.30	15.4	E
Nobel Drive	II	45	20.8	66.0	86.8	0.19	7.9	F
Esplanade Court	II	45	22.3	33.8	56.1	0.20	13.1	E
La Jolla Village Dri	II	45	20.3	59.4	79.7	0.19	8.4	F
Executive Square	II	45	11.2	10.4	21.6	0.10	17.1	D
Executive Drive	II	45	8.4	14.4	22.8	0.08	12.1	F
Eastgate Mall	II	45	17.9	44.0	61.9	0.16	9.6	F
Regents Road (N)	II	45	33.5	14.8	48.3	0.35	26.0	C
Campus Point Drive	II	45	16.8	10.6	27.4	0.15	20.2	D
Scripps Hospital	II	45	23.2	8.3	31.5	0.21	24.4	C
I-5 NB Ramps	II	45	32.2	21.2	53.4	0.32	21.9	D
I-5 SB Ramps	II	45	11.8	14.8	26.6	0.11	14.7	E
Science Center Drive	II	45	31.1	16.9	48.0	0.31	23.6	C
John Hopkins Drive	II	46	34.5	17.2	51.7	0.36	25.0	C
N. Torrey Pines Rd.	II	45	9.8	2.6	12.4	0.09	26.1	C
Total	II		429.5	485.5	915.0	4.47	17.6	D

Arterial Level of Service: SB Genesee Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N. Torrey Pines Rd.	II	45	17.1	27.7	44.8	0.16	12.6	F
John Hopkins Drive	II	45	9.8	13.8	23.6	0.09	13.7	E
Science Center Drive	II	45	34.5	15.3	49.8	0.36	26.0	C
I-5 SB Ramps	II	45	31.1	76.9	108.0	0.31	10.5	F
I-5 NB Ramps	II	45	11.8	2.8	14.6	0.11	26.7	C
Scripps Hospital	II	45	32.2	29.0	61.2	0.32	19.1	D
Campus Point Drive	II	45	23.2	76.9	100.1	0.21	7.7	F
Regents Road (N)	II	45	16.8	15.6	32.4	0.15	17.1	D
Eastgate Mall	II	45	33.5	11.2	44.7	0.35	28.1	B
Executive Drive	II	45	17.9	24.2	42.1	0.16	14.1	E
Executive Square	II	45	8.4	26.1	34.5	0.08	8.0	F
La Jolla Village Dri	II	45	11.2	58.5	69.7	0.10	5.3	F
Esplanade Court	II	45	20.3	16.7	37.0	0.19	18.1	D
Nobel Drive	II	45	22.3	70.3	92.6	0.20	7.9	F
Decoro Street	II	45	20.8	557.6	578.4	0.19	1.2	F
Centurion Square	II	45	29.2	224.6	253.8	0.30	4.2	F
Governor Drive	II	45	42.6	258.7	301.3	0.53	6.4	F
SR-52 EB Ramps	II	45	63.9	70.1	134.0	0.80	21.5	D
Total	II		446.6	1576.0	2022.6	4.62	8.2	F

Arterial Level of Service: EB Governor Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Regents Road (S)	III	35	12.4	25.4	37.8	0.09	8.7	F
Scripps Street	III	25	19.2	28.0	47.2	0.09	6.7	F
Stadium Street	III	25	24.6	16.0	40.6	0.11	9.9	F
Mercer Street	III	25	36.4	10.9	47.3	0.22	16.8	D
Radcliffe Drive	III	25	44.6	16.2	60.8	0.29	17.2	D
Genesee Ave	III	25	17.7	157.5	175.2	0.08	1.7	F
Edmonton Avenue	III	35	22.5	115.4	137.9	0.19	4.9	F
Agee Street	III	35	10.4	272.4	282.8	0.08	1.0	F
Gullstrand Street	III	35	57.6	145.2	202.8	0.56	9.9	F
Greenwich Drive	III	35	40.9	181.5	222.4	0.34	5.5	F
Total	III		286.3	968.5	1254.8	2.05	5.9	F

Arterial Level of Service: WB Governor Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Greenwich Drive	III	35	30.7	62.7	93.4	0.26	9.9	F
Gullstrand Street	III	35	40.9	193.3	234.2	0.34	5.2	F
Agee Street	III	35	57.6	30.4	88.0	0.56	22.9	C
Edmonton Avenue	III	35	10.4	70.7	81.1	0.08	3.4	F
Genesee Ave	III	35	22.5	153.2	175.7	0.19	3.8	F
Radcliffe Drive	III	25	17.7	170.2	187.9	0.08	1.5	F
Mercer Street	III	25	44.6	167.6	212.2	0.29	4.9	F
Stadium Street	III	25	36.4	64.8	101.2	0.22	7.8	F
Scripps Street	III	25	24.6	290.9	315.5	0.11	1.3	F
Regents Road (S)	III	25	19.2	10.6	29.8	0.09	10.6	E
Total	III		304.6	1214.4	1519.0	2.21	5.2	F

Arterial Level of Service: EB La Jolla Village Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Torrey Pines Road	I	45	9.0	215.2	224.2	0.09	1.4	F
La Jolla Scenic Driv	I	45	8.7	221.6	230.3	0.08	1.3	F
Villa La Jolla Drive	I	45	39.7	331.2	370.9	0.44	4.2	F
I-5 SB Off-Ramps	I	45	19.1	13.3	32.4	0.18	20.4	E
I-5 NB Ramps	I	45	18.9	6.3	25.2	0.18	26.0	D
Lebon Drive	I	45	28.4	187.7	216.1	0.27	4.5	F
Regents Road (N)	I	45	31.9	213.3	245.2	0.33	4.8	F
Genesee Ave	I	45	26.6	36.6	63.2	0.26	14.6	F
Executive Way	I	45	27.4	99.7	127.1	0.26	7.5	F
Towne Center Drive	I	45	14.5	215.4	229.9	0.14	2.2	F
I-805 SB Ramps	I	45	36.2	167.3	203.5	0.39	6.8	F
I-805 NB Ramps	I	45	20.6	38.7	59.3	0.20	12.0	F
Nobel Drive	I	50	32.6	42.3	74.9	0.38	18.2	E
Total	I		313.6	1788.6	2102.2	3.19	5.5	F

Arterial Level of Service: WB La Jolla Village Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-805 NB Ramps	I	50	32.6	77.4	110.0	0.38	12.4	F
I-805 SB Ramps	I	45	20.6	18.6	39.2	0.20	18.2	E
Towne Center Drive	I	45	36.2	74.3	110.5	0.39	12.5	F
Executive Way	I	45	14.5	115.8	130.3	0.14	3.8	F
Genesee Ave	I	45	27.4	30.3	57.7	0.26	16.5	E
Regents Road (N)	I	45	26.6	217.2	243.8	0.26	3.8	F
Lebon Drive	I	45	31.9	170.3	202.2	0.33	5.9	F
I-5 NB Ramps	I	45	28.4	8.0	36.4	0.27	27.0	C
I-5 SB Off-Ramps	I	45	18.9	16.4	35.3	0.18	18.6	E
Villa La Jolla Drive	I	45	19.1	43.2	62.3	0.18	10.6	F
La Jolla Scenic Driv	I	45	39.7	9.1	48.8	0.44	32.2	C
Torrey Pines Road	I	45	8.7	9.0	17.7	0.08	17.0	E
Revelle College Driv	I	45	9.0	36.3	45.3	0.09	6.9	F
Total	I		313.6	825.9	1139.5	3.19	10.1	F

Arterial Level of Service: EB Nobel Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Villa La Jolla Drive	II	40	3.9	39.7	43.6	0.03	2.8	F
La Jolla Village Squ	II	40	14.2	52.7	66.9	0.12	6.6	F
I-5 SB Ramps	II	40	7.0	49.5	56.5	0.06	3.9	F
I-5 NB Ramps	II	40	8.4	20.8	29.2	0.07	9.0	F
Caminito Plaza Centr	II	40	12.4	22.6	35.0	0.11	11.1	F
Lebon Drive	II	40	15.3	30.1	45.4	0.13	10.6	F
Regents Road (N)	II	40	34.1	36.2	70.3	0.34	17.6	D
Cargill Ave	II	40	19.6	35.6	55.2	0.17	11.1	F
Genesee Ave	II	40	19.6	42.6	62.2	0.17	9.9	F
Lombard Place	II	35	14.7	12.7	27.4	0.12	15.4	E
Towne Center Drive	II	35	27.7	33.1	60.8	0.22	13.1	E
Shoreline Drive	II	45	42.4	18.1	60.5	0.48	28.6	B
Judicial Drive	II	45	29.6	6.2	35.8	0.30	30.0	B
I-805 SB On-ramp	II	45	15.6	9.4	25.0	0.14	20.6	D
I-805 N Off-ramps	II	45	15.0	24.3	39.3	0.14	12.6	F
Avenue of Flags	II	45	21.8	11.0	32.8	0.20	22.0	D
Miramar Road	II	45	27.6	74.8	102.4	0.27	9.3	F
Total	II		328.9	519.4	848.3	3.08	13.1	E

Arterial Level of Service: WB Nobel Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Avenue of Flags	II	45	27.6	2.3	29.9	0.27	32.0	B
I-805 N Off-ramps	II	45	21.8	10.5	32.3	0.20	22.3	C
I-805 SB On-ramp	II	45	15.0	0.2	15.2	0.14	32.5	B
Judicial Drive	II	45	15.6	19.3	34.9	0.14	14.8	E
Shoreline Drive	II	45	29.6	33.4	63.0	0.30	17.1	D
Towne Center Drive	II	45	42.4	30.9	73.3	0.48	23.6	C
Lombard Place	II	35	27.7	116.7	144.4	0.22	5.5	F
Genesee Ave	II	35	14.7	112.0	126.7	0.12	3.3	F
Costa Verde Boulevar	II	40	19.6	52.5	72.1	0.17	8.5	F
Regents Road (N)	II	40	19.6	86.4	106.0	0.17	5.8	F
Lebon Drive	II	40	34.1	29.0	63.1	0.34	19.6	D
Caminito Plaza Centr	II	40	15.3	30.9	46.2	0.13	10.4	F
I-5 NB Ramps	II	40	12.4	335.9	348.3	0.11	1.1	F
I-5 SB Ramps	II	40	8.4	1.4	9.8	0.07	26.9	C
La Jolla Village Squ	II	40	7.0	31.6	38.6	0.06	5.7	F
Villa La Jolla Drive	II	40	14.2	13.4	27.6	0.12	16.1	E
Total	II		325.0	906.4	1231.4	3.05	8.9	F

Arterial Level of Service: NB Regents Road (N)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ariba Street	II	40	23.1	16.0	39.1	0.20	18.5	D
Berino Court	II	40	19.7	18.5	38.2	0.17	16.2	E
Nobel Drive	II	40	32.6	28.2	60.8	0.33	19.5	D
Plaza De Palmas	II	40	16.7	13.5	30.2	0.14	17.3	D
La Jolla Village Dri	II	40	14.8	40.3	55.1	0.13	8.4	F
Regents Park Row	II	40	9.8	16.4	26.2	0.08	11.7	F
Executive Drive	II	40	19.6	11.5	31.1	0.17	19.7	D
Eastgate Mall	II	40	13.8	7.9	21.7	0.12	19.9	D
Health Science Drive	II	40	14.2	4.9	19.1	0.12	23.2	C
Genesee Ave	II	40	17.6	0.0	17.6	0.15	31.3	B
Total	II		181.9	157.2	339.1	1.63	17.3	D

Arterial Level of Service: SB Regents Road (N)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Health Science Drive	II	40	17.6	30.5	48.1	0.15	11.5	F
Eastgate Mall	II	40	14.2	28.9	43.1	0.12	10.3	F
Executive Drive	II	40	13.8	22.2	36.0	0.12	12.0	F
Miramar Street	II	40	19.6	50.5	70.1	0.17	8.8	F
La Jolla Village Dri	II	40	9.8	46.4	56.2	0.08	5.4	F
Plaza De Palmas	II	40	14.8	8.5	23.3	0.13	19.9	D
Nobel Drive	II	40	16.7	45.9	62.6	0.14	8.3	F
Berino Court	II	40	32.6	10.9	43.5	0.33	27.2	C
Ariba Street	II	40	19.7	22.0	41.7	0.17	14.8	E
Total	II		158.8	265.8	424.6	1.43	12.1	F

Arterial Level of Service: NB Regents Road (S)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Luna Ave	I	50	12.3	20.4	32.7	0.12	13.5	F
SR-52 EB On	I	50	53.6	50.4	104.0	0.74	25.7	D
SR-52 WB OFF	I	50	9.0	23.8	32.8	0.09	9.9	F
Governor Drive	I	50	50.5	22.5	73.0	0.70	34.6	B
Total	I		125.4	117.1	242.5	1.66	24.6	D

Arterial Level of Service: SB Regents Road (S)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Governor Drive	I	50	6.9	17.2	24.1	0.07	10.4	F
SR-52 WB On	I	50	50.5	45.3	95.8	0.70	26.4	D
SR-52 EB Off	I	50	9.0	35.5	44.5	0.09	7.3	F
Luna Ave	I	50	53.6	70.7	124.3	0.74	21.5	D
Total	I		120.0	168.7	288.7	1.60	20.0	E

Appendix F

Horizon Year Synchro Arterial Reports (Transit)

Arterial Level of Service: NB Genesee Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Governor Drive	II	45	63.9	6.9	70.8	0.80	40.6	A
Centurion Square	II	45	43.1	2.0	45.1	0.54	43.0	A
Decoro Street	II	45	29.2	1.6	30.8	0.30	34.5	B
Nobel Drive	II	45	20.8	1.3	22.1	0.19	31.1	B
Esplanade Court	II	45	22.3	0.0	22.3	0.20	33.0	B
La Jolla Village Dri	II	45	20.3	0.0	20.3	0.19	33.0	B
Executive Square	II	45	11.2	1.1	12.3	0.10	30.1	B
Executive Drive	II	45	8.4	1.2	9.6	0.08	28.8	B
Eastgate Mall	II	45	17.9	2.7	20.6	0.16	28.8	B
Regents Road (N)	II	45	33.5	12.5	46.0	0.35	27.3	C
Campus Point Drive	II	45	16.8	1.6	18.4	0.15	30.1	B
Scripps Hospital	II	45	23.2	2.0	25.2	0.21	30.5	B
I-5 NB Ramps	II	45	31.5	0.0	31.5	0.33	37.5	A
Science Center Drive	II	45	31.1	0.0	31.1	0.31	36.3	A
John Hopkins Drive	II	45	34.5	0.0	34.5	0.36	37.5	A
N. Torrey Pines Rd.	II	45	9.8	10.5	20.3	0.09	15.9	E
Total	II		417.5	43.4	460.9	4.37	34.1	B

Arterial Level of Service: SB Genesee Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N. Torrey Pines Rd.	II	45	17.1	23.1	40.2	0.16	14.0	E
John Hopkins Drive	II	45	9.8	3.0	12.8	0.09	25.2	C
Science Center Drive	II	45	34.5	2.0	36.5	0.36	35.5	A
I-5 SB Ramps	II	45	31.1	14.0	45.1	0.31	25.1	C
Scripps Hospital	II	45	31.5	0.9	32.4	0.33	36.5	A
Campus Point Drive	II	45	23.2	1.8	25.0	0.21	30.7	B
Regents Road (N)	II	45	16.8	2.5	19.3	0.15	28.7	B
Eastgate Mall	II	45	33.5	3.3	36.8	0.35	34.1	B
Executive Drive	II	45	17.9	0.0	17.9	0.16	33.1	B
Executive Square	II	45	8.4	0.0	8.4	0.08	33.0	B
La Jolla Village Dri	II	45	11.2	0.0	11.2	0.10	33.1	B
Esplanade Court	II	45	20.3	0.0	20.3	0.19	33.0	B
Nobel Drive	II	45	22.3	1.9	24.2	0.20	30.4	B
Decoro Street	II	45	20.8	2.3	23.1	0.19	29.8	B
Centurion Square	II	45	29.2	10.9	40.1	0.30	26.5	C
Governor Drive	II	45	43.1	6.7	49.8	0.54	39.0	A
Total	II		370.7	72.4	443.1	3.72	30.3	B

Arterial Level of Service: EB Governor Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Regents Road (S)	III	30	12.9	25.0	37.9	0.09	8.7	F
Scripps Street	III	25	19.4	49.5	68.9	0.09	4.6	F
Stadium Street	III	25	25.0	100.7	125.7	0.11	3.3	F
Mercer Street	III	25	36.8	23.8	60.6	0.22	13.2	E
Radcliffe Drive	III	25	43.8	65.4	109.2	0.29	9.4	F
Genesee Ave	III	25	19.1	23.1	42.2	0.09	7.4	F
Edmonton Avenue	III	35	22.6	31.0	53.6	0.19	12.7	E
Agee Street	III	35	10.6	49.6	60.2	0.08	4.7	F
Gullstrand Street	III	35	57.2	255.3	312.5	0.56	6.4	F
Greenwich Drive	III	35	41.3	173.4	214.7	0.34	5.8	F
Total	III		288.7	796.8	1085.5	2.06	6.8	F

Arterial Level of Service: WB Governor Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Greenwich Drive	III	32	31.6	3.7	35.3	0.25	25.4	B
Gullstrand Street	III	35	41.3	46.0	87.3	0.34	14.2	D
Agee Street	III	35	57.2	45.2	102.4	0.56	19.6	C
Edmonton Avenue	III	35	10.6	498.4	509.0	0.08	0.6	F
Genesee Ave	III	35	22.6	21.0	43.6	0.19	15.6	D
Radcliffe Drive	III	25	19.1	24.4	43.5	0.09	7.2	F
Mercer Street	III	25	43.8	12.6	56.4	0.29	18.3	C
Stadium Street	III	25	36.8	25.8	62.6	0.22	12.8	E
Scripps Street	III	25	25.0	24.6	49.6	0.11	8.2	F
Regents Road (S)	III	25	19.4	11.6	31.0	0.09	10.2	E
Total	III		307.4	713.3	1020.7	2.21	7.8	F

Arterial Level of Service: EB La Jolla Village Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Torrey Pines Road	I	45	9.0	39.3	48.3	0.09	6.5	F
La Jolla Scenic Driv	I	45	8.7	54.8	63.5	0.08	4.7	F
Villa La Jolla Drive	I	45	39.7	3.8	43.5	0.44	36.1	B
I-5 SB Off-Ramps	I	45	19.1	2.6	21.7	0.18	30.4	C
I-5 NB Ramps	I	45	18.9	26.9	45.8	0.18	14.3	F
Lebon Drive	I	45	28.4	3.9	32.3	0.27	30.4	C
Regents Road (N)	I	45	31.9	8.1	40.0	0.33	29.6	C
Genesee Ave	I	45	26.6	1.6	28.2	0.26	32.7	C
Executive Way	I	45	27.4	4.6	32.0	0.26	29.7	C
Towne Center Drive	I	45	14.5	4.2	18.7	0.14	26.8	D
I-805 SB Ramps	I	45	36.2	1.6	37.8	0.39	36.7	B
I-805 NB Ramps	I	45	20.6	42.1	62.7	0.20	11.4	F
Nobel Drive	I	50	32.6	12.4	45.0	0.38	30.3	C
Total	I		313.6	205.9	519.5	3.19	22.1	D

Arterial Level of Service: WB La Jolla Village Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-805 NB Ramps	I	50	32.6	2.4	35.0	0.38	39.0	B
I-805 SB Ramps	I	45	20.6	25.8	46.4	0.20	15.3	F
Towne Center Drive	I	45	36.2	25.9	62.1	0.39	22.3	D
Executive Way	I	45	14.5	2.8	17.3	0.14	28.9	C
Genesee Ave	I	45	27.4	1.4	28.8	0.26	33.0	C
Regents Road (N)	I	45	26.6	4.4	31.0	0.26	29.7	C
Lebon Drive	I	45	31.9	7.3	39.2	0.33	30.2	C
I-5 NB Ramps	I	45	28.4	1.8	30.2	0.27	32.6	C
I-5 SB Off-Ramps	I	45	18.9	39.8	58.7	0.18	11.2	F
Villa La Jolla Drive	I	45	19.1	3.6	22.7	0.18	29.1	C
La Jolla Scenic Driv	I	45	39.7	62.9	102.6	0.44	15.3	F
Torrey Pines Road	I	45	8.7	10.0	18.7	0.08	16.1	E
Revelle College Driv	I	45	9.0	165.3	174.3	0.09	1.8	F
Total	I		313.6	353.4	667.0	3.19	17.2	E

Arterial Level of Service: EB Nobel Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Villa La Jolla Drive	II	30	5.2	0.0	5.2	0.03	23.3	C
La Jolla Village Squ	II	40	14.2	10.7	24.9	0.12	17.8	D
I-5 SB Ramps	II	40	7.0	0.2	7.2	0.06	30.6	B
I-5 NB Ramps	II	40	8.4	9.2	17.6	0.07	15.0	E
Caminito Plaza Centr	II	40	12.4	2.2	14.6	0.11	26.6	C
Lebon Drive	II	40	15.3	5.0	20.3	0.13	23.6	C
Regents Road (N)	II	40	34.1	4.7	38.8	0.34	31.9	B
Cargill Ave	II	40	19.6	9.2	28.8	0.17	21.3	D
Genesee Ave	II	40	19.6	0.0	19.6	0.17	31.4	B
Lombard Place	II	35	14.3	4.0	18.3	0.11	22.6	C
Towne Center Drive	II	35	26.8	6.5	33.3	0.23	24.4	C
Shoreline Drive	II	45	42.4	6.6	49.0	0.48	35.4	A
I-805 SB On-ramp	II	45	15.6	0.2	15.8	0.14	32.7	B
I-805 N Off-ramps	II	45	15.0	26.9	41.9	0.14	11.8	F
Avenue of Flags	II	45	22.0	6.8	28.8	0.20	25.3	C
Miramar Road	II	45	27.4	43.5	70.9	0.26	13.4	E
Total	II		299.3	135.7	435.0	2.79	23.1	C

Arterial Level of Service: WB Nobel Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Avenue of Flags	II	45	27.4	2.2	29.6	0.26	32.0	B
I-805 N Off-ramps	II	45	22.0	11.0	33.0	0.20	22.1	C
I-805 SB On-ramp	II	45	15.0	0.2	15.2	0.14	32.5	B
Judicial Drive	II	45	15.6	0.0	15.6	0.14	33.1	B
Shoreline Drive	II	45	29.6	0.0	29.6	0.30	36.3	A
Towne Center Drive	II	45	42.4	0.0	42.4	0.48	40.9	A
Lombard Place	II	35	26.8	0.0	26.8	0.23	30.3	B
Genesee Ave	II	35	14.3	0.0	14.3	0.11	28.9	B
Costa Verde Boulevar	II	40	19.6	5.7	25.3	0.17	24.3	C
Regents Road (N)	II	40	19.6	3.0	22.6	0.17	27.1	C
Lebon Drive	II	40	34.1	4.9	39.0	0.34	31.8	B
Caminito Plaza Centr	II	40	15.3	3.7	19.0	0.13	25.2	C
I-5 NB Ramps	II	40	12.4	11.0	23.4	0.11	16.6	E
I-5 SB Ramps	II	40	8.4	0.0	8.4	0.07	31.3	B
La Jolla Village Squ	II	40	7.0	5.6	12.6	0.06	17.5	D
Villa La Jolla Drive	II	40	14.2	0.0	14.2	0.12	31.3	B
Total	II		323.7	47.3	371.0	3.05	29.6	B

Arterial Level of Service: NB Regents Road (N)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ariba Street	II	40	23.1	0.0	23.1	0.20	31.3	B
Berino Court	II	40	19.7	5.8	25.5	0.17	24.2	C
Nobel Drive	II	40	32.6	21.7	54.3	0.33	21.8	D
Plaza De Palmas	II	40	16.7	13.9	30.6	0.14	17.0	D
La Jolla Village Dri	II	40	14.8	47.6	62.4	0.13	7.4	F
Regents Park Row	II	40	9.8	13.5	23.3	0.08	13.1	E
Executive Drive	II	40	19.6	13.5	33.1	0.17	18.5	D
Eastgate Mall	II	40	13.8	18.9	32.7	0.12	13.2	E
Health Science Drive	II	40	14.2	6.1	20.3	0.12	21.9	D
Genesee Ave	II	40	17.6	0.0	17.6	0.15	31.3	B
Total	II		181.9	141.0	322.9	1.63	18.1	D

Arterial Level of Service: SB Regents Road (N)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Health Science Drive	II	40	17.6	30.3	47.9	0.15	11.5	F
Eastgate Mall	II	40	14.2	8.2	22.4	0.12	19.8	D
Executive Drive	II	40	13.8	10.5	24.3	0.12	17.7	D
Miramar Street	II	40	19.6	24.6	44.2	0.17	13.9	E
La Jolla Village Dri	II	40	9.8	34.9	44.7	0.08	6.8	F
Plaza De Palmas	II	40	14.8	8.5	23.3	0.13	19.9	D
Nobel Drive	II	40	16.7	37.0	53.7	0.14	9.7	F
Berino Court	II	40	32.6	15.0	47.6	0.33	24.9	C
Ariba Street	II	40	19.7	0.0	19.7	0.17	31.4	B
Total	II		158.8	169.0	327.8	1.43	15.7	E

Arterial Level of Service: NB Regents Road (S)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Luna Ave	I	50	12.3	54.1	66.4	0.12	6.6	F
SR-52 EB On	I	50	53.6	53.4	107.0	0.74	25.0	D
SR-52 WB OFF	I	50	9.0	48.9	57.9	0.09	5.6	F
Governor Drive	I	50	50.6	0.0	50.6	0.70	50.0	A
Total	I		125.5	156.4	281.9	1.66	21.2	D

Arterial Level of Service: SB Regents Road (S)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Governor Drive	I	50	6.9	0.0	6.9	0.07	36.2	B
SR-52 WB On	I	50	50.6	50.6	101.2	0.70	25.0	D
SR-52 EB Off	I	50	9.0	7.4	16.4	0.09	19.8	E
Luna Ave	I	50	53.6	42.2	95.8	0.74	28.0	C
Total	I		120.1	100.2	220.3	1.61	26.2	D

Arterial Level of Service: NB Genesee Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Governor Drive	II	45	63.9	2.2	66.1	0.80	43.5	A
Centurion Square	II	45	42.6	0.5	43.1	0.53	44.5	A
Decoro Street	II	45	29.2	5.4	34.6	0.30	30.7	B
Nobel Drive	II	45	20.8	1.8	22.6	0.19	30.4	B
Esplanade Court	II	45	22.3	0.0	22.3	0.20	33.0	B
La Jolla Village Dri	II	45	20.3	0.0	20.3	0.19	33.0	B
Executive Square	II	45	11.2	2.6	13.8	0.10	26.8	C
Executive Drive	II	45	8.4	2.6	11.0	0.08	25.2	C
Eastgate Mall	II	45	17.9	4.0	21.9	0.16	27.1	C
Regents Road (N)	II	45	33.5	8.0	41.5	0.35	30.3	B
Campus Point Drive	II	45	16.8	3.7	20.5	0.15	27.0	C
Scripps Hospital	II	45	23.2	6.0	29.2	0.21	26.3	C
I-5 NB Ramps	II	45	32.2	0.0	32.2	0.32	36.3	A
Science Center Drive	II	45	31.1	0.0	31.1	0.31	36.3	A
John Hopkins Drive	II	46	34.5	0.0	34.5	0.36	37.5	A
N. Torrey Pines Rd.	II	45	9.8	9.4	19.2	0.09	16.9	E
Total	II		417.7	46.2	463.9	4.36	33.8	B

Arterial Level of Service: SB Genesee Ave

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
N. Torrey Pines Rd.	II	45	17.1	27.7	44.8	0.16	12.6	F
John Hopkins Drive	II	45	9.8	9.0	18.8	0.09	17.2	D
Science Center Drive	II	45	34.5	6.0	40.5	0.36	32.0	B
I-5 SB Ramps	II	45	31.1	12.0	43.1	0.31	26.2	C
Scripps Hospital	II	45	32.2	1.3	33.5	0.32	34.9	B
Campus Point Drive	II	45	23.2	2.8	26.0	0.21	29.5	B
Regents Road (N)	II	45	16.8	1.9	18.7	0.15	29.6	B
Eastgate Mall	II	45	33.5	4.8	38.3	0.35	32.8	B
Executive Drive	II	45	17.9	0.0	17.9	0.16	33.1	B
Executive Square	II	45	8.4	0.0	8.4	0.08	33.0	B
La Jolla Village Dri	II	45	11.2	0.0	11.2	0.10	33.1	B
Esplanade Court	II	45	20.3	0.0	20.3	0.19	33.0	B
Nobel Drive	II	45	22.3	1.8	24.1	0.20	30.5	B
Decoro Street	II	45	20.8	3.8	24.6	0.19	28.0	C
Centurion Square	II	45	29.2	2.2	31.4	0.30	33.9	B
Governor Drive	II	45	42.6	10.8	53.4	0.53	35.9	A
SR-52 EB Ramps	II	45	63.9	70.1	134.0	0.80	21.5	D
Total	II		434.8	154.2	589.0	4.51	27.6	C

Arterial Level of Service: EB Governor Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Regents Road (S)	IV	25	20.2	25.3	45.5	0.09	7.3	E
Scripps Street	IV	25	19.2	28.0	47.2	0.09	6.7	F
Stadium Street	IV	25	24.6	16.0	40.6	0.11	9.9	D
Mercer Street	IV	25	36.4	10.9	47.3	0.22	16.8	C
Radcliffe Drive	IV	25	44.6	16.2	60.8	0.29	17.2	C
Genesee Ave	IV	25	17.7	115.3	133.0	0.08	2.2	F
Edmonton Avenue	IV	25	31.0	115.4	146.4	0.19	4.6	F
Agee Street	IV	25	17.0	272.4	289.4	0.08	1.0	F
Gullstrand Street	IV	25	80.7	145.2	225.9	0.56	8.9	E
Greenwich Drive	IV	25	52.1	181.5	233.6	0.34	5.2	F
Total	IV		343.5	926.2	1269.7	2.05	5.8	F

Arterial Level of Service: WB Governor Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Greenwich Drive	IV	25	39.2	62.7	101.9	0.26	9.0	D
Gullstrand Street	IV	25	52.1	193.3	245.4	0.34	5.0	F
Agee Street	IV	25	80.7	30.4	111.1	0.56	18.2	C
Edmonton Avenue	IV	25	17.0	70.8	87.8	0.08	3.2	F
Genesee Ave	IV	25	31.0	110.0	141.0	0.19	4.8	F
Radcliffe Drive	IV	25	17.7	170.2	187.9	0.08	1.5	F
Mercer Street	IV	25	44.6	167.6	212.2	0.29	4.9	F
Stadium Street	IV	25	36.4	64.8	101.2	0.22	7.8	E
Scripps Street	IV	25	24.6	290.9	315.5	0.11	1.3	F
Regents Road (S)	IV	25	19.2	10.5	29.7	0.09	10.6	D
Total	IV		362.5	1171.2	1533.7	2.21	5.2	F

Arterial Level of Service: EB La Jolla Village Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Torrey Pines Road	I	45	9.0	215.2	224.2	0.09	1.4	F
La Jolla Scenic Driv	I	45	8.7	221.6	230.3	0.08	1.3	F
Villa La Jolla Drive	I	45	39.7	5.1	44.8	0.44	35.0	B
I-5 SB Off-Ramps	I	45	19.1	3.2	22.3	0.18	29.6	C
I-5 NB Ramps	I	45	18.9	53.0	71.9	0.18	9.1	F
Lebon Drive	I	45	28.4	2.7	31.1	0.27	31.6	C
Regents Road (N)	I	45	31.9	4.9	36.8	0.33	32.2	C
Genesee Ave	I	45	26.6	1.8	28.4	0.26	32.4	C
Executive Way	I	45	27.4	3.8	31.2	0.26	30.4	C
Towne Center Drive	I	45	14.5	5.0	19.5	0.14	25.7	D
I-805 SB Ramps	I	45	36.2	4.0	40.2	0.39	34.5	B
I-805 NB Ramps	I	45	20.6	65.8	86.4	0.20	8.2	F
Nobel Drive	I	50	32.6	9.7	42.3	0.38	32.3	C
Total	I		313.6	595.8	909.4	3.19	12.6	F

Arterial Level of Service: WB La Jolla Village Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
I-805 NB Ramps	I	50	32.6	2.0	34.6	0.38	39.4	B
I-805 SB Ramps	I	45	20.6	29.0	49.6	0.20	14.4	F
Towne Center Drive	I	45	36.2	3.2	39.4	0.39	35.2	B
Executive Way	I	45	14.5	5.5	20.0	0.14	25.0	D
Genesee Ave	I	45	27.4	2.1	29.5	0.26	32.2	C
Regents Road (N)	I	45	26.6	5.2	31.8	0.26	29.0	C
Lebon Drive	I	45	31.9	4.5	36.4	0.33	32.6	C
I-5 NB Ramps	I	45	28.4	1.0	29.4	0.27	33.4	C
I-5 SB Off-Ramps	I	45	18.9	17.5	36.4	0.18	18.0	E
Villa La Jolla Drive	I	45	19.1	3.6	22.7	0.18	29.1	C
La Jolla Scenic Driv	I	45	39.7	9.1	48.8	0.44	32.2	C
Torrey Pines Road	I	45	8.7	9.0	17.7	0.08	17.0	E
Revelle College Driv	I	45	9.0	36.3	45.3	0.09	6.9	F
Total	I		313.6	128.0	441.6	3.19	26.0	D

Arterial Level of Service: EB Nobel Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Villa La Jolla Drive	II	40	3.9	0.0	3.9	0.03	31.1	B
La Jolla Village Squ	II	40	14.2	4.8	19.0	0.12	23.4	C
I-5 SB Ramps	II	40	7.0	0.3	7.3	0.06	30.2	B
I-5 NB Ramps	II	40	8.4	10.3	18.7	0.07	14.1	E
Caminito Plaza Centr	II	40	12.4	5.5	17.9	0.11	21.6	D
Lebon Drive	II	40	15.3	3.7	19.0	0.13	25.3	C
Regents Road (N)	II	40	34.1	17.8	51.9	0.34	23.9	C
Cargill Ave	II	40	19.6	4.8	24.4	0.17	25.1	C
Genesee Ave	II	40	19.6	0.0	19.6	0.17	31.4	B
Lombard Place	II	35	14.7	4.8	19.5	0.12	21.6	D
Towne Center Drive	II	35	27.7	7.0	34.7	0.22	23.0	C
Shoreline Drive	II	45	42.4	6.9	49.3	0.48	35.2	A
I-805 SB On-ramp	II	45	15.6	9.4	25.0	0.14	20.6	D
I-805 N Off-ramps	II	45	15.0	24.3	39.3	0.14	12.6	F
Avenue of Flags	II	45	21.8	4.2	26.0	0.20	27.7	C
Miramar Road	II	45	27.6	20.3	47.9	0.27	20.0	D
Total	II		299.3	124.1	423.4	2.78	23.7	C

Arterial Level of Service: WB Nobel Drive

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Avenue of Flags	II	45	27.6	4.3	31.9	0.27	30.0	B
I-805 N Off-ramps	II	45	21.8	10.5	32.3	0.20	22.3	C
I-805 SB On-ramp	II	45	15.0	0.2	15.2	0.14	32.5	B
Judicial Drive	II	45	15.6	0.0	15.6	0.14	33.1	B
Shoreline Drive	II	45	29.6	0.0	29.6	0.30	36.3	A
Towne Center Drive	II	45	42.4	0.0	42.4	0.48	40.9	A
Lombard Place	II	35	27.7	0.0	27.7	0.22	28.8	B
Genesee Ave	II	35	14.7	0.0	14.7	0.12	28.7	B
Costa Verde Boulevar	II	40	19.6	3.7	23.3	0.17	26.4	C
Regents Road (N)	II	40	19.6	18.0	37.6	0.17	16.3	E
Lebon Drive	II	40	34.1	5.8	39.9	0.34	31.1	B
Caminito Plaza Centr	II	40	15.3	5.4	20.7	0.13	23.2	C
I-5 NB Ramps	II	40	12.4	9.0	21.4	0.11	18.1	D
I-5 SB Ramps	II	40	8.4	0.0	8.4	0.07	31.3	B
La Jolla Village Squ	II	40	7.0	2.9	9.9	0.06	22.2	C
Villa La Jolla Drive	II	40	14.2	0.0	14.2	0.12	31.3	B
Total	II		325.0	59.8	384.8	3.05	28.5	B

Arterial Level of Service: NB Regents Road (N)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Ariba Street	II	40	23.1	0.0	23.1	0.20	31.3	B
Berino Court	II	40	19.7	7.6	27.3	0.17	22.6	C
Nobel Drive	II	40	32.6	8.4	41.0	0.33	28.9	B
Plaza De Palmas	II	40	16.7	8.6	25.3	0.14	20.6	D
La Jolla Village Dri	II	40	14.8	41.6	56.4	0.13	8.2	F
Regents Park Row	II	40	9.8	16.4	26.2	0.08	11.7	F
Executive Drive	II	40	19.6	11.5	31.1	0.17	19.7	D
Eastgate Mall	II	40	13.8	7.9	21.7	0.12	19.9	D
Health Science Drive	II	40	14.2	4.9	19.1	0.12	23.2	C
Genesee Ave	II	40	17.6	0.0	17.6	0.15	31.3	B
Total	II		181.9	106.9	288.8	1.63	20.3	D

Arterial Level of Service: SB Regents Road (N)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Health Science Drive	II	40	17.6	30.5	48.1	0.15	11.5	F
Eastgate Mall	II	40	14.2	28.9	43.1	0.12	10.3	F
Executive Drive	II	40	13.8	22.2	36.0	0.12	12.0	F
Miramar Street	II	40	19.6	50.5	70.1	0.17	8.8	F
La Jolla Village Dri	II	40	9.8	39.0	48.8	0.08	6.3	F
Plaza De Palmas	II	40	14.8	13.9	28.7	0.13	16.1	E
Nobel Drive	II	40	16.7	7.3	24.0	0.14	21.7	D
Berino Court	II	40	32.6	13.7	46.3	0.33	25.6	C
Ariba Street	II	40	19.7	5.6	25.3	0.17	24.4	C
Total	II		158.8	211.6	370.4	1.43	13.9	E

Arterial Level of Service: NB Regents Road (S)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Luna Ave	I	50	12.3	20.4	32.7	0.12	13.5	F
SR-52 EB On	I	50	53.6	50.4	104.0	0.74	25.7	D
SR-52 WB OFF	I	50	9.0	23.8	32.8	0.09	9.9	F
Governor Drive	I	50	50.5	0.0	50.5	0.70	50.0	A
Total	I		125.4	94.6	220.0	1.66	27.1	C

Arterial Level of Service: SB Regents Road (S)

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Governor Drive	I	50	6.9	0.0	6.9	0.07	36.2	B
SR-52 WB On	I	50	50.5	45.3	95.8	0.70	26.4	D
SR-52 EB Off	I	50	9.0	35.5	44.5	0.09	7.3	F
Luna Ave	I	50	53.6	70.7	124.3	0.74	21.5	D
Total	I		120.0	151.5	271.5	1.60	21.3	D

Appendix G

PEQE Calculation Worksheet

SEGMENT	NB_EB_Speed_	NB_EB_Horizontal_Distance	NB_EB_Lighting	NB_EB_Clear_Pedestrian_Zone	NB_EB_SCORE	NB_EB_GRADE	SB_WB_Speed_	SB_WB_Horizontal_Distance	SB_WB_Lighting	SB_WB_Clear_Pedestrian_Zone	SB_WB_SCORE	SB_WB_GRADE
Regents Rd to Genesee Ave	0	1	2	2	5	High	0	1	2	2	5	High
Genesee Ave to Towne Centre Dr	0	1	0	2	3	High	0	1	0	2	3	High
Judicial Dr to Eastgate Dr	0	1	0	2	3	Medium	0	1	0	2	3	Medium
Regents Rd to Genesee Ave	1	2	2	2	7	High	1	1	1	2	5	High
Genesee Ave to Executive Wy	1	2	2	2	7	High	1	2	2	2	7	High
Executive Wy to Towne Centre Dr	1	1	2	2	6	High	1	1	2	2	6	High
La Jolla Village Dr to Executive Dr	1	2	2	2	7	Medium	1	1	2	2	6	Medium
SR 52 to Governor Drive	2	2	2	2	8	Medium	2	1	2	2	7	Medium
Calgary Avenue to Centurion Square	2	2	2	2	8	Medium	2	2	2	2	8	Medium
Centurion Square to Decoro Street	2	2	2	2	8	Medium	2	2	2	2	8	Medium
Governor Drive to Calgary Avenue	0	2	1	2	5	Medium	0	1	1	2	4	Medium
Decoro Street to Nobel Drive	2	2	2	2	8	Medium	2	2	2	2	8	Medium
Nobel Drive to La Jolla Village Drive	1	1	0	2	4	Medium	1	1	0	2	4	Medium
La Jolla Village Dr to Executive Dr	0	1	1	2	4	Medium	0	1	1	2	4	Medium
I-5 NB Ramps to Scripps Hospital Dwy	1	0	2	2	5	Medium	1	0	2	2	5	Medium
Scripps Hospital Dwy to Regents Rd	1	0	2	2	5	Medium	1	0	2	2	5	Medium
I-5 NB ramps to N Torrey Pines Rd	1	1	1	2	5	Medium	1	1	1	2	5	Medium
Executive Dr to Eastgate Mall	1	1	2	2	6	Medium	1	1	2	2	6	Medium
Regents Rd to Eastgate Mall	1	1	2	2	6	Medium	1	1	2	2	6	Medium
Via Alicante to La Jolla Colony Dr	1	1	2	2	6	Low	1	1	2	2	6	Low
Via Alicante to Villa La Jolla Dr	0	0	0	2	2	Low	0	0	0	2	2	Low
Villa La Jolla to La Jolla Village Dr	0	1	0	2	3	Medium	0	0	0	2	2	Medium
Towne Centre Dr to Judicial Dr	1	2	1	2	6	Medium	1	2	1	2	6	Medium
Regents Rd to Stadium St	1	1	1	2	5	High	1	1	1	2	5	High
Stadium St to Radcliffe Dr	1	2	1	2	6	High	1	1	1	2	5	High
Radcliffe Dr to Genesee Ave	1	1	1	2	5	High	1	1	1	2	5	High
Genesee Ave to Edmonton Ave	1	1	1	2	5	High	1	1	1	2	5	Medium
Edmonton Ave to Agee St	1	1	1	2	5	Medium	1	1	1	2	5	Medium
Agee St to Gullstrand St	1	1	2	2	6	Medium	1	1	2	2	6	Medium
Gullstrand St to Lakewood St	1	0	2	2	5	Medium	1	1	2	2	6	Medium
Lakewood St to Greenwich Dr	0	2	2	2	6	Medium	0	1	2	2	5	Medium
Greenwich Dr to I-805 NB ramp	1	1	1	2	5	Medium	1	1	1	2	5	Medium
Villa La Jolla Drive to Golden Haven Dr	0	2	1	2	5	Low	0	2	1	2	5	Low
Golden Haven Dr to Research Pl	1	2	1	2	6	Low	1	2	1	2	6	Low
Gilman Dr to Villa La Jolla	1	2	2	2	7	Low	1	2	2	2	7	Low
Lebon Dr to Regents Rd	1	1	0	2	4	Low	1	1	0	2	4	Low
I-5 to Lebon Dr	1	1	0	2	4	Medium	1	1	0	2	4	Medium
Villa La Jolla to I-5	1	1	1	2	5	Medium	1	1	1	2	5	Medium
Regents Rd to Genesee Ave	1	1	1	2	5	Medium	1	1	1	2	5	Medium
Genesee Ave to Towne Centre Dr	1	1	0	2	4	Medium	1	1	0	2	4	Medium
Towne Centre Dr to Nobel Dr	1	1	1	2	5	Low	1	1	1	2	5	Low
Gilman Dr to Torrey Pines Rd	1	2	1	2	6	Low	1	2	1	2	6	Low
La Jolla Village Dr to University Center Ln	2	2	1	2	7	Medium	2	1	1	2	6	Medium
University Center Ln to Nobel Dr	1	2	2	2	7	Medium	1	1	2	2	6	Medium
Nobel Dr to Pamilla Dr	1	1	2	2	6	Medium	1	1	2	2	6	Medium
Nobel Dr to Eastgate Mall	1	1	1	2	5	Low	1	1	1	2	5	Low
La Jolla Village Dr to Genesee Ave	1	1	2	2	6	Medium	1	2	2	2	7	Medium
Costa Verde Blvd to Genesee Ave	1	1	1	2	5	High	1	1	1	2	5	High
Villa La Jolla to I-5 SB ramp	1	2	2	2	7	Medium	1	2	2	2	7	Medium
I-5 SB ramp to Lebon Dr	1	2	2	2	7	Medium	1	2	2	2	7	Medium
I-5 SB ramp to Lebon Dr	1	2	2	2	7	Medium	1	2	2	2	7	Medium
Lebon Dr to Regents Rd	1	2	2	2	7	Medium	1	1	2	2	6	Medium
Regents Rd to Costa Verde Blvd	1	2	0	2	5	High	1	1	0	2	4	High
Genesee Ave to Towne Centre Dr	1	2	0	2	5	Medium	1	1	0	2	4	Medium
Towne Centre Dr to Shoreline Dr	1	2	0	2	5	Medium	1	1	0	2	4	Medium
Shoreline Dr to Judicial Dr	1	2	0	2	5	Medium	1	1	0	2	4	Medium
I-805 to Avenue of Flags	0	1	0	2	3	Medium	0	1	0	2	3	Medium
Judicial Dr to I-805	1	1	0	2	4	Medium	1	1	0	2	4	Medium
Pennant Wy to Governor Drive	1	2	2	2	7	Medium	1	2	2	2	7	Medium
Governor Dr to Lahitte Ct	1	1	2	2	6	Medium	1	1	2	2	6	Medium
Arriba St to Rose Canyon	1	0	0	2	3	Medium	1	0	0	2	3	Medium
Arriba St to Nobel Dr	0	1	0	2	3	Medium	0	1	0	2	3	High
Nobel Dr to La Jolla Village Dr	1	1	0	2	4	Medium	1	1	0	2	4	Medium

SEGMENT	NB_EB_Speed_	NB_EB_Horizontal_Distance	NB_EB_Lighting	NB_EB_Clear_Pedestrian_Zone	NB_EB_SCORE	NB_EB_GRADE	SB_WB_Speed_	SB_WB_Horizontal_Distance	SB_WB_Lighting	SB_WB_Clear_Pedestrian_Zone	SB_WB_SCORE	SB_WB_GRADE
La Jolla Village Dr to Executive Dr	1	1	0	2	4	Medium	1	1	0	2	4	Medium
Executive Dr to Genesee Ave	0	1	0	2	3	Medium	0	1	0	2	3	Medium
Nobel Dr to Golden Haven Dr	0	1	0	2	3	High	0	1	0	2	3	Medium
Golden Haven Dr to La Jolla Village Dr	2	1	2	2	7	High	2	1	2	2	7	Medium
La Jolla Village Dr to Executive Dr	1	1	2	2	6	Medium	1	1	2	2	6	Medium
Executive Dr to Eastgate Mall	1	0	2	2	5	High	1	1	2	2	6	Medium
Gilman Dr to Via Mallorca	0	2	0	2	4	Medium	0	2	0	2	4	Medium
Via Mallorca to Nobel Dr	1	1	0	2	4	Medium	1	2	0	2	5	Medium
Nobel Dr to La Jolla Village Dr	1	2	2	2	7	Medium	1	2	2	2	7	Medium

Appendix H

Mobility Adjustment Tool Memo

MOBILITY ADJUSTMENT TOOL

DRAFT

Documentation and Instruction Manual

FEBRUARY 2024

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Table of Contents

List of Figures

Mobility Adjustment Tool

The purpose of this Mobility Adjustment Tool (the "Tool") is to calibrate traffic volume outputs from transportation models against existing traffic counts. This includes calibrating existing and future average daily traffic (ADT) estimates for roadway segments and peak hour turning movements for intersections. The following sections describe the data requirements and methodologies for developing ADT and intersection volumes, followed by a detailed example of how to utilize the Tool.

The Tool operates entirely within Excel, requiring no additional software for functionality. However, for optimal results and efficiency, it is recommended to complement the Tool with GIS (Geographic Information System) software. This document was prepared utilizing ArcGIS Pro, but other versions of GIS (i.e., ArcMap) may achieve similar results.

It should be noted that the Tool was designed for intuitive use, catering to individuals of varying technical proficiencies, including those without advanced GIS or Excel expertise. While this document aims to provide enough guidance for understanding and utilizing the Tool efficiently, it does not substitute proper training and experience. Consequently, there are certain steps that are not elaborated upon extensively. Users are encouraged to reach out to staff with GIS and Excel experience for assistance when needed.

Following this introduction, the document is structured into the following sections:

- Roadway Segment Traffic Volumes: This section describes the data required and methodology utilized to develop roadway segment traffic volumes.
- Intersection Traffic Volumes: This section describes the data required and methodology utilized to develop intersection volumes.
- Instruction Manual: This section provides a step-by-step walkthrough of how to utilize the Tool.

Roadway Segment Traffic Volumes

To develop calibrated roadway segment traffic volumes, the Tool requires the following:

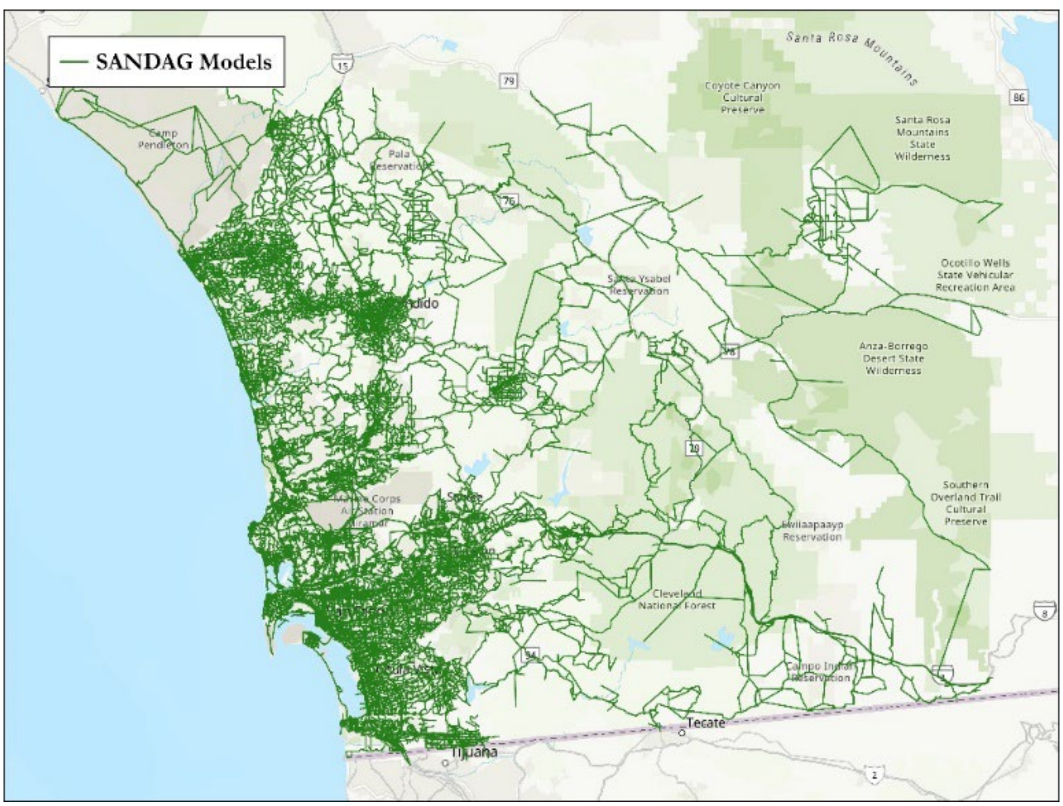
- Transportation Model Traffic Volume Outputs
- Traffic Counts

The following sections describe the above sets of data in detail.

Transportation Models

Transportation models are complex analysis tools used to forecast future scenarios of where people will live and how they will travel. The models serve as the foundation for determining the traffic growth between existing (Base) and long-term (Future) scenarios. Within the San Diego region, the most commonly utilized transportation models come from the San Diego Association of Governments (SANDAG). The SANDAG transportation models (SANDAG Models) are Activity-Based Models (ABM) that simulate individual and household transportation decisions for daily travel activities such as work, school, shopping, healthcare, and recreation. In other words, the SANDAG Models predict whether, when, and how travel occurs in the San Diego region. The SANDAG Models consist of more than 40,000 individual links representing the transportation network within the San Diego region. Among other data, each link contains ADT data, representing the vehicular trips projected as a result of model inputs, such as population and land uses. **Figure 1** displays an example of a SANDAG Model transportation network.

Figure 1 - SANDAG Models



SANDAG Models can be prepared for different scenarios that incorporate different land uses and model inputs. As is the case when models are prepared for Base and Future conditions. While the Base model is intended to reflect existing conditions, the Future model can reflect proposed changes to the transportation network (road diets, road widenings, new alignments, etc.) and land uses (increases in residential density, buildout of communities, transit-oriented development, etc.)

To allow for the comparison of model outputs across different models, each link is assigned a unique identifier known as the "HWYCOVID". The Tool takes advantage of this consistency across models to join data from the Base Model to the Future Model.

Traffic Counts

A transportation model may not accurately represent typical, day-to-day traffic conditions as the model assumptions, input parameters, and network representation do not fully capture the nuanced, complex, and unpredictable nature of the real-world transportation system. Therefore, calibration against traffic counts becomes crucial as it helps adjust the model to better reflect Base conditions, enhancing the model's accuracy, and providing more reliable predictions for Future conditions.

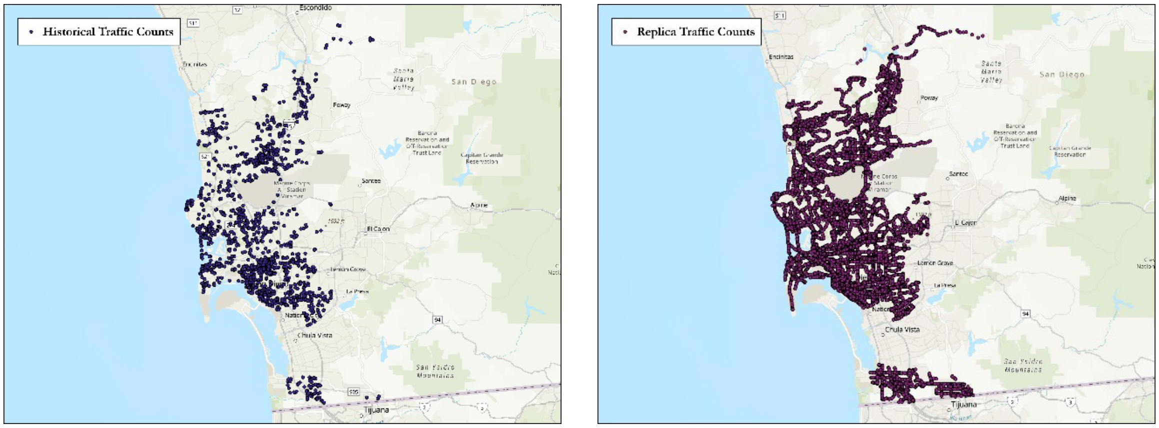
To calibrate model ADT, the Tool requires traffic count data that shares the model's HWYCOVID attribute. In other words, the Tool uses the HWYCOVID to join traffic counts to the Base and Future Model ADT. The following datasets, included in the Mobility Adjustment Tool Package, have been spatially joined[1] through GIS, providing each traffic count its corresponding HWYCOVID.

- *Existing*: Traffic counts that were conducted within the last 2 years. Existing traffic counts can be sourced from the City's traffic count database, as well as technical reports such as traffic studies prepared for Transportation Impact Studies, Local Mobility Analyses, or Environmental Impact Reports.
- *Historical*: Traffic counts derived from the City of San Diego historical traffic count database, provided by City staff. These are roadway segment traffic counts that were conducted more than 2 years ago. In general, traffic counts older than 2 years are not preferred, but for the purpose of this Tool they offer a cost-effective alternative to conducting new traffic at all study locations. However, it is important to consider historical counts come with limitations as changes in infrastructure, seasonal variations, and other factors can result in significant changes between historical and Existing conditions.
- *Replica*: Replica is a platform that analyzes massive volumes of data from sources such as GPS devices, traffic sensors, mobile apps, social media platforms, credit card transactions, and other sources related to transportation and mobility. The platform provides average annual daily traffic (AADT) estimates on an annual basis.

To optimize accuracy and reliability, the Tool systematically calibrates Model ADT against available traffic counts, prioritizing data in a ranked order of Existing, Historical, and Replica. However, the Tool also offers the flexibility to select any of the available traffic count sources or "None", maintaining the Base Model ADT as-is. **Figure 2** displays the traffic count data included in the Mobility Adjustment Tool Package.

[1] Spatial Join:

Figure 2 - Historical and Replica Traffic Counts



Methodology

To facilitate the calibration process, it is necessary to reduce the complexity and extents of the SANDAG Models to better align with the objectives of a Project Study Area. This ensures that the information is manageable and more relevant to the user's needs. The recommended approach for this is utilizing GIS to aggregate[2].

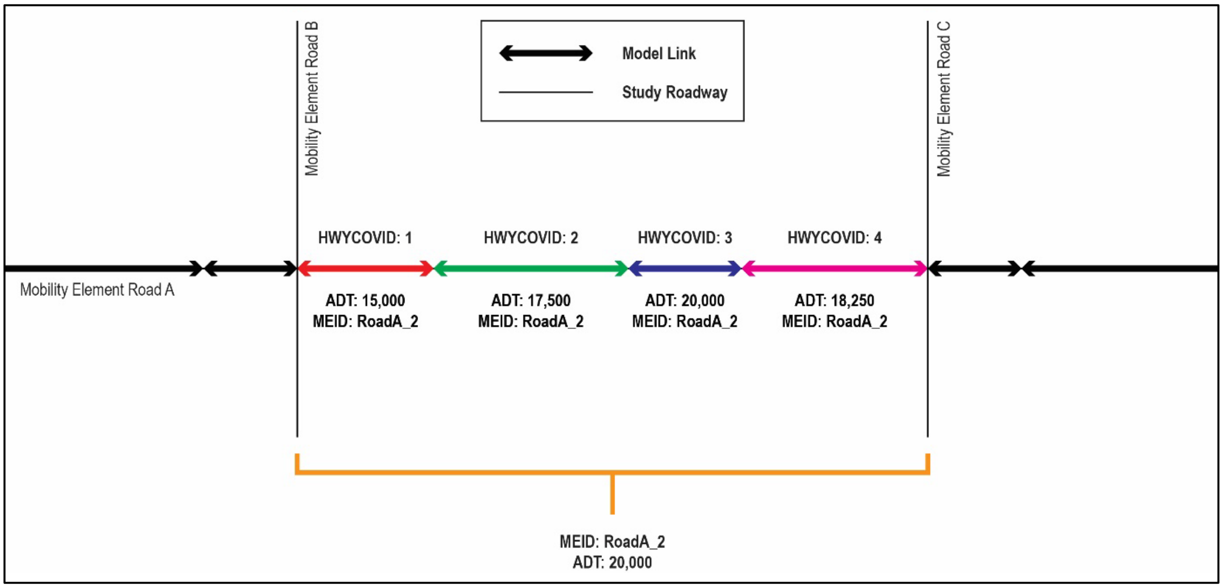
Aggregating Model Links to Study Roadway Segments

In the context of GIS, aggregating refers to the process of combining multiple smaller, more detailed geographic data points or segments into larger, less detailed, or more generalized groups. This process can involve summing, averaging, or selecting maximums from fine-grain elements, such as model links, to create a more simplified representation, such as Study Roadway Segments.

SANDAG Models consist of more than 40,000 model links. On the other hand, Study Roadway Segments are larger segments that typically span across several model links. To aggregate model links into Study Roadway Segments, a unique identifier, known as the Mobility Element ID (MEID) is required. Using GIS, every Study Roadway Segment, and every model link that makes up a segment, are assigned the same unique Mobility Element ID (MEID). This effort creates a table that relates HWYCOVID's (model links) to MEID's (Study Roadway Segments). The Tool then aggregates the ADTs for the model links into a single ADT representing the entire Study Roadway Segment. It is important to note that the aggregate process utilizes the merge rule of "maximum", meaning that the ADT for the Study Roadway Segment is the maximum observed across the model links that make up the segment. **Figure 3** displays how multiple model links are aggregated into a single Study Roadway Segment.

[2] Aggregating:

Figure 3 – Aggregating Model Links to Study Roadway Segments



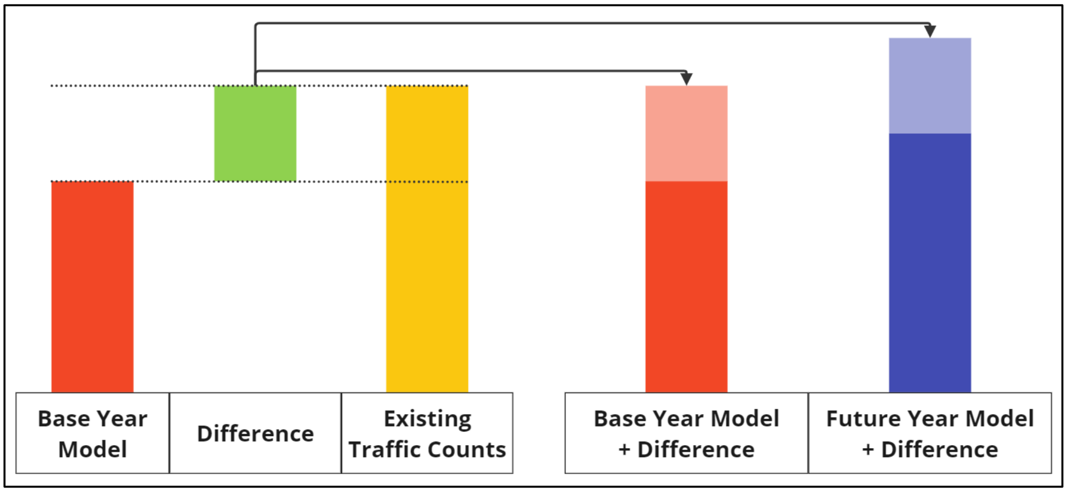
As shown above, the second segment of Road A, located between Road B and Road C, with an MEID of "RoadA_2" is made up of four model links with HWYCOVID's 1, 2, 3, and 4. Each model link contains Model ADT ranging from 15,000 to 20,000. By assigning each model link the MEID of the Study Roadway Segment they make up, "RoadA_2", the Tool can aggregate the data and determine that the ADT for "RoadA_2" is 20,000 (the maximum observed between HWYCOVID's 1 through 4).

The above example aggregates Model ADT, but the same process applies to traffic counts. As long as the HWYCOVID's of the traffic counts have been defined to make up a particular MEID, the Tool can aggregate traffic count data. In other words, aggregating not only optimizes the calibration process, but also allows for the Tool to associate attributes from different model link datasets (Model, Existing, Historical, and Replica ADT) to the attributes from the Study Roadway Segments (Roadway, From, and To).

Model Calibration

After aggregating, the next step is to calibrate the Base and Future Model ADT's utilizing the available traffic counts (Existing, Historical, or Replica). As mentioned previously, the Tool systematically calibrates Model ADT against traffic counts, prioritizing data in a ranked order of Existing, Historical, and Replica. The Tool first identifies the difference between Base Model ADT and the traffic count and applies the difference to both the Base and Future Models. As a result, the Base Model ADT is adjusted to reflect traffic count levels, and the Future Model ADT is adjusted to reflect the same growth prior to adjustments. **Figure 4** displays an example of the Base and Future Models being adjusted to reflect a set of existing traffic counts that were higher than Base Model ADT.

Figure 4 - Model Calibration



Fine-Tuning Calibration Results

In most cases the calibration results are adequate for high-level, long term planning purposes. However, the Tool is also intended to aid in the development of Future intersection turning movements, which is more sensitive to growth patterns, and to account for situations where engineering judgement is justified, the Tool offers optional fine-tuning. The available fine-tuning options are described below:

1. **None**: No further adjustments applied.
2. **Round**: Adjusts the calibrated result by rounding to the nearest hundred.
3. **Corridor**: Adjusts the segment's calibrated ADT to reflect the average growth observed across the corridor the segment corresponds to. The average growth is the average of the growth observed per segment of the corridor and not simply the growth between the sum of the Base and Future ADT.
4. **Overall**: Adjusts the segment's calibrated ADT to reflect the average growth observed across the entire Project Study Area. The average growth is the average of the growth observed per segment of the Project Study Area and not simply the growth between the sum of Base and Future ADT.
5. **User Input Override:** Overrides the Tool output.

It is important to recognize that there is not a one-size-fits-all approach when it comes to fine-tuning. Different situations may require different fine-tuning methods, if any, and careful consideration should be exercised when determining how and when to fine-tune.

Intersection Traffic Volumes

The Tool allows users to develop Future intersection traffic volumes based on existing intersection traffic volumes and the calibrated ADT results.

To develop intersection traffic volumes, Tool requires the following:

- Existing intersection turning movement traffic volumes
- Base and Future Model ADT per Intersection Leg

The following sections describe the above sets of data in detail.

Existing Intersection Turning Movement Volumes

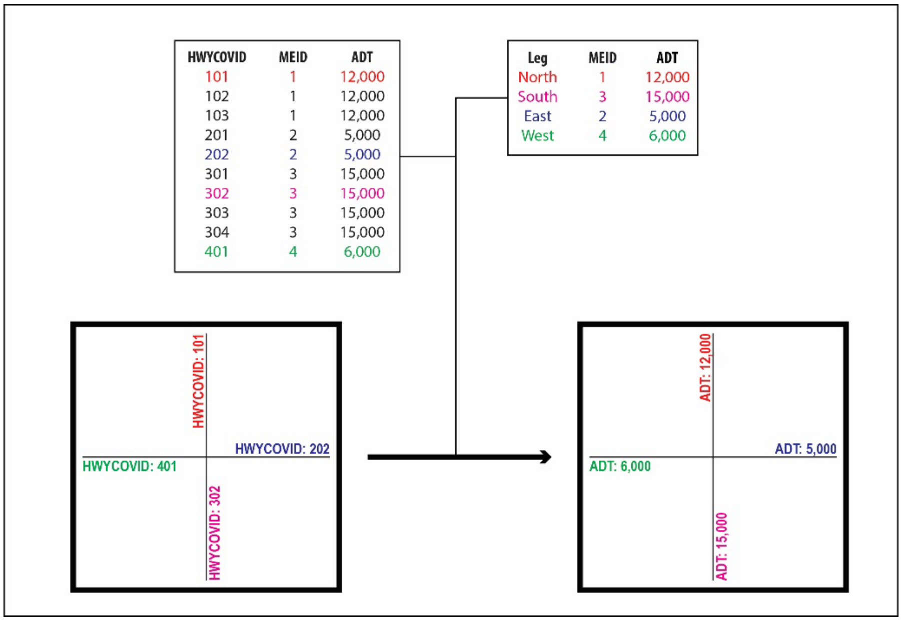
Intersection turning movement volumes refer to the quantitative representation of the traffic flow at an intersection, focusing specifically on the movements vehicles make when transitioning from one road to another. These movements typically include left turns, right turns, and through movements.

Existing intersection traffic volumes may be obtained by commissioning traffic counts or sourced from historical data such as traffic studies prepared for Transportation Impact Studies, Local Mobility Analyses, or Environmental Impact Reports.

ADT by Intersection Approach

The methodology for Future intersection volume development, described in detail further below, requires the identification of ADT (Base and Future) per approach of the intersection. By inputting the HWYCOVID of the model links that make up the legs of an intersection, the Tool utilizes the HWYCOVID and MEID relationships established in the Roadway Segment Traffic Volume development to assign Base and Future Model ADT. **Figure 5** displays an example of how the assignment of HWYCOVID's produces Model ADT information for each intersection leg.

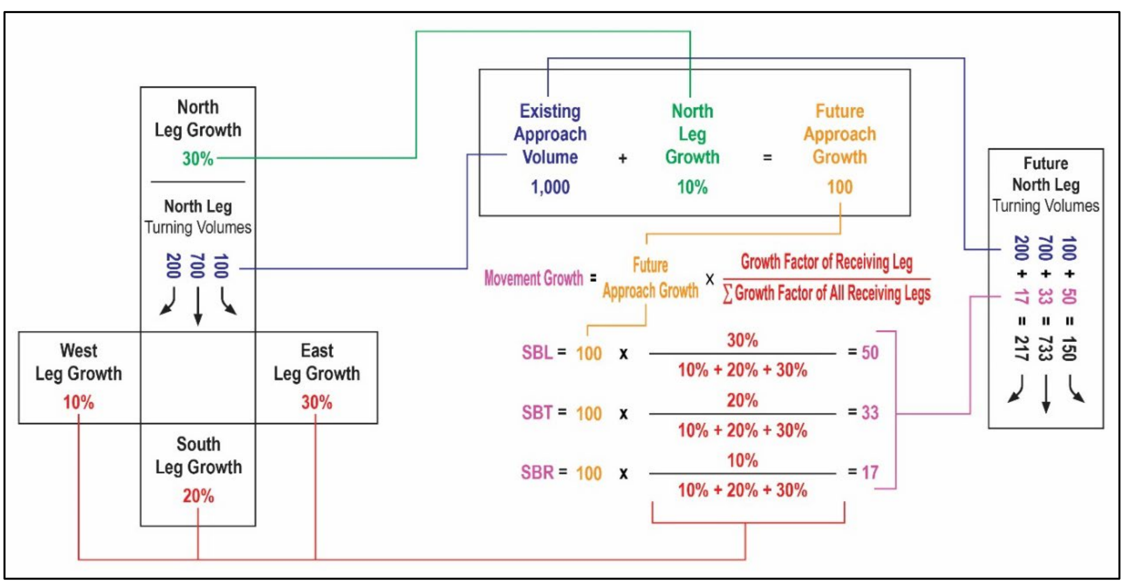
Figure 5 – ADT by Intersection Approach



Methodology

The development of Future intersection traffic volumes is based on the National Cooperative Highway Research Program (NCHRP) Report 255 methodology for estimating intersection turning movements, which is applicable when existing turning movement volumes and ADT by approach are available. The methodology involves determining the growth in approach volumes based on the growth between the approach ADT. The calculated growth is then distributed to receiving legs proportionally based on the individual growth of a receiving leg relative to the growth of all receiving legs. **Figure 6** below provides an example calculation for the southbound approach (north leg) of a four-legged intersection.

Figure 6 - Example Calculations of Future Intersection Traffic Volumes

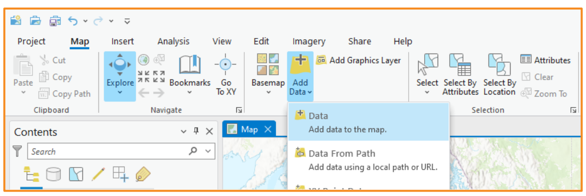


Instruction Manual

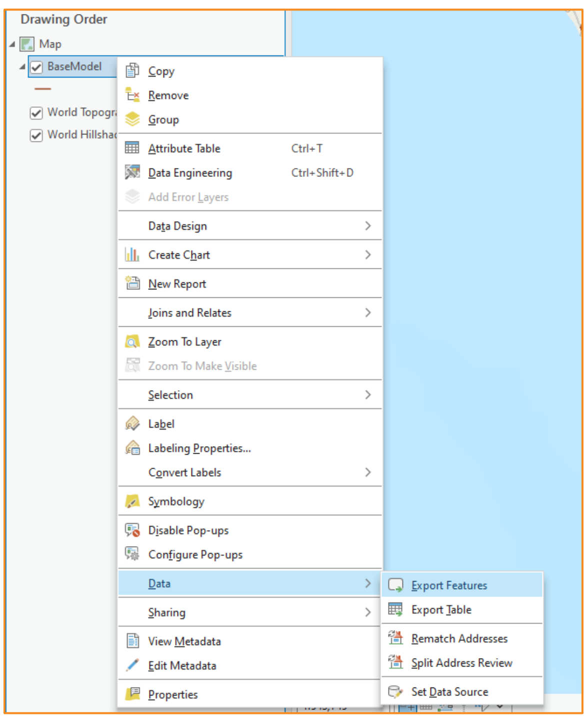
This section presents a detailed illustration of the Tool's functionality within the context of the Hillcrest Focused Plan Amendment (Hillcrest FPA). Though the walkthrough focuses on the Hillcrest FPA study area, it serves as a template for its broader application to other communities, corridor studies, or site-specific studies. By following the outlined steps, users will be equipped to adapt the tool to their study needs.

Prior to importing data into the Tool, it is essential to ensure that the data is properly formatted. The Tool has built-in scripts that check for specific formats. Inadequately formatted data can lead to errors during the importing process, potentially compromising the integrity of the analysis. The following sections provide a step-by-step guide on how to format each dataset.

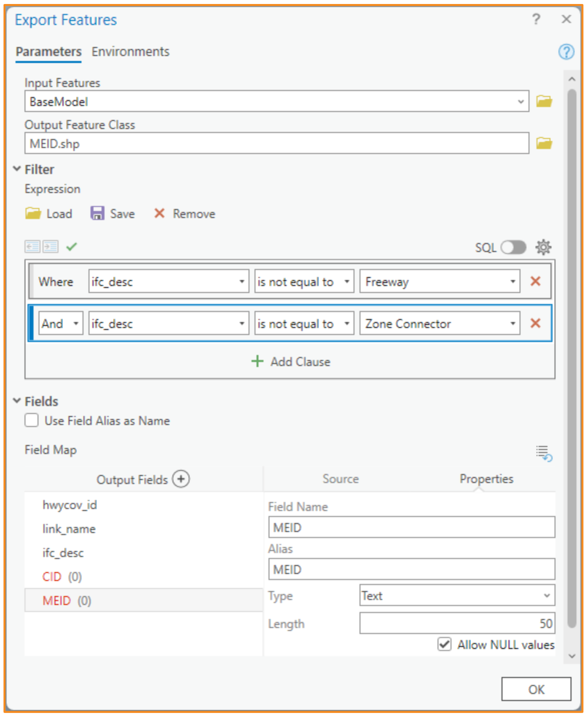
DEVELOP MEID FOR STUDY ROADWAY SEGMENTS



Use *Add Data* to import the Base Model located here:
Mobility Adjustment Tool\Shapefiles\SANDAG Models\BaseModel.shp



Use *Export Features* to create a copy of the Base Model. This copy will serve as the shapefile containing HWYCOVIDs and MEIDs.

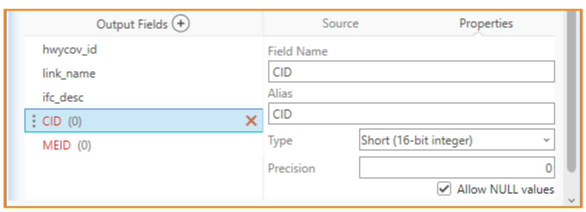


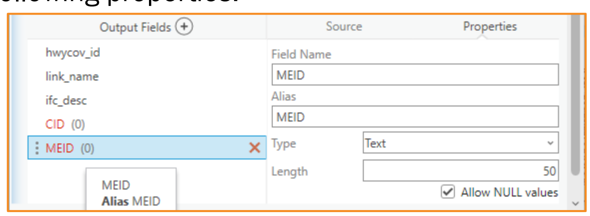
When using the Export features, name the export "MEID".

User the Filter section to filter out (avoid copying) "Freeway" and "Zone Connector" model links.

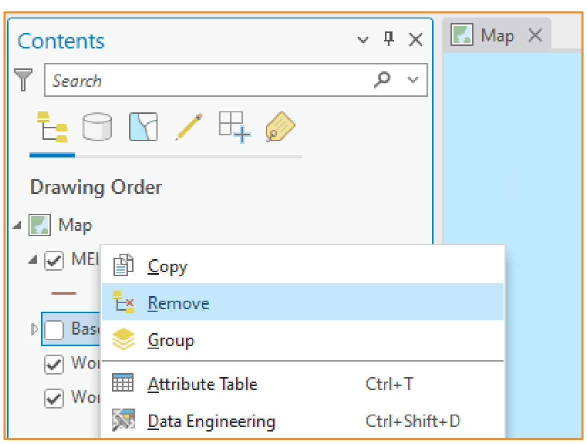
Use the Fields section to remove all fields except:
- hwycov_id
- link_name
- ifc_desc

Then add the "CID" and "MEID" fields with the following properties:

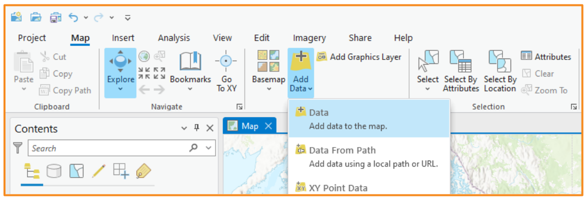


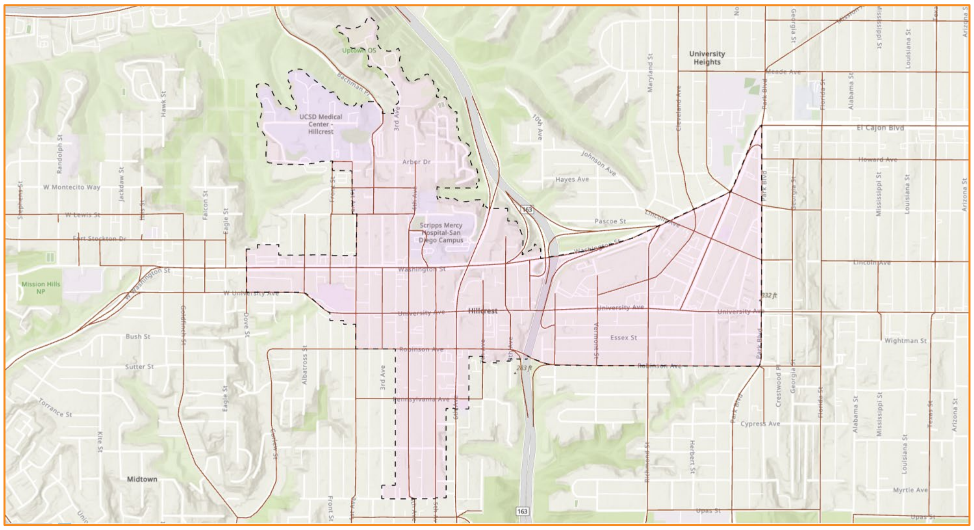


Remove the BaseModel from the Contents Pane



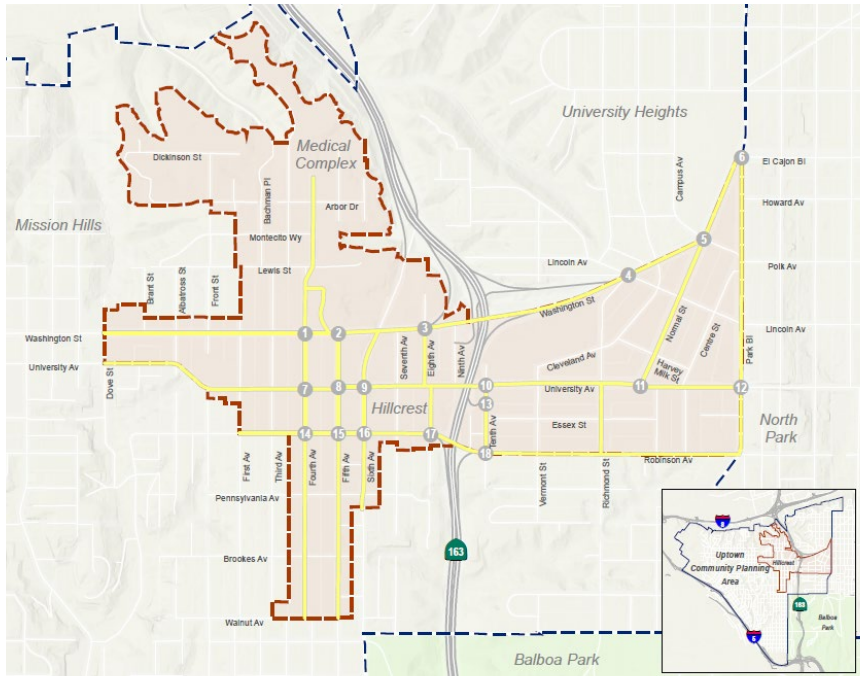
Use *Add Data* to import the Hillcrest FPA Boundary:
Mobility Adjustment Tool\Examples\Hillcrest\Shapefiles\Boundary_HillcrestFPA.shp

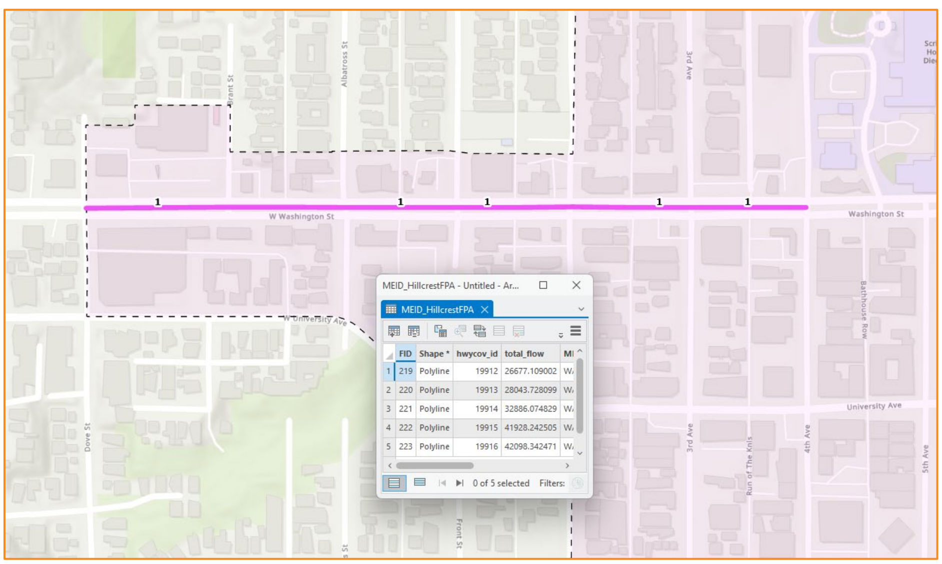




Referencing the Project Study Area from the *Hillcrest FPA Existing Conditions Mobility Assessment*, assign the same “CID” to links that make up each study roadway segment.

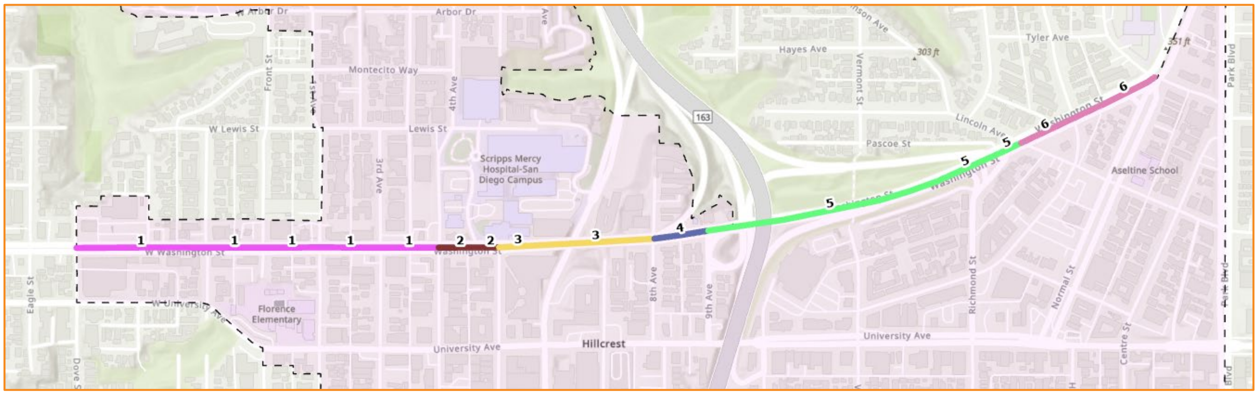
Roadway	From	To
East/West Roadway		
Montecito Way	Front Street	Fourth Avenue
Polk Avenue	Normal Street	Park Boulevard
Lewis Street	Front Street	Fourth Avenue
Washington Street	Dove Street	Fourth Avenue
Washington Street	Fourth Avenue	Fifth Avenue
Washington Street	Fifth Avenue	Eighth Avenue
Washington Street	Eighth Avenue	Ninth Avenue
Washington Street	Ninth Avenue	Lincoln Avenue
Washington Street	Lincoln Avenue	Normal Street
Lincoln Avenue	Washington Street	Normal Street
Lincoln Avenue	Normal Street	Park Boulevard
University Avenue	Dove Street	First Avenue
University Avenue	First Avenue	Fourth Avenue



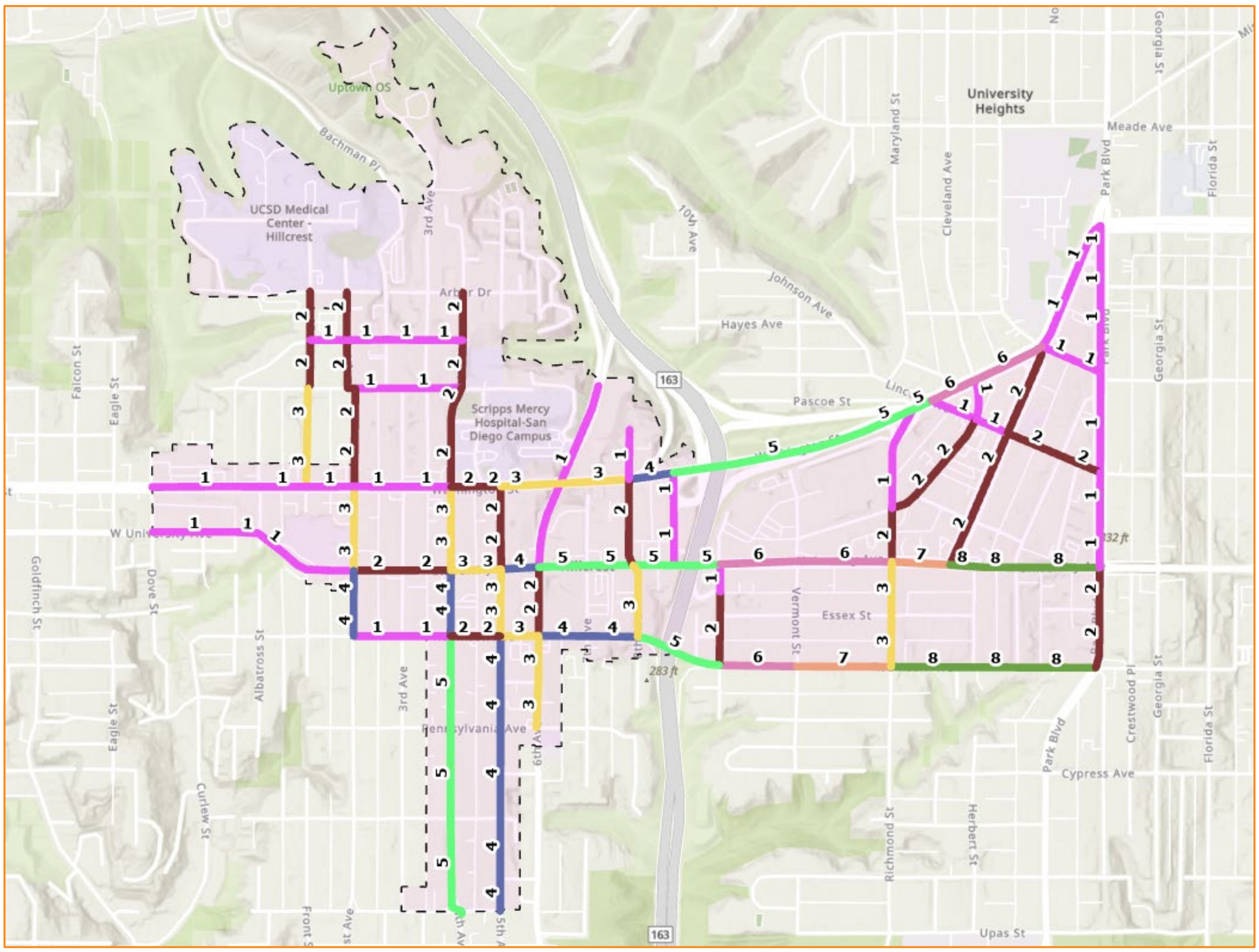


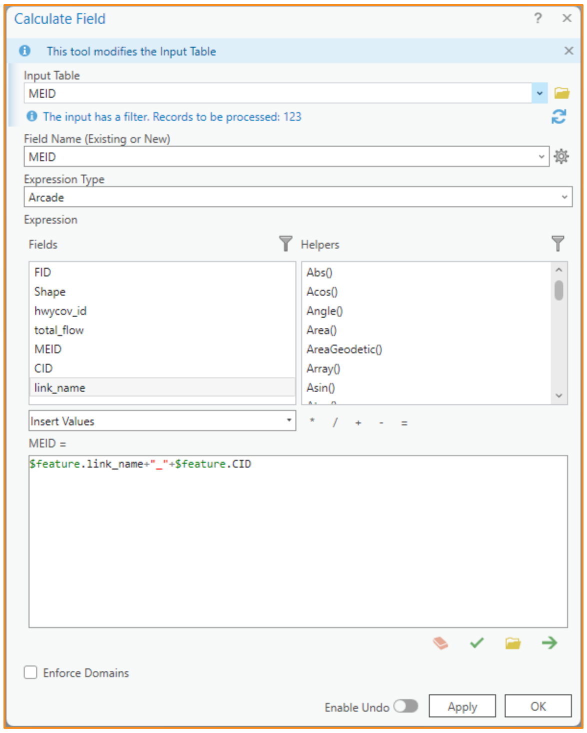
For this first example, focusing on Washington Avenue between Dove Street and Fourth Avenue, assign “1” as the CID for each of the five links that make up the study roadway segment.

Repeat for every study roadway segment along Washington Avenue.



Repeat for the entire study area.





Use *Calculate Field* to fill the MEID column (field) using the following expression:

$feature.link_name+"_"+$feature.CID

This joins "link_name" with "CID".

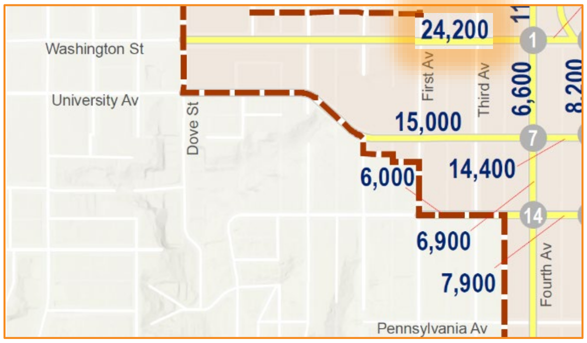
For example:

link_name = WASHINGTON
CID = 1
MEID = WASHINGTON_1

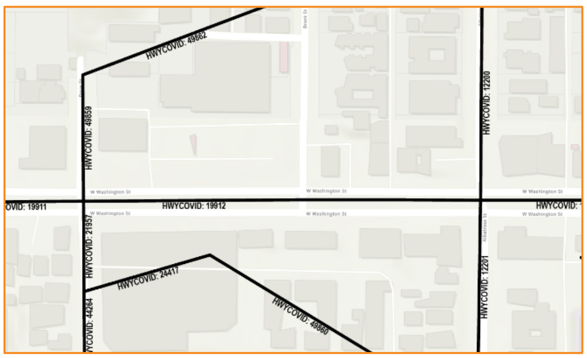
DEVELOPMENT OF MEID IS COMPLETE.

TRAFFIC COUNTS

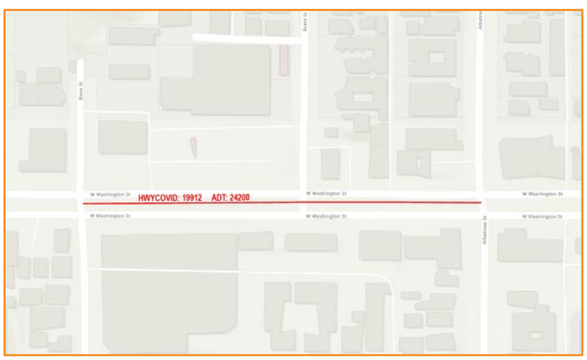
The traffic counts included in the Mobility Adjustment Tool package have been processed through a Spatial Join through GIS. Spatial join is a method used in GIS to combine datasets based on their spatial relationships (i.e., within a distance, intersecting, overlapping, etc.).



For example, the Hillcrest FPA Existing Mobility Assessment identified a traffic count of 24,200 along Washington Avenue, between Dove Street and Fourth Avenue.



The SANDAG Model has a model link along that study roadway segment with HWYCOVID 19912.



The spatial join merges both sets of data and produces a shapefile with HWYCOVID 19912 and ADT 24,200.

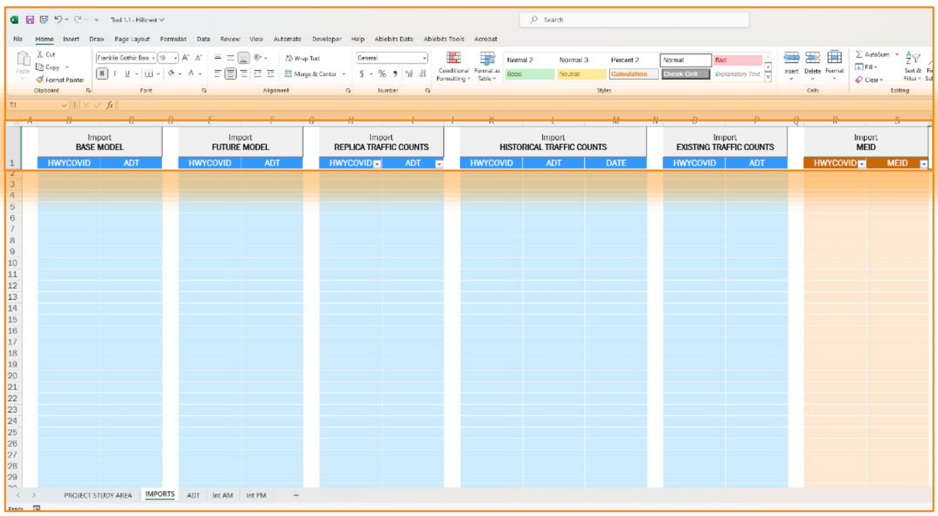
It is recommended that the provided shapefiles be continuously updated as new traffic counts become available. Over time, the shapefiles can serve as comprehensive databases for use in the development of volumes across the City of San Diego. That being said, due to the complexity of updating and maintaining such a database, this document does not offer instructions for that effort.

DEVELOPMENT OF ROADWAY SEGMENT ADT

To develop Future roadway segment ADT, the Tool requires the following inputs:

- Base Model
- Future Model
- Traffic Counts

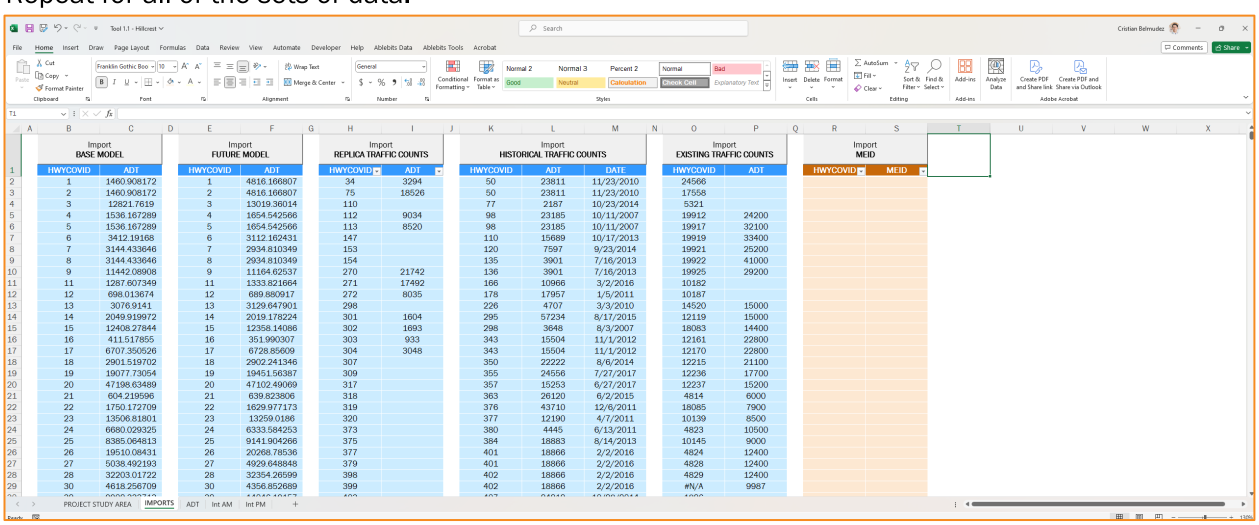
The Tool is pre-loaded with Existing, Historical, and Replica counts. Existing traffic counts were obtained from the Hillcrest FPA Existing Mobility Assessment. Historical traffic counts were obtained from the City of San Diego historical traffic count database. Replica traffic counts were obtained from the Replica platform for the year 2022.



Use the Import buttons located at the top of the "IMPORTS" sheet to import the .dbf file for the Base Model.

Note: The Import buttons only work with .dbf files. To import data in other formats (i.e., csv, text), copying and pasting values directly onto the tables is recommended.

Repeat for all of the sets of data.



	Import BASE MODEL		Import FUTURE MODEL		Import REPLICA TRAFFIC COUNTS		Import HISTORICAL TRAFFIC COUNTS			Import EXISTING TRAFFIC COUNTS		Import MEID	
1	HWYCOVID	ADT	HWYCOVID	ADT	HWYCOVID	ADT	HWYCOVID	ADT	DATE	HWYCOVID	ADT	HWYCOVID	MEID
2	1	1460.908172	1	4816.166807	34	3294	50	23811	11/23/2010	24566			
3	2	1460.908172	2	4816.166807	75	18526	50	23811	11/23/2010	17558			
4	3	12821.7619	3	13019.36014	110		77	2187	10/23/2014	5321			
5	4	1536.167289	4	1654.542566	112	9034	98	23185	10/11/2007	19912	24200		
6	5	1536.167289	5	1654.542566	113	8520	98	23185	10/11/2007	19917	32100		
7	6	3412.19168	6	3112.162431	147		110	15689	10/17/2013	19919	33400		
8	7	3144.433646	7	2934.810349	153		120	7597	9/23/2014	19921	25200		
9	8	3144.433646	8	2934.810349	154		135	3901	7/16/2013	19922	41000		
10	9	11442.08908	9	11164.62537	270	21742	136	3901	7/16/2013	19925	29200		
11	11	1287.607349	11	1333.821664	271	17492	166	10966	3/2/2016	10182			
12	12	698.013674	12	689.880917	272	8035	178	17957	1/5/2011	10187			
13	13	3076.9141	13	3129.647901	298		226	4707	3/3/2010	14520	15000		
14	14	2049.919972	14	2019.178224	301	1604	295	57234	8/17/2015	12119	15000		
15	15	12408.27844	15	12358.14086	302	1693	298	3648	8/3/2007	18083	14400		
16	16	411.517855	16	351.990307	303	933	343	15504	11/1/2012	12161	22800		
17	17	6707.350526	17	6728.85609	304	3048	343	15504	11/1/2012	12170	22800		
18	18	2901.519702	18	2902.241346	307		350	22222	8/6/2014	12215	21100		
19	19	19077.73054	19	19451.56387	309		355	24556	7/27/2017	12236	17700		
20	20	47198.63489	20	47102.49069	317		357	15253	6/27/2017	12237	15200		
21	21	604.219596	21	639.823806	318		363	26120	6/2/2015	4814	6000		
22	22	1750.172709	22	1629.977173	319		376	43710	12/6/2011	18085	7900		
23	23	13506.81801	23	13259.0186	320		377	12190	4/7/2011	10139	8500		
24	24	6680.029325	24	6333.584253	373		380	4445	6/13/2011	4823	10500		
25	25	8385.064813	25	9141.904266	375		384	18883	8/14/2013	10145	9000		
26	26	19510.08431	26	20268.78536	377		401	18866	2/2/2016	4824	12400		
27	27	5038.492193	27	4929.648848	379		401	18866	2/2/2016	4828	12400		
28	28	32203.01722	28	32354.26599	398		402	18866	2/2/2016	4829	12400		
29	30	4618.256709	30	4356.852689	399		402	18866	2/2/2016	#N/A	9987		

Navigate to the Project Study Area sheet. Fill in the table with the Study Roadway Segments attributes (Roadway, From, and To).

Project Study Area				
#	MEID	ROADWAY	FROM	TO
1		Montecito Way	Front Street	Fourth Avenue
2		Polk Avenue	Normal Street	Park Boulevard
3		Lewis Street	Front Street	Fourth Avenue
4		Washington Street	Dove Street	Fourth Avenue
5		Washington Street	Fourth Avenue	Fifth Avenue
6		Washington Street	Fifth Avenue	Eighth Avenue
7		Washington Street	Eighth Avenue	Ninth Avenue
8		Washington Street	Ninth Avenue	Lincoln Avenue
9		Washington Street	Lincoln Avenue	Normal Street
10		Lincoln Avenue	Washington Street	Normal Street
11		Lincoln Avenue	Normal Street	Park Boulevard
12		University Avenue	Dove Street	First Avenue

Then input the MEID associated with each Study Roadway Segment. For example, during the GIS exercise, Washington Avenue between Dove Street and Fourth Avenue was assigned the MEID of WASHINGTON_1.

Project Study Area				
#	MEID	ROADWAY	FROM	TO
1	Montecito_1	Montecito Way	Front Street	Fourth Avenue
2	Polk_1	Polk Avenue	Normal Street	Park Boulevard
3	Lewis_1	Lewis Street	Front Street	Fourth Avenue
4	Washington_1	Washington Street	Dove Street	Fourth Avenue
5	Washington_2	Washington Street	Fourth Avenue	Fifth Avenue
6	Washington_3	Washington Street	Fifth Avenue	Eighth Avenue
7	Washington_4	Washington Street	Eighth Avenue	Ninth Avenue
8	Washington_5	Washington Street	Ninth Avenue	Lincoln Avenue
9	Washington_6	Washington Street	Lincoln Avenue	Normal Street
10	Lincoln_1	Lincoln Avenue	Washington Street	Normal Street
11	Lincoln_2	Lincoln Avenue	Normal Street	Park Boulevard
12	University_1	University Avenue	Dove Street	First Avenue

Navigate to the ADT sheet. Click the Load the Project Study Area. The Project Study Area loads, pulling all of the data for each segment.

LOAD PROJECT STUDY AREA

LOAD PROJECT STUDY AREA CLEAR CONTENTS / RESET		Project Study Area			Model ADT and Traffic Counts				
#	MEID	Roadway	From	To	Base Model	Future Model	Replica	Historical	Existing
1	Montecito_1	Montecito Way	Front Street	Fourth Avenue	5,061	6,344	0	0	0
2	Polk_1	Polk Avenue	Normal Street	Park Boulevard	5,485	10,787	0	0	0
3	Lewis_1	Lewis Street	Front Street	Fourth Avenue	6,149	8,628	0	0	0
4	Washington_1	Washington Street	Dove Street	Fourth Avenue	35,021	42,098	18,434	0	24,200
5	Washington_2	Washington Street	Fourth Avenue	Fifth Avenue	47,868	60,396	21,536	0	32,100
6	Washington_3	Washington Street	Fifth Avenue	Eighth Avenue	49,138	62,043	35,790	24,650	33,400
7	Washington_4	Washington Street	Eighth Avenue	Ninth Avenue	38,665	52,898	18,372	0	25,200
8	Washington_5	Washington Street	Ninth Avenue	Lincoln Avenue	40,621	53,464	31,503	24,650	41,000
9	Washington_6	Washington Street	Lincoln Avenue	Normal Street	33,074	42,082	18,844	11,574	29,200
10	Lincoln_1	Lincoln Avenue	Washington Street	Normal Street	6,974	10,658	0	11,574	0
11	Lincoln_2	Lincoln Avenue	Normal Street	Park Boulevard	5,223	7,398	0	0	0
12	University_1	University Avenue	Dove Street	First Avenue	13,645	18,674	6,976	11,628	15,000
13	University_2	University Avenue	First Avenue	Fourth Avenue	7,590	10,808	7,796	11,628	15,000
14	University_3	University Avenue	Fourth Avenue	Fifth Avenue	10,847	14,935	13,290	11,628	14,400
15	University_4	University Avenue	Fifth Avenue	Sixth Avenue	14,941	18,726	18,794	0	22,800

Calibration

By default, the Tool systematically calibrates Model ADT against available traffic counts, prioritizing data in a ranked order of Existing, Historical, and Replica. Selecting a different "Base Adjustment Method" will adjust the Base Model ADT to reflect the selected option instead (i.e., Historical, Replica, or Base Model).

Base Adjustment Method	Base Model (Adjusted)	Base Adjustment	Future Model (Adjusted)	Δ%
Default	5,061	0	6,344	25%
	5,485	0	10,787	97%
	6,149	0	8,628	40%
	24,200	-10,821	31,277	29%
Default	32,100	-15,768	44,629	39%

Default
Existing
Historical
Replica
Base Model

- Review the default results, including the new Base and Future Model ADT's and the percent growth between Base and Future, and select alternative Base Adjustment Methods, as needed.

Fine-Tuning

Fine-tune adjustments are applied to the Future Model (Adjusted) values. Fine-tuning allows the user to adjust the growth between Base and Future, overriding the model-based predicted growth with one of the following options:

Fine-Tune Adjustment Method	Fine-Tune Adjustment	Δ%	Future Model (Fine-Tuned)	Notes for Fine-Tuning
None	0		6,344	
	0		10,787	
	0		8,628	
	0		31,277	
None	0		44,629	

None
Round
Corridor
Overall

1. *None*: No further adjustments applied.
2. *Round*: Adjusts the calibrated result by rounding to the nearest hundred. This option is recommended over "None" and has a minimal change to model-based predictions.
3. *Corridor*: Future Model reflects the average growth observed across the corridor. It should be noted that the average growth is the average of the growth observed for each segment of the corridor rather than the growth between the sum of Base and Future ADT.
4. *Overall*: Future Model reflects the average growth observed across the entire Project Study Area. It should be noted that the average growth is based on the growth at each segment rather than the growth between the sum of Base and Future ADT.

User Override

If needed, or where Future ADT's have been obtained from other sources (i.e., traffic studies, technical reports, etc.) the User Override options can be utilized to override the Tool's calculations.

User Input Base	User Input Future

Final ADT

The final Base and Future Model ADT is presented at the end (right) of the table. These values are utilized for the development of intersection turning movement volumes.

Base	Future
5,061	6,344
5,485	10,787
6,149	8,628
24,200	31,277
32,100	44,629
33,400	46,305
25,200	39,432
41,000	53,843

Intersection Turning Movement Development

Model Years	
Base Model Year	2016
Future Model Year	2050

Input the Base Model Year and Future Model Year

Model Years	
Base Model Year	2016
Future Model Year	2050

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
		Existing Intersection Turning Movements											
1	Fourth Ave & Washington St				197	100	84	78	455	95	181	950	177
2	Fifth Ave & Washington St	227	144	106			7		689			1,011	207
3	Eight Ave/SR-163 Off-Ramp & Washington St	5-Legged Intersection											
4	Richmond St/SR-163 On-Ramp & Washington St			14				397	657	187		780	1,818
5	Normal St/Campus Ave/Polk Ave & Washington St	5-Legged Intersection											
6	Park Bl & Normal St/El Cajon Bl	161	72	82	49	113	291	105	201	38	147	997	107
7	Fourth Ave & University Ave				109	223	34		285	32	175	359	
8	Fifth Ave & University Ave	21	224	152				15	368			514	299
9	Sixth Ave & University Ave	74	696	46	152	849	332	354	143	13	106	357	180
10	Tenth Ave & University Ave	89	38	10	6	58	36	39	225	80	355	579	20
11	Normal St & University Ave				29		43	44	191			787	31
12	Park Bl & University Ave	94	166	50	40	249	39	35	122	38	69	649	59
13	Tenth Ave & SR-163 NB On-Ramp	627	133	1	3	58	425				0	2	3
14	Fourth Ave & Robinson Ave				84	323	35		161	24	43	111	
15	Fifth Ave & Robinson Ave	39	329	66				49	187			138	36
16	Sixth Ave & Robinson Ave	1	605	54	4	989	50	103	141	13	70	127	22
17	Eight Ave & Robinson Ave	5-Legged Intersection											
18	Tenth Ave & Robinson Ave	18	14	0	33	1	35	168	172	12	2	239	375

Input Intersection Names and Existing Turning Movement Volumes.

HWYCOVID by Leg			
N	S	E	W
16034	17566	19917	19916
	17569	19919	19918
10135	14786	19924	19923
10191	14208	10190	17621
17567	17570	18083	12120
17568	17573	12161	18084
11635	10137	12170	12161
49875	10142	12215	12190

Input the HWYCOVID's located at each intersection leg.

Note: To facilitate the assignment of HWYCOVIDs, it is recommended to utilize GIS as a visual aid by opening a SANDAG Model and turning on the HWYCOVID label.

The Tool then identifies the MEIDs associated with the input HWYCOVID and pulls the Base and Future Model ADT (final) from the ADT sheet.

The Tool calculates the Future Intersection Traffic Volumes based on the ADT information for each leg. The following methods are used in ranking order:

- ***Default***: Growth between Base and Future Model ADT
- ***Corridor***: Utilizes the average growth observed along the corridor the intersection leg corresponds to.
- ***Minimum***: Where default growth or corridor growth is unavailable, the Tool calculates the growth factor based on the user-selected minimum growth factor.
  - ***1.0% Annual Growth:*** This will calculate the total growth between Base and Future assuming a 1.0% annual growth compounded annually.
  - ***Overall:*** This utilizes the Overall growth observed across the Project Study Area (calculated from the ADT sheet).

Growth Factor By Leg			
N	S	E	W
44%	44%	39%	29%
	39%	39%	39%
44%	87%	31%	31%
44%	45%	44%	53%
44%	52%	28%	21%
39%	54%	17%	28%
23%	21%	41%	17%

Minimum Growth	
Method	***Growth Factor***
1.0% Annual Growth	40.3%

Minimum Growth	
Method	***Growth Factor***
Overall	44.4%

Future Intersection Turning Movements (Unadjusted)

These are the volumes that the Tool calculates. These should be reviewed in detail, including checks for volume balancing and reasonable growth.

Future Intersection Turning Movements (Unadjusted)										
NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
0	0	260	170	130	150	520	160	380	1,080	370
150	200	0	0	10	0	830	0	0	1,250	210
5-Legged Intersection										
0	20	0	0	0	500	740	410	0	950	2,030
5-Legged Intersection										
120	130	110	180	370	170	260	110	320	1,190	260
0	0	160	310	70	0	310	70	250	390	0
330	200	0	0	0	60	390	0	0	550	350
750	140	310	940	400	380	190	40	200	430	280
80	40	20	80	50	80	260	160	490	660	100
0	0	70	0	100	110	210	0	0	820	160
200	80	120	290	80	60	140	50	150	720	230
330	120	110	200	530	0	0	0	0	10	10
0	0	200	370	110	0	200	50	70	150	0
420	130	0	0	0	110	230	0	0	170	60
630	110	110	1,030	140	130	200	40	100	180	50
5-Legged Intersection										
20	0	50	20	60	250	210	70	50	290	440

OPTIONAL ADJUSTMENT FEATURE:

After adjusting the intersection volumes, the user may input the volumes back into the Tool under the “Adjusted” section and check to make sure that Future Volumes are greater than Existing Volumes.

Future Intersection Turning Movements (Adjusted)												Check For Future > Existing											
NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR