

# Mira Mesa Community Plan Update

Mobility Technical Report



December 2022

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## 1.0 Introduction

### 1.1 Study Background and Purpose

The current Mira Mesa Community Plan provides the detailed framework to guide development in Mira Mesa. It was originally adopted in 1992, and since then has undergone over nine amendments. The Mira Mesa 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.

This Mobility Technical Report (MTR) summarizes the physical and operational conditions of the planned mobility system outlined in the Mira Mesa Mobility Element. This report is one component of the Mira Mesa Community Plan Update, identifying the planned mobility improvements and culminating with an analysis of all travel modes under the Proposed Plan conditions with a horizon year of 2050.

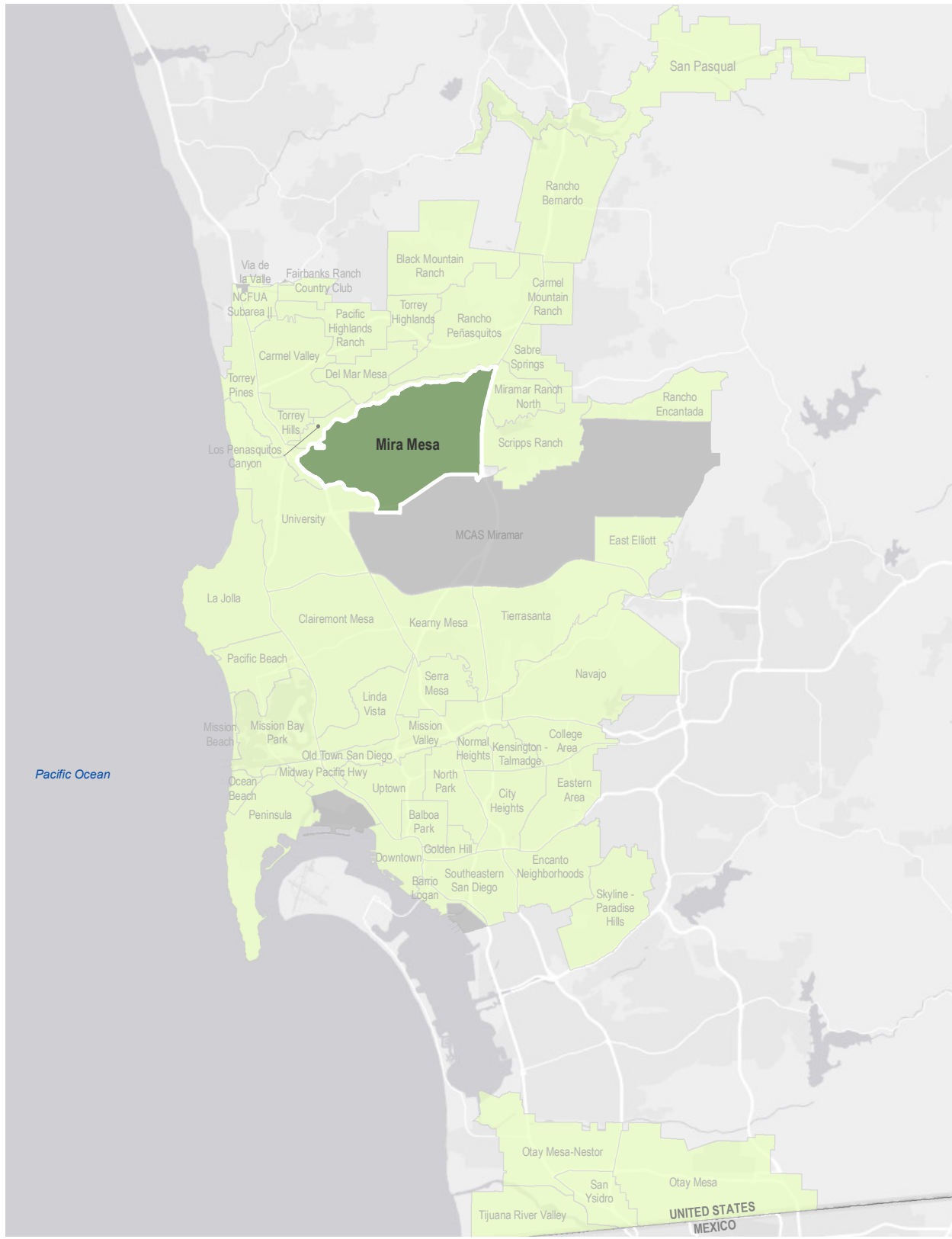
The Proposed Plan is a strategy to address existing and forecasted deficiencies related to the mobility system within Mira Mesa. It also strives to improve personal mobility through a balanced, multimodal transportation network, which supports the updated land use vision for Mira Mesa. It aligns with the City's goals and policies detailed in the General Plan's, City of Villages strategy, Climate Action Plan (CAP), as well as with state mandates on housing and mobility practices. The mobility system is comprised of roadways, pedestrian and bicycle infrastructure, and public transit. Each of these transportation modes is discussed in the following chapters.

### 1.2 Project Location

The Mira Mesa community is approximately 10,700 acres in area and is located in the north central portion of the City of San Diego between Interstate 805 (I-805) and Interstate 15 (I-15). **Figure 1-1** displays the Mira Mesa Community Planning Area within the San Diego region. Mira Mesa is bounded on the north by Los Penasquitos Canyon and the surrounding communities of Torrey Hills, Carmel Valley and Rancho Penasquitos; on the east by Miramar Ranch North and Scripps Miramar Ranch; on the south by Marine Corps Air Station (MCAS) Miramar; and on the west by the University and Torrey Pines communities.



Figure 1-1



Mira Mesa within the Region

### 1.3 Organization of the Report

The remainder of this Mobility Technical Report is organized into the following chapters:

**Chapter 2** describes the methodologies used to determine the study area and analyze the pedestrian, bicycle, transit, and vehicular facilities of the transportation network.

**Chapter 3** highlights results of the existing conditions process and the needs identified for each mode of travel. Recommended improvements of the Proposed Plan to address the needs for the Mira Mesa community are also presented.

**Chapter 4** provides an overview of the Transportation Model Forecast process utilized to project future travel patterns including Vehicle Miles Traveled (VMT) under implementation of the Proposed Plan.

**Chapter 5** concludes this document with the analyses results of the Proposed Plan for each mode of travel.





**Appendices** provide detailed results from the analyses described in Chapters 3 through 5, as well as preliminary planning concepts for many of the key corridors in the Mira Mesa Community.

## 2.0 Analysis Methodology

This chapter describes the methodology used to analyze Mira Mesa’s transportation network. 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, bicyclists, and transit users. These procedures supplement the traditional vehicular analysis methodologies of using delay and level of service. In 2020, Vehicle miles travelled (VMT) became the new metric for assessing transportation impacts on the environment per SB 743. The VMT assessment for the community is discussed in **Chapter 4**.

**Table 2-1** summarizes performance measures for each mode, while the remaining sections of this chapter outline methodologies employed to analyze facility demand, safety, network quality, and connectivity associated with each of the four major modes of travel (pedestrians, bicyclists, transit, and vehicular) in Mira Mesa.

Table 2-1 Multimodal Performance Measure Matrix

Mode	Performance Measures	Methodology
 <b>Pedestrian</b>	Demand	Peak period pedestrian counts Pedestrian Priority Model (PPM) Census-based mode share data Pedestrian route typology
	Safety	Pedestrian-related historical collision data (5 years)
	Quality	Pedestrian Environment Quality Evaluation (PEQE) analysis
	Connectivity	Pedestrian network and sidewalk inventory data Walkshed ratio evaluation
 <b>Bicycle</b>	Demand	Peak period bicycle counts Bicycle Priority Model (BPM) Census-based mode share data
	Safety	Bicycle-related historical collision data (5 years)
	Quality	Bicycle Level of Traffic Stress (LTS) analysis
	Connectivity	Bikeshed ratio evaluation Low-stress connectivity evaluations
 <b>Transit</b>	Demand	Transit ridership data (boardings and alightings) Census-based mode share data Census-based population density data LODES employment density data
	Safety	Pedestrian- and bicycle-related collision data within 500 ft of transit stops/stations (5 years)
	Quality	Inventory of transit stop amenities Roadway speed simulation analysis
	Connectivity	Walkshed and bikeshed ratios near major transit stations*
 <b>Vehicle</b>	Demand	Peak period turning movement counts Daily volume counts
	Safety	Vehicle collision data (5 years)
	Quality	Roadway level of service based on volume-to-capacity ratio Roadway travel time Intersection level of service based on delay
	Connectivity	Vehicle miles travelled (VMT)

\* Major transit stops are defined as stations containing a rail or bus rapid transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more bus routes with a frequency of service interval of 15 minutes or less during the peak commute periods. Source: Kimley-Horn & Associates (2022)



## 2.1 Pedestrian

### 2.1.1 Pedestrian Route Types

Pedestrian route types are used to categorize all of the pedestrian facilities provided within the community. 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 route types support heavy pedestrian levels in mixed use urban areas and major community thoroughfares, consisting of features designed to support higher volumes of pedestrians in an environment where heavy vehicular traffic is also likely, such as median refuge islands, traffic controls at crossings exclusively for pedestrians, wider walkway areas with trees, and street furnishings.

Corridor route types are present along roadways that support business and shopping districts with moderate pedestrian levels and include more enhanced treatments such as pedestrian scale lighting and trees to shade walkways.

Connector route types run along roadways with moderate to high vehicular traffic and somewhat lower pedestrian levels, thus requiring more basic treatments such as buffers between the sidewalk and roadway, and mandatory features like ADA-compliant curb ramps. Connectors also offer key circulation connections that feed more prominent Corridor and District roadways.

Neighborhood route types are present along roadways that support low to moderate density housing with low to moderate pedestrian levels. Generally, neighborhood streets have lower volumes, with low to moderate widths, single lanes and posted or prima facie speed limits of 25 miles per hour.

Ancillary Pedestrian Facilities are not associated with a street. Instead, facilities like plazas, paseos, promenades, courtyards, pedestrian bridges, or stairways tie into the street system and provide connections for pedestrians that may not provide the same connection for vehicles. Pedestrian bridges are located away from or over roadway facilities. These facilities are typically found within regional centers, or urban or neighborhood villages.

Trails are unpaved walkways used for recreational purposes and are most often not associated with a street. They are typically located in recreational or open space land uses offering access to recreational destinations.

### 2.1.2 Pedestrian Demand

The City of San Diego's Pedestrian Priority Model (PPM) was used to document relative pedestrian demand within the Mira Mesa community. The model consists of three submodels – trip attractors, generators, and detractors – reflecting high pedestrian propensity based on land uses and population concentrations and considering other characteristics such as potential pedestrian barriers or safety issues. The high pedestrian demand areas identified through the PPM evaluation were used to define the Pedestrian Study Area which then became the focus of the safety, quality, and connectivity assessments. The high pedestrian demand threshold for the community was established relative to the community itself and not relative to the City as a whole. The Pedestrian Study Area incorporates all pedestrian facilities that meet one or more of the following criteria:

Areas with PPM score above the community average along circulation element roadways; or



Locations with two or more pedestrian-involved collisions over the analyzed five-year period; or  
Areas within a 0.5-mile of an existing major transit stop.

In addition to the criteria above, the Pedestrian Study Area was expanded in coordination with City staff to include major and collector roadways, specifically corridors that provide connections to schools and parks.

**Figure 2-1** displays the resulting Pedestrian Study Area.

### 2.1.3 Pedestrian Safety

Historic vehicular-pedestrian collision data was obtained from the City of San Diego's Police Department for the five-year period between October 2012 to September 2017. This data was geocoded and mapped to display pedestrian-involved collision locations in Mira Mesa. Additional focus was placed on these locations during the development phase of the Proposed Plan pedestrian network.

### 2.1.4 Pedestrian Environment Quality Evaluation (PEQE)

The quality of all pedestrian facilities (sidewalks along roadway segments, crossings at intersections, and mid-block crossings) within the Pedestrian Study Area were evaluated using the Pedestrian Environment Quality Evaluation (PEQE). **Table 2-2** outlines the evaluation scale. The quality of the pedestrian environment quality is categorized as High, Medium, or Low, based upon the following scoring system:

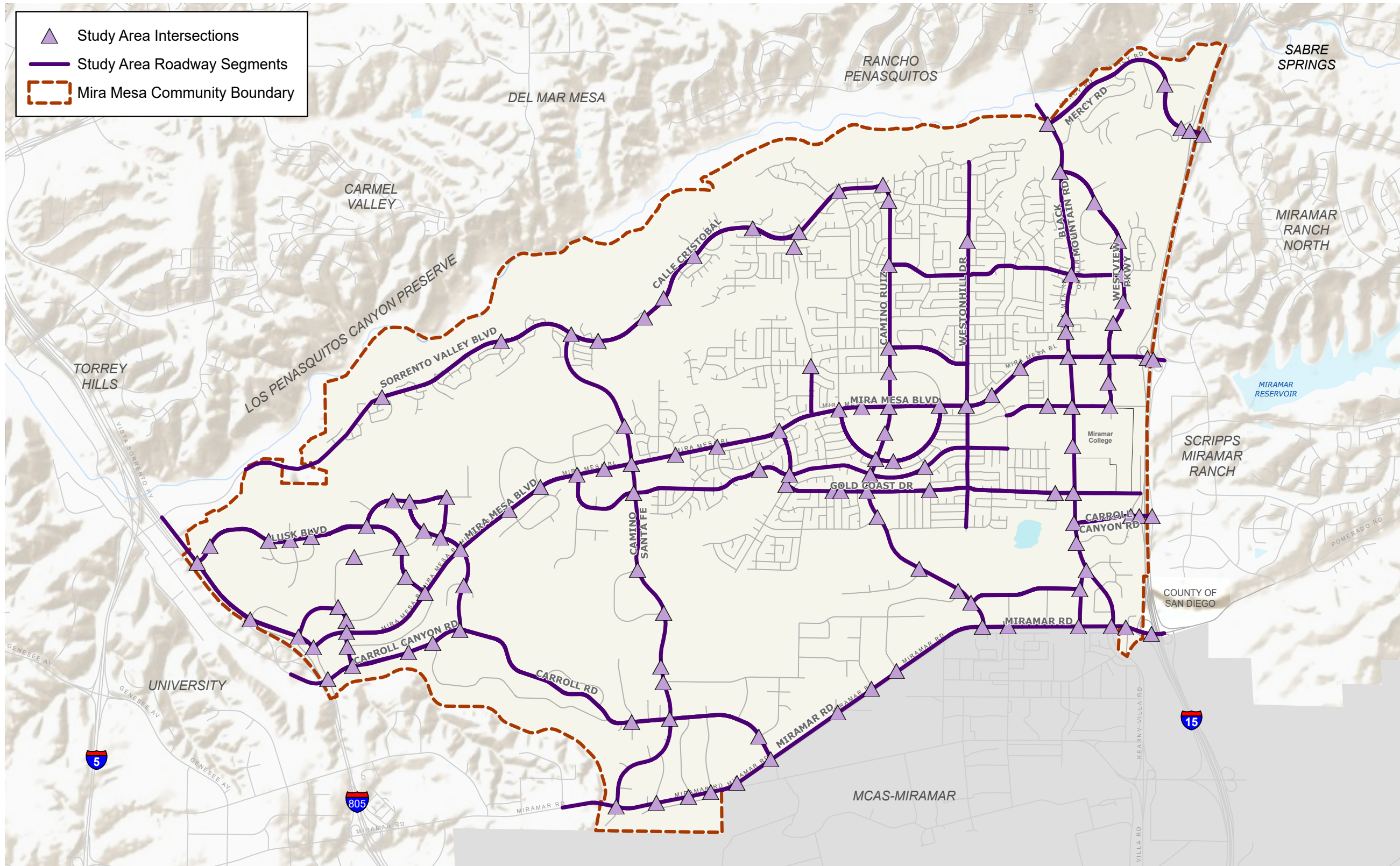
Low-Quality: < 4 points

Medium-Quality: = 4 – 6 points

High-Quality: > 6 points



Figure 2-1



Pedestrian Study Area



Table 2-2 Pedestrian Environment Quality 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	Standard requirement = 150-300'	0 point: below standard 1 point: meets standard 2 points: exceeds standard
	Clear Pedestrian Zone	5' minimum walkway	0 point: has obstructions 2 points: no obstruction
	Posted Speed Limit		0 point: > 40 mph 1 point: 30 - 40 mph 2 points: < 30 mph
<b>Maximum 8 points</b>			
Intersection – Individual Crossing	Physical Feature	Enhanced/High Visibility Crosswalk	0 point: < 1 feature per ped crossing 1 point: 1 – 2 features per ped crossing 2 points: > 2 features per ped crossing
		Raised Crosswalk/Speed Table	
		Advanced Stop Bar	
		Bulb out/Curb Extension	
Operational Feature	Pedestrian Countdown Signal	0 point: < 1 feature per ped crossing 1 point: 1 – 2 features per ped crossing 2 points: > 2 features per ped crossing	
	Pedestrian Lead Interval		
	No-Turn on Red Sign/Signal		
	Additional Pedestrian Signage		
ADA Curb Ramp		0 point: no existing curb ramp 1 point: existing curb ramp is below standard 2 points: curb ramp meets standard	
Traffic Control		0 point: No control 1 point: Stop sign controlled 2 points: Signal/ Roundabout/Traffic Circle	
<b>Maximum 8 points</b>			
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 (Impavement, Pedestrian Activated Flashing Beacons etc.) 2 points: Signal/Pedestrian Hybrid Beacon (HAWK)
<b>Maximum 8 points</b>			

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





### 2.1.5 Pedestrian Network Connectivity

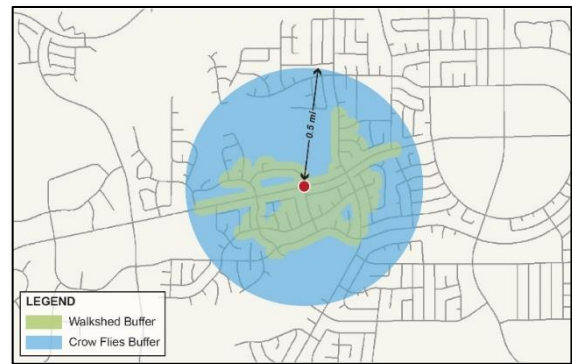
Pedestrian network connectivity was evaluated utilizing a walkshed ratio for study intersections within the Pedestrian Study Area, which is assessed using a two-step process: 1) develop the pedestrian network; and 2) perform a pedestrian travelshed analysis for the network. A description of these steps is provided below.

#### Developing the Pedestrian Network

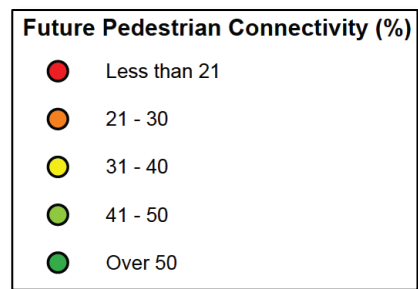
The SANDAG “Roads\_All” shapefile is the base network for the pedestrian travelshed analysis. However, some private roads were included as part of the network for this analysis such as the sidewalks within Miramar College as these reflect the actual pedestrian network available in Mira Mesa. In addition, locations with barriers for pedestrians, such as missing sidewalk, that do not allow pedestrians to travel along certain segments were removed from the analysis.

#### Travelshed Analysis

The pedestrian analysis assesses the level of connectivity provided at each study intersection within the Mira Mesa Pedestrian Study Area. The travelshed analysis requires first creating a 0.5-mile pedestrian network buffer at each study intersection. That area is then compared to the area of a 0.5-mile as-the-crow-flies buffer to develop a Pedestrian Connectivity Ratio for each intersection. The higher the Pedestrian Connectivity Ratio for each intersection, the better the overall connectivity is at the intersection.



The Pedestrian Connectivity Ratio is presented in a mapped format displaying results for each study intersection and is represented by a color-symbolized dot, with the color reflecting the Connectivity Ratio scale shown in the legend to the right.





## 2.2 Bicycle

### 2.2.1 Bicycle Facility Types

Different bicycle facility types are appropriate for different roadway classifications based on vehicle volumes, speeds, and adjacent land uses. The Caltrans Highway Design Manual defines four different facility types that are discussed in this report. An additional facility type that is relatively new to San Diego, described below, is also recommended in the bicycle network of the Proposed Plan.

**Class I Multi-Use Path:** These facilities consist of combined off-road bicycle and pedestrian paths that can run along roadways or follow separate paths not associated with a specific roadway. Signage and/or striping may demarcate space within the path to separate pedestrians from bicyclists. This type of facility is suited to provide safer bicycling along higher speed roadways.

**Class II Bike Lanes:** These facilities consist of both buffered and unbuffered striped lanes for one-way bike travel within the roadway adjacent to vehicular travel lanes. Class II bike lanes are typically installed on lower speed roadways, as compared to Class I or Class IV facilities. It should be noted that the Proposed Plan only includes buffered bicycle lanes for proposed facilities adding horizontal separation between motorists and bicyclists.

**Class III Bike Route:** These facilities are within the roadway where bicyclists share a lane with vehicular traffic. Class III facilities are appropriate only on roadways with low vehicle speeds and volumes, typically along residential streets connecting higher-quality bicycle facilities with parks and schools. Bicycle Boulevards are part of the Proposed Plan, meaning on roadways where speeds exceed 20 miles per hour (MPH) or volumes exceed 2,000 vehicles per day, vehicle speed and/or volume management strategies are recommended to be implemented. Neighborhood traffic circles, diverter islands, special signage, speed humps, and intersection bulb outs may be installed with Class III facilities for traffic calming and volume management.

**Class IV Bikeway:** These facilities consist of buffered bike lanes with vertical separation devices such as vertical delineators or bollards, planters, concrete curbs, parked vehicles, or other approved devices. Class IV facilities are a high-quality bike facility that provides a more comfortable riding environment for bicyclists of different ages and abilities. Class IV facilities can be one-way or two-way depending on the available roadway space, adjacent land uses, and intersection geometries.

**Shared Bus-Bike Lane:** In addition to the four bicycle facilities included in the Caltrans Highway Design Manual, the Proposed Plan also includes a shared bus-bike lane, which is proposed due to right-of-way constraints and traffic patterns. This facility type is typically proposed along shorter segments connecting other bike facilities to maintain a consistent bike facility for a full corridor. Bus stops may need to be relocated in order to prevent stopped busses from obstructing bicyclists.

### 2.2.2 Bicycle Demand

The Bicycle Priority Model (BPM) was used to document relative bicycling demands throughout the Mira Mesa community. The BPM was developed during the City of San Diego Bicycle Master Plan (adopted in 2013 and updated in 2015) and consists of demand and detractor submodels. The demand submodel assesses two forms of bicycling demand: inter-community (long trips, typically occurring on higher classification circulation roads) and intra-community (shorter, utility-driven trips which may occur on a



variety of streets). The detractor submodel considers barriers to bicyclist comfort and safety, such as posted speed limits, traffic volumes and collisions. The submodels are combined to generate a priority point score for each roadway segment in the community.

### 2.2.3 Bicycle Safety

Historic vehicular-bicycle collision data was obtained from the City of San Diego's Police Department for the five-year period between October 2012 to September 2017. This data was geocoded and mapped to display bicycle-involved collision locations in Mira Mesa. Additional focus was placed on these locations during the Proposed Plan network development phase.

### 2.2.4 Bicycle Facility Quality

The Bicycle Level of Traffic Stress (LTS) tool, as documented in the Mineta Transportation Institute Report entitled "Low Stress Bicycling and Network Connectivity," was utilized to assess the quality of bicycle facilities within Mira Mesa. LTS is a rating given to each direction of roadway segment or each intersection crossing that indicates the stress imposed on bicyclists ranging from 1 to 4 where LTS 1 indicates the lowest amount of stress for bicyclists and LTS 4 indicates the highest amount of stress experienced by bicyclists. LTS analysis uses the "weakest link" logic in which the overall score given to each direction of a facility is based on the poorest score determined. For example, if most of the links on a route have LTS 2 but one or a few links have LTS 3, the entire route as a whole would have the rating of LTS 3.

All roadways in Mira Mesa were assessed using the LTS tool. Results were tabulated and displayed on a map for every roadway segment.

#### *Class I and Class IV Facilities*

Traditional LTS methodology presumes separated bicycle facilities such as Class I and Class IV facilities, to be LTS 1, the lowest level of stress on a bicyclist since they are physically separated from vehicular traffic and therefore unaffected by the auto-centric criteria considered for other facility types.

#### *Class II Facilities*

Striped Class II bike lanes can cover an entire range of LTS levels, and their evaluation depends upon the largest number of criteria. **Table 2-3** shows the criteria for Class II lanes located alongside a parking lane, while **Table 2-4** shows the criteria for Class II lanes not located alongside parking lanes.



**Table 2-3 LTS Criteria for Bike Lanes Alongside a Parking Lane**

Criteria	LTS ≥ 1	LTS ≥ 2	LTS ≥ 3	LTS ≥ 4
<b>Street Width**</b> (through lanes per direction)	1	(no effect)	2 or more	(no effect)
<b>Sum of bike lane and parking lane width</b>	15 ft. or more	14 or 14.5 ft.*	13.5 ft or less	(no effect)
<b>Speed Limit or prevailing speed</b>	25 mph or less	30 mph	35 mph	40 mph
<b>Bike Lane Blockage</b>	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 2-4 LTS Criteria for Bike Lanes Not Alongside a Parking Lane**

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

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

**Class III Facilities**

Class III bicycle facilities rely on two criteria—street width and vehicle speeds—as shown in **Table 2-5**. This applies to segments specifically designated as Class III, as well as to other local roadways that are not marked specifically for bicycles and are therefore implicitly shared.



Table 2-5 LTS Criteria for 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.

### 2.2.5 Bicycle Network Connectivity

The bicycle network connectivity consists of the following two analysis performed in ArcGIS: bicycle connectivity ratio and low-stress bicycle connectivity. A summary of each analysis is described below.

**Bicycle Connectivity Ratio** measures the overall bicycle connectivity for each study area intersection by comparing the area accessible via the proposed bike network (bikeshed buffer) to the area of an “as-the-crow-flies” buffer covering the same distance (crow flies buffer). This analysis removes 0.25-mile distance from each study area intersection as it is assumed this distance is utilized by pedestrian trips.



The analysis was completed using the ArcGIS Network Analyst Service Area function to generate a doughnut-shaped (0.25- to 1.0-mile) bikeshed buffer for each study area intersection that is reachable via the proposed bicycle network. The area of the bikeshed buffer is then divided by the land area of a 0.25- to 1.0-mile radius doughnut of crow flies buffer (1,884 acres). The bicycle connectivity ratio for each study area is calculated using the following:

$$\frac{\text{Area accessible via the bicycle network between 0.25-mile and 1-mile traveling distance}}{\text{Area accessible via "crow flies" traveling distance between 0.25-mile and 1-mile traveling distance}}$$

This comparison helps to understand how far on the proposed bike network a bicyclist can travel from each study area intersection. A higher bicycle connectivity ratio indicates better overall bicycle connectivity from the individual intersection. Results of the bicycle connectivity ratio analysis are reported for Proposed Plan conditions and displayed in a mapped format for each intersection within Mira Mesa.

**Low-Stress Bicycle Connectivity** evaluates each Traffic Analysis Zone’s (TAZ’s) bicycle connectivity to the rest of the Mira Mesa community via low-stress bicycle facilities. Using the proposed bicycle facilities’ LTS scores, this analysis integrates demand, safety, connectivity, and quality of bicycle facility when evaluating bicycle connectivity for the study area. A percentage is assigned to each TAZ that compares the total length of travel paths via low-stress bicycle facilities to/from each TAZ and the total length of the entire unconstrained bicycle network in the future conditions. The steps used in this evaluation are the following:



Step 1: Identify Bicycle Land Uses for Each TAZ – **Table 2-6** presents land use types that generate or attract bicycle trips, referred to as bicycle land uses, are anticipated. These land uses are consistent with the Bicycle Priority Model’s intra-community bicycle demand submodel, unless noted otherwise. Each TAZ in the Mira Mesa community contain land use types that generate bicycle trips.

Step 2: Create Low-Stress Bicycle Network – A low-stress bicycle network was created and used as the network dataset for the ArcGIS Network Analysis Service Area function in Step 3. The low-stress bicycle network is comprised of only bicycle facilities with a LTS score of 1 and/or 2 in both directions.

Step 3: Service Area of Paths along the Low-Stress Bicycle Network for each TAZ – The ArcGIS Network Analyst Service Area function was utilized to develop an unconstrained service area of paths along the low-stress bicycle network for each TAZ. These paths are referred to as the “unconstrained paths.” For each TAZ, the total sum of length in feet for all its unconstrained paths was calculated. This sum reflects the total distance a bicyclist can travel to/from each TAZ using only low-stress bike facilities within Mira Mesa.

Step 4: Assess the Level of Connectivity and Quality of the Bicycle Paths – This assessment compares the total sum of unconstrained paths via low-stress bicycle facilities (LTS score 1 or 2) for each TAZ to the entire unconstrained bicycle network within Mira Mesa. Each TAZ was assigned a percentage using the following calculation:

$$\frac{\text{total sum of length in feet for TAZ's unconstrained paths}}{\text{total sum of length in feet for entire unconstrained bicycle network}}$$



**Table 2-6 Bicycle Land Use Categories**

Generators	Attractors	Not Included as Bicycle Land Uses
Residential Land Uses <sup>1</sup>	<ul style="list-style-type: none"> <li>• Retail</li> <li>• Office<sup>2</sup></li> <li>• Class I Bike Path Access Points</li> <li>• Transit Stations/Stops</li> <li>• Parks/Recreational Uses/Beaches</li> <li>• Schools/College/Universities</li> <li>• Neighborhood Civic Uses</li> <li>• Inter-community Access Points<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Retail Catering to Automobiles (i.e., Car dealerships, service stations, etc.)</li> <li>• Passive or Low-Intensity Recreation (i.e., Golf courses, etc.)</li> <li>• Communications/Utilities Infrastructure</li> <li>• Industrial/Warehousing/Junkyards/Landfills</li> <li>• Agricultural</li> <li>• Police/Fire Stations</li> <li>• Military Bases</li> </ul>

**Notes:**

1. The intracommunity bicycle demand submodel includes population densities by various types, such as youth, bicycle commuters, and zero-vehicle households. This input has been simplified as “residential use” for the purpose of the connectivity assessment since having all inputs by TAZs will facilitate GIS analyses.
2. Inter-community access points were not included in the intra-community bicycle demand submodel since that facet of travel was modeled via the inter-community bicycle demand submodel. These connection points just outside the community were deemed as important attractions for this community-level assessment.



## 2.3 Transit

Transit service in the City of San Diego is primarily provided by San Diego Metropolitan Transit System (MTS) and planned by the local Metropolitan Planning Organization, San Diego Association of Governments (SANDAG). Planned regional transit routes can be found in SANDAG’s adopted 2021 Regional Plan. This transformative plan brings a bold new vision to our region focused around the 5 Big Moves including Complete Corridors, Transit Leap, Mobility Hubs, Flexible Fleets and Next OS (Operating System). The regional plan identifies regional transit improvements like grade separated transit, bus rapid transit, and light rail. It also identifies route alignments and station locations many of which are within the Mira Mesa community and provide access to destinations and employment centers throughout the region. The City of San Diego works closely with MTS and SANDAG to ensure transit operates well within City streets. Detailed analysis of transit demand, station quality, and quality connections to transit was provided under existing conditions.

### 2.3.1 Transit Demand

Existing and potential transit demand was evaluated through a combination of stop-level ridership data (existing demand), census commute mode share data (existing demand), and population and employment densities within Mira Mesa (LODES). The analysis demonstrated that the Miramar College Transit Station is an essential transit stop in the community where Route 921, with the highest ridership in the community, provides connectivity to the University of California San Diego (UC San Diego) with stops along the employment area in Sorrento Mesa.

#### *MTS Route Ridership Data*

Current transit demand was evaluated by obtaining boarding (riders getting on) and alighting (riders getting off) ridership information for all stations/stops within Mira Mesa from MTS. The information was used to determine the following:

- Number of boardings and alightings by stop
- Ridership by route
- Locations with the highest boardings
- Locations with the highest alightings

#### *US Census Survey Commute Mode Share Data*

The American Community Survey (ACS)<sup>1</sup> 5-year estimates commuting data (2012-2016) was utilized to understand the existing commute mode share by public transportation for the community. The ACS commuting data provides information about the means of transportation to work by employees 16 years and older for each census block group<sup>1</sup>. The means of transportation to work represents the commute mode within the community.

The ACS commuting data was filtered to the census block groups within the Mira Mesa community boundary. The “transit commute mode share” was then calculated as a percent of the total mode share. This was accomplished by taking the number of employees who take transit to work, divided by the

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<sup>1</sup> A census block is the smallest geographic unit used by the US Census Bureau. Census blocks are grouped into block groups, which are grouped into census tracts





total number of employees for each block group, and multiplying it by 100 to develop a percent as shown below:

$$\text{Transit Commute Mode Share} = \left( \frac{\text{Total number of employees who take transit to work}}{\text{Total number of employees within each block group}} \right) \times 100$$

### **LODES Employment Density Data**

Origin-Destination Employment Statistics (LODES)<sup>2</sup> data was utilized to represent where people work within a census block level. The data was filtered to the census blocks within the Mira Mesa community boundary. Then, the number of people working in each census block in Mira Mesa was divided by the area of the census block in square miles to develop an employment density. A set of pedestrian walksheds of 0.25-mile was generated from all transit stops to determine the relative level of potential transit ridership within the community. Each walkshed was then overlaid on top of the employment data to determine the number of jobs that exist within walking distance from each transit stop.

### **2.3.2 Safety Near Transit (Analyzed for Existing Conditions Only)**

Historic collision data was analyzed over the five-year period between October 2012 to September 2017. Collisions involving bicyclists and/or pedestrians within 500 feet of an existing transit stop were mapped and analyzed with the assumption that these collisions occurred while these users were travelling to or from the nearest transit stop. Additional focus was placed on these locations during the development phase of the Proposed Plan transit network.

### **2.3.3 Transit Quality**

#### **Station Quality – Presence of Amenities (Analyzed for Existing Conditions Only)**

The San Diego Metropolitan Transit System (MTS) designates minimum amenity standards for transit stations/stops based on daily passenger boardings per the MTS Designing for Transit Manual (2018). Each existing transit station/stop in Mira Mesa was evaluated for the presence of transit amenities that should be provided in accordance with the daily boardings per the manual.

#### **Service Quality – Transit Speeds**

On-time bus performance can be directly affected by vehicular traffic congestion along roadways serving bus routes where transit does not have its own travel lanes. For existing conditions, travel time runs were performed using floating car methodology, crowd-sourced travel time data, and Synchro arterial analyses to identify locations where on-time performance may be impacted due to vehicular traffic congestion. This Synchro arterial analysis was also conducted for roadways in Mira Mesa where bus-only lanes were modeled under the Proposed Plan. An anticipated wait time based on the bus headways on each corridor were added to the travel time. The wait time was developed based on the route headways, assuming travelers plan ahead more for bus routes with longer headways (for example, it is assumed that people plan their arrival time more for bus routes with longer headways). The resulting transit travel times for the corridor were compared to the travel time for vehicles in the remaining general-purpose travel lanes.

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<sup>2</sup> LODES data is provided by Longitudinal Employer-Household Dynamics (LEHD). LEHD leverages existing data such as censuses, surveys, and administrative records to create new data products. The data files are state-based and organized into three types: Origin-Destination (OD), Residence Area Characteristics (RAC), and Workplace Area Characteristics (WAC), all at census block geographic level.



### Quality Connections to Transit

The latent demand evaluation (LODES data) described under “Transit Demand” indicates the number of potential transit riders (residents and employees) within the vicinity of transit stops/stations 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 bicycling 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 bicyclists.

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:

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

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



## 2.4 Vehicular System

The vehicular study area encompasses all Circulation Element designated roadway segments in the Mira Mesa Community Planning Area and one segment beyond, in order to capture the effect on the adjacent communities associated with the Mira Mesa Community Plan Update.

All of the intersections at freeway ramps that provide access to the community as well as intersections where both streets meet one of the following conditions were evaluated:

- Four or more lanes;
- 3-lane roadways carrying more than 15,000 ADT; or
- 2-lane roadways carrying more than 10,000 ADT.

Additional intersections needed to conduct arterial analysis, and intersections that do not exist under existing conditions were also included for evaluation. **Figure 2-2** displays the vehicle study area and location of study intersections.

### 2.4.1 Vehicle Facility Types

The Mira Mesa Community Plan Update uses the defined classifications from the City of San Diego's Street Design Manual. Each type serves a particular function to most effectively enable traffic movement.

**Prime Arterials:** Prime arterials are streets that concentrate on high vehicular volume and prioritize vehicle movement. They facilitate low to medium movement of pedestrians, bicycles, and transit. Prime arterials connect to other prime arterials and freeway systems. They include geometric elements such as raised medians, bicycle lanes, street trees, street lighting, sidewalks, and few driveways or access points from adjacent property.

**Major Arterials:** Major arterials are streets that gives the most priority to vehicles and transit but can still accommodate heavy movement of pedestrians and bicyclists. They include geometric elements such as raised center medians, street trees, traffic lighting and sidewalks, with potential additions of landscaping, pedestrian lighting, on-street parking, and bike lanes. Major arterials are a flexible type of street that accommodates high volumes of traffic while still providing access to abutting property.

**Collectors:** Collector streets are designed to take traffic from local streets to those of a higher classification. They can accommodate high levels of bicycle and pedestrian movement with low or moderate vehicle and transit movement. Geometric elements such as on-street parking, street trees, street and pedestrian-scale lighting, sidewalks, and landscaping are key features of collectors.

**SMART Corridors:** The Mira Mesa Community Plan Update incorporates Sustainable Mobility for Adaptable and Reliable Transportation, "SMART" Corridors, to further SANDAG's 5 Big Moves strategy. A SMART Corridor is a prime or major arterial roadway that provides access to or between at least two freeways, whereby mobility improvements are planned for transit and other congestion-reducing mobility forms through the repurposing of roadway space. This repurposing creates facilities with general-purpose lanes plus flexible lanes, that may be used by a combination of non-single occupancy vehicles. SMART corridors are anticipated to increase safety, capacity, and efficiency; provide dedicated space for efficient transit and other pooled services; manage



demand in real-time; and maximize use of existing roadways. The lane configuration and type of use is contingent upon time of need.

At the time this report was written, it was anticipated that the increase in connected and autonomous vehicles will impact roadway and intersection operations by increasing the operational capacity, depending on the market penetration rate (MPR) of these vehicles. Assuming a 20% MPR based on SANDAG’s 2021 Regional Plan (2035 scenario assumption for ABM2<sup>+</sup>), the resulting increase in base capacity is 1.14<sup>3</sup>. Therefore, a 14 percent capacity increase was assumed for roadway segments and intersections along SMART corridors. Details on how this was applied at the intersection and roadway segment level are provided in **Section 2.4.4**.

2-lane MPR (%)	Base Capacity (pc/h/ln)		
	2,400	2,100	1,800
0	1.00	1.00	1.00
20	1.02	1.03	1.14
40	1.07	1.10	1.27
60	1.13	1.26	1.43
80	1.22	1.37	1.63
100	1.34	1.52	1.82

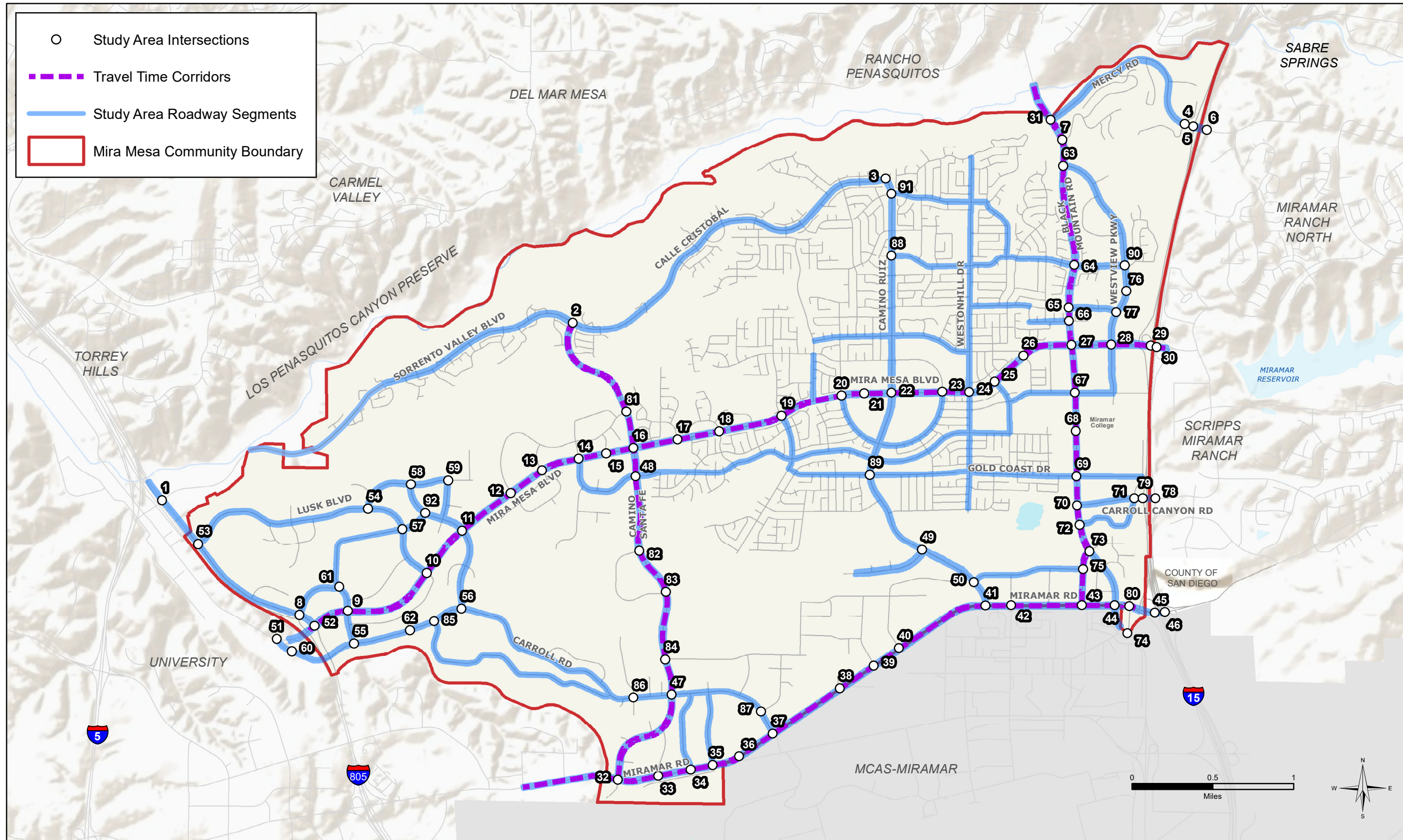
Source: Kittleson & Associates

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<sup>3</sup>How Connected & Automated Vehicles May Change Freeway Capacities; Kittleson & Associates, 2019



Figure 2-2



Vehicle Study Area



**2.4.2 Vehicular Demand**

Existing vehicular demand was determined using a combination of Household Travel Survey data obtained from SANDAG and vehicular counts conducted in support of this project. Future vehicular demand was derived from the SANDAG Activity Based Model Series 13 travel forecast, which estimates volumes based on buildout of Proposed Plan land uses and planned transportation networks.

**2.4.3 Vehicular Safety (Analyzed for Existing Conditions only)**

Historic collision data was analyzed for the five-year study period from October 2012 through September 2017. This data was geocoded and mapped to display vehicular collision locations in Mira Mesa. Additional focus was placed on these locations during the Proposed Plan network development phase.

**2.4.4 Vehicle System Operations (Quality)**

Analysis of the vehicular system, including roadway segments and intersections, was prepared for this study in accordance with the City of San Diego Transportation Study Manual (TSM) (September 2020). A description of the methodologies employed to evaluate vehicular travel is outlined throughout this section.

Level of service (LOS) is a metric that measures the average amount of delay experienced by vehicle drivers at an intersection during the most congested time of day. LOS assigns a letter grade to represent conditions for the driver ranging from LOS A to LOS F. **Table 2-7** describes generalized definitions of vehicular LOS A through F.

**Table 2-7 Vehicular Level of Service Definitions**

LOS	Characteristics
A	Primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Controlled delay at the boundary intersections is minimal. The travel speed exceeds 85% of the base free-flow speed.
B	Reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67% and 85% of the base free-flow speed.
C	Stable operation. The ability to maneuver and change lanes at mid-segment locations may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50% and 67% of the base free-flow speed.
D	Less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volume, or inappropriate signal timing at the boundary intersections. The travel speed is between 40% and 50% of the base free-flow speed.
E	Unstable operation and significant delay. Such operations may be due to some combination of adverse signal progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30% and 40% of the base free-flow speed.
F	Flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30% or less of the base free-flow speed. Also, LOS F is assigned to the subject direction of travel if the through movement at one or more boundary intersections have a volume-to-capacity ratio greater than 1.0.

Source: Highway Capacity Manual 6th Edition, Chapter 16, Transportation Research Board (2016)



**Roadway Segment Analysis**

Roadway segment level of service thresholds provided the basis for analysis of arterial roadway segment performance. The analysis is based on the functional classification of the roadway, the maximum theoretical capacity, roadway geometrics, and existing or forecasted Average Daily Traffic (ADT) volumes. **Table 2-8** presents the roadway segment capacity and LOS standards utilized to analyze roadways evaluated in this report.

These standards are generally used as long-range planning guidelines to determine the functional classification of roadways. The actual capacity of a roadway facility varies according to its physical and operational attributes. LOS D is considered acceptable for Mobility Element roadway segments in the City of San Diego. Often, a roadway segment that is analyzed to be LOS E or F based on theoretical capacity is found to operate acceptably in practice. In such cases, HCM arterial analysis may be conducted and utilized (or intersection analysis, if arterial analysis is not applicable) to provide a more accurate indication of LOS.

**Table 2-8 City of San Diego Roadway Segment Capacity and LOS Summary**

Road Class	Lanes	Level of Service				
		A	B	C	D	E
Prime Arterial	6	25,000	35,000	50,000	55,000	60,000
Prime Arterial <sup>SC</sup>	6	28,500	39,900	57,000	62,700	68,400
Prime Arterial (w/ two flexible lanes) <sup>SC</sup>	6	28,500	39,900	57,000	62,700	68,400
Prime Arterial (w/ two flexible lanes) <sup>SC</sup>	4	19,950	27,930	39,900	45,600	51,300
Prime Arterial <sup>SC</sup>	4	19,950	27,930	39,900	45,600	51,300
Major Arterial	6	20,000	28,000	40,000	45,000	50,000
Major Arterial <sup>SC</sup>	6	15,200	21,280	30,400	34,200	38,000
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 (w/ two flexible lanes)*	3	11,250	15,750	22,500	26,250	30,000
Major Arterial (w/ two flexible lanes)*	2	7,500	10,500	15,000	17,500	20,000
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)	4	5,000	7,000	10,000	13,000	15,000
Collector (w/ two-way left-turn lane)	4	10,000	14,000	20,000	25,000	30,000
Collector (w/ two-way left-turn lane)	3	7,500	10,500	15,000	18,750	22,500
Collector (w/ two-way left-turn lane)	2	5,000	7,000	10,000	13,000	15,000
Collector (w/o two-way left-turn lane)	2	2,500	3,500	5,000	6,500	8,000

Notes: The volumes and the 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.

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

\*City of San Diego Planning Department Mobility Staff input

SC: SMART Corridor – Segment capacity assumes a transit-only lane in each direction and an increase in capacity for the general-purpose lanes of 14% based on CV&AV methodologies.



### SMART Corridors

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) capacity analysis. A 14 percent increase in capacity was applied to these roadway segments and intersections. This was based upon research (Kittleson & Associates, How Connected & Automated Vehicle May Change Freeway Capacities, 2019) that indicates autonomous vehicles can improve roadway capacity by maintaining a sustainable flow rate measured in throughput of vehicles per hour per lane after reaching a market penetration rate of 20 percent.

### Peak Hour Travel Time 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 methodologies outlined in the HCM and performed using Synchro software. Peak hour arterial analyses were conducted along the following corridors: Mira Mesa Boulevard, Miramar Road, Camino Santa Fe, and Black Mountain Road.

### Peak Hour Intersection Analysis Assumptions

This section presents the methodologies used to perform peak hour intersection capacity analysis, for both signalized and unsignalized intersections. The following assumptions were utilized in conducting all intersection level of service analyses:

*Volumes:* Turning movement count data was collected for the morning and afternoon peak period, and the hour with the highest volumes were used for the analysis.

*Peak Hour Factor:* Obtained from the turning movement count data for the highest intersection volume. Peak Hour Factors were calculated and evaluated based on existing turning movement count data per intersection approach during the morning and afternoon peak hour. Under the Proposed Plan conditions, a Peak Hour Factor of 0.92 was used for all major corridor approaches unless existing data showed a higher Peak Hour Factor.

*Pedestrian Calls per Hour:* Turning movement count data was collected for existing pedestrian movements at each intersection during the morning and afternoon peak hours.

*Heavy Vehicle Factor:* Heavy vehicles are defined as vehicles with three or more axles. Two percent is typically the default heavy vehicle factor provided in HCM and Synchro 11 software.

- At select locations where heavy vehicles are anticipated to be higher than typical areas, vehicle classification data was included in the daily traffic volume data collection. Heavy vehicle factors along these corridors were assigned to the appropriate movements at the respective intersection approaches along that corridor.
  - Sorrento Valley Road – 4% heavy vehicle factor in both directions during AM and PM peak hours.
  - Calle Cristobal – 4% to 5% heavy vehicle factor in both directions during AM and PM peak hours.
  - Mira Mesa Boulevard – 2% to 8% heavy vehicle factor in both directions during AM and PM peak hours.





- Miramar Road – 7% heavy vehicle factor in both directions during AM and PM peak hours.
- Camino Ruiz – 4% to 6% heavy vehicle factor in both directions during AM and PM peak hours.
- Black Mountain Road – 3% heavy vehicle factor in both directions during AM and PM peak hours.
- A heavy vehicle factor of 2% was assumed for all other study area locations.

*Signal Timing:* Existing signal timing plans were used. Signal timing splits were optimized for Proposed Plan conditions.

*Leading Pedestrian Interval (LPI):* LPIs were added to all signalized intersections along District and Corridor pedestrian route types for Proposed Plan conditions. A list of these intersections is outlined in **Section 3.2.2** of this report. In order to account for LPI timing settings, four seconds was added to the walk time for all approaches to the intersection to best simulate the effect of the LPI on the signalized intersection, since synchro does not have the capability to properly model these conditions.

*Lane Geometry and Control:* Documented at the time peak hour counts were collected.

- Defacto right-turn lanes for signalized intersections were assessed based on criteria developed in coordination with the City. If a defacto right-turn lane was identified, the following lane geometry was used for the analysis:
  - 50' right turn pocket
  - Reduced lane width to 10' if the combined clear width is 18'
- Under Proposed Plan conditions, roadways that included transit-only lanes in the SANDAG model were analyzed in Synchro with one less general-purpose travel lane in each direction to reflect similar operations. The following roadways were modeled with transit-only lanes:
  - Barnes Canyon Rd / Scranton Rd
  - Carroll Canyon Rd
  - Lusk Blvd
  - Mira Mesa Blvd
  - Pacific Heights Blvd

*Lane Capacity:* The HCM 6th Edition methodology sets 1,900 passenger-cars per hour per lane (pcphpl) as the ideal saturation flow rate at signalized intersections based upon the minimum headway that can be sustained between departing vehicles at a signalized intersection.

- In order to incorporate a 14 percent capacity increase on SMART corridors, the saturation flow rate was increased to 2,150 pcphpl for the through movements along SMART corridors.
- For left-turn movements that have more than 10 U-turning vehicles in a peak hour based on existing count data, the saturation flow rate was decreased to 1,600 pcphpl for the left-turn movement to account for the slower-turning speeds vehicles take to make a U-turn rather than a left turn.

### Peak Hour Intersection Analysis

Signalized intersections were analyzed in accordance with the operational analysis methodology outlined in the 6th Edition the Highway Capacity Manual (HCM) 6th Edition (HCM6). This method defines LOS in



terms of delay, or more specifically, average control delay per vehicle (seconds/vehicle), which is a measure of driver discomfort, frustration, fuel consumption, and loss of travel time. 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.

Synchro 11 (Trafficware) software was used to analyze signalized intersections in the study area. Synchro provides the option to report methodologies for both 6th Edition and 2000 Editions of the HCM. The 6th Edition version of the HCM focused more on specific controller set ups, and due to these changes, there are several limitations within Synchro that do not allow results to be produced for an intersection. Some of these limitations include:

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

Based upon geometry and phasing assignment per their respective signal timing sheets, adjustments to the signal timing parameters, phasing, and/or geometries were made to represent similar operations but allow the Synchro software to publish 6th edition HCM results. Intersections were evaluated on a case-by-case basis to ensure the adjustments were producing similar results between the 6th Edition and 2000 Edition outputs. *Appendix H* of the Existing Conditions Report provides detailed information on the modifications that were made to each intersection in order to produce HCM 6th Edition results.

Unsignalized intersections, including two-way and all-way stop controlled intersections were analyzed using the 6th Edition HCM unsignalized intersection analysis methodology. The Synchro 11 software supports this methodology and will be utilized to produce LOS results. LOS for unsignalized intersections is determined by the computed or measured control delay and is defined for each movement at the intersection. 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. The LOS criteria used for intersections is shown on **Table 2-9**.



Table 2-9 LOS Criteria for Signalized and Unsignalized 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. Highway Capacity Manual 6<sup>th</sup> Edition, Chapter 19, Page 16, Exhibit 19-16; b. Highway Capacity Manual 6<sup>th</sup> Edition, Chapter 20, Page 6, Exhibit 20-2

### 2.4.5 Vehicular Network Connectivity

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 travelled (VMT) is considered the new analysis metric used to measure transportation impacts as of July 1, 2020 statewide. VMT is a reflection of 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 a 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.

## 3.0 Mira Mesa Proposed Plan

This section identifies Mira Mesa’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, public and stakeholder feedback, and current regional and local policies and initiatives.

### 3.1 Development of the Proposed Plan

#### 3.1.1 Identification of Issues and Needs

Existing mobility related issues and needs within Mira Mesa were identified in the Mira Mesa Community Plan Update’s Existing Conditions Report (May 2019), 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.

#### 3.1.2 Development of Proposed Plan Improvements

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

- SANDAG Regional Plan Update (December 2021)
- 3 Roots Community Plan Amendment (September 2020)
- Stone Creek Master Plan (currently in process)
- Casa Mira View Traffic Impact Analysis Report (June 2012)
- City of San Diego Bicycle Master Plan (December 2013)
- City of San Diego Pedestrian Master Plan – Phase 4 (December 2013)
- Sorrento Valley Coaster Station Relocation Study (December 2017)
- Sorrento Valley Skyway Feasibility Study (January 2017)

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 inform 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.



### 3.1.3 Design and Mobility Considerations

The Mira Mesa 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 Mira Mesa 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*

Mira Mesa is home to companies that ship San Diego-based products to various North American shipping ports, rail stations, and in some cases via airfreight to customers across the globe. Most of these goods or freight are transported by trucks using the adjacent state and interstate highways with access provided by the community's regional arterials and surface streets. For some of the largest products transported on City roadways, the trip starts in the industrial areas along Miramar Road on trucks equipped to handle heavy cargo. The City's arterials and major streets are also accessed by trucks that serve the local retail and commercial uses with products to help support their business needs. The SANDAG 2021 Regional Plan (Figure A.15 Unconstrained Goods Movement Network) identifies Miramar Road as a Freight Roadway Corridor for the region.

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 especially in Mira Mesa's proposed urban villages, business park, and employment hub, known as the Urban Employment Villages. 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 Mira Mesa Community Plan Update proposes many projects 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 Mira Mesa 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 Mira Mesa Community Plan Update and maintain its relevancy.

## 3.2 Pedestrian Environment

### 3.2.1 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 with shade 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 quality, vitality, and sense of community within an area. Walkable neighborhoods with more amenities within a short distance tend to have higher property values. Pedestrian areas for improvement identified in Mira Mesa 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 **Figure 3-1**.

#### *Safety*

Pedestrian safety along roadways and intersections is highly influenced by the roadway width, vehicular speeds and volumes, and level of separation from vehicles. At intersections, pedestrian safety and comfort is influenced by lighting, crosswalk visibility, crossing distance, and the presence and type of traffic control that is guiding motorists and pedestrians. Additionally, personal safety and comfort considerations, such as planters, public seating, presence of illegal graffiti and cleanliness are important for reinforcing the quality of the facility and the pedestrian environment.

The eastern portion of the Mira Mesa community experiences the greatest concentration of pedestrian collisions. This is also where the majority of the residences and shopping centers are located within the community. In particular, there are eight intersections where three or more pedestrian collisions were reported during the five-year study period (between October 2012 and September 2017):

1. Mira Mesa Boulevard and Westmore Road/Marbury Avenue
2. Mira Mesa Boulevard Westview Parkway
3. Black Mountain Road and Mira Mesa Boulevard
4. Camino Ruiz and Capricorn Way
5. Black Mountain Road and Gemini Avenue



6. Mira Mesa Boulevard and Mira Mesa Mall Driveway
7. Mira Mesa Boulevard and Sequence Drive
8. Camino Ruiz and Reagan Road/Marauder Way

### Connectivity

Connectivity is an important consideration when attempting to increase levels of walking activity across a community. A disconnected pedestrian network discourages people from making trips on foot. It is important to understand the different barriers to connectivity when making long-range planning recommendations. The City of San Diego focuses on making sure their communities are designed and used by people of all ages and abilities. Missing sidewalks or asphalt, low-quality pedestrian facilities and limited access to transit have been identified in Mira Mesa in the existing conditions analysis and need to be addressed.

Mira Mesa is a community that is surrounded by many beautiful canyons. Although there are several trails that pedestrians and bicyclists can use to walk the canyon, they can also act as a barrier to accessing communities to the north. Furthermore, what may be acceptable conditions for recreational purposes are not necessarily comfortable for a non-recreational trip. There are portions of missing sidewalk along certain sides of major roadways such as Mira Mesa Boulevard and Camino Ruiz, which limits a pedestrian's connectivity. Other locations with missing sidewalks are located along the northern boundary of the community near residential streets alongside canyons and a few in the employment areas along Carroll Way, Production Avenue, Arjons Drive, Cabot Drive and Dowdy Drive. Although portions of these roadways have sidewalk, the intermittent sidewalk facility creates a barrier for persons with disabilities and restricts connectivity and access to surrounding businesses for people of different abilities.

### Demand

#### Pedestrian Activity

High pedestrian volumes are generally found near activity centers such as shopping centers, transit stops, civic buildings, and places of employment with commercial and office land uses. There are 7 intersections with more than 50 pedestrians during the morning or afternoon peak hour in Mira Mesa, they include the following:

1. Mira Mesa Boulevard and Camino Ruiz
2. Gold Coast Drive and Black Mountain Road
3. Mira Mesa Boulevard and Westview Parkway
  - Also identified as having a high concentration of pedestrian-related collisions
4. Westview Parkway and Mira Lee Way
5. Mira Mesa Boulevard and Marauder Way/New Salem Street
6. Hillery Drive and Black Mountain Road
7. Black Mountain Road and Miramar College Driveway

#### Pedestrian Priority Model

Pedestrian Priority Areas were determined using the City of San Diego's Pedestrian Priority Model. The model assesses community characteristics including demographic data, traffic volumes and speed, pedestrian collisions or crashes, presence of street lighting, locations of transit stations, and land uses such as residential, office, commercial/retail, schools, and parks. The model uses these factors to identify



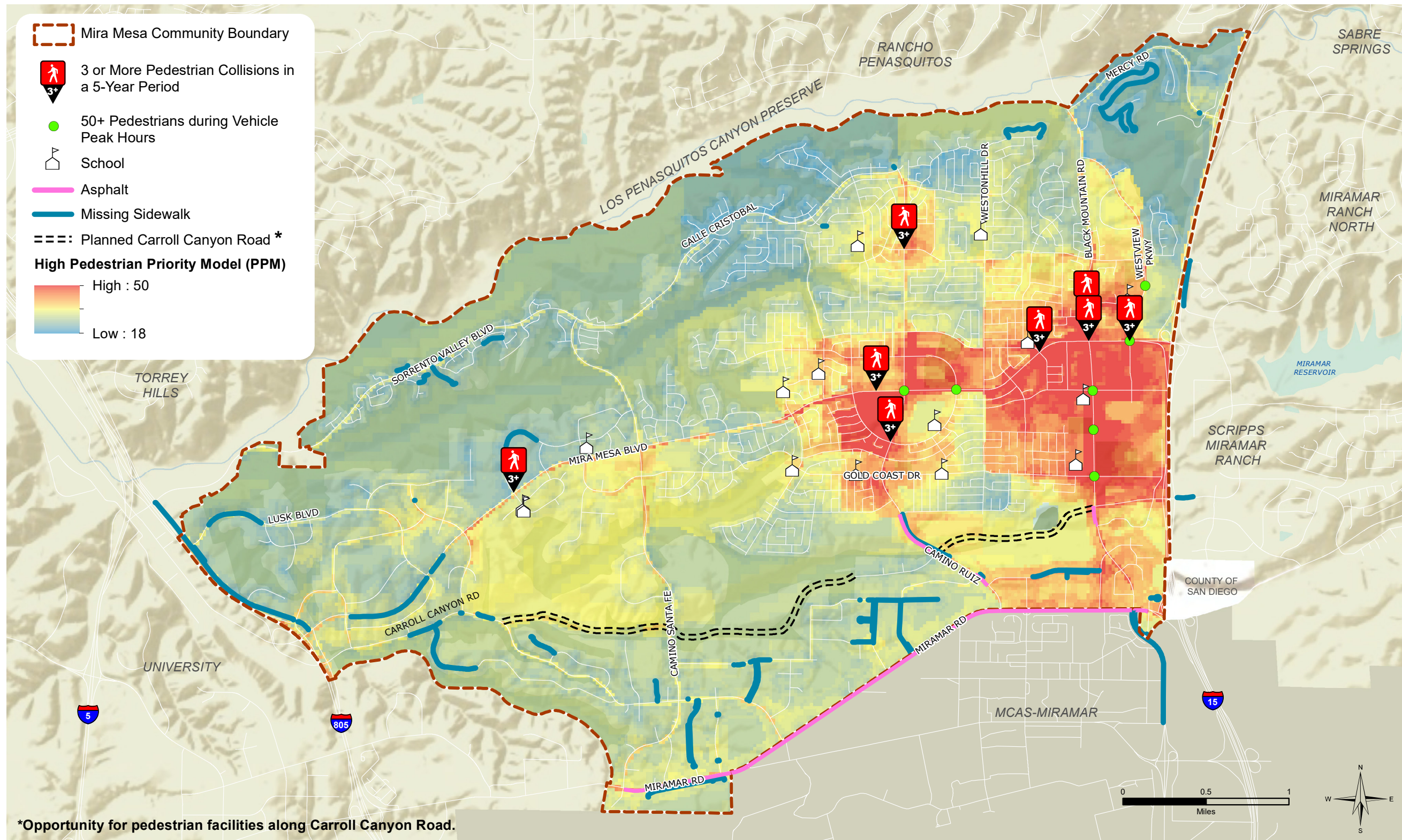
areas where both pedestrian demand and detractors are high, thereby indicating a need to focus resources on these locations.

Pedestrian demand is highest near Miramar College and the retail adjacent to it on the north (this area is identified as the Mira Mesa Gateway in the Community Plan), as well as the area near the community shopping center along Mira Mesa Boulevard and Camino Ruiz (this area is identified as the Mira Mesa Town Center in the Community Plan). This area is also near Mira Mesa High School. Both of these areas are along roadways with high volumes of vehicles and are located near frequent transit. Pedestrian improvements have been identified for both of these areas in the Community Plan.





Figure 3-1



Pedestrian Needs



### 3.2.2 Pedestrian Improvements

Pedestrian improvements were identified based upon supporting land uses, proximity to transit, anticipated walking environment, and the roadway purpose in serving the greater transportation network. These considerations informed the identification of several pedestrian route types, such as District, Corridor, Connector, and Neighborhood routes as well as trails and pathways. Recommended improvements were tailored to support the identified route type, as detailed in the following sections. **Figure 3-2** displays the District, Corridor, Connector, Neighborhood, and Trail pedestrian route types for the Proposed Plan.

#### *Urban and Pedestrian Pathways*

In addition to the pedestrian route types shown in the figure, a series of urban and pedestrian pathways have been identified in the Proposed Plan to create stronger bicycle and pedestrian connections in the central core of the community and in newly identified mixed-use residential areas and urban villages. These pathways support the vision for a vibrant and walkable employment and residential environment in Mira Mesa.

Urban and pedestrian pathways 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. Pedestrian pathways, such as paseos, are paved facilities with exclusive right-of-way that act as corridors for pedestrians to traverse through in addition to the street system. They have been woven into the community's mixed-use areas to help to transform superblocks into permeable environments resulting in more direct and convenient pedestrian connections. They can be combined with linear parks, plazas, and streetscape elements to provide a connected and attractive pedestrian network. Urban pathways are located along the redevelopment area frontage, providing low-stress, high-quality facilities for pedestrians and bicyclists along the roadway circulation network.

These ancillary facilities will be constructed through the development process and are therefore located in the concentrated redevelopment areas of the Urban Villages and CPIOZ. The Urban Design Element of this Community Plan Update provides more details on the urban and pedestrian pathway locations.

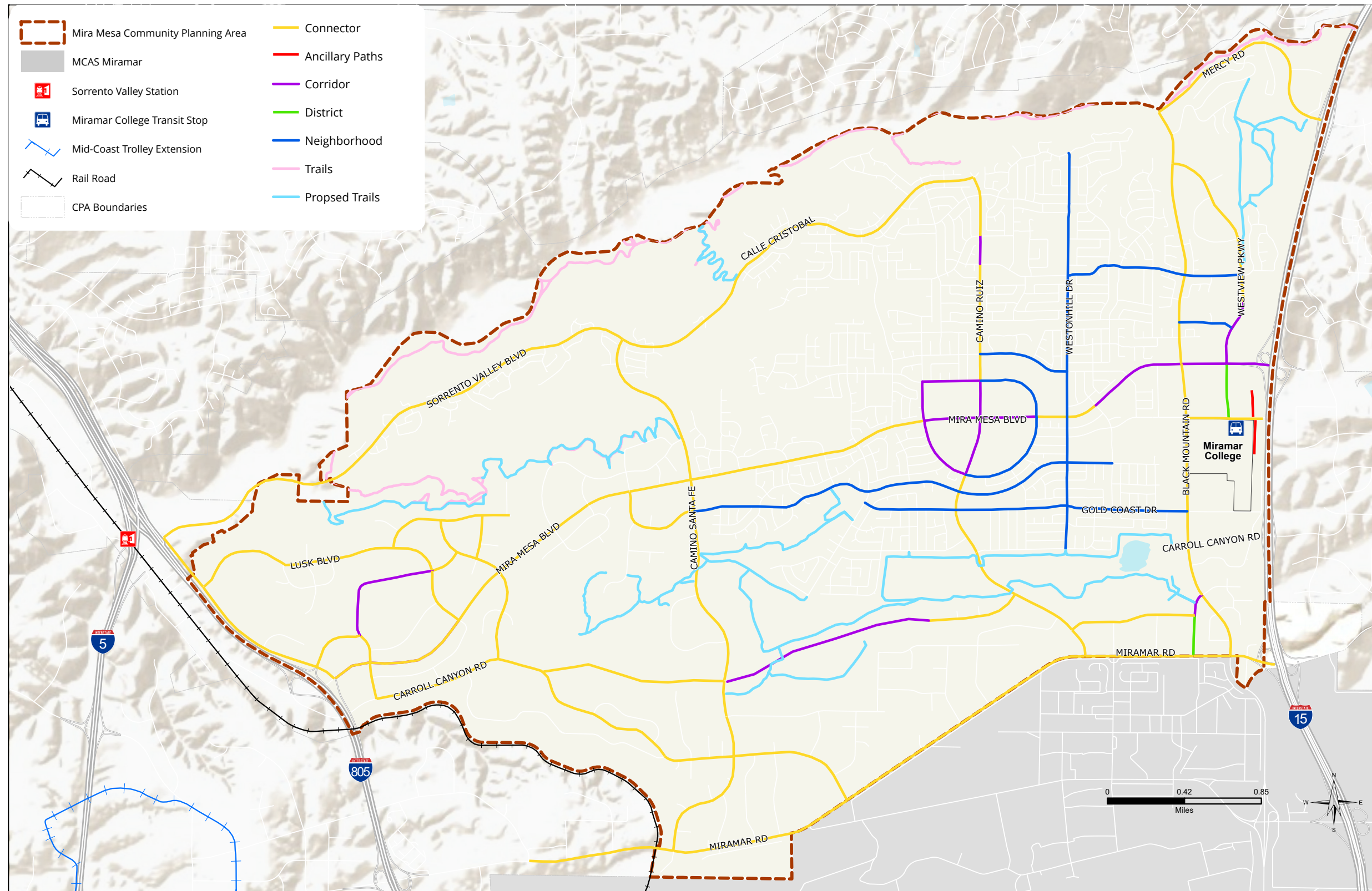
#### *Segment Improvements*

##### *New Sidewalks*

As part of the existing conditions analysis, missing sidewalks within the community of Mira Mesa, including raised sections of asphalt along roadways, were identified. 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. The Proposed Plan includes upgrading all asphalt paths to concrete sidewalks to meet City of San Diego and ADA requirements, as well as the construction of all missing sidewalk segments with the exception of Vista Sorrento Parkway where a wide multi-use path along the east side of Vista Sorrento Parkway is recommended to accommodate pedestrians and bicyclists traveling in the northbound and southbound directions along this high-speed corridor.



Figure 3-2



Mira Mesa Pedestrian Route Typologies



### Non-Contiguous Sidewalk

Non-contiguous sidewalks can improve pedestrian comfort by increasing the horizontal distance between pedestrians and the vehicle travel way. They also provide opportunities for street trees to provide shade for pedestrians and space for utility boxes or other obstructions for better accessibility. Wherever feasible, non-contiguous sidewalks should be implemented; however, there are some areas in the community that are already built out, making it difficult to retrofit existing sidewalks with non-contiguous sidewalks. There are several locations where non-contiguous sidewalks are recommended:

Per the City of San Diego's Street Design Manual, all roadways where redevelopment is anticipated to occur

All roadways that are identified as a Corridor type as part of the Proposed Plan, including:

- Barnes Canyon Road from Scranton Road to Lusk Boulevard
- Scranton Road from Barnes Canyon Road to Mira Sorrento Place
- Camino Ruiz from Reagan Road/Marauder Way to New Salem Street
- Reagan Road from Camino Ruiz to New Salem Street
- New Salem Street from Reagan Road to Camino Ruiz
- Mira Mesa Boulevard between I-15 to Greenford Drive
- Westview Parkway between Mira Mesa Boulevard to Capricorn Way

All roadways that are identified as a District type as part of the Proposed Plan, including:

- Black Mountain Road from Miramar Road to Kearny Villa Road
- Westview Parkway from Mira Mesa Boulevard to Miramar Road

### Intersection Improvements

All crossing points at signalized and unsignalized 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 (signalized intersections only)

In addition, pedestrian treatments shown in **Figure 3-3** should be considered to strengthen the existing pedestrian network and to maximize the benefit of new connections as they are built.



Figure 3-3



**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.



**Bulb-outs/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.



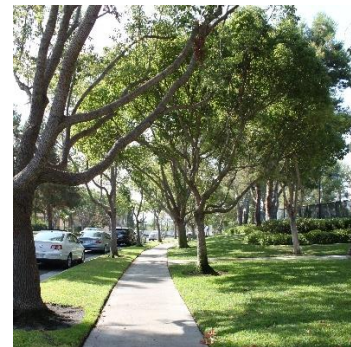
**Pedestrian Hybrid Beacons** are traffic control signals that help pedestrians and bicyclists cross mid-block across high traffic roadways.



**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.

*Pedestrian Treatments*



### Lead Pedestrian Intervals

Lead Pedestrian Intervals (LPIs) are proposed at several intersections to improve pedestrian safety at:

- Signalized intersection locations along District and Corridor pedestrian route types.

- Signalized intersections with high existing pedestrian volume locations (defined as more than 50 pedestrians during AM and PM peak periods).

- Signalized intersections with most frequent pedestrian collisions during the 5-year study period were also considered for the treatment of LPIs.

LPIs are recommended at the following intersections where pedestrians crossings are permitted:

- Mira Mesa Boulevard and Black Mountain Road
- Gemini Avenue and Black Mountain Road
- Activity Road and Black Mountain Road
- Carroll Center Road and Black Mountain Road / Kearny Villa Road
- Mira Mesa Boulevard and Camino Ruiz
- Capricorn Way and Camino Ruiz
- Mira Mesa Boulevard and Mira Mesa Mall Driveway
- Mira Mesa Boulevard and Greenford Drive
- Mira Mesa Boulevard and I-15 Southbound Ramps
- Barnes Canyon Road and Lusk Boulevard
- Mira Mesa Boulevard and New Salem Street / Marauder Way
- Mira Mesa Boulevard and Reagan Road
- Mira Sorrento Place and Scranton Road
- Mira Mesa Boulevard and Sequence Drive / Huennekens Street
- Mira Mesa Boulevard and Westmore Road/Marbury Avenue
- Mira Mesa Boulevard and Westview Parkway
- Mira Lee Way and Westview Parkway
- Galvin Avenue and Westview Parkway
- Carroll Canyon Road and Camino Santa Fe
- Reagan Road / Marauder Way and Camino Ruiz
- Target / Hobby Lobby Driveway and Camino Ruiz
- New Salem Street and Camino Ruiz
- H Mart Driveway and Camino Ruiz
- Black Mountain Road and Gold Coast Drive
- Black Mountain Road and Hillery Drive
- Black Mountain Road and Miramar College Driveway
- Lusk Boulevard and Mira Mesa Boulevard
- Vista Sorrento Parkway and Mira Mesa Boulevard
- Black Mountain Road and Miramar College
- Westview Parkway and H Mart Driveway



### 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 to shorten crossing distances and increase visibility of pedestrians. Curb extensions also serve as a traffic calming measure, oftentimes reducing vehicular speeds along a corridor.

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 based on the PEQE analysis. The following corridors provide on-street parking with long crosswalks, and could benefit from curb extensions to reduce the crossing distance, and enhancing visibility of pedestrians at the intersection without impacting capacity on the roadway:

- Gold Coast Drive
- Hillery Drive
- New Salem Street
- Capricorn Way
- Flanders Drive
- Westmore Road
- Aquarius Drive
- Santa Armenta Avenue
- Parkdale Avenue
- San Ramon Drive

### Protected / Dedicated Intersections

Protected/dedicated intersections as described previously in **Section 3.3.2**, are also beneficial to pedestrians. Protected/dedicated intersections are recommended at certain locations to provide safety benefits and improve low stress connectivity through intersections within the community.

Protected intersection treatments could be implemented through the following mechanisms, as appropriate: repurposing existing public right-of-way (ROW), coordinating with abutting property owners, or having developers implement the adjacent improvement based on the supplemental development regulations and incentives outlined in CPIOZ. At the project level when more information is available, modifications to improvements identified may be considered by the City. A list of potential locations is included below.

- Black Mountain Road at Activity Road
- Black Mountain Road at Kearny Villa Road/Carroll Centre Road
- Black Mountain Road at Maya Linda Road
- Black Mountain Road at Carroll Canyon Road
- Camino Ruiz at Carroll Canyon Road
- Camino Santa Fe at Calle Cristobal/Sorrento Valley Boulevard
- Camino Santa Fe at Mira Mesa Boulevard
- Camino Santa Fe at Carroll Canyon Road
- Mira Mesa Boulevard at Pacific Heights Boulevard



### Split Phasing & Shared through/turn lane Improvements

The following intersections currently have split phasing or shared through/turn lanes and should be evaluated to have a protected left-turn phasing to improve visibility for pedestrians. Some of these intersections have a history of pedestrian collisions, others are located in areas with high pedestrian demand or where redevelopment is anticipated to have higher demands of pedestrians. As previously mentioned, the City has developed the Systemic Safety Analysis Reporting Program (SSARP), to predict future traffic-related incidents. Intersections with permissive left turns tend to have higher collision rates with pedestrians, and should be considered for redesigns and infrastructure modifications to address pedestrian safety.

- Westmore Road/Marbury Avenue at Mira Mesa Boulevard
- Reagan Road at Mira Mesa Boulevard
- Teresa Dr/Capricorn Way at Camino Ruiz
- Gemini Avenue at Black Mountain Road

### Additional Safety Enhancements

A safety assessment was performed at the eight intersections in the Mira Mesa community with the highest number of pedestrian-related collisions in the five-year study period. Many of the strategies already discussed in this section including curb extensions, LPIs, high-visibility crosswalks, advanced stop bars, and pedestrian countdown timers are all pedestrian safety enhancements that are recommended in the Community Plan. In addition, the following strategies have been identified to further reduce the number of pedestrian-related collisions at these intersections:

*Mira Mesa Boulevard and Westmore Road/Marbury Avenue:* Upgrade the existing traffic signals on the north and south legs to be mounted to a mast arm to increase motorists' cone of vision while navigating through the intersection.

*Mira Mesa Boulevard and Westview Parkway:* Construct a pedestrian bridge on the east side of the intersection as discussed in the next section.

*Camino Ruiz and Capricorn Way:* Reconfigure lane geometry to include eastbound and westbound exclusive left turn lanes and protected left turn phasing to reduce the number of pedestrian-related left-turn collisions.

*Black Mountain Road and Gemini Avenue:* Modify signal phasing to provide eastbound and westbound protected left turn phases.

*Camino Ruiz and Reagan Road/Marauder Way:* Add no right turn on red restrictions to reduce the number of pedestrian-related right-turn collisions. This intersection was not studied in order to understand the impact of implementing right turn on red restriction and should be analyzed prior to implementing.

A summary of the pedestrian-related collisions and recommended countermeasures are provided in **Appendix B**.

### Bridge Connections

Pedestrian bridges can improve the pedestrian environment by providing connections to destinations that are free of any conflicts with vehicles.

In general, pedestrian crossings should be provided at grade unless special circumstances apply.





A pedestrian bridge improves the pedestrian environment by providing a connection/crossing free from conflicts with vehicles. When constructed, the following rules of thumb should be considered:

- Should not increase the distance of travel by more than 50% as compared to the at-grade crossing
- Safety, lighting, graffiti, security
- Structure should positively affect the identity of the area and should not adversely impact the surrounding urban environment
- Structure should be as close as possible to the intended desire line
- Adequate 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.

Within the Mira Mesa community there is an existing pedestrian bridge at the intersection of Galvin Avenue and Black Mountain Road, providing a connection from residential uses on the west side to uses such as the San Diego Ice Arena and Hage Elementary school on the east side. This pedestrian bridge is rarely used and has created some unusual activity according to the community. It is important to make sure the circumstances and design strategies discussed above are considered when choosing locations for pedestrian bridges.

The following locations are proposed for future pedestrian bridges in Mira Mesa:

Across Mira Mesa Blvd (between Westview Parkway and I-15 ramps)

A pedestrian bridge between Westview Parkway and I-15 southbound ramps could provide a pedestrian crossing (free of vehicular conflict) between the large residential development on the north side of Mira Mesa Boulevard (Casa Mira View) to the existing and proposed commercial activity center (identified as Mira Mesa Gateway in Community Plan), Miramar College Transit Station, and Miramar College located on the south side of Mira Mesa Boulevard. Mira Mesa Boulevard experiences high vehicular traffic volumes (almost 90,000 ADT) and high vehicle speeds due to the proximity to the freeway ramps. Additionally, the intersection of Mira Mesa Boulevard and Westview Parkway is identified as having high pedestrian collisions (three or more during the five-year study period). A pedestrian bridge would provide a grade-separated crossing for the large number of pedestrians currently needing to cross 12 lanes of traffic.

Across I-15 near the Hillery Drive Bridge

A pedestrian bridge connecting Mira Mesa to Scripps Miramar Ranch across I-15 would provide an essential low-stress east-west connection from high residential redevelopment areas in both communities to schools, transit centers, and recreational facilities from both communities. A feasibility study would need to be performed to determine the best location for a structure across the I-15 freeway. Options would include extending the existing Hillery Drive bridge Direct Access Ramp bridge all the way across the freeway, connecting Scripps Lake Drive to North Campus Drive, connecting South Campus Drive to Scripps Ranch High School, or connecting Gold Coast Drive to Scripps Ranch Court.



## 3.3 Bicycle Environment

### 3.3.1 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 discourages 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 are connecting people to their destinations in an easily accessible and convenient way.

Bicycle areas for improvement identified in Mira Mesa were determined in the Existing Conditions Report and include locations with more frequent collisions involving bicyclists, the amount of stress likely to be experienced by a bicyclist, gaps in the existing network, and areas with high bicycling demand. **Figure 3-4** depicts bicycle needs.

#### *Safety*

Bicycle safety along roadways and intersections is highly influenced by the presence and width of the bicycle facility, the speed and volume of vehicles travelling near the bicycle facility, and the level of separation between a bicyclist and moving traffic. At intersections, bicycle safety and comfort are also influenced by visibility of others and their surroundings as well as the presence and type of traffic control that is guiding motorists and bicyclists.

Intersections along Mira Mesa Boulevard, the major east-west roadway within the community, experiences more frequent collisions involving bicyclists. This is also where the majority of the residences and shopping centers are located within the community. In particular, there are four intersections where three or more collisions involving bicyclists were reported during the five-year study period (between October 2012 and September 2017); three of which are located along Mira Mesa Boulevard. The intersections are:

1. Mira Mesa Boulevard & Camino Ruiz
2. Mira Mesa Boulevard & Westview Parkway
3. Mira Mesa Boulevard & Westmore Road/Marbury Avenue
4. Miramar Road East of Commerce Avenue/Milch Road

These intersections lack bicycle intersection treatments, and all of them are located along major east-west thoroughfares within the community. For most of these intersection approaches, a bicycle facility is provided upstream of the intersection, but the intersection approach itself does not contain a bicycle intersection treatment such as a bike pocket, leaving the bicyclists vulnerable and requiring them to merge with vehicles at the intersection.

#### *Quality*

Bicycle Level of Traffic Stress (LTS) measures the level of comfort a bicyclist would experience on a roadway, considering the physical separation from vehicular traffic, vehicular speeds adjacent to bicycle facilities, and factors related to intersection approaches with dedicated right-turn lanes and unsignalized crossings. In general, stress levels are high (LTS 3 or 4) on all major roadways in Mira Mesa. 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 high stress 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 and encourage more bicycling within the community.

### ***Demand***

Bicycle demand was assessed using the City’s Bicycle Demand Model (BDM). Demand is highest along the major roadways in the community. Mira Mesa Boulevard, Camino Santa Fe (south of Mira Mesa Boulevard), Camino Ruiz (south of Mira Mesa Boulevard), Black Mountain Road, and Miramar Road were found to be in the top 25 percent of bicycle demand in the Mira Mesa community. These streets are continuous across the community, and thus are highly desirable for making connections to key destinations.

Intersections near the Sorrento Valley Station and Miramar College Transit Station experience high bicycle volumes. This is likely first-mile/last-mile connection trips to transit. Similarly, intersections along Black Mountain Road also have high bicycle activity. One other location noted with high activity is the intersection of Mira Mesa Boulevard and Flanders Drive. This intersection likely has high bicycle activity as bicyclists use Flanders Drive as an alternative route to Mira Mesa Boulevard, with the decision on route choice being made at this intersection.

The following four intersections were identified as having high bicycle volumes (as defined as 20 or more bicyclists observed during the weekday AM and PM peak periods):

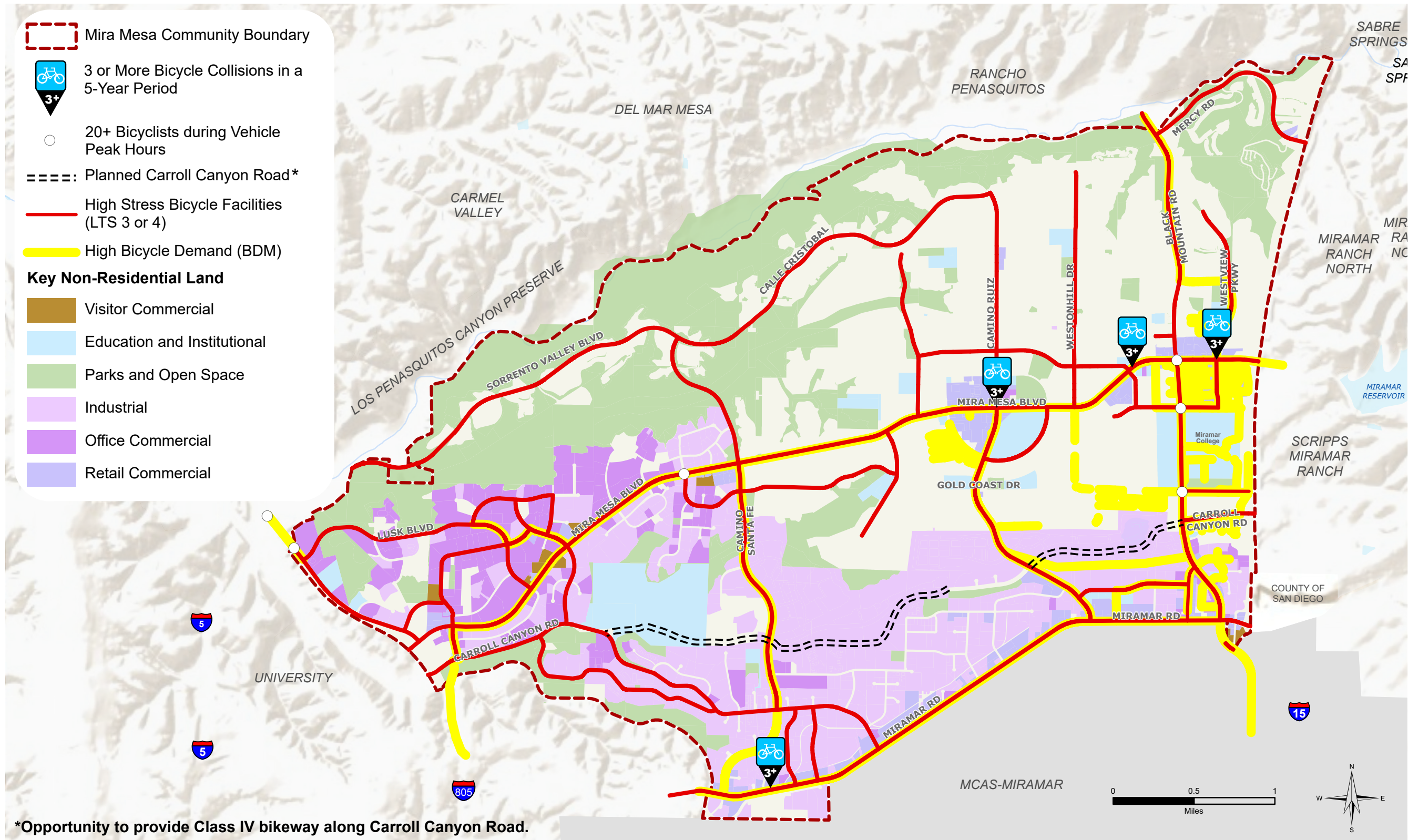
1. Mira Mesa Boulevard and Flanders Drive
2. Mira Mesa Boulevard and Black Mountain Road
3. Hillery Drive and Black Mountain Road
4. Gold Coast Drive and Black Mountain Road

### ***Connectivity***

Connectivity will be improved with the construction of the remaining section of Carroll Canyon Road. This roadway will be constructed with future development and will provide a major east-west connection parallel to Mira Mesa Boulevard. Additional connectivity is limited due to the canyons dispersed across the community. Upgrades to existing bicycle facilities will improve the bicycling infrastructure and provide a low-stress bicycle network. Providing comfortable routes to traverse the entirety of the community is a focus of the Proposed Plan.



Figure 3-4



Bicycle Needs



### 3.3.2 Bicycle Improvements

A network of planned bicycle improvements was developed to address the goals and deficiencies identified through the existing conditions analyses, while referencing recommendations identified in the City of San Diego’s Bicycle Master Plan, SANDAG’s Regional Bike Plan, and SANDAG’s 2021 Regional Plan. Outreach efforts associated with the Mira Mesa Community Plan Update also helped inform the final recommended bicycle network. 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.

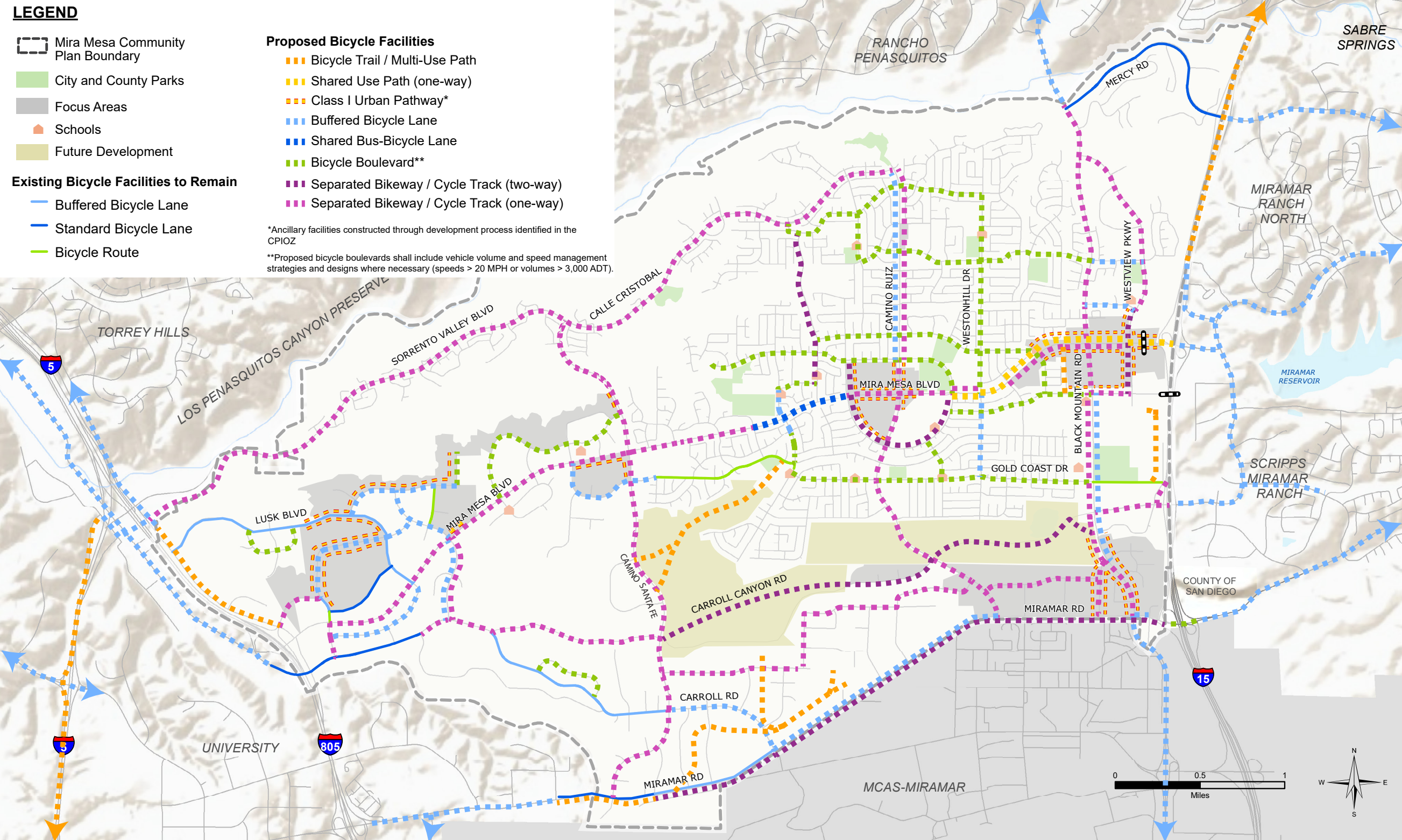
The recommended bicycle network was developed based on the following goals:

- 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
- Increase low-stress connectivity from Miramar College Transit Station

The Proposed Plan bicycle facilities are listed in this subsection and displayed in **Figure 3-5**. Implementation of these facilities should consider additional treatments at intersections to improve bicyclists’ safety and comfort (i.e., bike boxes, exclusive bicycle signal phasing, protected intersection treatments, and conflict zone striping).



Figure 3-5



Bicycle Network – Proposed Plan Conditions



### Segment Improvements

The evaluation for identified bicycle facilities took into consideration parking utilization collected during the existing conditions phase, availability of adjacent off-street parking lots, level of traffic stress, intersection traffic control, connections to public uses, employment and transit within the community, available right-of-way, and consideration for any potential acquisition of right-of-way. 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. It should also be noted that at the project level when more information is available, modifications to these recommended classifications may be considered by the City including repurposing existing public right-of-way, 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 the CPIOZ.

#### Class I Multi-Use Paths

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.

The following Class I multi-use paths are proposed for the Mira Community Plan Update:

#### Vista Sorrento Parkway from Mira Sorrento Place to Sorrento Valley Boulevard

This low-stress bicycle facility will serve as a north-south connection to the Sorrento Valley Coaster Station as well as the neighboring community of Torrey Hills. Vista Sorrento Parkway has a posted speed limit of 50 mph, with moderately grade differences along the segment. Very low pedestrian traffic exists and is anticipated along this shared facility. This facility would connect to other planned low-stress bicycle facilities that will provide connections to the employment and commercial areas in Sorrento Mesa. Implementation of the multi-use path along the east side of the roadway may require repurposing of existing right-of-way and expanding the existing sidewalk in order to provide the necessary width for the multi-use path. Some areas along the roadway currently have non-contiguous sidewalk in which the wider multi-use path can be provided. Relocation of streetlights and other utilities along the segment would need to occur during or prior to implementation.

#### New connection “Rails to Trails” along old rail line traversing through Carroll Road, Production Avenue, and Distribution Avenue

This facility would provide a bicycle path along an existing railway line. Portions of the railway line are currently operational; however, the long-range vision is to utilize right-of-way currently dedicated to railway operations for bicyclists and pedestrians when railway operation is no longer needed. This would provide a connection along the employment areas in the southern portion of the community and may possibly provide space for a linear park in the future. Implementation of this facility would necessitate



decommissioning of railway operations, acquisition of railway right-of-way and construction of a linear park or wide travel path for bicyclists and pedestrians.

#### New connection from Gold Coast Drive towards Hillery Drive

The extension of an existing multi-use path located from Hillery Drive, which currently ends approximately 950 feet south. It is envisioned to extend to Gold Coast Drive providing a low-stress facility for bicyclists connecting higher density residential along Maya Linda Road to the Miramar College Transit Station and commercial uses along Mira Mesa Boulevard. Implementation of this facility would require coordination and acquisition of right-of-way from SDG&E prior to construction.

#### Rickert Road from Hillery Drive to Mira Mesa Boulevard

This facility would provide a shared-use path along the east side of Rickert Road. Redevelopment on the east side of this road allows for better interface between new development and a path that would provide a low-stress connection to Walker Elementary School as well as to shopping centers along Mira Mesa Boulevard. Ideally, a pedestrian crossing across Mira Mesa Boulevard at Rickert to shopping centers on the north side and an existing walkway would improve connectivity in this area by creating low-stress connections between neighborhoods, schools, and retail. Implementation of this facility would require new development to build (or dedicate right-of-way along their frontage) for the Class I shared-use path.

- CPIOZ Urban Pathways

The urban pathways discussed in **Section 3.2.2** located along the redevelopment project frontages, will provide a low-stress facility for bicyclists along the major arterials and collectors.

### 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.

The following Class I one-way multi-use paths are proposed for the Mira Community Plan Update:

#### Mira Mesa Boulevard from Marauder Way to Greenford Drive (north and south of roadway)

A Class IV bikeway is proposed for a majority of the Mira Mesa Boulevard corridor, however, this section of Mira Mesa Boulevard has very constrained right-of-way, and therefore a one-way Class I path is proposed to provide a continuous low-stress facility for bicyclists along an existing gap in the bicycle network. As previously mentioned, Mira Mesa is a major east-west connection for the community and this segment is also adjacent to Mira Mesa High School connecting residential neighborhoods to the community high school and park. Acquiring additional right-of-way is infeasible as it would require purchasing portions of homeowner's property along the entire segment. For this reason, it is recommended to share the walkway on the north and south side due to right-of-way constraints and to provide a bicycle facility that is separated from vehicular traffic with a posted speed of 40 mph along Mira Mesa Boulevard. Some portions of this segment currently have 5-foot sidewalks; however, there is 10-30 feet from curb to property line that can be utilized for the widening of the sidewalk.

#### Mira Mesa Boulevard from Greenford Drive to I-15





The Community Plan Update identifies a continuous low-stress bicycle facility along Mira Mesa Boulevard. This segment is part of that low stress connection. Due to right-of-way constraints and a posted speed limit of 40 mph, it is recommended to have bicyclist and pedestrians share space that is currently dedicated for pedestrians along the north side. Implementation of this facility would require a substandard width for a multi-use pathway along the north side. On the north side there is enough right-of-way between the curb and the property line to widen the walkway to 3-5 feet for the multi-use facility. It may also be feasible to reduce travel lane widths and widen the sidewalk on the north side by an additional 3-4 feet; this would provide a 11- to 14-foot shared path. This bike facility will connect to a shared-use path east of Rickert Road that will connect east to I-15 or the pedestrian bridge across Mira Mesa Boulevard.

### 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.

The following Class II bike lanes are proposed for the Mira Community Plan Update:

#### Scranton Road from Morehouse Drive to Lusk Boulevard\*

This facility would repurpose approximately 2,860 feet of on-street parking and roadway widening to provide buffered bike lanes in both directions. The Scranton Road / Barnes Canyon Road corridor provides connectivity through the entire Sorrento Mesa employment area and is served by multiple bus routes. It is critical that the transit service is reliable, and that this corridor provide the first/last-mile connections from transit stations to places of employment to encourage alternative modes of transportation for commuting. Parking utilization is highest during the midday peak period along certain segments of this roadway; however, it should be noted that all adjacent employment provides on-site surface parking lots. In addition, this focus area for redevelopment will seek to drastically reduce the on-street parking demand. Implementation of this facility would require on-street parking removal and widening on both sides of the street where redevelopment is expected to occur.

#### Barnes Canyon Road from Lusk Boulevard to Pacific Heights Boulevard\*

This facility would repurpose approximately 745 feet of on-street parking to provide buffered bike lanes in both directions along this roadway. See description above of segment from Morehouse Drive to Lusk Boulevard for more details on the need for this facility. Implementation of this facility would require on-street parking removal, and potential relocations of bus stops in coordination with MTS.

#### Pacific Center Boulevard from Lusk Boulevard to Pacific Center Court\*

This facility would repurpose approximately 3,632 feet of on-street parking to provide buffered bike lanes in each direction along this roadway. This would connect bicycle facilities from Lusk Boulevard into employment areas along Pacific Center Boulevard. Parking utilization is highest during the midday peak period along certain segments of this roadway; however, it should be noted that all adjacent employment provides on-site surface parking lots. In addition, there are two nearby parking garages with 5-6 stories of off-street parking available.



Pacific Heights Boulevard from Pacific Center Boulevard to Carroll Canyon Road (southbound only)\*

This facility would repurpose 3,094 feet of on-street parking to provide buffered bike lanes in the southbound direction of the roadway. This would provide a north-south bicycle connection in the Sorrento Mesa employment area and a connection for bicyclists from bus rapid transit along Mira Mesa Boulevard and Carroll Canyon Road. Bicyclists travelling along the low-stress bicycle facilities on Mira Mesa and Carroll Canyon Road would then be able to continue to places of employment in Sorrento Mesa along this planned bicycle facility. Parking utilization is relatively high in the northern portion of the segment during mid-day and evening peak periods; however, it is important to note that all adjacent development provide on-site surface parking lots. Therefore, removal of parking on-street will not have a negative effect in employees and patrons accessing their destination. In addition, SANDAG’s Regional Plan identified the potential for a commuter rail station and mobility hub at the intersection of Mira Mesa Boulevard and Pacific Heights Boulevard. The proposed bike lanes would serve as a first/last mile (mobility hub) connection to high frequency transit creating new commute options and reducing vehicle miles travelled and congestion in this area.

Pacific Heights Boulevard from Mira Mesa Boulevard to Pacific Center Boulevard (northbound only)\*

This facility would repurpose approximately 1,448 feet of on-street parking to provide buffered bike lanes in the northbound direction (similar to what has been identified in the southbound direction). See “southbound only” facility description above for more details on the need for this facility.

Oberlin Drive from Scranton Road to Mira Mesa Boulevard\*

This facility would repurpose ~4,600 feet of on-street parking to provide buffered bike lanes in both directions. This segment is along an employment area that is directly served by transit. Traffic calming enhancements should be installed along this roadway in anticipation of cut-through traffic, and due to the existing 40mph speed limit. Implementation of this facility would require removal of on-street parking that does not appear to be heavily utilized.

Flanders Drive from Mira Mesa Boulevard to Keoki Street\*

This facility is important because it provides for an east-west connection across a majority of the community that is parallel to the major arterial, Mira Mesa Boulevard, but provides a lower stress environment for bicyclists. Along this particular segment there are existing bike lanes; it is recommended to add a buffer for the bike lanes to provide more separation between motorists and bicyclists. It should also be noted that the portion of Flanders Drive between Mira Mesa Boulevard and Camino Santa Fe is proposed to have a road diet reducing travel lanes from four lanes to two lanes with a two-way left turn lane. Cross-section depicting this segment of Flanders Drive can be found in **Appendix C**. Implementation of this facility may repurpose approximately 180 feet of on-street parking near Keoki Street to provide buffered bike lanes in both directions along the roadway.

Camino Ruiz from Calle Cristobal to New Salem Street (southbound only)

There is an existing southbound bike lane along this segment of Camino Ruiz. Due to fronting residences, it is recommended to retain parking along the west side, in front of single-family homes, and provide a buffer for bicyclists from motorists travelling southbound along Camino Ruiz. If enough roadway width exists buffers on both sides of the bike lane would be preferred prevent “dooring” issues some bicyclists



may experience when people open their car door. This facility is part of a system of bicycle facilities that will provide a low-stress north-south bicycle connection to parks, schools, shopping centers, and employment areas located near Miramar Road. Implementation of this facility would require narrowing lane widths and striping a buffer between the southbound outermost travel lane and the bike lane.

Miramar Road from western community boundary to Camino Ruiz (westbound only)\*

The majority of this roadway has an existing bicycle lane in the westbound direction. Miramar Road is a high-speed high-volume roadway with a large number of heavy vehicles. As such, a two-way Class IV bikeway is proposed along the south side of the corridor. However, the westbound bike lane is also proposed to serve short trips for a bicyclist to access their destination after travelling eastbound on the Class IV bikeway, or for bicyclists who feel comfortable riding under these conditions in order to have more direct and faster access to their destination. This corridor connects many different business developments on the north side. Implementation of this facility would require narrowing of lane widths in some segments and, where feasible, striping a buffer from the travel lane.

Carroll Road from Camino Santa Fe to Miramar Road\*

This segment of Carroll Road runs through industrial land uses and is part of connection intended for employees to access their place of employment in the Miramar Industrial Employment Area as well as lunch and evening activities in the area. Implementation of this facility would require repurposing 2,380 feet of on-street parking for buffered bike lanes. In addition, the bicycle treatment crossings at the intersections with Camino Santa Fe and with Miramar Road should be improved.

Westonhill Drive from Gold Coast Drive to Mira Mesa Boulevard\*

This facility would repurpose approximately 3,100 feet of on-street parking along both sides of the segment for a buffered bicycle lane. There are no fronting residences along this segment; however, it is a highly residential area and parking removal may not be feasible. This facility will connect bicycle facilities along Mira Mesa Boulevard and Gold Coast Drive. Implementation of this facility would require repurposing on-street parking for buffered bicycle lanes. If on-street parking removal is not feasible, a Class III bike route would suffice.

Capricorn Way from Westview Parkway to Black Mountain Road

This facility would provide a connection between two north-south running Class IV bikeways along Black Mountain Road and Westview Parkway. It also provides a direct connection to a park and maintains angle parking which is utilized during sport events and other park activities year-round. Implementation of this facility would require the removal of the center turn lane in order to install bike lanes in each direction. It is recommended to convert the existing angle parking to reverse angle parking in order to improve the visibility of bicyclists utilizing the bike lane and reduce conflicts with parked vehicles pulling into the travel lane.

Galvin Way from Westview Parkway to Black Mountain Road\*

This facility would repurpose 166 feet of on-street parking for a bicycle facility. This facility would provide a connection between two north-south running Class IV bikeways along Black Mountain Road and Westview Parkway. It also provides a direct connection to a school. Implementation of this facility would require repurposing on-street parking for buffered bicycle lanes.

Black Mountain Road from Hillery Drive to Kearny Villa Road (northbound only)



This facility would provide a northbound connection from the Miramar Gateway CPIOZ to the Mira Mesa Gateway CPIOZ. It would revitalize and add to the existing bike infrastructure, which is currently inconsistent and outdated. The new buffered bike lane would pass by and connect residents to Hourglass Community Park, San Diego Miramar College, and Walker-Wagenheim Neighborhood Park. Some on-street parking will be removed to provide proper space for the buffered bike lane facility.

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

### Class III Bike Routes

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 an option due to the adjacent residential land uses.

The following Class III bike routes are proposed for the Mira Mesa 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. Implementation of traffic calming and speed management measures would require a site-specific study to determine impacts of diverted traffic caused by speed and volume management measures which could include any of the following: traffic circles, traffic diverters, road humps, pop outs (bulb outs) among other measures.

#### Wateridge Circle from Lusk Boulevard (E) to Lusk Boulevard (W)

Water Ridge Circle borders both a business center and a residential community. The road is a two-way street with a center median and street vegetation located right outside of the Barnes Canyon CPIOZ area. The project proposes this segment to have a Class III bike boulevard that would add traffic calming measures to keep this street at a slow speed. Due to the steeper grade of this road, speed cushions would be recommended in order to maintain the slow speed required for the bicycle boulevard. The Class III bicycle boulevard would be ideal for this stretch to maintain on-street parking for the residential, office, and industrial space around it, while providing adequate bike facilities for those who may want to commute to work using alternative forms of transportation.

#### Pacific Mesa Boulevard from Pacific Heights Boulevard to Pacific Center Boulevard

This segment crosses through office and industrial facilities in the Pacific Heights CPIOZ area. It currently has a posted speed of 35 mph, a center median, and access driveways to many of the working facilities. The project proposes a Class II bike boulevard for this segment. However, to maintain the safety of the bicyclists along this route, traffic calming measures would be recommended to bring the speed down to at least 25 mph. Speed cushions could be one way of addressing this issue. Further, pop outs (bulb outs) can increase vehicle caution around driveways and bring more awareness to pedestrians and bicyclists.

#### Sequence Drive from Mira Mesa Boulevard to Camino Santa Fe



This segment runs along an area made of mainly industrial and office spaces. It is located in the Sorrento Mesa Rim CPIOZ area. already has a low speed of 25 mph. Between Mira Mesa Boulevard and just west of Flanders Drive, this segment has no on-street parking. These existing conditions are ideal for adding a Class III bicycle boulevard. Once Sequence Drive turns into Top Gun Street, on-street parking and a speed limit of 30 mph indicate a need for additional traffic calming measures to ensure bicyclist safety.

#### Gold Coast Drive from Parkdale Avenue to Westonhill Drive

This segment is primarily residential and provides direct access to three schools and one park. Due to narrow roadway widths and the need to maintain parking for single family residences, it is recommended to implement traffic calming and/or volume management measures in order to keep speeds at or below 25 mph and reduce the volume of traffic to a level that would feel more comfortable for bicyclists. This facility is envisioned as a route for school-aged children to bike to school as well as the park. This would reduce the number of vehicles travelling along Gold Coast as school trips could be made by bike rather than by vehicle.

#### Flanders Drive from Parkdale Avenue to Keoki Street

This segment is primarily residential and provides direct access to Jonas Salk Elementary school and Maddox park. It will also connect to another bicycle facility that leads to Challenger Middle School on Parkdale Avenue. Due to narrow roadway widths and the need to maintain parking for single family residences, it is recommended to implement traffic calming and/or volume management measures in order to keep speeds at or below 25 mph and reduce the volume of traffic to a level that would feel more comfortable for bicyclists. This facility is envisioned as a route for school-aged children to bike to school and the park as well as employees residing in Mira Mesa’s residential neighborhood who work in Sorrento Mesa.

#### Gold Coast Drive from Westonhill Drive to Maya Linda Road

This segment has fronting single family residential and provides direct access to Wangenheim Middle School and Hourglass Community Park. It also provides a connection to Miramar Community College and connects west to more schools and parks. Due to narrow roadway widths and the need to maintain parking for single family residences, it is recommended to implement traffic calming and/or volume management measures in order to keep speeds at or below 25 mph and reduce the volume of traffic to a level that would feel more comfortable for bicyclists. In addition, an emphasis should be placed to improve bicycle treatment crossing at the intersection of Black Mountain Road and Gold Coast Drive.

#### Hillery Drive from Marauder Way to Black Mountain Road

This segment has residential (single and multi-family) fronting along the entire segment and provides direct access to Walker Elementary and Mira Mesa High School. Due to existing traffic-controlled intersections, it is recommended to implement speed management measures in order to improve comfort and attract more bicyclists along this facility. Both of the schools are neighborhood schools, and the intent is to encourage students to bike to school rather than contribute to congestion in Mira Mesa by being driven.

#### San Ramon Drive from Gold Coast Drive to Marauder Way



This segment is primarily residential and provides direct access to two schools: Mira Mesa High School and Mason Elementary School. Due to narrow roadway widths and the need to maintain parking for single family residences, it is recommended to implement traffic calming measures in order to keep speeds at or below 25 mph which would feel more comfortable for bicyclists. This facility is envisioned as a route for school-aged children to bike to school.

Carroll Park Drive/Brown Deer Road from Carroll Road (N) to Carroll Road (S)

This segment is within the Sorrento Mesa employment area and is part of connection intended for employees to access their place of employment as well as lunch and evening activities in the area. Due to high parking occupancy along this roadway, a shared facility is recommended along this segment.

New Salem Street from End of Roadway to Mira Mesa Boulevard

This segment is primarily residential along the north side and has a community park, library, and fire station along the south side. It serves as a direct connection to these community and civic uses as well as a connection from residential to Mira Mesa High School across Mira Mesa Boulevard. There are several existing traffic calming features along this segment such as, angle parking, raised crosswalk, pop-outs/curb extensions that reduces vehicular speeds and provides a comfortable bicycling experience. Additional traffic calming features should be explored along the western portion of this segment (near the library and fire station) to ensure that vehicular speeds remain low.

Alcamo Road from Parkdale Avenue to Montongo Street

This segment is a residential street in a school zone. It is close both Hickman Elementary School and Challenger Middle School. The Community Plan Update recommends this segment to be a Class III bicycle boulevard to form a dedicated path for bike users that may need to travel between the two schools. Slowing the speed of this street by lowering the posted speed to 15 mph and adding speed cushions could make this passage safer for the young pedestrians and bicyclists accessing these schools.

Parkdale Avenue from Dancy Road to Gold Coast Drive

This segment connects a Class II bike lane to key community areas such as Jonas Park Elementary School and Maddox Park. A bicycle boulevard is proposed here to bridge the gap between the facilities and continue the connection to the Gold Coast Drive Class III bicycle boulevard. Because of its proximity to an elementary school, it is the ideal place to implement traffic calming measures, so that both students and bicyclists can be safe when traversing the roads in this area.

Westmore Drive / Marbury Avenue from Montongo Street to Hillery Drive

This long segment traverses through residential neighborhoods and passes many key areas. It begins close to Hickman Elementary School, travels east past the Mira Mesa Little League Fields, and ends at the Mira Mesa Gateway CPIOZ. By making this segment a Class III bicycle boulevard, residents will have a dedicated path to get to the businesses and services in that CPIOZ area. Going through residential neighborhoods, this segment already has a slower speed. The addition of traffic calming measures such as traffic circles as replacements for four-way stop residential intersections would help facilitate both bicycle and vehicle traffic along this street.

Aquarius Drive / Santa Armintha Avenue from Calle Cristobal to Westonhill Drive



Passing close to Sandburg Elementary School, the Plaza Ruiz CPIOZ, Camino Ruiz Neighborhood Park, Camino Ruiz Top trailhead, and Ericson Elementary School, this segment connects the Mira Mesa community to many places of interest. It is one of two proposed bike facilities that run along the northern section of the community, and it provides a connection to other bike facilities that lead to the center of Mira Mesa. This path is in a residential neighborhood, where speeds are already slower, but traffic calming measures to ensure bicyclist safety can increase the success of the proposed Class III bicycle boulevard.

#### Capricorn Way from Zapata Avenue to Black Mountain Road

This segment passes directly along the Plaza Ruiz CPIOZ, Mesa Viking Park, and Breen Neighborhood Park, connecting resident to both recreation and business services. Sections of this segment have traffic calming measures with speed bumps and a 15mph posted speed limit. The Community Plan Update recognizes that this can easily become a Class III bicycle boulevard, and further traffic calming measures such as traffic circles can make this facility more effective.

#### Avenida Del Gato from Aquarius Drive to Capricorn Way

This segment travels through a residential area and along the locations of interest such as Sandburg Park and Sandburg Elementary School. It provides a north-south connection between the other proposed Class III bicycle boulevards on Aquarius Drive and Capricorn Way. This facility would close a gap in the network and offer access to educational and recreational areas.

### Class IV (One-Way Bikeway)

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.

#### Sorrento Valley Boulevard/Calle Cristobal from Vista Sorrento Parkway to Camino Ruiz

Class II bike lanes exist in both directions of Sorrento Valley Blvd. However, due to high vehicle volumes and speeds, sharp roadway curvature, and steep grades, it is recommended to upgrade the bicycle facility to Class IV by installing a vertical element of separation. This would provide a lower-stress bicycle facility along a primarily residential corridor. It would also provide a low stress connection to the Camino Ruiz neighborhood park as well as many hiking trails. Implementation of a Class IV bikeway would require lane width reductions and restriping to accommodate the vertical separation.

#### Camino Santa Fe from Miramar Road to Calle Cristobal

Class II bike lanes exist in both directions of Camino Santa Fe with the exception of the segment between Miramar Road and Carroll Road which does not currently have marked bike lanes. However, due to high vehicle volumes and speeds, sharp roadway curvature, and steep grades, it is recommended to upgrade the bicycle facility to Class IV by installing a vertical element of separation. This facility would provide a north-south low-stress bicycle connection between residential neighborhoods and employment opportunities. It would also provide a low-stress connection to many east-west bicycle facilities. Implementation of a Class IV would require lane width reductions and restriping to accommodate the



vertical separation along a major portion of the roadway segment. In the southern portion of the roadway segment, approximately 4,700 feet of parking would need to be repurposed to implement the Class IV facility. Parking utilization is low along this segment during all peak periods and nearby businesses have surface parking lots to capture parking.

Mira Mesa Boulevard from Scranton Road to Aderman Avenue

Class II bike lanes exist in both directions of Mira Mesa Blvd. However, due to high vehicle volumes and speeds, it is recommended to upgrade the bicycle facility to Class IV by installing a vertical element of separation in order to provide a low-stress facility for bicyclists. This facility connects the primarily residential, eastern portion of the community to the employment and commercial uses on the western end of the community. It is a major east-west roadway and directly connects major destination points within the community. Implementation of this facility would require narrowing of lane widths and installation of a vertical element as well as conflict striping at various driveways.

Mira Mesa Boulevard from Reagan Road to Marauder Way/New Salem Street

Class II bike lanes exist in both directions of Mira Mesa Blvd. However, due to high vehicle volumes and speeds, it is recommended to upgrade the bicycle facility to Class IV by installing a vertical element of separation in order to provide a low-stress facility for bicyclists. This facility will provide a low-stress connection to the community's core area which includes many destinations points such as shopping centers, banks, restaurants, parks, and Mira Mesa High School. It is a major east-west roadway within the community and is anticipated to attract more students to bike to school and the community park. Implementation of this facility would require narrowing of lane widths and installation of a vertical element as well as conflict striping at various driveways.

Mira Mesa Boulevard from Marauder Way/New Salem Street to Westonhill Drive (westbound only)

Class II bike lanes exist in both directions of Mira Mesa Blvd. However, due to high vehicle volumes and speeds, it is recommended to upgrade the bicycle facility to Class IV by installing a vertical element of separation in order to provide a low-stress facility for bicyclists. Mira Mesa Boulevard is a major east-west roadway within the community providing connections all along the corridor. This segment also has an existing bus stop. Providing low-stress bicycle facilities is important to improving first and last mile connections to transit. Implementation of this facility would require the installation of a vertical element within the existing striped buffer.

Mira Mesa Boulevard from Greenford Drive to Westview Parkway (eastbound only)

Class II bike lanes exist in both directions of Mira Mesa Blvd. However, due to high vehicle volumes and speeds, it is recommended to upgrade the bicycle facility to Class IV by installing a vertical element of separation in order to provide a low-stress facility for bicyclists. Mira Mesa Boulevard is a major east-west roadway within the community providing connections all along the corridor. This segment also has an existing bus stop. Providing low-stress bicycle facilities is important to improving first and last mile connections to transit. Implementation of this facility would require the installation of a vertical element within the existing striped buffer as well as addressing right turn lane conflicts at signalized intersections.

Camino Ruiz from Miramar Road to New Salem Street\*





Portions of this roadway have an existing Class II bike facility, while other portions have on-street parking and/or travel lanes. This roadway is a major north-south connection within the community, providing a direct connection to schools, parks, the community library, major community shopping centers as well as residential and employment uses. Where parking is available, the utilization of parking is low during peak periods for this segment; utilization is highest near multifamily residential areas in the evening peak periods. Implementation of this facility would require repurposing approximately 5,000 feet of on-street parking.

Camino Ruiz from New Salem Street to Calle Cristobal (northbound only)\*

This facility would repurpose approximately 540 feet of on-street parking along the east side of the segment for a Class IV bikeway. While there are no residences fronting this segment, there are many residences where the side of their properties are located along this segment. This facility would continue the north-south, low-stress bicycle facility envisioned for this corridor. This segment is primarily residential and provides direct access to a neighborhood community park and hiking trails. The majority of this roadway has an existing bicycle lane in the northbound direction. This facility will connect to east-west bicycle facilities along New Salem Street, Calle Cristobal, and Mira Mesa Boulevard. This segment also has an existing bus stop. Providing low-stress bicycle facilities is important to improving first and last mile connections to transit. Implementation of this facility would require removing on-street parking.

Pacific Heights Boulevard from Carroll Canyon Road to Mira Mesa Boulevard (northbound only)\*

This facility would repurpose approximately 1,875 feet of underutilized on-street parking along the east side of the segment for a Class IV bikeway. There are no fronting businesses along this segment. Due to high vehicle volumes and steep grades that create significant speed differentials between modes, it is recommended to provide a separated bicycle facility. This will provide a low-stress bicycle facility connecting to the major employment areas to the north and tie into a major east-west bicycle facility along Carroll Canyon Road. Implementation of this facility would require removing on-street parking.

Black Mountain Road from Miramar Road to Kearny Villa Road\*

This facility would repurpose approximately 1,270 feet of on-street parking on one side of the roadway for a Class IV bikeway. This segment is envisioned to transform into a major destination point within the southern portion of the community. With this in mind, an emphasis is placed in providing a lower stress bicycle facility and low-stress bicycle connections to this segment. The current on-street parking is heavily utilized during the mid-day and evening peak periods; however, fronting businesses have surface parking lots and redevelopment in this area will also provide parking necessary for their patrons and residents. This will provide a low-stress bicycle facility connecting to the major employment in the Miramar Industrial Employment area as well as a non-motorized connection to MCAS Miramar Base and restaurants. Implementation of this facility will remove on-street parking. Implementation would require removal of one existing vehicular lane in each direction. With the implementation of a road-diet, there is opportunity for additional protection to bicyclists by providing reverse angle-parking on one side of the roadway. Reverse angle parking improves the visibility of bicyclists utilizing the bike lane and helps reduce conflicts with parked vehicles pulling into the travel lane. Additional vertical separation would be installed on the opposite side of the roadway within the recommended buffer space.

Black Mountain Road from Kearny Villa Road to Hillery Drive (southbound only)\*

There is an existing Class II bike lane along Black Mountain Road from Hillery Drive to Gold Coast Drive. Due to high vehicle speeds and volumes, it is recommended to upgrade this facility to a



Class IV bikeway. This bicycle facility will provide a lower stress connection between Wangenheim Middle School and nearby residential neighborhoods. Implementation of a Class IV facility would require repurposing 1,580 feet of on-street parking along west side of Black Mountain Road. Between Gold Coast Drive and Kearny Villa Road, there is an existing Class III bike route. Due to high traffic speeds and high volumes of vehicular traffic, it is recommended to upgrade this facility to a Class IV bikeway. Implementation would require repurposing 260 feet of on-street parking along west side of Black Mountain Road. Road widening would be required in some portions to provide room for the Class IV facility.

#### Hillery Drive from Black Mountain Road to Westview Parkway

There are existing bike lanes along this segment of Hillery Drive. This facility provides a direct connection to Miramar Community College as well as the Miramar College Transit Station. It is recommended to include a buffer between motorists and bicyclists, if feasible. Implementation of buffered bike lanes may require roadway widening.

#### Westview Parkway from Galvin Avenue to Black Mountain Road\*

This facility would repurpose 3,430 feet of underutilized on-street parking along both sides of the segment to provide Class IV bikeways. This segment runs through mostly residential land uses near Willard B. Hage Elementary School. Adding Class IV bikeways along this roadway would help improve the first and last mile connection between Miramar College Transit Station and residential neighborhoods along Westview Parkway. Implementation would require repurposing on-street parking. Minor road widening may be required in some portions.

#### Activity Road from Camino Ruiz to Black Mountain Road\*

This facility would repurpose 2,725 feet of on-street parking along the south side of the segment to provide Class IV bikeways. While parking utilization is highest during the midday peak period along certain segments of this roadway, it should be noted that all adjacent employment provides on-site surface parking lots. In addition, this focus area for redevelopment will seek to reduce the on-street parking demand by providing a better balance between housing and jobs. This segment runs within mostly industrial land uses. Installing a Class IV bikeway here would help bicyclists with the first- and last-mile of their commute to job centers, restaurants, and retail nearby. Implementation of this facility would require the repurposing on-street parking.

#### Scranton Road from Morehouse Drive to Carroll Canyon Road

This segment of Scranton Road is considered a bike route; however, due to high vehicle volumes and speeds and steep grades, a Class IV bikeway is recommended in order to provide a low-stress facility for bicyclists. This bicycle facility is envisioned to provide a low-stress connection to the employment areas in Sorrento Mesa. Special consideration and attention should be paid to the bicycle facility crossing the Mira Mesa Boulevard intersection. During peak hours traffic volumes are high and this corridor is also envisioned as a transit corridor with several bus routes operating along the segment throughout the day. Implementation of this facility would require widening of the roadway; however, redevelopment is anticipated along both sides of this corridor, therefore, making it a viable option to attain class IV separated one-way facilities. Bicycle signals and priority should be explored during implementation in order to allow for bicyclists to navigate through the intersection.

#### Trade Street from Camino Santa Fe to Trade Place\*



This facility would repurpose approximately 5,770 feet of existing underutilized parking for the installation of a Class IV bikeway in each direction. In combination with the proposed Class IV bikeways on Miralani Drive, Arjons Drive, and Trade Place, this Class IV corridor would provide connections for employees to access the Miramar Industrial Employment Area by bike for commuting, lunch, or evening activities. Wide travel lanes for large vehicles (semis) need to be maintained. Implementation of this facility will require removal of on-street parking and restriping to accommodate two travel lanes, a two-way left turn lane and Class IV bikeways. In addition, an emphasis should be placed to improve bicycle treatment crossing at the intersection of Camino Santa Fe and Trade Street.

Miralani Drive from Cabot Drive to Camino Ruiz\*

This facility would repurpose approximately 2,636 feet of existing underutilized parking for the installation of a Class IV bikeway in each direction. In combination with the proposed Class IV bikeways on Trade Street, Arjons Drive, and Trade Place, this Class IV corridor would provide connections for employees to access the Miramar Industrial Employment Area by bike for commuting, lunch, or evening activities. Wide travel lanes for large vehicles (semis) need to be maintained. Implementation of this facility will require removal of on-street parking and restriping to accommodate two travel lanes, a two-way left turn lane and Class IV bikeways. In addition, an emphasis should be placed to improve bicycle treatment crossing at the intersection of Miralani Drive and Arjons Drive. When this facility is implemented, the feasibility of installing a center left turn lane should be considered.

Arjons Drive from Trade Place to Cabot Drive/Miralani Drive\*

This facility would repurpose approximately 2,659 feet of existing underutilized parking for the installation of a Class IV bikeway in each direction. In combination with the proposed Class IV bikeways on Trade Street, Miralani Drive, and Trade Place, this Class IV corridor would provide connections for employees to access the Miramar Industrial Employment Area by bike for commuting, lunch, or evening activities. Wide travel lanes for large vehicles (semis) need to be maintained. Implementation of this facility will require removal of on-street parking and restriping to accommodate two travel lanes, a two-way left turn lane and Class IV bikeways. In addition, an emphasis should be placed to improve bicycle treatment crossing at the intersection of Miralani Drive and Arjons Drive. When this facility is implemented, the feasibility of installing a center left turn lane should be considered.

Trade Place from Trade Street to Arjons Drive\*

This facility would repurpose approximately 1,930 feet of existing underutilized parking for the installation of a Class IV bikeway in each direction. In combination with the proposed Class IV bikeways on Trade Street, Miralani Drive, and Arjons Drive, this Class IV corridor would provide connections for employees to access the Miramar Industrial Employment Area by bike for commuting, lunch, or evening activities. Wide travel lanes for large vehicles (semis) need to be maintained. Implementation of this facility will require removal of on-street parking and restriping to accommodate two travel lanes, a two-way left turn lane and Class IV bikeways.

Maya Linda Road from Carroll Canyon Road to Gold Coast Drive

This facility would repurpose approximately 800 feet of existing on-street parking. While existing parking is highly utilized during evenings, surface parking lots within residential complexes should adequately cover parking demand within this area. This bike facility connects multifamily residential complexes with other bike facilities planned along Gold Coast Drive and Carroll Canyon Road to provide a full low-stress connection between the Miramar College Transit Station and the



Scripps Miramar Ranch community. Implementation of this facility will require removal of on-street parking.

Carroll Canyon Road from Nancy Ridge Road to Camino Santa Fe

This low-stress bicycle facility will provide an east-west connection with a protected bikeway through the majority of the community, providing a parallel option to Mira Mesa Boulevard. This facility will connect the employment areas along the southern and western portions of the community to new residential development at Stone Creek and 3 Roots, as well as a connection to parks and recreational facilities. Implementation of a Class IV bikeway would primarily be accomplished by private development constructing these facilities as part of the Stone Creek and 3 Roots Master Plans. Portions along unconstructed segments of Carroll Canyon Road will be included when the roadway is constructed. Areas already constructed (west of Camino Ruiz) will require repurposing of existing right-of-way prior to implementation and utilization of the landscaped walkway.

Carroll Canyon Road from Black Mountain Road to Maya Linda Road (proposed extension) \*

This facility would repurpose approximately 1,130 feet of existing on-street parking on both sides of Carroll Canyon Road to accommodate a one-way Class IV bikeway. This facility would tie into the facilities proposed across the I-15 interchange in the Scripps Miramar Ranch community to provide continuity and prevent unbraiding of the bike facility.

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

### Class IV (Two-Way Bikeway)

Class IV (Two-Way Bikeways) are similar to Class IV (One-Way Bikeways) 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.

Miramar Road from Commerce Avenue/Milch Road to I-15 (south side)

Class II bike lanes exist in both directions of Miramar Road. The existing westbound buffered bike lane will be maintained, while in eastbound direction, existing Class II bike lane would be replaced with a Class IV two-way separated bikeway. This would provide a continuous bikeway with fewer driveways to cross along south side of Miramar Road. Bicyclists travelling west could use Class II bike lane to reach businesses and retail on north side of Miramar Road while longer distance trips could use a Class IV bikeway on other side to bypass driveway conflicts. Special intersection improvements should be considered to provide safe connections across Miramar Road with other proposed bikeways at Camino Santa Fe, Camino Ruiz, Milch Road/Commerce Avenue, and Black Mountain Road. The University community plans to continue the Class I / Class IV facility along La Jolla Village Drive. When combined with a Class I or Class IV facility in Scripps Miramar Ranch, this would become a regionally significant low-stress separated facility across multiple communities.

Westview Parkway from Hillery Drive to Galvin Avenue (west side)

Class II bike lanes exist in both directions of Westview Parkway. These existing facilities would be replaced with a two-way Class IV bikeway along west side. This facility will provide a critical connection between the residential land uses on the north side of Mira Mesa Boulevard and the commercial land uses and major transit station on the south side of Mira Mesa Boulevard. It is



the intent for this facility to connect with the proposed active transportation bridge over Mira Mesa Boulevard to the east of Westview Parkway. Implementation of this facility would require repurposing 528 feet of existing on-street parking, lane narrowing in some segments, and potentially minor roadway widening on some segments. Special design considerations will be needed in order to have safe transition from a two-way Class IV bikeway into a one-way Class IV bikeway at the Galvin Avenue intersection. Adequate and clear signage and pedestrian-scaled lighting will be needed to guide bicyclists through this segment into Miramar College Transit Station and through Hillery Drive intersection.

Reagan Road/Marauder Way from New Salem Street to Mira Mesa Boulevard (east side/north side)

This facility would repurpose approximately 3,465 feet of existing on-street parking fronting commercial land uses along Reagan Road and Marauder Way. Parking utilization analysis shows that this parking is mostly at low to medium utilization rates during three peak periods analyzed.

The two-way Class IV bikeway is proposed to run along the commercial side of these roadways to provide residential connections to the major shopping center. Special design considerations should be made at the intersections with Mira Mesa Boulevard and with Camino Ruiz.

Carroll Canyon Road from Camino Santa Fe to Black Mountain Road

This low-stress bicycle facility will provide an east-west connection with a protected bikeway through the majority of the community, providing a parallel option to Mira Mesa Boulevard. This facility will connect the employment areas along the southern and western portions of the community to new residential development at Stone Creek and 3 Roots, as well as a connection to parks and recreational facilities. Implementation of a Class IV bikeway would primarily be accomplished by private development constructing these facilities as part of the Stone Creek and 3 Roots Master Plans. The proposed bikeway will briefly follow a proposed extension of Maya Linda Road to bypass Carroll Canyon Road just west of Black Mountain Road where dedicated right-of-way is too narrow the bikeway to be constructed.

Montongo Street from Acama Street to Alcamo Road

This facility would shift the roadway alignment to the east to accommodate a two-way low-stress bikeway along the west side of the roadway. The bikeway would provide connectivity between two large residential areas that are currently disconnected due to the canyons, and provide access for residents to many schools and parks.

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

### Shared Bus-Bike Lane

Mira Mesa Boulevard from Dabney Drive to Reagan Road

This facility would introduce a shared bus-bike lane for a small portion of Mira Mesa Boulevard where right-of-way is extremely constrained, and acquiring additional right-of-way is infeasible as it would require purchasing portions of homeowner’s property along the entire segment. Mira Mesa Boulevard is a major east-west connection for the community and provides a direct access to shopping centers, Mira Mesa High School, and the employment center in Sorrento Mesa.



Implementation of this facility may require relocation of some bus stops in order to create an efficient segment for bicyclists, and coordination with MTS is encouraged.

### Urban Pathways

As mentioned in **Section 3.2.2**, a series of urban pathways have been identified in the Proposed Plan to support the vision for a vibrant and walkable employment and residential environment in Mira Mesa. These are wide, urban paths located parallel to the roadways along the focus area frontage, intended to create a stronger bicycle and pedestrian grid network.

These ancillary facilities will be constructed through the development process and are therefore located in the concentrated redevelopment areas of the Urban Villages and CPIOZ.

### Intersection Improvements

#### Bicycle Signal Phasing

Bicycle signal phasing is recommended to improve bicyclist safety, efficiency, and compliance at signalized intersections. Bike signal phasing is recommended at all intersections where Class IV bikeways intersect, which accounts for a majority of the signals in the community.

#### Protected / Dedicated Intersections

Protected intersections provide many safety benefits for bicyclists 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 bicyclists, and providing a physically separated space for bicyclist to wait for a green light to proceed through the intersection. Protected intersection treatments could be implemented through the following mechanisms, as appropriate: repurposing existing public right-of-way (ROW), coordinating with abutting property owners, or having developers implement the adjacent improvement based on the supplemental development regulations and incentives outlined in the CPIOZ. At the project level when more information is available, modifications to improvements identified may be considered by the City.

Similar protected intersections, dedicated intersections provide many safety benefits for bicyclists at intersections, but are applicable at locations where less right-of-way is available. Dedicated intersections increase safety for people biking by eliminating the mixing zone with right-turning vehicles. One of the key features of a dedicated intersection is a raised corner wedge and speed bump that help prevent high-speed turns and are expected to improve driver yielding. Dedicated intersections clearly indicate the intended path of bicyclists and provide clear boundaries between the paths of people riding bikes and people driving cars or walking, reducing conflict.

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

- Black Mountain Road at Activity Road
- Black Mountain Road at Kearny Villa Road/Carroll Centre Road
- Black Mountain Road at Maya Linda Road
- Black Mountain Road at Carroll Canyon Road
- Camino Ruiz at Carroll Canyon Road
- Camino Santa Fe at Calle Cristobal/Sorrento Valley Boulevard
- Camino Santa Fe at Mira Mesa Boulevard
- Camino Santa Fe at Carroll Canyon Road
- Mira Mesa Boulevard at Pacific Heights Boulevard



## 3.4 Transit

### 3.4.1 Identified Transit Needs

The City of San Diego’s General Plan highlights the “City of Villages Smart Growth” strategy which focuses on 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 choose transit rather than single-occupancy vehicle trips. Mira Mesa has several transit routes currently operating within the community and one major transit station.

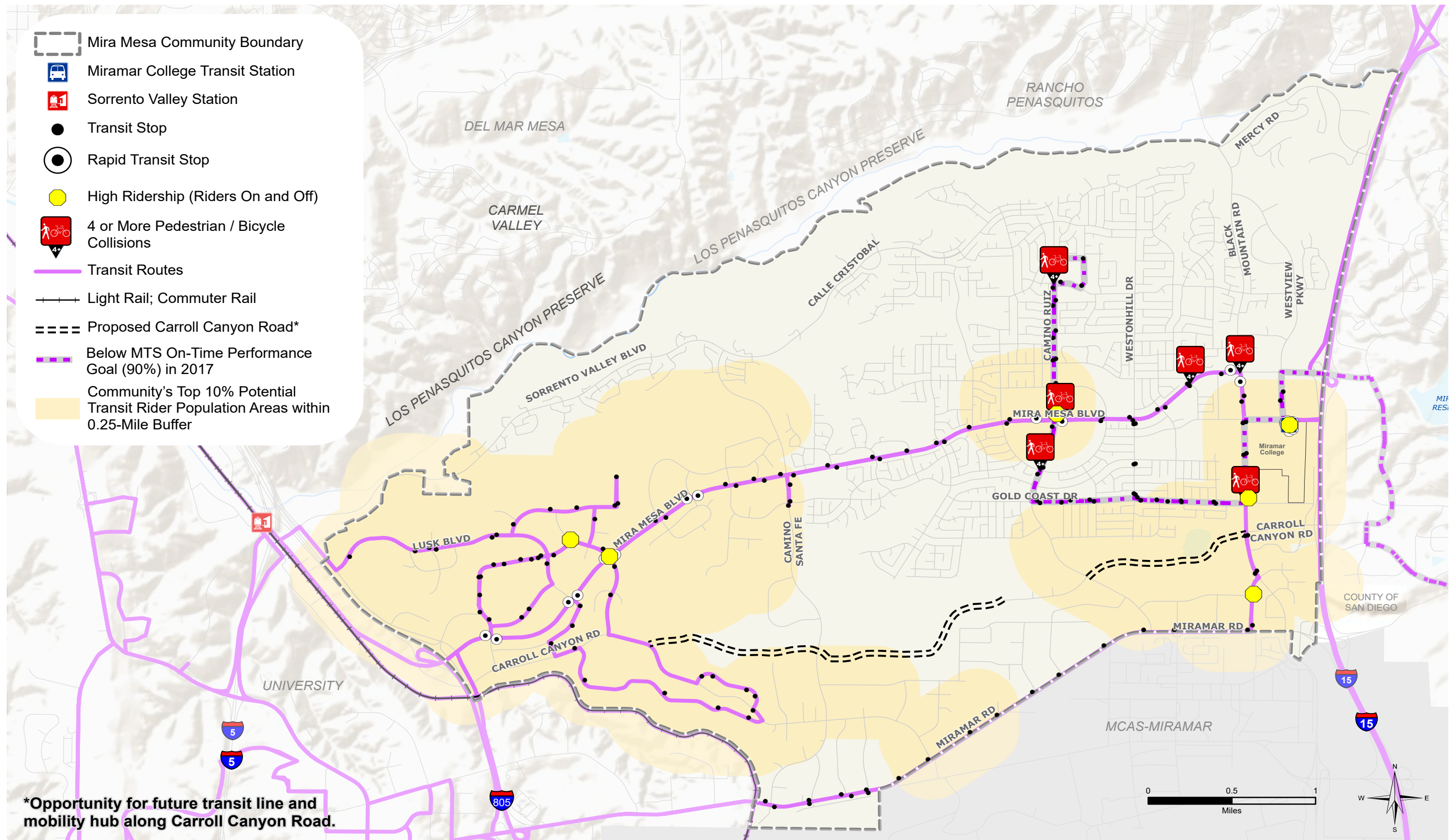
The Miramar College Transit Station is currently the only major transit station located within the community. The Sorrento Valley Station is located just outside of Mira Mesa, west of the community boundary, but it provides a major connection to Mira Mesa’s transit system and overall transportation network. The Sorrento Valley Station serves the only rail line near the community that provides regional access. Private shuttle services are also being utilized by some of the larger employers in the Sorrento Mesa area providing service between the Sorrento Valley Coaster Station and the employment buildings. Currently the private shuttles are independently operated and are not shared resources between different employers. SANDAG continues to evaluate operations of the Sorrento Valley Coaster Station; several studies have been conducted to understand benefits of relocating the existing Coaster Station and/or elevating the station. Most of the bus routes serving the community are focused on connecting to employment areas within the City from a major transit station for access to other bus routes, trolley lines and regional services. Mira Mesa Boulevard services three bus routes all of which terminate or travel through the Miramar College Transit Station.

The route with the highest ridership within the community runs east-west along Mira Mesa Boulevard between the University of California San Diego and the Miramar College Transit Station. This route services the employment areas in Sorrento Valley during the weekdays only, and services the retail and recreational areas near Mesa Verde Park. The second highest ridership route connects Mira Mesa neighborhoods and destinations to Scripps Ranch neighborhoods and nearby destinations. These two highest ridership routes show the desire for connections between Mira Mesa and adjacent communities.

Transit needs in Mira Mesa are primarily a result of congestion along major corridors during commute peak periods leading to poor on-time performance as well as safety issues near transit stations. Improving transit reliability along key transit corridors by providing transit lanes and adequate bus stop amenities will greatly benefit transit riders and encourage more transit use in Mira Mesa. **Figure 3-6** illustrates transit needs in Mira Mesa.



Figure 3-6



\*Opportunity for future transit line and mobility hub along Carroll Canyon Road.

Transit Needs





**Transit Reliability**

Three of Mira Mesa’s nine transit routes currently fall below their respective on-time performance goals (It should be noted that two transit routes did not disclose their on-time performance for the study period). **Table 3-1** shows on-time performance (OTP) rates provided by the 2019 MTS Annual Service Performance Monitoring 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. Inadequate on-time performance could be attributed to traffic congestion because there are currently no dedicated transit priority treatments in Mira Mesa and buses are frequently stuck in the same congestion as general-purpose vehicles. 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 3-1 Mira Mesa Transit Performance**

Route	Goal	On-Time Performance
20 Downtown San Diego – Miramar College Transit Station	90%	85%
31 University community – Miramar College Transit Station	90%	83%
110 Downtown San Diego – Miramar College Transit Station and Camino Santa Fe & Flanders Dr	90%	90%
235 Downtown San Diego – Miramar College Transit Station	85%	88%
237 University community – Miramar College Transit Station	85%	90%
921 UTC – Miramar College Transit Station	85%	85%
964 Scripps Ranch – Miramar College Transit Station	90%	90%
972 Sorrento Valley Station – Sorrento Mesa	90%	–
973 Sorrento Valley Station – Carroll Canyon	90%	–

Note: Red shade indicates route does not meet performance goals  
 Source: FY2019 MTS Performance Monitoring Report

**Connectivity to Transit**

To access the transit system, passengers in the community must walk or bike to a transit stop. High-stress walking and biking environments, as well as gaps in the bicycle and pedestrian networks limit the number of areas accessible by transit and negatively affect transit ridership. First-mile/last-mile connections in the community are vital to the success of the transit network. As previously stated, Miramar College Transit Station is the only major transit station within the community, and seven of the nine transit routes within the community stop there. High stress bicycle facilities and limited pedestrian crossings to and from the transit station to nearby employment have presented challenges for transit riders in the area.



### Quality of Transit Stops

MTS identifies specific amenities that are required at each transit stop according to the number of transit passengers that are serviced (total boarding) at each bus stop. Within Mira Mesa, there were 168 stops assessed, of which 57 do not currently meet the station amenities standards based on existing ridership data, which is anticipated to increase with the multi-modal investments included in the Proposed Plan. Many of the transit stops did not meet accessibility requirements. These deficiencies are important to address as the disabled population is one of the most vulnerable and often rely on transit the most.

### Transit Rider Safety

Historic collision data was analyzed for the five-year study period from October 2012 through September 2017. The analysis revealed that several intersections in Mira Mesa within 500 feet of a transit stop have had a pedestrian – and bicycle-involved collision. The following transit stop intersections had the highest collisions involving pedestrian and/or bicyclists:

- Mira Mesa Boulevard and Westview Parkway
- Mira Mesa Boulevard and Westmore Road/Marbury Avenue
- Mira Mesa Boulevard and Camino Ruiz
- Mira Mesa Boulevard and Black Mountain Road

These intersections have some of the community’s highest levels of ridership and highest vehicle volumes.

## 3.4.2 Planned Transit Improvements

### Regional Plans

#### SANDAG 2021 Regional Plan

SANDAG’s 2021 Regional Plan identifies several transit improvements within the Mira Mesa community and surrounding area with the vision of 13% of commuters using transit by horizon year 2050. The following are planned transit projects identified in the 2021 Regional Plan to increase mobility connections for the Mira Mesa community and are included in the Proposed Plan:

- Rapid 235 from Escondido to Downtown San Diego, running through Mira Mesa
- Double tracking for Coaster with peak frequencies of 20 minutes
- Rapid 30 Bus service from Balboa Station to Sorrento Mesa
- Rapid Route 237 bus service from UC San Diego to Rancho Bernardo via Sorrento Valley and Mira Mesa
- Rapid Route 238 bus service from UC San Diego to Rancho Bernardo via Sorrento Valley and Carroll Canyon
- Rapid Route 890 bus service from El Cajon to Sorrento Mesa via Santee, SR-52, and I-805
- Commuter rail from Sorrento Mesa to National City via UTC Kearny Mesa and University Heights
- Commuter rail from Oceanside to Downtown via Sorrento Mesa and UTC
- Rapid route 104 bus service from Sorrento Valley to Sabres Spring via SR-56
- High frequency bus rapid route along Carroll Canyon Road
- Bus service frequency enhancements for routes 31, 237, 921, 972, and 973

### Microtransit Recommendations



Microtransit includes shared on-demand operators utilizing a wide range of vehicle types. There are two types of Microtransit recognized in the region, minivans/minibuses and Neighborhood Electric Vehicles (NEV). NEV Microtransit operators utilize smaller, lower speed battery powered EVs that typically carry up to 6 passengers in an open-air vehicle. NEV Microtransit vehicles are permitted to operate on streets with speed limits of 35 miles per hour or less. NEV Microtransit is sustainable and convenient for short trips within a community.

In 2018, SANDAG sponsored Senate Bill 1151 to authorize any city within the San Diego County to establish a NEV transportation plan. The plan identifies where NEVs can safely operate in a community in addition to opportunities for implementation of NEV infrastructure including parking, dedicated lanes, and shared bicycle/NEV lanes. The shared bicycle/NEV lanes identified in the Proposed Plan include the following corridors:

Sorrento Valley Parkway / Calle Cristobal  
Camino Santa Fe



Figure 3-7 displays the transit network under Proposed Plan conditions.

### Sorrento Valley Transit Station Relocation

Relocation of the Sorrento Valley Station has 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-mile and last-mile improvements for access to the Sorrento Valley employment center.

### Sorrento Valley Skyway

The steep terrain characteristic of the canyons and valleys of Mira Mesa limit the feasibility of additional roadway connections in and out of Mira Mesa. Skyways, which are also referred to as aerial cableways, trams, or gondolas, offer a potential solution that can traverse natural obstacles while requiring a limited right-of-way. Connectivity between the Mira Mesa and University communities is very desirable. However, the I-805 freeway presents a major barrier for making this connection. SANDAG performed a feasibility study in 2017 for the Sorrento Valley Skyway connection between the Mid-Coast transit station in University City and the Sorrento Valley employment area in Mira Mesa. The Proposed Plan also proposes to extend the aerial skyway further into the heart of the community, to the Mira Mesa Town Center area near the Camino Ruiz and Mira Mesa Boulevard intersection.

### Transit Priority Improvements

#### SMART Corridors

SMART corridors incorporate flexible lanes and emerging technology, such as transit signal priority and adaptive signal timing to increase person throughput. The Proposed Plan incorporates SMART corridors to further SANDAG's 5 Big Moves Strategy. The Proposed Plan includes three SMART corridors along Mira Mesa'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 during peak periods.

- Mira Mesa Boulevard
- Carroll Canyon Road
- Miramar Road

#### Flexible Lanes

Flexible lanes provide dedicated roadway space for any combination of non-single occupancy vehicles, including transit only lanes or high-occupancy vehicle lanes. Depending on how the flexible lane is designated, it can improve transit reliability and increase ridership. Flexible lanes were identified for the Mira Mesa Community Plan based on existing traffic congestion patterns, transit routes, ridership, and roadway capacity.

Although the ultimate designated lane use is not defined in this report, the regional model is only able to model transit-only lanes. Therefore, the following corridors with flexible lanes proposed were identified for transit-only lanes:

- Mira Mesa Boulevard



Barnes Canyon Road / Scranton Road  
Carroll Canyon Road  
Pacific Heights Boulevard  
Lusk Boulevard

The remaining flexible lane corridors identified below could also be designated as transit-only lanes, or they could be designated for high-occupancy vehicle lanes if transit connections are made available or more frequent along these corridors. These corridors have the potential to benefit from a Community Circulator type of service that provides access for residents and employees to key destinations for activities while reducing roadway and parking congestion. Community circulators can be a traffic-mitigating community amenity and are often implemented through various sources of financing, such as by conditions established during a development's approval process, through business district support, or by private financing.

Camino Ruiz  
Westview Parkway  
Miramar Road

### Mobility Hubs

Mobility hubs are places where different travel options intersect. They provide an integrated suite of mobility services, amenities, and supporting technologies to better connect high-frequency transit to an individual's origin of destination. The 2021 Regional Plan includes 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 Regional Plan identifies a majority of the community as a mobility hub in the broader sense of the term, while this Proposed Plan supports the Regional Plan by identifying specific transit stop locations that would benefit from consolidating multiple mode choices into a single location. The mobility hubs identified in the Proposed Plan include:

Sorrento Valley Coaster Station (relocated)  
Mira Mesa Boulevard and Pacific Heights Boulevard  
Mira Mesa Boulevard and Genetic Center Drive  
Mira Mesa Boulevard and Camino Ruiz  
Carroll Canyon Road and Camino Santa Fe  
Miramar College Transit Center

### Transit Signal 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:

Mira Mesa Boulevard (SMART Corridor) between I-805 to I-15;  
Carroll Canyon Road (Center Running Bus Rapid Transit) from Camino Santa Fe to Black Mountain Road



Miramar Road  
Pacific Heights Boulevard  
Black Mountain Road  
Camino Ruiz  
Vista Sorrento Parkway  
Pacific Center Boulevard  
Pacific Mesa Boulevard

#### Microtransit Recommendations

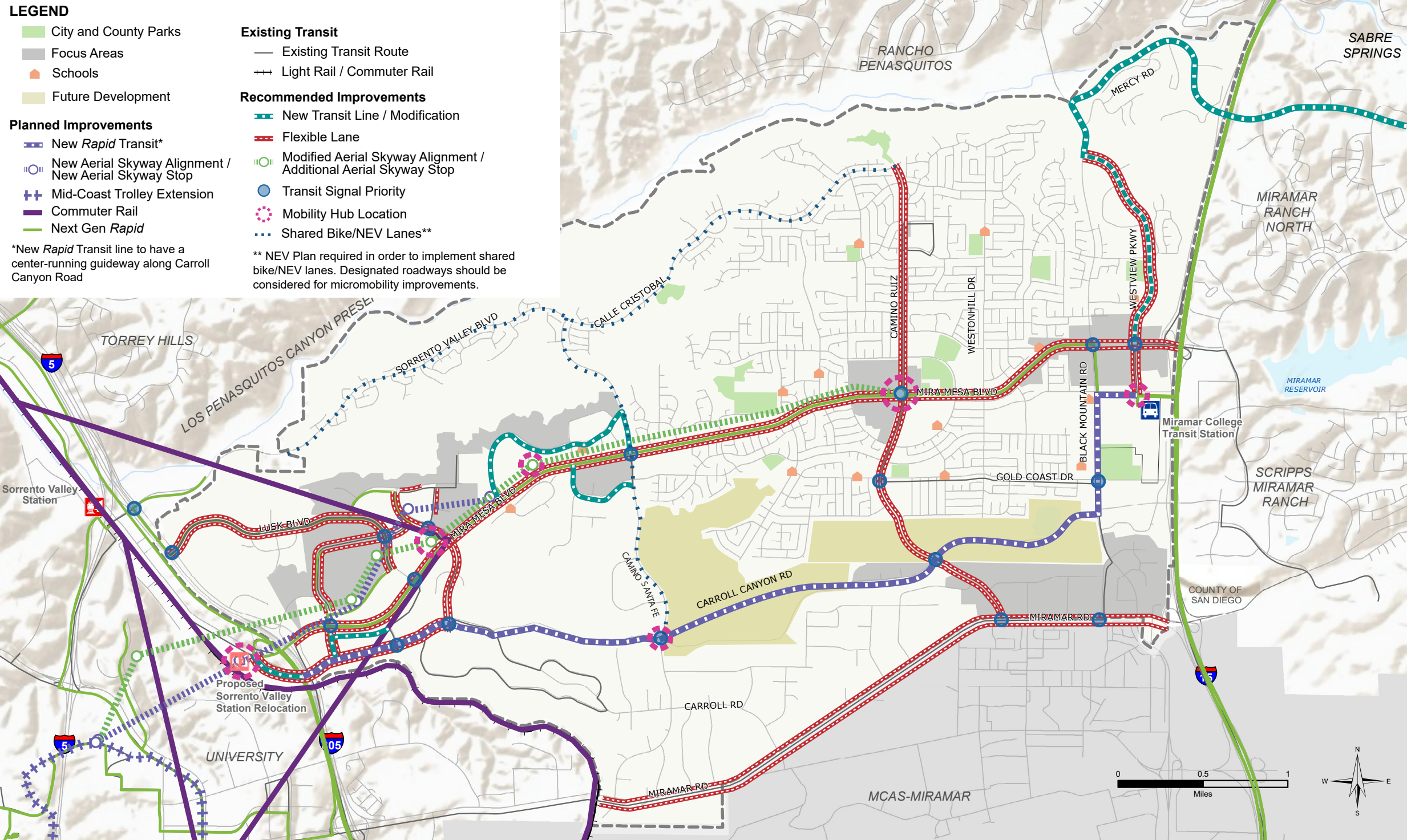
Microtransit includes shared on-demand operators utilizing a wide range of vehicle types. There are two types of Microtransit recognized in the region, minivans/minibuses and Neighborhood Electric Vehicles (NEV). NEV Microtransit operators utilize smaller, lower speed battery powered EVs that typically carry up to 6 passengers in an open-air vehicle. NEV Microtransit vehicles are permitted to operate on streets with speed limits of 35 miles per hour or less. NEV Microtransit is sustainable and convenient for short trips within a community.

In 2018, SANDAG sponsored Senate Bill 1151 to authorize any city within the San Diego County to establish a NEV transportation plan. The plan identifies where NEVs can safely operate in a community in addition to opportunities for implementation of NEV infrastructure including parking, dedicated lanes, and shared bicycle/NEV lanes. The shared bicycle/NEV lanes identified in the Proposed Plan include the following corridors:

Sorrento Valley Parkway / Calle Cristobal  
Camino Santa Fe



Figure 3-7



Transit Network – Proposed Plan Conditions



## 3.5 Street and Freeway System

### 3.5.1 Identified Vehicular Needs

Streets and freeways comprise the framework of our transportation system and play a major role in shaping the quality of life within the community. When the street system is plagued by congestion and collisions, it can have a major impact on the community. An imbalanced job to housing ratio can create a strain on the transportation system and cause high levels of congestion during the peak periods as the majority of the community has the same home to work and work to home travel patterns and timeline. Better jobs-housing balance can help alleviate some of the congestion experienced in Mira Mesa especially near the Sorrento Mesa employment areas.

Freeways and major roadways such as Mira Mesa Boulevard experience high levels of traffic during peak periods especially near I-15 and I-805. Miramar Road experiences high levels of traffic near I-15 as well as a mix of heavy vehicular traffic. Although it's important to meet the needs of drivers when it's needed most, large roadways that are designed for solely peak period traffic can lead to unsafe conditions during the off peak. Wide roadways can lead to higher speeds and unsafe driving behaviors off peak which can be potentially fatal for not just motorists but pedestrians and bicyclists as well. Connectivity is also very important in a transportation system. Having multiple ways to get to a destination creates a more efficient transportation system as traffic is dispersed among several roadways and intersections rather than concentrated along one single roadway and/or intersection.

Mira Mesa is easily accessible by freeway, as it is bounded by I-15 and I-805 on the east and west. Access from the north is limited by Penasquitos Canyon and from the south by MCAS Miramar. Since north-south access is limited, key east-west roadways are heavily utilized for residents and visitors. A series of traffic calming enhancements are needed along residential corridors that serve as connections to key destinations 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. **Figure 3-8** identifies needs on the transportation system for vehicles highlighting the roadways and intersections that currently operate at level of service (LOS) D or below and intersections with high numbers of historical collisions.

#### **Quality – Arterials**

Although Mira Mesa is readily accessible by freeway, roadways that directly serve freeway ramps can be prone to delay during the peak hours. In particular on the west side of the community where there are only two access points into the community. In the morning and midday peak hours, congestion occurs along freeway-serving roadways as employees living in other communities travel to jobs in Mira Mesa. Then in the evening, the surface street becomes congested as employees access freeways for outbound travel. These high vehicular traffic volumes result in a number of roadway segments operating at LOS E or F, including:

- Sorrento Valley Boulevard
- Lusk Boulevard
- Mira Sorrento Place
- Scranton Road / Barnes Canyon Road
- Pacific Heights Boulevard
- Mira Mesa Boulevard
- Carroll Canyon Road





Carroll Road  
Nancy Ridge Drive  
Miramar Road  
Camino Santa Fe  
Parkdale Avenue  
Westmore Road  
Gold Coast Drive  
Westonhill Drive  
Aquarius Drive  
Capricorn Way  
Libra Drive  
Black Mountain Road  
Hillery Drive  
Activity Road  
Westview Parkway  
Maya Linda Road

#### **Quality – Intersections**

Under existing conditions, a total of 22 intersections were found to operate at a LOS E or F during the AM or PM peak hour.

#### **Safety**

Several intersections within Mira Mesa were reported to have higher numbers of vehicular collisions within the five-year study period between October 2012 to September 2017, including:

Mira Mesa Boulevard and Westview Parkway  
Mira Mesa Boulevard and Black Mountain Road  
Mira Mesa Boulevard and Camino Ruiz  
Miramar Road and Camino Ruiz  
Miramar Road and Carroll Road  
Miramar Road and Black Mountain Road  
Mira Mesa Boulevard and Scranton Road  
Miramar Road and Kearny Villa Road  
Mira Mesa Boulevard and Marbury Avenue / Westmore Road  
Miramar Road and Camino Santa Fe

#### **Parking**

Roadways in Mira Mesa with high rates of observed on-street parking occupancy (over 85%) during one or more peak periods are generally located in the central portion of the community near retail, commercial, light industrial, or office land uses, as shown in **Figure 3-9** and **Figure 3-10**. In particular portions of major community corridors and connectors are found to have high parking occupancy, such as Scranton Road, Pacific Heights Boulevard, Pacific Center Boulevard, Pacific Mesa Boulevard, Carroll Road, and Activity Road. Many additional secondary community roadways also exhibit high on-street parking occupancy. Parking management strategies should be considered in key urban villages and

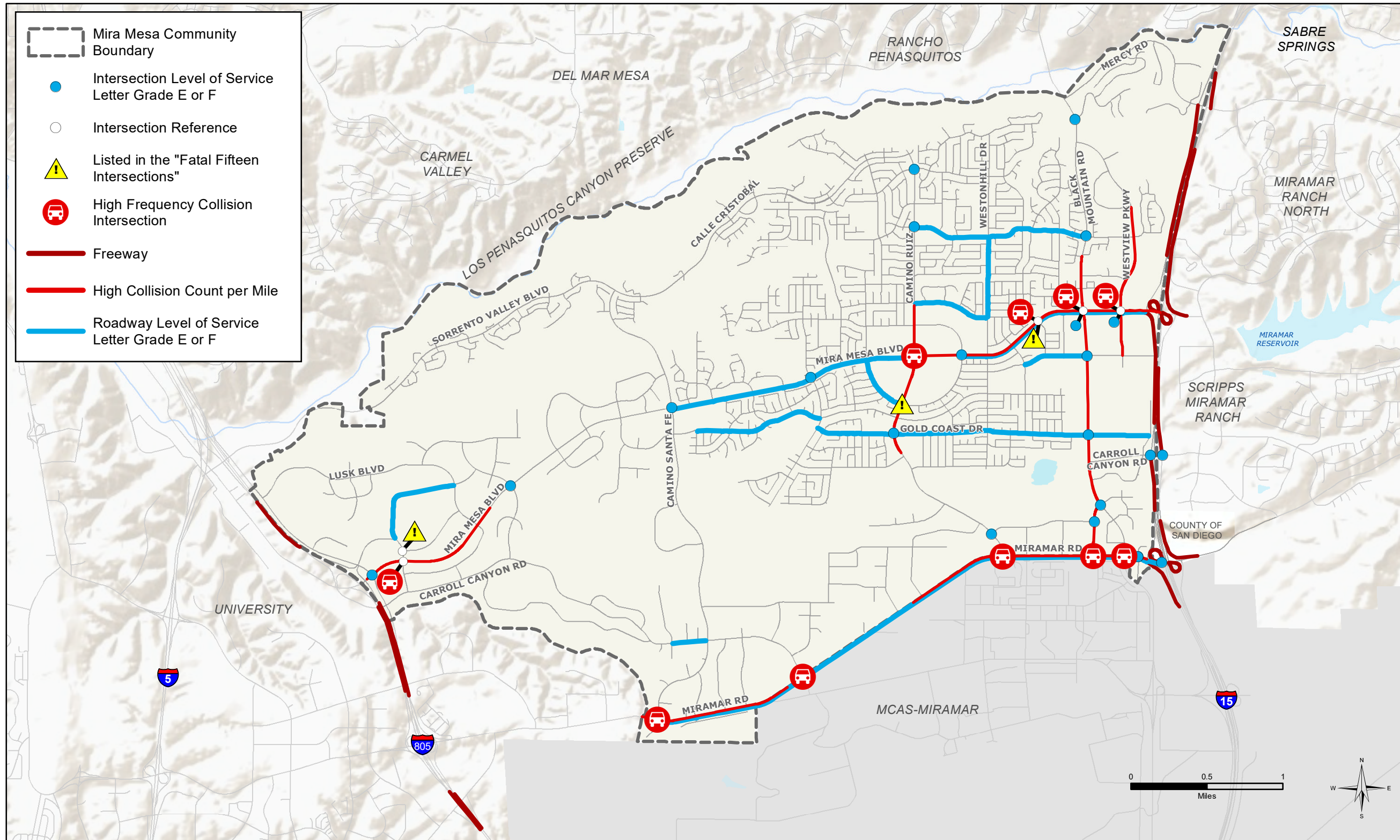


corridors to help manage parking supply and demand. Parking mechanisms such as time-limited parking or charged parking could alleviate on-street parking demands through the establishment of a community parking district. Revenue from parking mechanisms within these districts may be used to implement solutions such as wayfinding signage and community circulators. Community-serving circulators connecting residential areas and employment centers along corridors such as Camino Ruiz and Westview Parkway could reduce the high parking demand. In addition, park-once or unbundled parking strategies can also help to alleviate on-street parking demands.

The City recently adopted new parking regulations for transit priority areas (areas within a 0.5-mile of high frequency transit) to help right size the amount of space dedicated to parking for several land uses. Providing jobs and housing within close proximity to transit can help to reduce the demand for driving which in turn reduces the demand for storing vehicles (parking).



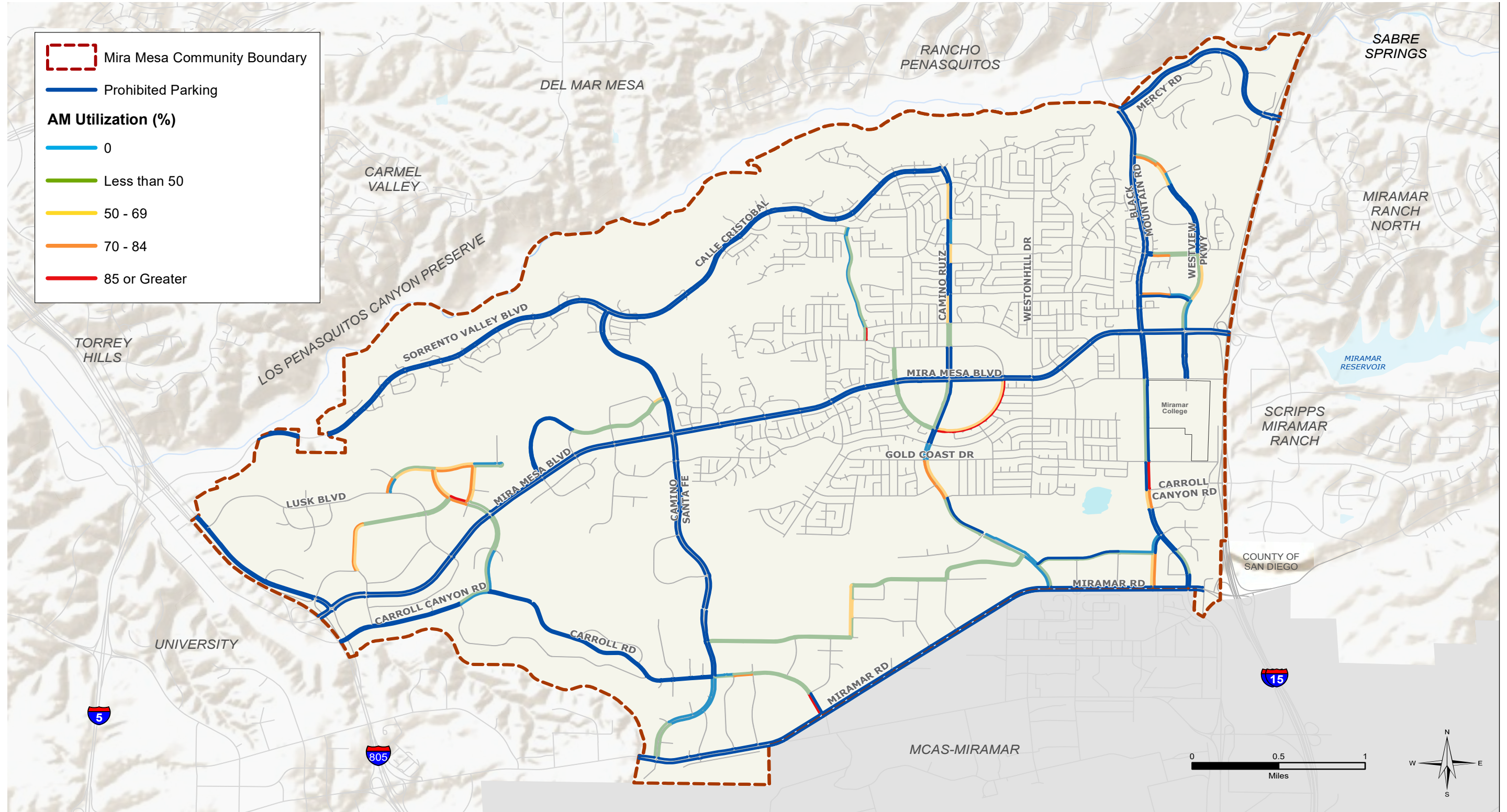
Figure 3-8



Street and Freeway Needs



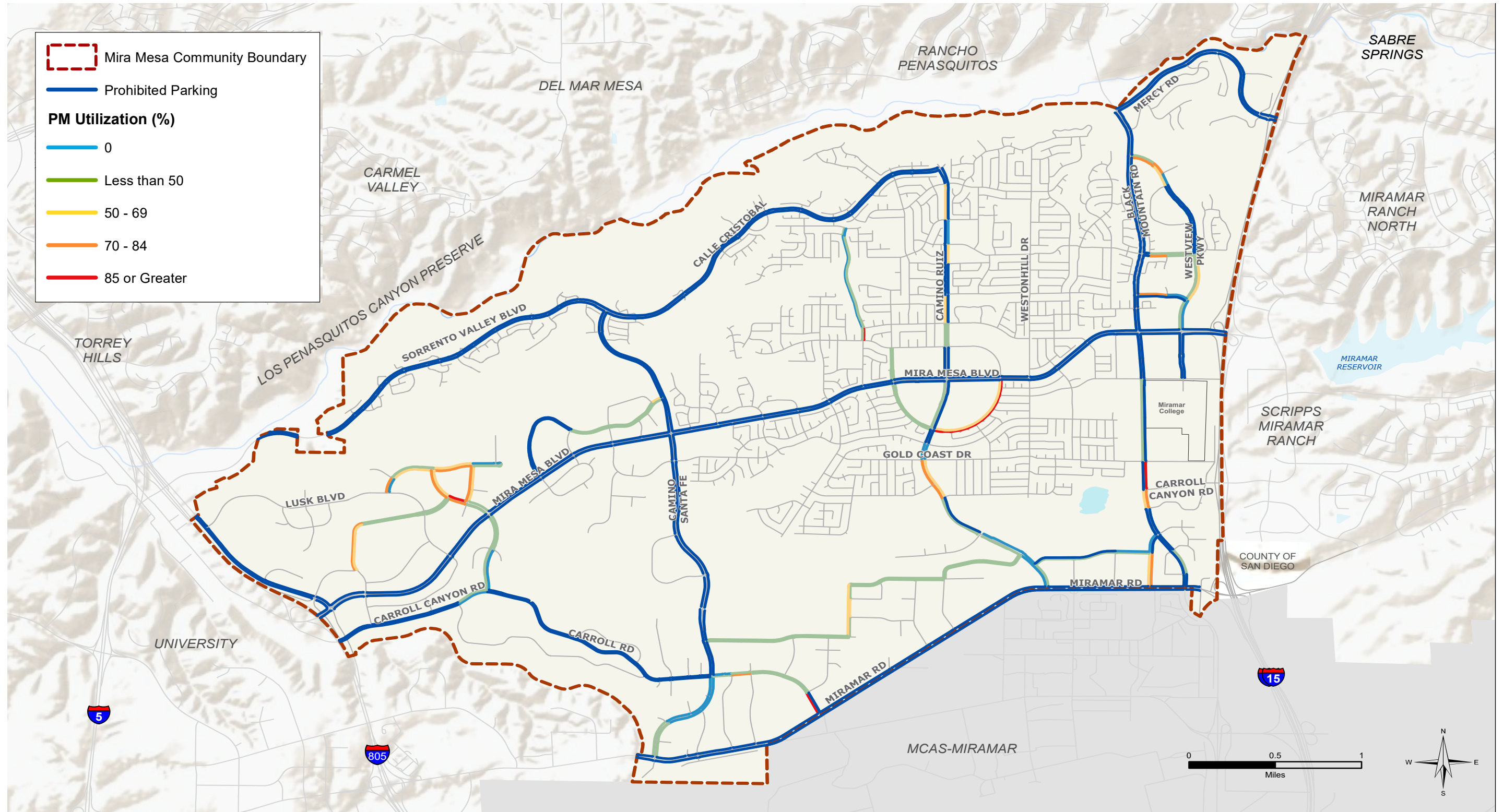
Figure 3-9



Parking Needs (AM)



Figure 3-10



Parking Needs (PM)



### 3.5.2 Vehicular Improvements

A list of Proposed Plan roadway and intersection improvements are presented throughout this section. The roadway improvements are predominately based on traffic volumes that are projected under buildout of the Proposed Plan focused on accommodating multimodal improvements. A full analysis of Proposed Plan roadways is provided in **Chapter 5**.

#### *Carroll Canyon Road*

The construction and extension of Carroll Canyon Road spanning from I-805 to I-15 as an additional east-west roadway will help alleviate some of the congestion currently experienced along Mira Mesa Boulevard and potentially some of the more residential east-west roadways such as Gold Coast Drive and Flanders Drive. Carroll Canyon Road will provide another major east-west roadway that will connect new housing to employment and parks. Improvements to bicycle, pedestrian and transit facilities will also help the transportation system as some of the trips that are currently made by single-occupancy vehicle (SOV) can shift to other modes of transportation including carpooling which reduces the number of vehicles along the roadways during the peak period.

#### *Roadway Classification 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 Mira Mesa from the freeways are identified as “SMART” corridors: Mira Mesa Boulevard, Carroll Canyon Road, and Miramar Road.

A summary of the roadway modifications involving reclassification that affect vehicle carrying capacity is presented in **Table 3-2**.



### *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. It is anticipated that any additional parking demand associated with future developments will be accommodated on-site. It should be noted that parking removal was not recommended at any location with fronting residential land uses.

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 Bicycle Improvements section, on-street parking will be removed at the following locations as network improvements are implemented:

- Pacific Center Boulevard, Lusk Boulevard to Pacific Center Court
- Pacific Heights Boulevard, Pacific Center Boulevard to Carroll Canyon Road
- Flanders Drive, Mira Mesa Boulevard to Keoki Street
- Miramar Road, western community boundary to Camino Ruiz (westbound only)
- Camino Ruiz, Miramar Road to New Salem Street
- Camino Ruiz, New Salem Street to Calle Cristobal (northbound only)
- Black Mountain Road, Miramar Road to Kearny Villa Road
- Black Mountain Road, Kearny Villa Road to Hillery Drive (southbound only)
- Westview Parkway, Galvin Avenue to Black Mountain Road
- Activity Road, Camino Ruiz to Black Mountain Road
- Trade Street, Camino Santa Fe to Trade Place
- Miralani Drive, Cabot Drive to Camino Ruiz
- Arjons Drive, Trade Place to Cabot Drive/Miralani Drive
- Trade Place, Trade Street to Arjons Drive
- Carroll Canyon Road, Black Mountain Road to Maya Linda Road (proposed extension)
- Carroll Road from Camino Santa Fe to Miramar Road
- Westonhill Drive, Gold Coast Drive to Mira Mesa Boulevard
- Galvin Way, Westview Parkway to Black Mountain Road
- Oberlin Drive, Scranton Road to Mira Mesa Boulevard
- Scranton Road / Barnes Canyon Road, Morehouse Drive to Pacific Heights Boulevard



Table 3-2 Planned Roadway Classification Modifications

Roadway Segment	Existing Condition	Proposed Plan Condition
<b>Vista Sorrento Parkway</b>		
Sorrento Valley Blvd. (N. Community Limit) to Lusk Blvd	4 Lane Major Arterial	4 Lane Collector (without two-way left-turn lane)
<b>Sorrento Valley Blvd</b>		
West of Western Community Limit to I-805	4 Lane Collector (with two-way left-turn lane)	4 Lane Major Arterial
<b>Lusk Blvd</b>		
Vista Sorrento Pkwy to Pacific Center Blvd	4 Lane Major Arterial	2 Lane Major (with 2 flexible lanes)
Pacific Center Blvd to Barnes Canyon Rd	4 Lane Major Arterial	2 Lane Major (with 2 flexible lanes)
Barnes Canyon Rd to Mira Mesa Blvd	4 Lane Major Arterial	2 Lane Major (with 2 flexible lanes)
<b>Scranton Rd</b>		
Barnes Canyon Rd to Mira Sorrento Pl	2 lane Collector (without two-way left-turn lane)	2 Lane Major (with 2 flexible lanes)
Mira Sorrento Pl to Mira Mesa Blvd	5 Lane Major Arterial	3 Lane Major (with 2 flexible lanes)
Mira Mesa Blvd to Carroll Canyon Rd	4 Lane Major Arterial	2 Lane Major (with 2 flexible lanes)
<b>Barnes Canyon Rd</b>		
Scranton Rd to Lusk Blvd	2 lane Collector (without two-way left-turn lane)	2 Lane Major (with 2 flexible lanes)
Lusk Blvd to Pacific Heights Blvd	4 Lane Major Arterial	2 Lane Major (with 2 flexible lanes)
<b>Pacific Heights Blvd</b>		
Pacific Center Blvd to Barnes Canyon Rd	4 Lane Major Arterial	2 Lane Major (with 2 flexible lanes)
Barnes Canyon Rd to Mira Mesa Blvd	4 Lane Major Arterial	2 Lane Major (with 2 flexible lanes)
Mira Mesa Blvd to Carroll Canyon Rd	4 Lane Major Arterial	2 Lane Major (with 2 flexible lanes)
<b>Mira Mesa Blvd</b>		
I-805 to Scranton Rd	7 Lane Prime Arterial	6 Lane Prime (with 2 flexible lanes) (SMART)
Scranton Rd to Lusk Blvd	6 Lane Prime Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Lusk Blvd to Pacific Heights Blvd	6 Lane Prime Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Pacific Heights Blvd to Flanders Dr	6 Lane Prime Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Flanders Dr to Camino Santa Fe	6 Lane Prime Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Camino Santa Fe to Parkdale Ave	6 Lane Major Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Parkdale Ave to Reagan Rd	6 Lane Major Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Reagan Rd to Camino Ruiz	6 Lane Major Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Camino Ruiz to New Salem St/Marauder Wy	6 Lane Major Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
New Salem St/Marauder Wy to Westonhill Dr	6 Lane Major Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)





Roadway Segment	Existing Condition	Proposed Plan Condition
Westonhill Dr to Greenford Dr	6 Lane Major Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Greenford Dr to Black Mountain Rd	6 Lane Major Arterial	4 Lane Prime (with 2 flexible lanes) (SMART)
Black Mountain Rd to Westview Pkwy	6 Lane Major Arterial	6 Lane Prime (with 2 flexible lanes) (SMART)
Westview Pkwy to I-15	7 Lane Prime Arterial	6 Lane Prime (with 2 flexible lanes) (SMART)
<b>Carroll Canyon Rd</b>		
Nancy Ridge Dr to Pacific Heights Blvd	2 Lane Major	3 Lane Major
Pacific Heights Blvd to Carroll Rd	2 Lane Major	4 Lane Major
Carroll Rd to Camino Santa Fe	does not exist	4 Lane Prime (SMART)
Camino Santa Fe to Juniper Creek Ln	does not exist	4 Lane Prime (SMART)
Juniper Creek Ln to Camino Ruiz	4 Lane Major Arterial	6 Lane Prime (SMART)
Camino Ruiz to Black Mountain Rd	does not exist	6 Lane Prime (SMART)
Black Mountain Rd to Maya Linda Rd	4 Lane Collector (with two-way left-turn lane)	4 Lane Prime (SMART)
Maya Linda Rd to I-15	4 Lane Collector (with two-way left-turn lane)	4 Lane Major Arterial
I-15 to East of Eastern Community Limit	4 Lane Collector (with two-way left-turn lane)	4 Lane Major Arterial
<b>Miramar Rd</b>		
West of Western Community Limit	6 Lane Major Arterial	6 Lane Prime Arterial
Western Community Limit to Camino Santa Fe	6 Lane Major Arterial	6 Lane Prime Arterial
Camino Ruiz to Black Mountain Rd	6 Lane Major Arterial	6 Lane Prime Arterial
Black Mountain Rd to Kearny Villa Rd	6 Lane Major Arterial	6 Lane Prime Arterial
Kearny Villa Rd to I-15	6 Lane Major Arterial	6 Lane Prime Arterial
I-15 to East of Eastern Community Limit	4 Lane Prime Arterial	4 Lane Major Arterial
<b>Flanders Dr</b>		
Mira Mesa Blvd to Camino Santa Fe	4 Lane Collector (without two-way left-turn lane)	2 Lane Collector (with two-way left-turn lane)
Camino Santa Fe to Caminito Alvarez	4 Lane Collector (without two-way left-turn lane)	2 Lane Collector (with two-way left-turn lane)
<b>Camino Santa Fe</b>		
Flanders Dr to Carroll Canyon Rd	6 Lane Prime Arterial	6 Lane Major Arterial
Carroll Canyon Rd to Carroll Rd	4 Lane Prime Arterial	4 Lane Major Arterial
Production Ave		
Carroll Rd to Miramar Rd	2 Lane Collector (with two-way left-turn lane)	2 lane Collector (without two-way left-turn lane)
<b>Camino Ruiz</b>		
Aquarius Dr to Teresa Dr/Capricorn Wy	4 Lane Collector (with two-way left-turn lane)	4 Lane Collector (without two-way left-turn lane)
Gold Coast Dr to Carroll Canyon Rd	4 Lane Major Arterial	6 Lane Major Arterial
Carroll Canyon Rd to Activity Rd	4 Lane Major Arterial	6 Lane Major Arterial



Roadway Segment	Existing Condition	Proposed Plan Condition
Activity Rd to Miramar Rd	5 Lane Major Arterial	6 Lane Major Arterial
<b>Capricorn Wy</b>		
Black Mountain Rd to Westview Pkwy	2 Lane Collector (with two-way left-turn lane)	2 Lane Collector (without two-way left-turn lane)
<b>Black Mountain Rd</b>		
Black Mountain Rd/Kearny Villa Rd to Activity Rd	4 Lane Collector (with two-way left-turn lane)	4 Lane Major Arterial
Activity Rd to Miramar Rd	4 Lane Collector (with two-way left-turn lane)	2 Lane Major Arterial
<b>Kearny Villa Rd</b>		
Miramar Rd to South of Southern Community Limit	4 Lane Major Arterial	6 Lane Major Arterial
<b>Gemini Ave</b>		
Black Mountain Rd to Westview Pkwy	4 Lane Collector (with two-way left-turn lane)	4 Lane Collector (without two-way left-turn lane)
<b>Hillery Dr</b>		
Black Mountain Rd to Westview Pkwy	4 Lane Collector (with two-way left-turn lane)	4 Lane Collector
<b>Westview Pkwy</b>		
Black Mountain Rd to Capricorn Wy	4 Lane Collector (with two-way left-turn lane)	4 Lane Collector (without two-way left-turn lane)
Capricorn Wy to Galvin Ave	4 Lane Major Arterial	4 Lane Collector (without two-way left-turn lane)
Mira Mesa Blvd to Hillery Dr	4 Lane Major Arterial	4 Lane Collector (without two-way left-turn lane)
<b>Galvin Ave</b>		
Black Mountain Rd to Westview Pkwy	4 Lane Major Arterial	4 Lane Collector (without two-way left-turn lane)



### Intersection Modifications

Signalized intersection improvements such as adaptive traffic signals and transit signal priority will help provide for a more efficient movement of people and improve access to destinations along the corridors. Advancements in technology with connected and autonomous vehicles and practice of transportation systems management techniques, will efficiently move more people, not just vehicles. Multimodal improvements will help to reduce reliance on the vehicle for transportation and proactively manage congestion.

In addition to relieving congestion, improving safety is one of the main objectives in the Community Plan Update. A review of reported collisions identified intersections with frequent crashes along Mira Mesa Boulevard and Miramar Road where specific improvements will help improve the safety all users. Roundabouts at various locations throughout the community can also help improve safety as they have proven to reduce conflicts, slow speeds, and maintain traffic flow.

Several intersections were modified to accommodate buildout of the proposed vehicle and bicycle networks and support the transit corridors and pedestrian treatments associated with the pedestrian route typologies. In addition to intersection-related improvements described in previous sections, a summary of intersection modifications to accommodate buildout of the roadway segment classifications, such as new intersection legs, lane geometry and signal modifications to accommodate SMART corridors, and major traffic control modifications is presented in **Table 3-3**. Specific lane geometries as a result of these modifications are discussed in **Chapter 5**.

As previously mentioned, some intersections that currently have split phasing or shared through/turn lanes should be evaluated to have a protected intersection to improve safety consistent with the City's Systemic Safety Analysis Reporting Program (SSARP). Refer to Section 3.2.2 for the list of intersections that should be considered for redesign and infrastructure modifications pertaining to phasing and lane configuration.

#### Miramar Road and Kearny Mesa Road

One intersection modification that is included in the Proposed Plan that has not been covered in other sections is at the Miramar Road and Kearny Mesa Road intersection. There are currently three very closely spaced intersections approaching the Miramar Road and I-15 interchange on the west side. The Kearny Mesa Road intersection causes unnecessary delay to traffic flow through this interchange. The Proposed Plan recommends the following modifications:

- Cul-de-sac the south leg of Kearny Mesa Road so that it no longer intersects with Miramar Road. Vehicles will have to access Miramar Road via Kearny Villa Road
- Restrict access on the north leg of Kearny Mesa Road to right-in/right-out only (vehicles can make a U-turn at Kearny Vila Road if needed)
- Remove the traffic signal control at the intersection of Miramar Road and Kearny Mesa Road



**Table 3-3 Planned Intersection Modifications**

ID	Intersection	Improvement	Geometry Modification	Signal Modification
9	Scranton Rd & Mira Mesa Blvd	A northbound through lane removed on Scranton Blvd to accommodate SMART Corridor.	✓	
10	Lusk Blvd & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor. Modified signal timing to include LPI.	✓	✓
11	Pacific Heights Blvd & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor & a northbound/southbound through lane removed on Pacific Heights Blvd to accommodate a flex lane.	✓	✓
12	Sequence Dr/Huennekens St & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor. Modified signal timing to include LPI.	✓	✓
13	Genetic Center/Steadman St & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
14	Flanders Dr & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
15	Viper Wy & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
16	Camino Santa Fe & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
17	Schilling Ave & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
18	Aderman Ave & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
19	Parkdale Ave & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓



ID	Intersection	Improvement	Geometry Modification	Signal Modification
20	Reagan Rd & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor. Modified signal timing to include LPI. Removal of split phasing on side street is recommended to improve pedestrian safety.	✓	✓
21	Mira Mesa Mall Driveways & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor. Modified signal timing to include LPI.	✓	✓
22	Camino Ruiz & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor. Modified signal timing to include LPI.	✓	✓
23	New Salem St/Marauder Wy & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor. Modified signal timing to include LPI.	✓	✓
24	Westonhill Dr & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
25	Greenford Dr & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
26	Westmore Rd/Marbury Ave & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor. Restripe side street to include exclusive left turn lane and shared through-right lane.	✓	✓
27	Black Mountain Rd & Mira Mesa Blvd	An eastbound/westbound through lane removed on Mira Mesa Blvd to accommodate SMART Corridor.	✓	✓
28	Westview Pkwy & Mira Mesa Blvd	Modified signal timing to include LPI.		✓
29	I-15 SB Ramps & Mira Mesa Blvd	Modified signal timing to include LPI.		✓
43	Black Mountain Rd & Miramar Rd	Intersection geometry was updated to include only one eastbound left turn. Southbound approach to include one left turn lane, one	✓	✓



ID	Intersection	Improvement	Geometry Modification	Signal Modification
		shared left/right turn lane, and one right turn lane.  Modified signal timing to include LPI.		
49	Camino Ruiz & Carroll Canyon Rd	Added east leg of Carroll Canyon Rd to include dual left-turn lanes, three through lanes, and dual right-turn lanes. Modified signal timing to add coordination along Camino Ruiz.		✓
52	Vista Sorrento Pkwy & Mira Mesa Blvd	Modified signal timing to include LPI.	✓	✓
54	Pacific Center Blvd & Lusk Blvd	An eastbound/westbound through lane removed on Lusk Blvd to accommodate SMART Corridor.	✓	
57	Lusk Blvd & Barnes Canyon Rd	A northbound/southbound through lane removed on Lusk Blvd to accommodate SMART Corridor. Modified signal timing to include LPI.		✓
61	Scranton Rd & Mira Sorrento Pl	Modified signal timing to include LPI.		✓
66	Black Mountain Rd & Gemini Ave	Modified signal timing to include LPI and protected left turn phasing.	✓	✓
67	Black Mountain Rd & Hillery Dr	Modified signal timing to include LPI.		✓
68	Black Mountain Rd & Miramar College	Modified signal timing to include LPI.		✓
69	Black Mountain Rd & Gold Coast Dr	Modified signal timing to add coordination on Black Mountain Rd. Modified signal timing to include LPI.	✓	✓
70	Black Mountain Rd & Carroll Canyon Rd	Intersection geometry was updated to include an exclusive southbound right-turn lane, dual northbound left-turn lanes, and an exclusive northbound right-turn lane. A northbound/southbound lane was removed on Black Mountain Rd to accommodate a flex lane.		✓
72	Black Mountain Rd & Maya Linda Rd	A northbound/southbound lane was removed on Black Mountain Rd to accommodate a flex lane.		✓
73	Black Mountain Rd/Kearny Villa Rd & Black Mountain Rd/Carroll Centre Rd	Modified signal timing to include LPI.		✓



ID	Intersection	Improvement	Geometry Modification	Signal Modification
75	Black Mountain Rd & Activity Rd	Intersection geometry was updated to include an exclusive southbound right-turn lane, an exclusive southbound left turn lane, an exclusive northbound left-turn lane and an exclusive northbound right-turn lane.	✓	✓
76	Westview Pkwy & Mira Lee Wy	Modified signal timing to include LPI.	✓	
77	Westview Pkwy & Galvin Ave	Modified signal timing to include LPI.	✓	✓
80	Kearny Mesa Rd & Miramar Rd	Restricted access on north leg (right-in/right-out only). Eliminate south leg at intersection (cul de sac).	✓	✓
82	Camino Santa Fe & Miratech Dr	Added east leg of Miratech Dr to include exclusive left, through, and right-turn lanes. Restriped the west leg to provide an exclusive left-turn lane, a shared left-through-right lane, and an exclusive right-turn lane.	✓	✓
83	Camino Santa Fe & Summers Ridge Rd	Added east leg of Summers Ridge Rd to include dual lefts and a shared-through-right lane. Added eastbound shared through-right lane.	✓	✓
88	Camino Ruiz & Teresa Dr/Capricorn Wy	Added east-west exclusive left-turn lanes, modified signal timing to include LPI, and protected left turn phasing.	✓	✓
92	Pacific Heights Blvd & Barnes Canyon Rd	A northbound/southbound through lane removed on Pacific Height Blvd to accommodate a flex lane.	✓	✓
93	Westview Pkwy & H Mart Dwy	Modified signal timing to include LPI.		✓

## 3.6 Key Corridor Improvements

Based on the improvements identified for each of the four major modes of transportation, seven key corridors were identified that encompass a combination of pedestrian, bicycle, transit, and vehicle mobility issues and recommendations detailed in the previous sections. This section summarizes each key corridor and the associated mobility improvements. Mobility concept planning summary sheets were developed for each of these corridors to outline existing roadway characteristics and issues and to illustrate how the recommended improvements could be implemented. The mobility corridor concept planning sheets are provided in **Appendix C**.

### 3.6.1 Camino Ruiz

Camino Ruiz is a critical north-south corridor for the Mira Mesa community, providing connections for residents and visitors to Mira Mesa High School and Mira Mesa Mall. The Mira Mesa Town Center CPIOZ, centered around the Mira Mesa Boulevard and Camino Ruiz intersection, is identified for mixed-use redevelopment, and a mobility hub is proposed within the development. In the southern portion of the corridor, Stone Creek, and residential development is currently in the design phase, and the Miramar Gateway CPIOZ is identified for mixed-used development. Given the existing character and location of Camino Ruiz, combined with the planned mixed-use redevelopment, it is essential to provide mobility options for all ages and abilities to reduce vehicle dependence for short trips on this corridor.

Camino Ruiz currently carries Class II bike lanes for a majority of the corridor, but the roadway typical sections change often to allow parking in particular segments, on different sides of the roadway. Roadway reallocation is recommended on many segments to create continuous Class IV bikeway facilities in both directions of this heavily utilized corridor which provides access to a majority of the residential areas in the community as well as key destinations for residents and visitors. Additionally, many of the cul-de-sacs abutting Camino Ruiz have path connections providing access to Camino Ruiz by walking and biking only. Many segments of Camino Ruiz have very wide outside lanes that can be redistributed to provide space for bicyclists.

Parking removal would be necessary on several segments: Capricorn Way to Calle Morelos (northbound only), Hydra Lane to Westmore Road (southbound only), Westmore Road to New Salem Street (both directions), and Gold Coast Drive to Jade Coast Drive (both directions). These segments with parking removal do not have residential dwelling units fronting the street; rather a majority is adjacent to residential buildings with internal parking lots.

Flexible lanes are also recommended in both directions to encourage higher occupancy vehicle usage along this corridor, potentially to be used by a future community circulator type of vehicle that can connect residents and visitors to key destinations. The proposed aerial skyway is intended to provide connectivity between the adjacent University community, the Sorrento Mesa employment center, and the Mira Mesa Town Center area.

*Pages CR-1 through CR-3 in Appendix C* display the recommended cross-sections for Camino Ruiz based on the reallocation of existing roadway width to allow for Class II and Class IV bike facilities and flexible lanes. These cross-sections are reconfigurations of the existing right-of-way with exception of the Jade Coast Drive to south of Carroll Canyon Road which would require additional right-of-way widening due to the reclassification of the roadway segment to 6-lanes. This roadway widening would occur as part of redevelopment of the adjacent properties.



Page CR-4 illustrates an example of how the various modes of travel and user types of Camino Ruiz may interact and travel safely through one of the key intersections on the corridor, Mira Mesa Boulevard and Camino Ruiz.

One feature of the proposed intersection is the implementation of protected intersection elements using raised corner islands to reduce the right turning vehicle speeds and provide a protected space for bicyclists. Alternative intersection designs should be considered for the Mira Mesa Boulevard and Camino Ruiz intersection, including potential grade separation. The Mira Mesa Town Center area could benefit from lower speeds and volumes on Mira Mesa Boulevard through the heart of the community. In order to do so, the roadway could be grade separated, where through traffic would travel above or below the roadway, and local traffic would remain at-grade. This would reduce the number of at-grade travel lanes, thus reducing the pedestrian crossing distances and creating more of an urban environment that would support the proposed adjacent land uses.

### 3.6.2 Westview Parkway

Similar to Camino Ruiz, Westview Parkway is a critical north-south corridor for creating a connection across Mira Mesa Boulevard in the eastern portion of the community. This roadway runs through mostly residential land uses near Willard B. Hage Elementary School on the north side of Mira Mesa Boulevard and connects to the commercial land uses and the community's only major transit station on the south side of Mira Mesa Boulevard.

Class II bike lanes exist in both directions of Westview Parkway. These existing facilities are recommended to be replaced with a Class IV bikeways to improve the first and last mile connection between Miramar College Transit Station and residential neighborhoods along Westview Parkway. It is recommended to transition from one-way to a two-way separated bikeway at the intersection with Galvin Avenue (or other similar intersection as identified in the design phase). Implementation would require repurposing on-street parking.

Flexible lanes are also recommended on Westview Parkway to encourage higher occupancy vehicle usage, potentially to be used by a future community circulator type of vehicle that can enhance the first- and last-mile connectivity from the transit station to the residential and employment areas or future transit route connecting to Miramar College Transit Station.

Pages WP-1 and WP-2 in **Appendix C** display the recommended cross-sections for Westview Parkway based on the reallocation of existing roadway space to allow for Class IV bike facilities and flexible lanes. These cross-sections are reconfigurations of the existing right-of-way with exception of the segment between Mira Mesa Boulevard and Hillery Drive which would require additional right-of-way. This widening would take place as part of redevelopment within the Mira Mesa Gateway CPIOZ, which is identified for mixed-use.

Page WP-3 illustrates an example of how the various modes of travel and user types of Westview Parkway may interact and travel safely through an intersection.

### 3.6.3 Mira Mesa Boulevard

Mira Mesa Boulevard is the main east-west route for the community, providing connectivity for the entire community to the two freeways on the east and west boundaries. Although it is a vehicle-centric corridor with high speeds, carrying three to four lanes in each direction with a center median, there are currently no parallel route options west of Flanders Drive. Carroll Canyon Road, once constructed, will provide

another east-west route for the community, and will alleviate pressure on Mira Mesa Boulevard and Miramar Road. However, Mira Mesa Boulevard still provides connectivity to the community's key destinations and needs to have mobility options for accessing these destinations.

It is recommended to enhance the existing Class II buffered bicycle lanes to Class IV bikeways where feasible for the length of the corridor, especially west of Flanders Drive where there are alternative low-stress options for bicycling. Bicyclists with destinations south of Mira Mesa Boulevard would be encouraged to use a combination of Flanders Drive, Parkdale Avenue, and Gold Coast Drive to access the many schools, parks, and retail destinations. Bicyclists with destinations north of Mira Mesa Boulevard would be encouraged to use a combination of Montongo Street and Westmore Road.

Flexible lanes are recommended for the length of Mira Mesa Boulevard that is serviced by existing or proposed bus routes, likely to be dedicated as transit-only lanes. Congestion on Mira Mesa Boulevard is significant due to the car-dependent nature of the community. As a result, transit reliability suffers since buses are stuck in the same congestion, which discourages people from using transit as a competitive commute option. Providing transit-only lanes would improve transit travel times and reliability and encourage more individuals to use transit. As a SMART corridor, advanced technology features such as adaptive traffic controls and Transit Signal Priority (TSP), combined with the proposed transit-only lane would improve bus operations and overall intersection operations.

*Pages MMB-1 through MMB-4 in Appendix C* display the recommended cross-sections for Mira Mesa Boulevard based on the reallocation of existing roadway space to allow for separated bikeways and the implementation of flexible lanes. These cross-sections are reconfigurations of the existing right-of-way with exception of the following sections where right-of-way is constrained: Aderman Avenue to Parkdale Avenue (westbound direction), New Salem Street to Westonhill Drive (eastbound direction), Westonhill Drive to Greenford Drive (both directions), Greenford Drive to Rickert Road (westbound direction), and Westview Parkway to I-15 (eastbound direction). Widening between Greenford Drive and Rickert Road would take place as part of the redevelopment within the Mira Mesa Town Center CPIOZ and widening between Westview Parkway and I-15 would take place as part of the redevelopment within the Mira Mesa Gateway CPIOZ.

*Page MMB-5* illustrates an example of how the various modes of travel and user types of Mira Mesa Boulevard may interact and travel safely through an intersection. One feature of the proposed intersection is the implementation of a protected intersection using raised corner islands to reduce the right turning vehicle speeds and provide a protected space for bicyclists.

### 3.6.4 Miramar Road

Miramar Road runs east-west along the south side of the Mira Mesa community, bordered by MCAS Miramar and many industrial land uses. It connects Mira Mesa to Scripps Ranch to the east over I-15, and to the University community to the west over I-805. Class II buffered bicycle lanes are provided for a majority of Miramar Road. There is also a raised asphalt path on the south side of Miramar Road between Commerce Avenue and Kearny Villa Road.

A Class IV two-way separated bikeway is recommended along the south side of Miramar Road by reutilizing the path that does not provide access to many pedestrian destinations. The bikeway would have few interruptions due to the small number of driveways that intersect Miramar Road on the south side and could connect to future planned bike facilities on La Jolla Village Drive and Nobel Drive to the west and Pomerado Road to the east, creating a significant regional bikeway. The existing bike lane on the

north side will remain for the more fearless type of bicyclist, if desired, while the two-way bikeway provides a low-stress option. The sidewalk on the north side of Miramar Road is recommended to be widened wherever feasible by reducing the bike lane buffers to create a more friendly walking environment for pedestrians.

*Pages MR-1 through MR-3 in Appendix C* display the recommended cross-sections for Miramar Road based on the reallocation of existing roadway space to allow for a two-way, raised bikeway with a landscape buffer, and the implementation of SMART corridor features. These cross-sections are reconfigurations of the existing right-of-way and do not anticipate widening.

*Page MR-4* illustrates an example of how the various modes of travel and user types of Miramar Road may interact and travel safely through an intersection.

### 3.6.5 Black Mountain Road

Black Mountain Road is a major north-south corridor in Mira Mesa, providing one of the only access points from destinations north of the community, as Los Penasquitos Canyon presents a barrier to the north. Black Mountain Road also runs adjacent to Miramar College and the Miramar College Transit Station, an elementary school, a middle school, and a community park. It is also a major transit corridor for various bus route services.

North of Mira Mesa Boulevard, Black Mountain Road provides Class II buffered bicycle lanes that are recommended to be enhanced with a vertical element to upgrade the facilities to Class IV bikeways. This will ensure that bicyclists accessing adjacent communities have a low-stress option. South of Mira Mesa Boulevard, various modifications such as lane narrowing are recommended to provide generally continuous Class II buffered bicycle lanes and Class IV bikeways where feasible. Parking removal would be necessary along three segments of Black Mountain Road: Gold Coast Road to Carroll Canyon Road (northbound only), Carroll Canyon Road to Maya Linda Road (both directions), and Activity Road to Miramar Road (both directions). These segments with parking removal do not have residential dwelling units fronting the street and are necessary to implement continuous bicycle facilities along a major North-South roadway within the community.

Flexible lanes are recommended on Black Mountain Road and are envisioned to be used as transit-only lanes or high-occupancy vehicle lanes or a combination of both based on time of day.

*Pages BMR-1 through BMR-3 in Appendix C* display the recommended cross-sections for Black Mountain Road based on the reallocation of existing roadway space to allow for separated bikeways and flexible lanes. These cross-sections are reconfigurations of the existing right-of-way with the exception of Galvin Avenue to Mira Mesa Boulevard where right-of-way is constrained.

*Page BMR-4* illustrates an example of how the various modes of travel and user types of Mira Mesa Boulevard may interact and travel safely through an intersection.

### 3.6.6 Camino Santa Fe

Camino Santa Fe is a north-south corridor providing the only direct connection between Miramar Road to Sorrento Valley Boulevard on the west side of Mira Mesa. Class II bike lanes exist in both directions of Camino Santa Fe. However, due to high vehicle volumes and speeds, sharp roadway curvature, and steep grades, it is recommended to upgrade the bicycle facility to Class IV by installing a vertical element of separation. This facility would provide a north-south low-stress bicycle connection between residential

neighborhoods to the north and at the new 3 Roots development with various employment opportunities in the Sorrento Mesa area. It would also provide a low-stress connection to many proposed east-west bicycle facilities. Implementation of a Class IV bikeway would require lane width reductions and restriping to accommodate the buffers and vertical separation along a major portion of the roadway segment. In the southern portion of the roadway, approximately 4,700 feet of parking would need to be repurposed to implement the Class IV facility. Parking utilization is low along this segment during all peak periods and nearby businesses have surface parking lots to meet parking needs. Additionally, shared NEV/bicycle lanes are proposed along the northern portion of Camino Santa Fe. NEV lanes would allow for quick short-trip connection for residents to transit centers and the new 3 Roots development.

*Pages CSF-1 AND CSF-2* in **Appendix C** display the recommended cross-sections for Camino Santa Fe based on the reallocation of existing roadway infrastructure to allow for a one-way Class IV bikeway in both directions. These cross-sections are reconfigurations of the existing right-of-way and do not anticipate potential widening.

*Page CSF-3* illustrates an example of how the various modes of travel and user types of Camino Santa Fe may interact and travel safely through an intersection.

### 3.6.7 Carroll Canyon Road

The 1992 Mira Mesa Community Plan identified a new east-west roadway through the community following the completion of the mining operations that were taking place at the time. The 1994 Carroll Canyon Master Plan identified land uses for the new terrain created by the mining processes. Two large developments, 3Roots and Stone Creek, are in the process of developing along the new roadway alignment of Carroll Canyon Road. There is also a portion of the future roadway alignment that is within the City of San Diego's right-of-way. The City of San Diego will be responsible for constructing the segment west of Camino Santa Fe.

Carroll Canyon Road will provide a third east-west corridor that travels the entire length of the community from freeway to freeway and is anticipated to alleviate traffic volumes on Mira Mesa Boulevard and Miramar Road. A protected bikeway is proposed for the length of the corridor east of Nancy Ridge Road. It will provide connectivity between various residential developments and access to recreational destinations and proposed open space land uses.

SANDAG has also proposed a new rapid transit line that will serve the residential developments on Carroll Canyon Road and provide a connection to the employment areas in Sorrento Mesa. A center-running guideway is proposed along the portion of Carroll Canyon Road east of Pacific Heights Boulevard to provide a reliable, rapid transit option for the community.

*Pages CCR-1 AND CCR-2* in **Appendix C** display the recommended cross-sections for Carroll Canyon Road based on the cross-sections provided by 3Roots, Stone Creek, and the City of San Diego.

## 3.7 Other Corridor Improvements

### 3.7.1 Activity Road

Activity Road is an east-west roadway parallel to Miramar Road, connecting Camino Ruiz and Black Mountain Road. There are no existing bike facilities, therefore a Class IV bikeway is recommended on this roadway to connect residential land uses to the proposed district along Black Mountain Road. Implementation of a Class IV bikeway would require lane width reductions, repurposing 2,725 feet of on-

street parking on the south side, widening, and restriping to accommodate the bikeway along a major portion of the roadway segment. Activity Road is along two major redevelopment areas (Miramar Gateway CPIOZ and Stone Creek).

### 3.7.2 Capricorn Way

Capricorn Way is a low stress, east-west roadway parallel to Mira Mesa Boulevard to the north and connecting a majority of the residential areas on the north side of the community between Camino Ruiz and Black Mountain Road. There are no existing bike facilities along this roadway. A Class III bike boulevard is recommended along with traffic calming measures to slow vehicles and prevent cut-through traffic. Recommended traffic calming measures include: a traffic diverter at Westonhill Drive and neighborhood traffic circles at Kelowna Road, Bootes Street, and Pegasus Avenue. These traffic calming elements and locations should be confirmed during the design phase.

Class II bike lanes are also proposed between Black Mountain Road and Westview Parkway where average daily traffic volumes are higher due to school and park traffic, warranting the need for dedicated space for bicyclists.

### 3.7.3 Flanders Drive

Flanders Drive is an east-west roadway parallel to Mira Mesa Boulevard to the south, connecting the residential areas, employment villages, schools, and parks. East of Camino Santa Fe, where traffic volumes and travel speeds are lower, a Class III bike boulevard is recommended. Traffic calming measures are also recommended along this roadway to ensure bicyclists' safety. Recommended traffic calming measures include: corridor-wide speed humps and neighborhood traffic circles at Aderman Avenue, Westonhill Drive, and Greenford Drive.

A Class II bike lane is proposed where average daily traffic volumes are higher (west of Camino Santa Fe). Implementation of Class II bike lanes would require lane reductions and restriping to accommodate the proposed buffers. The Plaza Sorrento CPIOZ redevelopment is proposed along the corridor.

### 3.7.4 Gold Coast Drive

Gold Coast Drive is an east-west, low-stress bicycle route primarily residential and provides direct access to schools and parks and the Miramar College Transit Station. A Class III bike boulevard is proposed for this roadway. To facilitate this route for school, traffic calming measures are also recommended to help keep speeds below 25 mph.

### 3.7.5 Kearny Villa Road

Kearny Villa Road is a north-south roadway parallel to Black Mountain Road and connects to Black Mountain Road at the intersection with Carroll Centre Road. Kearny Villa Road is a regional connection to the Kearny Mesa community south of Miramar Road. Class II bike lanes exist in both directions of Kearny Villa Road. However, due to high vehicle volumes and speeds, it is recommended to upgrade the bicycle facility to Class IV by installing a vertical element of separation. Implementation of a Class IV would require lane width reductions, repurposing 1,260 feet of on-street parking, and restriping to accommodate the vertical separation along a major portion of the roadway segment. This will provide a low-stress bicycle facility connecting to the major employment in the Miramar Industrial Employment area as well as a non-motorized connection to MCAS Miramar Base and restaurants Kearny Villa Road is along a major redevelopment area (Miramar Gateway CPIOZ).

### 3.7.6 Lusk Boulevard

Lusk Boulevard is an east-west roadway between Vista Sorrento Parkway and Pacific Center Boulevard and acts as a north-south road between Pacific Center Boulevard and Mira Mesa Boulevard. Lusk Boulevard provides connectivity for the employment area north of Mira Mesa Boulevard and is a primary connection point into this major employment area from the University community. Class II bike lanes exist in both directions of Lusk Boulevard. Class II bike lanes are recommended to remain in place. However, two general purpose travel lanes (one in each direction) are proposed to be repurposed as flexible lanes and intended to be dedicated transit-only lanes to increase transit travel time reliability. Flexible lanes could be dedicated as a high-occupancy vehicle lane to incentivize carpool in the future.

### 3.7.7 Pacific Heights Boulevard

Pacific Heights Boulevard is a north-south roadway and a primary connection across Mira Mesa Boulevard for the western portion of the community. There are no existing bike facilities present along this roadway. Class II bike lanes are recommended on both sides of the roadway to provide bicyclists a connection from the business park to mixed-use areas. Two general purpose travel lanes (one in each direction) are proposed to be repurposed as flexible lanes and intended to be dedicated transit only lanes to increase transit travel time reliability and ridership for future transit. Flexible lanes could be dedicated as a high-occupancy vehicle lane, potentially for an automated shuttle service to incentivize carpool in the future. A mobility hub is also proposed on Pacific Heights Boulevard with a potential aerial skyway station for enhanced access to the University community and downtown Mira Mesa.

### 3.7.8 Scranton Road / Barnes Canyon Road

Scranton Road / Barnes Canyon Road acts as a north south roadway north of Carroll Canyon Road and as an east-west roadway east of Lusk Boulevard. The Scranton Road/ Barnes Canyon corridor provides connectivity through the entire Sorrento Mesa employment area and is served by multiple bus routes. There are no existing bike facilities present along this roadway. Class II bike lanes are recommended on both sides of the roadway to facilitate first-mile/last-mile connections from transit stations to places of employment and encourage alternate modes of transportation. Two flexible lanes (one in each direction can vary depending on time of day) are recommended along this corridor. Proposed flexible lanes could be dedicated as high-occupancy vehicle lane to connect to the I-805 HOV lanes. This facility would repurpose 745 feet of on-street parking to provide buffered bike lanes. Implementation of this facility would require parking removal, widening, and potential relocations of bus stops in coordination with MTS. This roadway is along a major redevelopment area (Barnes Canyon CPIOZ).

### 3.7.9 Vista Sorrento Parkway

Vista Sorrento Parkway functions as a north-south roadway and connects employment and commercial areas in Sorrento Mesa. A Class I multi-use path is proposed due to high speeds and traffic along this roadway. Implementation of the multi-use path along the east side of the roadway may require repurposing of existing right of way and expanding the existing sidewalk in order to provide the necessary width for the multi-use path.

### 3.7.10 Sorrento Valley Parkway / Calle Cristobal

Sorrento Valley Parkway / Calle Cristobal is an east-west corridor along the northern edge of the community serving many single-family or low-density housing units. This is the only arterial connecting the residential areas and providing access to the business park areas to the west and south. A Class IV

bikeway is proposed along this roadway to provide low-stress connectivity for residents to many recreational areas. Additionally, shared NEV/bicycle lanes are proposed to allow NEV connection for residents to key destinations within the community along Camino Santa Fe.

## 4.0 Modeling and Forecasting

This chapter summarizes the Future Year travel demand model forecasting process utilized to identify the future travel patterns within Mira Mesa under buildout of the Community Plan Update conditions. Future Year traffic volumes were derived from the SANDAG 2050 Series 13 (ABM 1) Regional Travel Demand Model run, which was verified per the City of San Diego's Small Study Area Traffic Modeling Process (April 2012) and calibrated for Mira Mesa. **Section 4.1** describes the Base Year model calibration process and **Section 4.2** describes the process used to develop Future Year volumes.

### 4.1 Base Year Model Calibration

The Base Year model calibration process involved verification and validation of the Base Year model inputs (population, employment, roadway network, and traffic volume). In addition, adjustments to the Base Year model (roadway speeds, centroid loadings, etc.) were made to calibrate the model to better represent existing travel patterns within Mira Mesa. Detailed descriptions for each validation step are provided below.

#### 4.1.1 Base Year Land Use Validation

To ensure the existing land uses were correctly represented in the SANDAG 13 Base Year model, the following existing land use data was collected throughout Mira Mesa and verified in the Base Year model:

- Descriptions (land use type and code)
- Proper measurement unit types (employees, students, square feet, rooms, dwelling units, etc.)
- Quantities

In some instances, some adjustments were made to match field conditions. Land use types, descriptions and quantities were crosschecked with ground conditions using Google Earth aerial imagery, field verification, as well as contacting individual businesses or property owners, as necessary. Base Year land use inputs override for the project study area are provided in **Appendix C**.

#### 4.1.2 Base Year Roadway Network Verification

The SANDAG Series 13 Base Year roadway network was compared to field conditions to ensure an accurate model network. The following variables were compared and adjusted to match actual conditions:

- TAZ loading points
- Number of lanes on roadways
- Traffic controls
- Posted speed limits
- Signalized intersection geometrics
- Street classification
- Roadway speeds limits

- Turn restrictions
- Bicycle facilities
- Multi-use paths

#### 4.1.3 Base Year Ground Count Validation & Adjustment

Historical traffic volumes were compiled from the City of San Diego Traffic Count Database and other recent studies to compare to the model output. This database included the historical counts, as well as the counts SANDAG had in the regional model, and were selected based upon nearby trip generators and traffic patterns along each roadway segment and year of data. The Base Year for SANDAG's Series 13 Travel Forecast Model is 2012. If historical counts from 2012 were unavailable, data from 2010, 2011, 2013, and 2014 was utilized. Any abnormally high or low traffic volumes were assumed to be outliers, and thus were not selected to be used as a reference traffic volume for calibration of the model. Adjustments were made as needed to ensure the Base Year model output accurately reflected available traffic count information.

#### 4.1.4 Model Sensitivity Adjustment

Model calibration was performed by running a Base year model estimate and comparing the results to the selected ground counts discussed in **Section 4.1.3**. Roadway segments that did not meet the model calibration targets established by the City of San Diego were identified for additional adjustments. These adjustments included relocation

n of TAZ connectors and centroids, adjustments of roadway speeds (to represent congestion), and turn restrictions (to mimic specific turn prohibitions in field conditions).

#### 4.1.5 Base Year Final Calibration Results

Two model runs were conducted to establish a Base Year model that met calibration targets. Model calibration results and the final Base Year model roadway network are provided in **Appendix D**.

## 4.2 Future Year Traffic Forecast Volume

### 4.2.1 Future Model Inputs

The Future Year (2050) model was developed with the Proposed Plan land uses and roadway network into the calibrated Base Year model described in **Section 4.1**. The following model inputs were included:

Buildout of the Proposed Plan land uses within the project study area, as summarized in **Appendix E**.

Proposed Plan roadway network within the study area with two new roadway assumptions:

- Carroll Canyon Road (new roadway) connecting from Carroll Road to Black Mountain Road
- Westview Parkway at Casa Mira View development (new intersection)

Transit-only lanes from the Proposed Plan transit network, including on:

- Mira Mesa Boulevard
- Carroll Canyon Road
- Barnes Canyon Road / Scranton Road
- Lusk Boulevard



- Pacific Heights Boulevard

Series 13 Year 2050 land uses outside of the study area

Series 13 Year 2050 roadway and active transportation networks outside of the study area

Series 13 Year 2050 transit network both inside and outside the study area (including a new center-running transit route along Carroll Canyon Road)

The model inputs described above were reviewed by the project team and approved by City staff prior to running the model forecasts.

#### 4.2.2 Future Roadway Segment Volumes

**Figure 4-1** shows the final projected ADT used to develop and analyze the Proposed Plan circulation network. Future Year forecast volumes were reviewed and adjusted by City of San Diego staff based on a comparison between Base Year 2012 traffic volume and historic counts. Methodologies and documentation of adjustments are provided in **Appendix E**.

#### 4.2.3 Future Intersection Turning Movement Volumes

To estimate the Proposed Plan's turning movement volumes at the study intersections, the existing turning movements at each respective study intersection were adjusted based on the Future Year 2050 forecast Average Daily Traffic (ADT) volumes along each segment. Each respective movement was derived using an iterative approach that balances the inflows and outflows for each approach. The input values include the existing turning movement volumes and Future Year peak hour approach and departure volumes along each leg of the intersection. The future peak hour approach volumes were estimated by applying the existing peak hour factor (K-factor) and directional distributional percentage (D-factor) to the future ADT volumes along each approach. A more detailed description of the methodology used to forecast turning movement volumes is contained in the *National Cooperative Highway Research Program (NCHRP) 255 Highway Traffic Data for Urbanized Area Project Planning and Design, Chapter 8*.

As a conservative approach, if a turning movement volume produced by this model was less than the existing count for that movement, meaning the ADT on one or more of the intersecting roadways is projected to decrease, manual adjustments were made to assure that all forecast horizon year volumes would be equal to or greater than the existing turning movement counts. It should be noted that due to the uncertainty of estimates and forecasts, all turning movement volumes were rounded up to the nearest 10 vehicles. Additionally, traffic volumes for movements of an intersection where a leg was extended were referenced from approved traffic studies in the area. **Appendix E** contains the worksheets summarizing resulting Future Year turning movement volumes.

#### 4.2.4 Vehicle Miles Traveled (VMT)

There are several ways of calculating vehicle miles traveled (VMT) data. The following are definitions of VMT data that was extracted from the activity-based model travel demand model (ABM) in order to measure and evaluate the effect of the Proposed Plan on VMT. VMT for the purpose of the transportation impact analysis and SB 743 compliance are discussed and provided in the Transportation Impact Study (TIS). CAP compliance analysis and mode share information are included in a separate memorandum.

##### **Community Planning Area (CPA) Vehicle Miles Traveled for Greenhouse Gas (GHG) Analysis**

The Community Planning Area VMT is used to allocate greenhouse gas emissions (GHG) attributable to the community, and is calculated based on the San Diego ITE Technical White Paper, *Vehicle Miles*

*Traveled Calculations Using the SANDAG Regional Travel Demand Model, May 2013 (ITE White Paper).* The method is consistent with the International Council for Local Environment Initiatives (ICLEI) – Local Governments for Sustainability US Community Protocol for Accounting and Reporting GHG Emissions (Community Protocol) which recommends using model data of all travel originating or terminating within the jurisdictional boundaries of a community.

The recommended method presented in the Community Protocol recognizes that local governments possess the authority to influence GHG emissions from passenger vehicle trips both inside and outside of a community’s geographic boundaries. The ITE White Paper describes in detail how the model is used to disaggregate VMT and the appropriate method for allocating VMT to a study area for the purposes of a GHG analysis. The method includes the following:

Internal to Internal (I-I) VMT – all of this type of VMT should be included in the analysis. Intrazonal VMT is calculated separately from interzonal VMT but both should be included.

Internal to External (I-E) VMT and External to Internal (E-I) VMT – 50% of the VMT should be included in the analysis since the other half of VMT should be attributed to the other source as this community plan does not make any changes beyond the community planning area.

External to External (E-E) VMT – none of this VMT should be included in the analysis as this identifies pass-through trips that neither originate or terminate within the community.

In this context, internal means internal to the Community Planning Area (Mira Mesa community boundary) and external means outside of the Mira Mesa community. Once the model VMT is disaggregated into the categories described above, the study area VMT (for GHG purposes) can be summed as follows:

$$\text{Total Study Area VMT} = (\text{I-I intrazonal VMT}) + (\text{I-I Interzonal VMT}) + 50\% * (\text{I-E VMT} + \text{E-I VMT})$$

#### 4.2.5 Post-Processing Methodology

The Proposed Plan active transportation network inside the study area was not able to be coded into the network in SANDAG’s Regional Forecast Model. The proposed bicycle network includes miles of new separated bikeways, bike lanes, and bike routes that are anticipated to shift mode choice by encouraging people who live and work in the community to commute by bike rather than by vehicle. Therefore, the model outputs were post-processed using a methodology for forecasting bicycle mode share from the Urban Land Institutes’ (ULI) July 2009 report titled *Moving Cooler: An Analysis of Transportation Strategies for Reducing Greenhouse Gas Emissions*. As a result of this post-processing methodology, described in detail in **Appendix E**, the Future Year mode share for bikes was increased by 5%. This methodology was directly applied to the VMT results shown discussed in **Section 4.2.4**, and the future roadway segment volumes discussed in **Section 4.2.2**. The modifications to the future roadway segment volumes also indirectly impacted the future intersection turning movement volumes discussed in **Section 4.2.3**.

**Table 4-1** presents Community Planning Area VMT for the Mira Mesa community planning area under Base Year and Proposed Plan conditions.

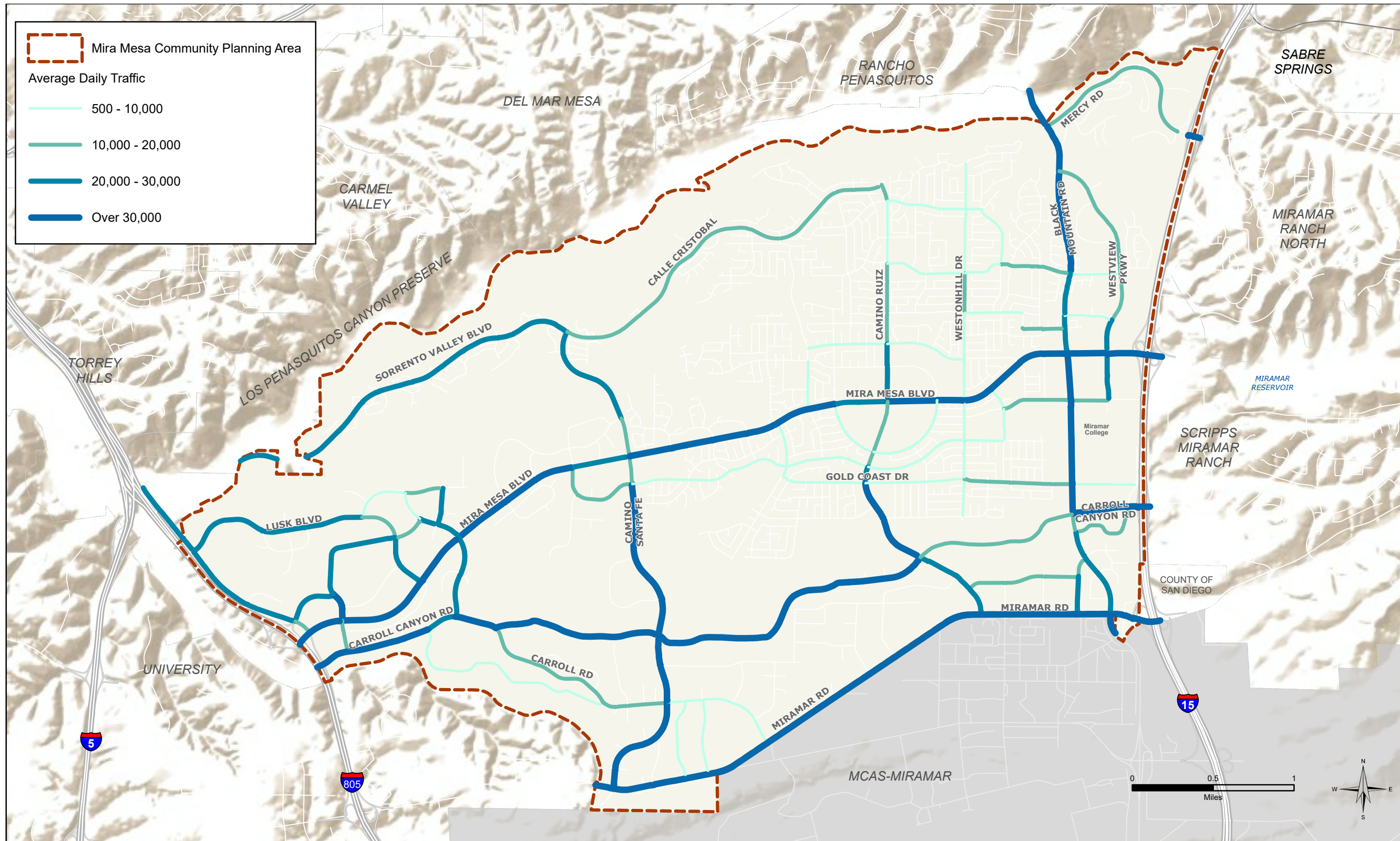
**Table 4-1 Vehicle Miles Traveled (VMT) Scenario Comparison**

Measure (miles)	Base Year	Proposed Plan	Δ in Value	Δ in %
Community VMT	1,928,278	2,429,164	500,886	26%

Source: SANDAG Series 13 Model Run (Scenario 1319)



Figure 4-1



Average Daily Traffic Volumes – Proposed Plan Conditions

## 5.0 Proposed Plan Analysis

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

### 5.1 Pedestrian Assessment Results

This section presents Proposed Plan pedestrian network analysis results, assuming the implementation of the improvements identified in **Chapter 3**.

#### 5.1.1 Pedestrian Network Connectivity

**Figure 5-1** displays pedestrian network connectivity to and from Pedestrian Study Area intersections. This analysis calculates the percent of area accessible to pedestrians within a 0.5-mile network buffer from the respective intersection (connectivity ratio). For context, a connectivity ratio of 50% or greater is considered to be ideal.

As shown, pedestrian connectivity is at ideal levels (>50% connectivity ratio) near the Mira Mesa Town Center area, along Camino Ruiz, and near the Miramar College Transit Center. Connectivity levels are lower (<20% connectivity ratio) near the outskirts of the community such as Sorrento Valley Boulevard, Vista Sorrento Parkway, and Miramar Road, where there are barriers such as canyons, military land uses, and highways that prevent higher levels of connectivity.

#### 5.1.2 Pedestrian Network Quality

Pedestrian Environmental Quality Evaluation (PEQE) provides an assessment of pedestrian facilities by intersection approach and segment. An overview of the inputs and scoring criteria for this methodology is provided in **Chapter 2**.

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 5-2**. **Table 5-1** presents PEQE scoring for each roadway, while Error! Reference source not found. shows intersection scoring. Calculation worksheets are provided in **Appendix F**.

As shown, intersection and segment scores along pedestrian route types identified as Districts and Corridors (previously shown in **Figure 3-2**) received a high-quality score due to the additional operational and physical features planned along these roadways. All intersection crossings received a “medium” or “high” score based on the proposed physical and operational improvements. A majority 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. The following roadways receive “low” PEQE scores:

- Vista Sorrento Parkway (both sides) due to high speeds
- Sorrento Valley Road (between I-805 ramps) (both sides) due to high speeds
- Mira Sorrento Place (south side only) due to guardrail obstructing clear pedestrian zone
- Mira Mesa Boulevard (I-805 NB ramps to Scranton Road) (south side only) due to high speeds
- Mira Mesa Boulevard (Aderman Avenue to Reagan Road) due to constrained right-of-way reducing horizontal distance between vehicles and pedestrians in combination with high speeds
- Carroll Canyon Road (Sorrento Valley Road to Pacific Heights Boulevard) (both sides) due to high speeds, low horizontal distance between vehicles and pedestrians, and constrained right-of-way



Miramar Road (Camino Ruiz to Kearny Villa Road) (north side only) due to high speeds and low horizontal distance between vehicles and pedestrians

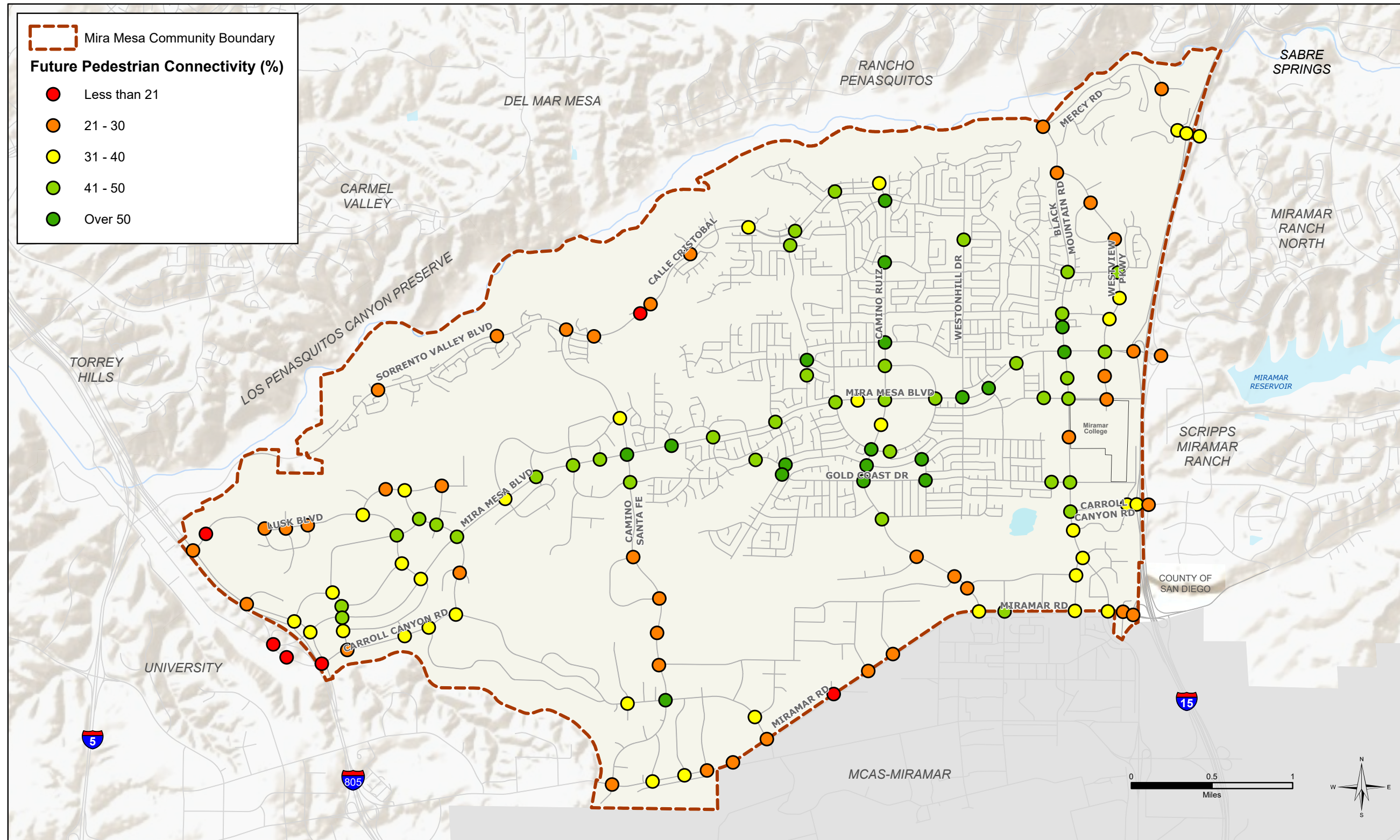
Mercy Road (between I-15 ramps) due to high speeds and constrained right-of-way reducing horizontal distance between vehicles and pedestrians

The PEQE mid-block crossing analysis is similar to the intersection analysis which evaluates physical features of the crossing such as high visibility crosswalks, bulb outs, median refuge for pedestrians, and ADA compliant curb ramps. The traffic control points vary from the intersection analysis, and awards one point for a pedestrian activated warning device such as in-pavement lighting or Rectangular Rapid Flashing Beacons (RRFB), or two points for a signal or Pedestrian Hybrid Beacon (PHB).

The Mira Mesa community has one mid-block crossing in the Pedestrian Study Area that was analyzed along Barnes Canyon Road near Scranton Road. This crossing is classified as a low-quality facility but could be improved to medium-quality by installing a new standard curb ramp, upgrading the south side ramp to be ADA compliant and constructing a raised pedestrian refuge in the median. This will provide a raised area for pedestrians to wait before crossing one direction of traffic and will achieve a high-quality crossing.



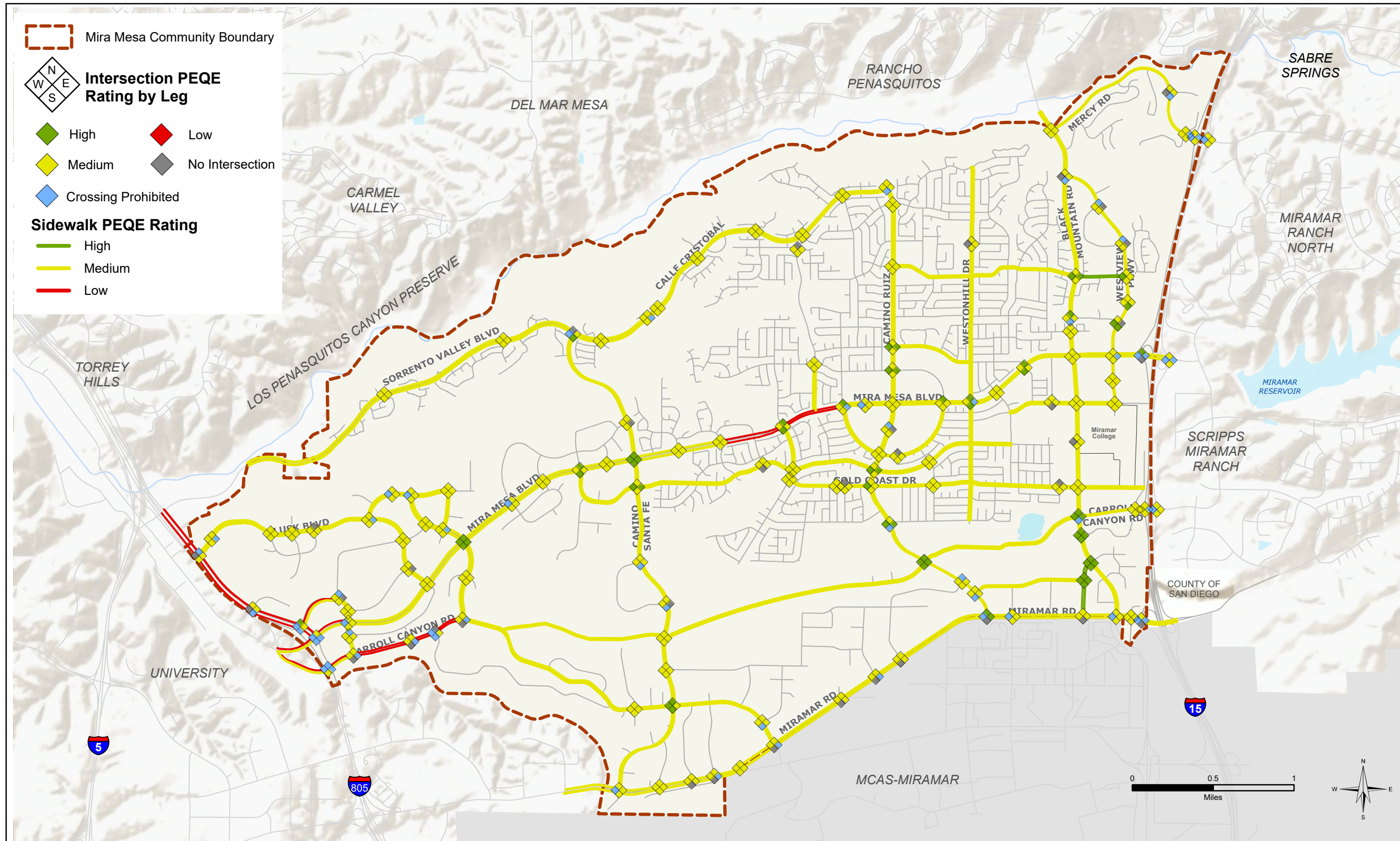
Figure 5-1



Pedestrian Network Connectivity – Proposed Plan Conditions



Figure 5-2



PEQE – Proposed Plan Conditions

**Table 5-1 PEQE Segment Analysis Results – Proposed Plan Conditions**

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
<b>Vista Sorrento Pkwy</b>								
Sorrento Valley Blvd to Lusk Blvd	2	Low	0	Low	3	Low	3	Low
Lusk Blvd to Directors Pl	2	Low	0	Low	3	Low	3	Low
Directors Pl to Mira Sorrento Pl	4	Medium	0	Low	3	Low	3	Low
Mira Sorrento Pl to Mira Mesa Blvd	4	Medium	0	Low	3	Low	3	Low
<b>Sorrento Valley Rd</b>								
I-805 SB Ramps to I-805 NB Ramps	0	Low	2	Low	3	Low	3	Low
<b>Sorrento Valley Blvd</b>								
Juniper Park Ln to Sunny Mesa Rd	3	Low	1	Low	4	Medium	4	Medium
Sunny Mesa Rd to Camino Santa Fe	3	Low	3	Low	4	Medium	4	Medium
<b>Lusk Blvd</b>								
Vista Sorrento Pkwy to Office Driveways	2	Low	2	Low	4	Medium	4	Medium
Office Driveways to W Wateridge Cir	0	Low	2	Low	4	Medium	4	Medium
W Wateridge Cir to Telesis Ct	2	Low	2	Low	4	Medium	4	Medium
Telesis Ct to E Wateridge Cir	2	Low	2	Low	4	Medium	4	Medium
E Wateridge Cir to Pacific Center Blvd	2	Low	2	Low	4	Medium	4	Medium
Pacific Center Blvd to Barnes Canyon Rd	2	Low	2	Low	4	Medium	4	Medium
Barnes Canyon Rd to Morehouse Dr	2	Low	2	Low	4	Medium	4	Medium



Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Morehouse Dr to Mira Mesa Blvd	2	Low	3	Low	4	Medium	4	Medium
<b>Mira Sorrento Pl</b>								
Vista Sorrento Pkwy to Scranton Rd	3	Low	3	Low	3	Low	4	Medium
<b>Scranton Rd</b>								
Mira Sorrento Pl to Morehouse Dr	4	Medium	3	Low	6	Medium	6	Medium
Morehouse Dr to Mira Mesa Blvd	4	Medium	4	Medium	4	Medium	4	Medium
Mira Mesa Blvd to Sorrento South Dwy/Oberlin Dr	3	Low	3	Low	5	Medium	5	Medium
Sorrento South Dwy/Oberlin Dr to Carroll Canyon Rd	3	Low	3	Low	5	Medium	5	Medium
<b>Pacific Center Blvd</b>								
Lusk Blvd to Wireless Wy	2	Low	2	Low	5	Medium	5	Medium
Wireless Wy to Pacific Heights Blvd	5	Medium	4	Medium	5	Medium	5	Medium
Pacific Heights Blvd to Pacific Mesa Blvd	4	Medium	4	Medium	5	Medium	5	Medium
<b>Pacific Heights Blvd</b>								
Pacific Center Blvd to Barnes Canyon Rd (NS)	3	Low	3	Low	5	Medium	5	Medium
Barnes Canyon Rd to Pacific Mesa Blvd (EW)	2	Low	2	Low	5	Medium	5	Medium
<b>Pacific Heights Blvd</b>								
Pacific Mesa Blvd to Mira Mesa Blvd	5	Medium	2	Low	5	Medium	5	Medium
Mira Mesa Blvd to Cornerstone Ct (NS)	2	Low	2	Low	5	Medium	5	Medium
Cornerstone Ct to Carroll Canyon Rd	4	Medium	4	Medium	5	Medium	5	Medium

Segment	Existing Conditions				Proposed Plan Conditions				
	North/East		South/West		North/East		South/West		
	Score	Grade	Score	Grade	Score	Grade	Score	Grade	
<b>Pacific Mesa Blvd</b>									
Pacific Heights Blvd to Pacific Center Blvd	2	Low	3	Low	5	Medium	5	Medium	
<b>Calle Cristobal</b>									
Camino Santa Fe to Lopez Point Dr	4	Medium	4	Medium	4	Medium	4	Medium	
Lopez Point Dr to Camino Propico	3	Low	3	Low	4	Medium	4	Medium	
Camino Propico to Lopez Ridge Park Driveways	3	Low	3	Low	4	Medium	4	Medium	
Lopez Ridge Park Driveways to Camino Miranda	3	Low	3	Low	4	Medium	4	Medium	
Camino Miranda to Windy Ridge Wy	3	Low	3	Low	4	Medium	4	Medium	
Windy Ridge Wy to Prairie Wood Dr	3	Low	3	Low	4	Medium	4	Medium	
Prairie Wood Dr to Avenida Del Gato	3	Low	3	Low	4	Medium	4	Medium	
Avenida Del Gato to Camino Ruiz	3	Low	3	Low	4	Medium	4	Medium	
<b>Mira Mesa Blvd</b>									
I-805 NB Ramps to Scranton Rd	3	Low	4	Medium	3	Low	4	Medium	
Scranton Rd to Lusk Blvd	0	Low	3	Low	4	Medium	4	Medium	
Lusk Blvd to Pacific Heights Blvd	0	Low	3	Low	4	Medium	4	Medium	
Pacific Heights Blvd to Sequence Dr/Huennekens St	3	Low	3	Low	4	Medium	4	Medium	
Sequence Dr/Huennekens St to Genetic Center Dr/Steadman St	3	Low	3	Low	4	Medium	4	Medium	
Genetic Center Dr/Steadman St to Flanders Dr	3	Low	3	Low	4	Medium	4	Medium	
Flanders Dr to Viper Wy	3	Low	3	Low	4	Medium	4	Medium	

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Viper Wy to Camino Santa Fe	3	Low	3	Low	4	Medium	4	Medium
Camino Santa Fe to Schilling Ave	3	Low	3	Low	4	Medium	4	Medium
Schilling Ave to Aderman Ave	2	Low	2	Low	4	Medium	4	Medium
Aderman Ave to Parkdale Ave	3	Low	3	Low	3	Low	3	Low
Parkdale Ave to Reagan Rd	2	Low	2	Low	3	Low	3	Low
Reagan Rd to Mira Mesa Mall Driveways	2	Low	3	Low	5	Medium	5	Medium
Mira Mesa Mall Driveways to Camino Ruiz	2	Low	3	Low	5	Medium	5	Medium
<b>Mira Mesa Blvd</b>								
Camino Ruiz to New Salem St/Marauder Wy	4	Medium	4	Medium	6	Medium	6	Medium
New Salem St/Marauder Wy to Westonhill Dr	3	Low	4	Medium	5	Medium	5	Medium
Westonhill Dr to Greenford Dr	3	Low	3	Low	5	Medium	5	Medium
Greenford Dr to Westmore Rd/Marbury Ave	4	Medium	3	Low	6	Medium	5	Medium
Westmore Rd/Marbury Ave to Black Mountain Rd	4	Medium	3	Low	6	Medium	5	Medium
Black Mountain Rd to Westview Pkwy	3	Low	3	Low	6	Medium	5	Medium
Westview Pkwy to I-15 SB Ramps	3	Low	3	Low	4	Medium	4	Medium
I-15 SB Ramps to I-15 NB Ramps	3	Low	3	Low	4	Medium	4	Medium
<b>Carroll Canyon Rd/Carroll Rd</b>								
Sorrento Valley Rd/Mira Mesa Blvd to Business Access Road	5	Medium	0	Low	4	Medium	3	Low
Business Access Road to Scranton Rd	5	Medium	0	Low	4	Medium	3	Low

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Scranton Rd to Youngstown Wy	0	Low	3	Low	3	Low	3	Low
Youngstown Wy to Nancy Ridge Dr	0	Low	3	Low	3	Low	3	Low
Nancy Ridge Dr to Pacific Heights Blvd	0	Low	3	Low	3	Low	3	Low
Pacific Heights Blvd to Rehco Rd	3	Low	3	Low	4	Medium	4	Medium
Rehco Rd to Camino Santa Fe	4	Medium	4	Medium	5	Medium	5	Medium
Camino Santa Fe to Kenamar Dr	4	Medium	2	Low	5	Medium	5	Medium
Kenamar Dr to Miramar Rd	3	Low	4	Medium	5	Medium	5	Medium
<b>Miramar Rd</b>								
Miramar Pl to Camino Santa Fe	3	Low	4	Medium	5	Medium	5	Medium
Camino Santa Fe to Commerce Ave	0	Low	4	Medium	5	Medium	4	Medium
Commerce Ave to Production Ave	0	Low	4	Medium	5	Medium	4	Medium
Production Ave to Distribution Ave	0	Low	4	Medium	5	Medium	4	Medium
Distribution Ave to Miramar Wy	0	Low	4	Medium	5	Medium	4	Medium
Miramar Wy to Carroll Rd	0	Low	4	Medium	5	Medium	4	Medium
Carroll Rd to Empire St	0	Low	4	Medium	5	Medium	4	Medium
Empire St to Dowdy Dr	0	Low	4	Medium	5	Medium	4	Medium
Dowdy Dr to Cabot Dr	0	Low	4	Medium	5	Medium	4	Medium
Cabot Dr to Camino Ruiz	0	Low	4	Medium	5	Medium	4	Medium
Camino Ruiz to Clayton Dr/Mitscher Wy	1	Low	3	Low	5	Medium	3	Low

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Clayton Dr/Mitscher Wy to Black Mountain Rd	1	Low	4	Medium	5	Medium	3	Low
<b>Miramar Rd</b>								
Black Mountain Rd to Kearny Villa Rd	1	Low	4	Medium	4	Medium	3	Low
Kearny Villa Rd to Kearny Mesa Rd	1	Low	4	Medium	4	Medium	4	Medium
Kearny Villa Rd to I-15 SB Ramps	4	Medium	4	Medium	4	Medium	4	Medium
I-15 SB Ramps to I-15 NB Ramps	3	Low	4	Medium	3	Low	4	Medium
<b>Flanders Dr</b>								
Mira Mesa Blvd to Camino Santa Fe	4	Medium	4	Medium	6	Medium	6	Medium
Camino Santa Fe to Keoki St	4	Medium	4	Medium	6	Medium	6	Medium
Keoki St to Parkdale Ave	4	Medium	4	Medium	6	Medium	6	Medium
Parkdale Ave to Camino Ruiz	4	Medium	4	Medium	5	Medium	5	Medium
Camino Ruiz to San Ramon Dr	5	Medium	5	Medium	6	Medium	6	Medium
San Ramon Dr to Westonhill Dr	5	Medium	5	Medium	6	Medium	6	Medium
Westonhill Dr to Greenford Dr	6	Medium	5	Medium	6	Medium	6	Medium
Camino Santa Fe								
Sorrento Valley Blvd/Calle Cristobal to Top Gun St	3	Low	3	Low	4	Medium	4	Medium
Top Gun St to Mira Mesa Blvd	3	Low	3	Low	4	Medium	4	Medium
Mira Mesa Blvd to Flanders Dr	3	Low	3	Low	4	Medium	4	Medium
Flanders Dr to Miratech Dr	3	Low	3	Low	4	Medium	4	Medium

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Miratech Dr to Summers Ridge Rd	3	Low	3	Low	4	Medium	4	Medium
Summers Ridge Rd to Unnamed Road	4	Medium	4	Medium	4	Medium	4	Medium
Unnamed Road to Trade St	4	Medium	3	Low	4	Medium	4	Medium
Trade St to Carroll Rd	4	Medium	4	Medium	5	Medium	5	Medium
Carroll Rd to Miramar Rd	4	Medium	4	Medium	5	Medium	5	Medium
<b>Parkdale Ave</b>								
Mira Mesa Blvd to Flanders Dr	4	Medium	4	Medium	6	Medium	6	Medium
Flanders Dr to Gold Coast Dr	4	Medium	4	Medium	6	Medium	6	Medium
<b>Montongo St</b>								
New Salem St to Goleta Rd	4	Medium	5	Medium	5	Medium	5	Medium
Goleta Rd to Mira Mesa Blvd	2	Low	4	Medium	5	Medium	5	Medium
<b>Camino Ruiz</b>								
Calle Cristobal to Aquarius Dr	4	Medium	4	Medium	5	Medium	6	Medium
Aquarius Dr to Teresa Dr/Capricorn Wy	4	Medium	4	Medium	5	Medium	6	Medium
Teresa Dr/Capricorn Wy to Westmore Rd	4	Medium	2	Low	5	Medium	5	Medium
Westmore Rd to New Salem St	4	Medium	4	Medium	6	Medium	5	Medium
<b>Camino Ruiz</b>								
New Salem St to Mira Mesa Blvd	2	Low	4	Medium	6	Medium	5	Medium
Mira Mesa Blvd to Driveway	4	Medium	5	Medium	6	Medium	5	Medium

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Driveway to Reagan/Marauder Wy	4	Medium	5	Medium	6	Medium	5	Medium
Reagan Rd/Marauder Wy to Flanders Dr	4	Medium	4	Medium	5	Medium	5	Medium
Flanders Dr to Gold Coast Dr	4	Medium	4	Medium	5	Medium	5	Medium
Gold Coast Dr to Jade Coast Dr	5	Medium	4	Medium	5	Medium	4	Medium
Jade Coast Dr to Carroll Canyon Rd	1	Low	0	Low	6	Medium	5	Medium
Carroll Canyon Rd to Miralani Dr	2	Low	4	Medium	5	Medium	4	Medium
Miralani Dr to Activity Rd	1	Low	0	Low	5	Medium	4	Medium
Activity Rd to Miramar Rd	4	Medium	0	Medium	5	Medium	4	Medium
<b>Westmore Rd</b>								
Camino Ruiz to Westonhill Dr	4	Medium	4	Medium	6	Medium	6	Medium
<b>Reagan Rd</b>								
Mira Mesa Blvd to Camino Ruiz	5	Medium	4	Medium	5	Medium	5	Medium
<b>Marauder Wy</b>								
Camino Ruiz to Mira Mesa Blvd	5	Medium	4	Medium	5	Medium	5	Medium
<b>Gold Coast Dr</b>								
Parkdale Ave to Camino Ruiz	5	Medium	3	Low	6	Medium	6	Medium
Camino Ruiz to San Ramon Dr	3	Low	4	Medium	6	Medium	6	Medium
San Ramon Dr to Westonhill Dr	5	Medium	5	Medium	6	Medium	6	Medium
Westonhill Dr to Thanksgiving Ln	5	Medium	5	Medium	6	Medium	6	Medium

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Thanksgiving Ln to Black Mountain Rd	5	Medium	5	Medium	6	Medium	6	Medium
Black Mountain Rd to Maya Linda Rd	4	Medium	4	Medium	6	Medium	5	Medium
<b>Westonhill Dr</b>								
Menkar Rd to Aquarius Dr	4	Medium	4	Medium	6	Medium	6	Medium
Aquarius Dr to Arcturus Wy	4	Medium	4	Medium	6	Medium	6	Medium
Arcturus Wy to Capricorn Wy	4	Medium	4	Medium	6	Medium	6	Medium
Capricorn Wy to Libra Dr	4	Medium	4	Medium	6	Medium	6	Medium
Libra Dr to Westmore Rd	4	Medium	4	Medium	6	Medium	6	Medium
Westmore Rd to Mira Mesa Blvd	4	Medium	4	Medium	6	Medium	6	Medium
Mira Mesa Blvd to Flanders Dr	5	Medium	5	Medium	6	Medium	6	Medium
Flanders Dr to Gold Coast Dr	5	Medium	6	Medium	6	Medium	6	Medium
Gold Coast Dr to Jade Coast Dr	5	Medium	6	Medium	6	Medium	6	Medium
<b>Capricorn Wy</b>								
Camino Ruiz to Westonhill Dr	5	Medium	5	Medium	6	Medium	6	Medium
Westonhill Dr to Bootes St	5	Medium	5	Medium	6	Medium	6	Medium
Bootes St to Black Mountain Rd	5	Medium	5	Medium	6	Medium	6	Medium
Black Mountain Rd to Westview Pkwy	6	Medium	6	Medium	7	High	7	High
<b>Black Mountain Rd</b>								
North of Northern Community Limit to Mercy Rd	3	Low	3	Low	4	Medium	4	Medium



Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Mercy Rd to Westview Pkwy	3	Low	3	Low	4	Medium	4	Medium
Westview Pkwy to Capricorn Wy	3	Low	3	Low	4	Medium	4	Medium
Capricorn Wy to Galvin Ave	3	Low	3	Low	4	Medium	4	Medium
Galvin Ave to Gemini Ave	4	Medium	4	Medium	5	Medium	5	Medium
Gemini Ave to Mira Mesa Blvd	4	Medium	4	Medium	5	Medium	5	Medium
Mira Mesa Blvd to Village Green/The Hills Driveways	4	Medium	4	Medium	6	Medium	6	Medium
Village Green/The Hills Driveways to Hillery Dr	4	Medium	4	Medium	6	Medium	6	Medium
Hillery Dr to Miramar College	5	Medium	4	Medium	5	Medium	5	Medium
Miramar College to Gold Coast Dr	4	Medium	4	Medium	5	Medium	5	Medium
Gold Coast Dr to Carroll Canyon Rd	4	Medium	3	Low	5	Medium	5	Medium
Carroll Canyon Rd to Maya Linda Rd	4	Medium	1	Low	5	Medium	5	Medium
Maya Linda Rd to Black Mountain Rd/Carroll Centre Rd	5	Medium	4	Medium	5	Medium	5	Medium
Black Mountain Rd/Kearny Villa Rd to Activity Rd	3	Low	2	Low	7	High	7	High
Activity Rd to Miramar Rd	4	Medium	4	Medium	7	High	7	High
<b>Kearny Villa Rd (NS)</b>								
Black Mountain Rd/Carroll Centre Rd to Miramar Rd	4	Medium	4	Medium	6	Medium	6	Medium
<b>Hillery Dr (EW)</b>								
Greenford Dr to Rickert Rd	4	Medium	4	Medium	5	Medium	5	Medium
Rickert Rd to Black Mountain Rd	4	Medium	4	Medium	5	Medium	5	Medium

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
Black Mountain Rd to Westview Pkwy	5	Medium	4	Medium	5	Medium	5	Medium
<b>Activity Rd (EW)</b>								
Camino Ruiz to Black Mountain Rd	4	Medium	1	Low	5	Medium	5	Medium
<b>Mercy Rd (EW)</b>								
Black Mountain Rd to Kika Ct	3	Low	3	Low	4	Medium	4	Medium
Kika Ct to Alemania Rd	3	Low	3	Low	4	Medium	4	Medium
I-15 SB Ramps to I-15 NB Ramps	2	Low	2	Low	3	Low	3	Low
<b>Westview Pkwy (NS)</b>								
Black Mountain Rd to Compass Point Dr N	3	Low	3	Low	4	Medium	4	Medium
Compass Point Dr N to Compass Point Dr S	2	Low	2	Low	4	Medium	4	Medium
Compass Point Dr S to Capricorn Wy	2	Low	2	Low	4	Medium	4	Medium
Capricorn Wy to Mira Lee Wy	4	Medium	4	Medium	5	Medium	5	Medium
Mira Lee Wy to Galvin Ave	4	Medium	4	Medium	5	Medium	5	Medium
Galvin Ave to Mira Mesa Blvd	4	Medium	4	Medium	5	Medium	6	Medium
Mira Mesa Blvd to Market Center Driveway	4	Medium	4	Medium	6	Medium	7	High
Market Center Blvd to Hillery Dr	4	Medium	4	Medium	6	Medium	7	High
<b>Carroll Canyon Rd (EW)</b>								
Black Mountain Rd to Maya Linda Rd	4	Medium	4	Medium	5	Medium	5	Medium
Maya Linda Rd to I-15 SB Ramps	3	Low	3	Low	5	Medium	5	Medium

Segment	Existing Conditions				Proposed Plan Conditions			
	North/East		South/West		North/East		South/West	
	Score	Grade	Score	Grade	Score	Grade	Score	Grade
I-15 SB Ramps to I-15 NB Ramps	4	Medium	4	Medium	5	Medium	5	Medium
Carroll Road to Camino Santa Fe	–	–	–	–	4	Medium	4	Medium
Camino Santa Fe to Maya Linda Rd	–	–	–	–	5	Medium	5	Medium
Maya Linda Rd to Black Mountain Rd	–	–	–	–	5	Medium	5	Medium

Source: Kimley-Horn & Associates (2022)

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Vista Sorrento Pkwy	Lusk Blvd	North	2	Restricted	2	Restricted
		East	3	Low	6	Medium
		South	2	Low	6	Medium
		West	–	–	-	-
Vista Sorrento Pkwy	Directors Pl	North	2	Low	5	Medium
		East	3	Low	6	Medium
		South	2	Restricted	2	Restricted
		West	–	–	-	-
Vista Sorrento Pkwy	Mira Sorrento Pl	North	4	Medium	7	High
		East	5	Medium	6	Medium
		South	2	Restricted	2	Restricted
		West	2	Restricted	2	Restricted
Vista Sorrento Pkwy	Mira Mesa Blvd	North	4	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	2	Restricted	2	Restricted
		West	2	Restricted	2	Restricted
I-805 NB Ramps	Carroll Canyon Rd	North	2	Restricted	2	Restricted
		East	2	Restricted	2	Restricted
		South	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Juniper Park Ln	Sorrento Valley Blvd	West	2	Restricted	2	Restricted
		North	3	Low	6	Medium
		East	4	Medium	6	Medium
		South	3	Low	6	Medium
		West	3	Low	6	Medium
Sunny Mesa Rd	Sorrento Valley Blvd	North	3	Low	6	Medium
		East	3	Low	6	Medium
		South	3	Low	6	Medium
		West	3	Low	6	Medium
Camino Santa Fe	Sorrento Valley Blvd	North	-	-	-	-
		East	5	Medium	6	Medium
		South	4	Medium	7	High
		West	2	Restricted	2	Restricted
Camino Santa Fe	Top Gun St	North	4	Medium	6	Medium
		East	-	-	-	-
		South	4	Medium	6	Medium
		West	3	Low	6	Medium
Camino Santa Fe	Flanders Dr	North	3	Low	6	Medium
		East	4	Medium	7	High

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Youngstown Wy	Carroll Canyon Rd	South	3	Low	6	Medium
		West	3	Low	7	High
		North	5	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	–	–	-	-
		West	4	Medium	6	Medium
Nancy Ridge Dr	Carroll Canyon Rd	North	–	–	-	-
		East	4	Medium	6	Medium
		South	0	Restricted	0	Restricted
		West	2	Restricted	2	Restricted
Office Driveways	Lusk Blvd	North	3	Low	6	Medium
		East	2	Restricted	2	Restricted
		South	3	Low	6	Medium
		West	3	Low	6	Medium
W Wateridge Cir	Lusk Blvd	North	3	Low	6	Medium
		East	3	Low	6	Medium
		South	3	Low	6	Medium
		West	3	Low	6	Medium
Telesis Ct	Lusk Blvd	North	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
		West	4	Medium	6	Medium
E Wateridge Cir	Lusk Blvd	North	-	-	-	-
		East	3	Low	6	Medium
		South	3	Low	6	Medium
		West	3	Low	6	Medium
		North	3	Low	6	Medium
		East	2	Restricted	2	Restricted
Pacific Center Blvd	Lusk Blvd	South	3	Low	6	Medium
		West	3	Low	6	Medium
		North	5	Medium	6	Medium
Lusk Blvd	Barnes Canyon Rd	East	5	Medium	6	Medium
		South	5	Medium	6	Medium
		West	5	Medium	6	Medium
Lusk Blvd	Morehouse Dr	North	5	Medium	6	Medium
		East	-	-	-	-
		South	5	Medium	6	Medium
		West	5	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Lusk Blvd	Mira Mesa Blvd	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	5	Medium	6	Medium
		West	4	Medium	6	Medium
Scranton Rd	Mira Sorrento Pl	North	2	Restricted	2	Restricted
		East	-	-	-	-
		South	4	Medium	6	Medium
		West	5	Medium	6	Medium
Scranton Rd	Morehouse Dr	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	3	Low	6	Medium
		West	3	Low	6	Medium
Scranton Rd	Mira Mesa Blvd	North	5	Medium	6	Medium
		East	5	Medium	6	Medium
		South	6	Medium	6	Medium
		West	2	Restricted	2	Restricted
Scranton Rd	Sorrento South Dwy/Oberlin Dr	North	2	Restricted	2	Restricted
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium



**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Scranton Rd	Carroll Canyon Rd	West	3	Low	6	Medium
		North	4	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	-	-	-	-
		West	4	Medium	6	Medium
Pacific Heights Blvd	Barnes Canyon Rd	North	6	Medium	6	Medium
		East	4	Medium	6	Medium
		South	5	Medium	6	Medium
		West	5	Medium	6	Medium
Wireless Wy	Pacific Center Blvd	North	3	Low	6	Medium
		East	6	Medium	6	Medium
		South	3	Low	6	Medium
		West	2	Restricted	2	Restricted
Pacific Heights Blvd	Pacific Center Blvd	North	3	Low	6	Medium
		East	5	Medium	6	Medium
		South	5	Medium	6	Medium
		West	2	Restricted	2	Restricted
Pacific Mesa Blvd	Pacific Center Blvd	North	3	Low	6	Medium
		East	3	Low	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Pacific Mesa Blvd	Pacific Heights Blvd	South	3	Low	6	Medium
		West	3	Low	6	Medium
		North	4	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	4	Medium	6	Medium
		West	5	Medium	6	Medium
Pacific Heights Blvd	Mira Mesa Blvd	North	4	Medium	7	High
		East	5	Medium	7	High
		South	5	Medium	7	High
		West	4	Medium	7	High
Pacific Heights Blvd	Cornerstone Ct	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	5	Medium	6	Medium
		West	4	Medium	6	Medium
Pacific Heights Blvd	Carroll Canyon Rd	North	5	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	-	-	-	-
Lopez Point Dr	Calle Cristobal	North	5	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		East	5	Medium	6	Medium
		South	5	Medium	6	Medium
		West	5	Medium	6	Medium
Camino Propico	Calle Cristobal	North	3	Low	6	Medium
		East	2	Restricted	2	Restricted
		South	3	Low	6	Medium
Lopez Ridge Park Driveways	Calle Cristobal	West	3	Low	6	Medium
		North	3	Low	6	Medium
		East	3	Low	6	Medium
Camino Miranda	Calle Cristobal	South	3	Low	6	Medium
		North	4	Medium	6	Medium
		East	3	Low	6	Medium
Windy Ridge Wy	Calle Cristobal	South	4	Medium	6	Medium
		West	3	Low	6	Medium
		North	5	Medium	6	Medium
		East	3	Low	6	Medium
		South	3	Low	6	Medium
		West	3	Low	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Prairie Wood Dr	Calle Cristobal	North	4	Medium	6	Medium
		East	3	Low	6	Medium
		South	4	Medium	6	Medium
		West	4	Medium	6	Medium
Avenida Del Gato	Calle Cristobal	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
		West	3	Low	6	Medium
Camino Ruiz	Calle Cristobal	North	4	Medium	6	Medium
		East	3	Low	6	Medium
		South	2	Restricted	2	Restricted
		West	3	Low	6	Medium
Sequence Dr/Huennekens St	Mira Mesa Blvd	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
		West	2	Restricted	2	Restricted
Genetic Center/Steadman St	Mira Mesa Blvd	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Flanders Dr	Mira Mesa Blvd	West	4	Medium	6	Medium
		North	4	Medium	7	High
		East	4	Medium	6	Medium
		South	4	Medium	7	High
		West	4	Medium	6	Medium
Viper Wy	Mira Mesa Blvd	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
		West	4	Medium	6	Medium
Camino Santa Fe	Mira Mesa Blvd	North	4	Medium	7	High
		East	4	Medium	7	High
		South	4	Medium	7	High
Schilling Ave	Mira Mesa Blvd	West	4	Medium	7	High
		North	5	Medium	6	Medium
		East	5	Medium	6	Medium
		South	4	Medium	6	Medium
Aderman Ave	Mira Mesa Blvd	West	4	Medium	6	Medium
		North	4	Medium	6	Medium
		East	5	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Parkdale Ave	Mira Mesa Blvd	South	5	Medium	6	Medium
		West	5	Medium	6	Medium
		North	5	Medium	7	High
		East	5	Medium	6	Medium
		South	5	Medium	7	High
		West	5	Medium	6	Medium
Reagan Rd	Mira Mesa Blvd	North	5	Medium	7	High
		East	2	Restricted	2	Restricted
		South	4	Medium	6	Medium
		West	5	Medium	6	Medium
Mira Mesa Mall Driveways	Mira Mesa Blvd	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
		West	2	Restricted	2	Restricted
Camino Ruiz	Mira Mesa Blvd	North	6	Medium	6	Medium
		East	6	Medium	6	Medium
		South	6	Medium	6	Medium
		West	6	Medium	6	Medium
New Salem St/Marauder Wy	Mira Mesa Blvd	North	5	Medium	7	High

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		East	5	Medium	6	Medium
		South	5	Medium	6	Medium
		West	5	Medium	6	Medium
Westonhill Dr	Mira Mesa Blvd	North	4	Medium	7	High
		East	2	Restricted	2	Restricted
		South	4	Medium	7	High
		West	5	Medium	6	Medium
		North	5	Medium	6	Medium
		East	5	Medium	6	Medium
Greenford Dr	Mira Mesa Blvd	South	5	Medium	6	Medium
		West	5	Medium	6	Medium
		North	4	Medium	7	High
Westmore Rd/Marbury Ave	Mira Mesa Blvd	East	4	Medium	6	Medium
		South	5	Medium	7	High
		West	4	Medium	6	Medium
Black Mountain Rd	Mira Mesa Blvd	North	6	Medium	6	Medium
		East	5	Medium	6	Medium
		South	5	Medium	6	Medium
		West	5	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Westview Pkwy	Mira Mesa Blvd	North	5	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	5	Medium	6	Medium
		West	4	Medium	6	Medium
I-15 SB Ramps	Mira Mesa Blvd	North	5	Medium	7	High
		East	2	Restricted	2	Restricted
		South	-	-	-	-
		West	2	Restricted	2	Restricted
I-15 NB Ramps	Mira Mesa Blvd	North	4	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	4	Medium	6	Medium
		West	2	Restricted	2	Restricted
Westview Pkwy	Compass Point Dr N	North	2	Restricted	2	Restricted
		East	-	-	-	-
		South	4	Medium	6	Medium
		West	4	Medium	6	Medium
Westview Pkwy	Compass Point Dr S	North	2	Restricted	2	Restricted
		East	-	-	-	-
		South	4	Medium	6	Medium



**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		West	5	Medium	6	Medium
		North	5	Medium	6	Medium
Westview Pkwy	Capricorn Wy	East	3	Low	6	Medium
		South	5	Medium	6	Medium
		West	5	Medium	7	High
		North	6	Medium	6	Medium
Westview Pkwy	Mira Lee Wy	East	6	Medium	6	Medium
		South	6	Medium	7	High
		West	6	Medium	6	Medium
		North	4	Medium	6	Medium
Westview Pkwy	Galvin Ave	East	-	-	-	-
		South	5	Medium	7	High
		West	5	Medium	7	High
Westview Pkwy	Market Center Driveway	North	4	Medium	6	Medium
		East	3	Low	6	Medium
		South	4	Medium	6	Medium
		West	3	Low	6	Medium
Westview Pkwy	Hillery Dr	North	5	Medium	6	Medium
		East	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Maya Linda Rd	Carroll Canyon Rd	South	4	Medium	6	Medium
		West	4	Medium	6	Medium
		North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
		West	5	Medium	6	Medium
I-15 SB Ramps	Carroll Canyon Rd	North	4	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	4	Medium	6	Medium
I-15 NB Ramps	Carroll Canyon Rd	West	4	Medium	6	Medium
		North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
Camino Santa Fe	Miramar Rd	West	2	Restricted	2	Restricted
		North	4	Medium	6	Medium
		East	4	Medium	6	Medium
Commerce Ave	Miramar Rd	South	4	Medium	6	Medium
		North	5	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		East	4	Medium	6	Medium
		South	3	Low	6	Medium
		West	4	Medium	6	Medium
Production Ave	Miramar Rd	North	5	Medium	6	Medium
		East	4	Medium	6	Medium
		South	-	-	-	-
Distribution Ave	Miramar Rd	West	4	Medium	6	Medium
		North	4	Medium	6	Medium
		East	2	Restricted	2	Restricted
Miramar Wy	Miramar Rd	South	-	-	-	-
		West	4	Medium	6	Medium
		North	3	Low	6	Medium
Carroll Rd	Miramar Rd	East	4	Medium	6	Medium
		South	4	Medium	6	Medium
		West	5	Medium	6	Medium
		North	3	Low	6	Medium
		East	2	Restricted	2	Restricted
		South	-	-	-	-
		West	2	Low	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Alesmith Ct	Miramar Rd	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	-	-	-	-
		West	4	Medium	6	Medium
Dowdy Dr	Miramar Rd	North	3	Low	6	Medium
		East	2	Restricted	2	Restricted
		South	-	-	-	-
		West	3	Low	6	Medium
Cabot Dr	Miramar Rd	North	3	Low	6	Medium
		East	3	Low	6	Medium
		South	-	-	-	-
		West	3	Low	6	Medium
Camino Ruiz	Miramar Rd	North	3	Low	7	High
		East	3	Low	7	High
		South	-	-	-	-
		West	2	Restricted	2	Restricted
Clayton Dr/Mitscher Wy	Miramar Rd	North	5	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Black Mountain Rd	Miramar Rd	West	2	Restricted	2	Restricted
		North	5	Medium	6	Medium
		East	2	Low	6	Medium
		South	-	-	-	-
		West	4	Medium	6	Medium
Kearny Villa Rd	Miramar Rd	North	3	Low	6	Medium
		East	2	Low	6	Medium
		South	2	Low	6	Medium
		West	2	Restricted	2	Restricted
Kearny Mesa Rd	Miramar Rd	North	3	Low	6	Medium
		East	2	Low	6	Medium
		South	2	Low	6	Medium
I-15 SB Ramps	Miramar Rd	West	2	Low	6	Medium
		North	4	Medium	6	Medium
		East	2	Restricted	2	Restricted
		South	-	-	-	-
Rehco Rd	Carroll Rd	West	2	Restricted	2	Restricted
		North	4	Medium	6	Medium
		East	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Camino Santa Fe	Carroll Rd	South	4	Medium	6	Medium
		West	4	Medium	6	Medium
		North	4	Medium	7	High
		East	4	Medium	6	Medium
		South	4	Medium	7	High
		West	4	Medium	7	High
Carroll Rd	Kenamar Dr	North	3	Low	6	Medium
		East	3	Low	6	Medium
		South	2	Restricted	2	Restricted
		West	3	Low	6	Medium
Black Mountain Rd	Mercy Rd	North	6	Medium	6	Medium
		East	6	Medium	6	Medium
		South	6	Medium	6	Medium
		West	6	Medium	6	Medium
Black Mountain Rd	Westview Pkwy	North	5	Medium	6	Medium
		East	5	Medium	6	Medium
		South	2	Restricted	2	Restricted
		West	-	-	-	-
Black Mountain Rd	Capricorn Wy	North	5	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		East	5	Medium	7	High
		South	5	Medium	6	Medium
		West	5	Medium	7	High
Black Mountain Rd	Galvin Ave	North	8	High	8	High
		East	4	Medium	6	Medium
		South	2	Restricted	2	Restricted
		West	4	Medium	6	Medium
		North	5	Medium	6	Medium
		East	5	Medium	6	Medium
Black Mountain Rd	Gemini Ave	South	5	Medium	6	Medium
		West	5	Medium	6	Medium
		North	6	Medium	6	Medium
		East	6	Medium	6	Medium
Black Mountain Rd	Hillery Dr	South	6	Medium	6	Medium
		West	6	Medium	6	Medium
		North	5	Medium	6	Medium
Black Mountain Rd	Miramar College	East	5	Medium	6	Medium
		South	5	Medium	6	Medium
		West	-	-	-	-
		North	5	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Black Mountain Rd	Gold Coast Dr	North	6	Medium	6	Medium
		East	6	Medium	6	Medium
		South	6	Medium	6	Medium
		West	6	Medium	6	Medium
Black Mountain Rd	Carroll Canyon Rd	North	6	Medium	7	High
		East	5	Medium	7	High
		South	2	Restricted	2	Restricted
		West	3	Low	7	High
Black Mountain Rd	Maya Linda Rd	North	5	Medium	7	High
		East	4	Medium	7	High
		South	5	Medium	7	High
		West	4	Medium	7	High
Black Mountain Rd/Kearny Villa Rd	Black Mountain Rd/Carroll Centre Rd	North	5	Medium	7	High
		East	5	Medium	7	High
		South	5	Medium	7	High
Black Mountain Rd	Activity Rd	North	2	Restricted	8	High
		East	3	Low	8	High
		South	5	Medium	8	High



**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		West	5	Medium	8	High
Camino Ruiz	Teresa Dr/Capricorn Wy	North	3	Low	6	Medium
		East	3	Low	6	Medium
		South	3	Low	6	Medium
		West	3	Low	6	Medium
		North	4	Medium	6	Medium
Camino Ruiz	Westmore Rd	East	4	Medium	7	High
		South	4	Medium	5	Medium
		West	5	Medium	7	High
		North	4	Medium	6	Medium
Camino Ruiz	New Salem St	East	5	Medium	7	High
		South	4	Medium	6	Medium
		West	5	Medium	7	High
Camino Ruiz	Driveway	North	2	Restricted	2	Restricted
		East	-	-	-	-
		South	3	Low	6	Medium
		West	3	Low	6	Medium
Camino Ruiz	Reagan Rd/Marauder Wy	North	3	Low	6	Medium
		East	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		South	4	Medium	6	Medium
		West	3	Low	6	Medium
Camino Ruiz	Flanders Dr	North	4	Medium	6	Medium
		East	4	Medium	7	High
		South	4	Medium	5	Medium
		West	5	Medium	7	High
		North	6	Medium	6	Medium
Camino Ruiz	Gold Coast Dr	East	5	Medium	6	Medium
		South	4	Medium	5	Medium
		West	5	Medium	7	High
Camino Ruiz	Jade Coast Dr	North	3	Low	6	Medium
		East	3	Low	7	High
		South	2	Restricted	2	Restricted
		West	3	Low	7	High
Camino Ruiz	Carroll Canyon Rd	North	2	Restricted	7	High
		East	-	-	7	High
		South	4	Medium	7	High
		West	5	Medium	7	High
Camino Ruiz	Miralani Dr	North	2	Restricted	2	Restricted

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Camino Ruiz	Activity Rd	East	4	Medium	6	Medium
		South	3	Low	5	Medium
		West	3	Low	6	Medium
		North	3	Low	6	Medium
		East	4	Medium	6	Medium
		South	2	Restricted	2	Restricted
Mercy Rd	Kika Ct	West	3	Low	6	Medium
		North	3	Low	6	Medium
		East	3	Low	6	Medium
		South	2	Restricted	2	Restricted
Alamenia Rd	Mercy Rd	West	-	-	-	-
		North	3	Low	6	Medium
		East	2	Restricted	2	Restricted
		South	3	Low	6	Medium
I-15 SB Ramps	Mercy Rd	West	3	Low	6	Medium
		South	5	Medium	6	Medium
		East	2	Restricted	2	Restricted
		North	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
I-15 NB Ramps	Mercy Rd	North	3	Low	6	Medium
		East	4	Medium	6	Medium
		South	3	Low	6	Medium
		West	2	Restricted	2	Restricted
Camino Santa Fe	Miratech Dr	North	3	Low	6	Medium
		East	2	Low	6	Medium
		South	2	Restricted	2	Restricted
		West	4	Medium	6	Medium
Camino Santa Fe	Summers Ridge Rd	North	3	Low	6	Medium
		East	-	-	-	-
		South	2	Restricted	2	Restricted
		West	4	Medium	6	Medium
Camino Santa Fe	Unnamed Road	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
		West	4	Medium	6	Medium
Camino Santa Fe	Trade St	North	4	Medium	6	Medium
		East	5	Medium	6	Medium
		South	4	Medium	6	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Montongo St	New Salem St	West	3	Low	6	Medium
		North	2	Low	5	Medium
		East	2	Low	6	Medium
		South	2	Low	5	Medium
		West	2	Low	6	Medium
Dabney Dr	Flanders Dr	North	2	Low	5	Medium
		East	1	Low	6	Medium
		South	-	-	-	-
		West	3	Low	6	Medium
Parkdale Ave	Flanders Dr	North	3	Low	6	Medium
		East	3	Low	6	Medium
		South	4	Medium	6	Medium
Parkdale Ave	Gold Coast Dr	West	3	Low	6	Medium
		North	1	Low	6	Medium
		East	3	Low	6	Medium
		South	3	Low	6	Medium
Empress Ave	Gold Coast Dr	West	3	Low	6	Medium
		North	2	Low	5	Medium
		East	0	Low	5	Medium

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
Baroness Ave	Gold Coast Dr	South	2	Low	5	Medium
		West	0	Low	5	Medium
		North	-	-	-	-
		East	0	Low	5	Medium
		South	3	Low	5	Medium
		West	3	Low	5	Medium
San Ramon Dr	Gold Coast Dr	North	4	Medium	6	Medium
		East	3	Low	6	Medium
		South	3	Low	6	Medium
		West	3	Low	6	Medium
Thanksgiving Ln	Gold Coast Dr	North	-	-	-	-
		East	2	Low	6	Medium
		South	3	Low	5	Medium
		West	3	Low	6	Medium
San Ramon Dr	Flanders Dr	North	4	Medium	6	Medium
		East	4	Medium	6	Medium
		South	4	Medium	6	Medium
Ivory Coast Drive	Reagan Road	West	4	Medium	6	Medium
		North	-	-	-	-

**Table 5-2 PEQE Intersection Analysis Results – Proposed Plan Conditions**

Intersection		Intersection Leg	Existing Conditions		Proposed Plan Conditions	
Northbound/Southbound	Eastbound/Westbound		Score	Grade	Score	Grade
		East	0	Low	4	Medium
		South	1	Low	5	Medium
		West	0	Low	4	Medium
Rickert Rd	Hillery Dr	North	4	Medium	5	Medium
		East	0	Low	5	Medium
		South	-	-	-	-
		West	4	Medium	5	Medium
		North	-	-	-	-
		East	1	Low	5	Medium
Montongo St	Acama St	South	2	Low	5	Medium
		West	1	Low	5	Medium
		North	2	Low	5	Medium
Camino Ruiz	Aquarius Dr	East	3	Low	6	Medium
		South	2	Low	4	Medium
		West	2	Low	6	Medium
Westonhill Dr	Arcturus Wy	North	2	Low	6	Medium
		East	4	Medium	5	Medium
		South	4	Medium	6	Medium
		West	-	-	-	-

Source: Kimley-Horn & Associates (2022)



**Table 5-3** summarizes the PEQE analysis results by mile for each of the three pedestrian environment grade categories. Under Proposed Plan conditions, 93% of the Pedestrian Study Area would be considered to have “Median” or “High” quality pedestrian environments, compared to 46% 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 5-3 PEQE Segment Results by Grade Mileage – Proposed Plan Conditions**

Grade	Mileage	Percent
High	1.6	2%
Medium	95.3	91%
Low	7.3	7%
<b>Total</b>	<b>104.2</b>	<b>100%</b>

**Table 5-4** summarizes the PEQE analysis results by the number of intersection approaches identified for each pedestrian environment grade category. 82% 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 59% of intersection legs to consist of Medium PEQE score characteristics and less than 1% of High PEQE score characteristics. Similar to the segments, many intersections along pedestrian route types identified as District and Corridors (previously shown in **Figure 3-2**) 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 5-4 PEQE Intersection Results by Grade – Proposed Plan Conditions**

Grade	Number of Approaches	Percent
High	63	12.7%
Medium	370	74.6%
Low	0	0%
Restricted	63	12.7%
<b>Total</b>	<b>496</b>	<b>100%</b>



## 5.2 Bicycling Assessment Results

This section presents Proposed Plan bicycle network analysis results, assuming the implementation of the improvements identified in **Chapter 3**.

A map of proposed bicycle facilities can be found in **Chapter 3**. **Table 5-5** summarizes the Proposed Plan bicycle facilities by network mileage. The overall network increased by 92 lane miles (273 percent increase) 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 Mira Mesa. Approximately 64 percent of the Proposed Plan bicycle network will be comprised of these separated bicycle facilities (80.3 miles), compared to 0 percent of the existing network.

**Table 5-5 Bicycle Facilities by Network Mileage – Proposed Plan Conditions**

Facility Type	Existing Conditions		Proposed Plan	
	Mileage (Lane Miles)	Percent	Mileage (Lane Miles)	Percent
Class I – Multi-use Path	0.0	0%	16.1	13%
Class II – Bike Lane	27.5	81%	16.9	13%
Class III – Bike Route	6.3	19%	28.7	23%
Class IV – Bikeway (One-Way)	0.0	0%	6.2	5%
Class IV – Bikeway (Two-Way)	0.0	0%	58.0	46%
<b>Total</b>	<b>33.8</b>	<b>100%</b>	<b>125.9</b>	<b>100%</b>

Source: Kimley-Horn & Associates (2022)

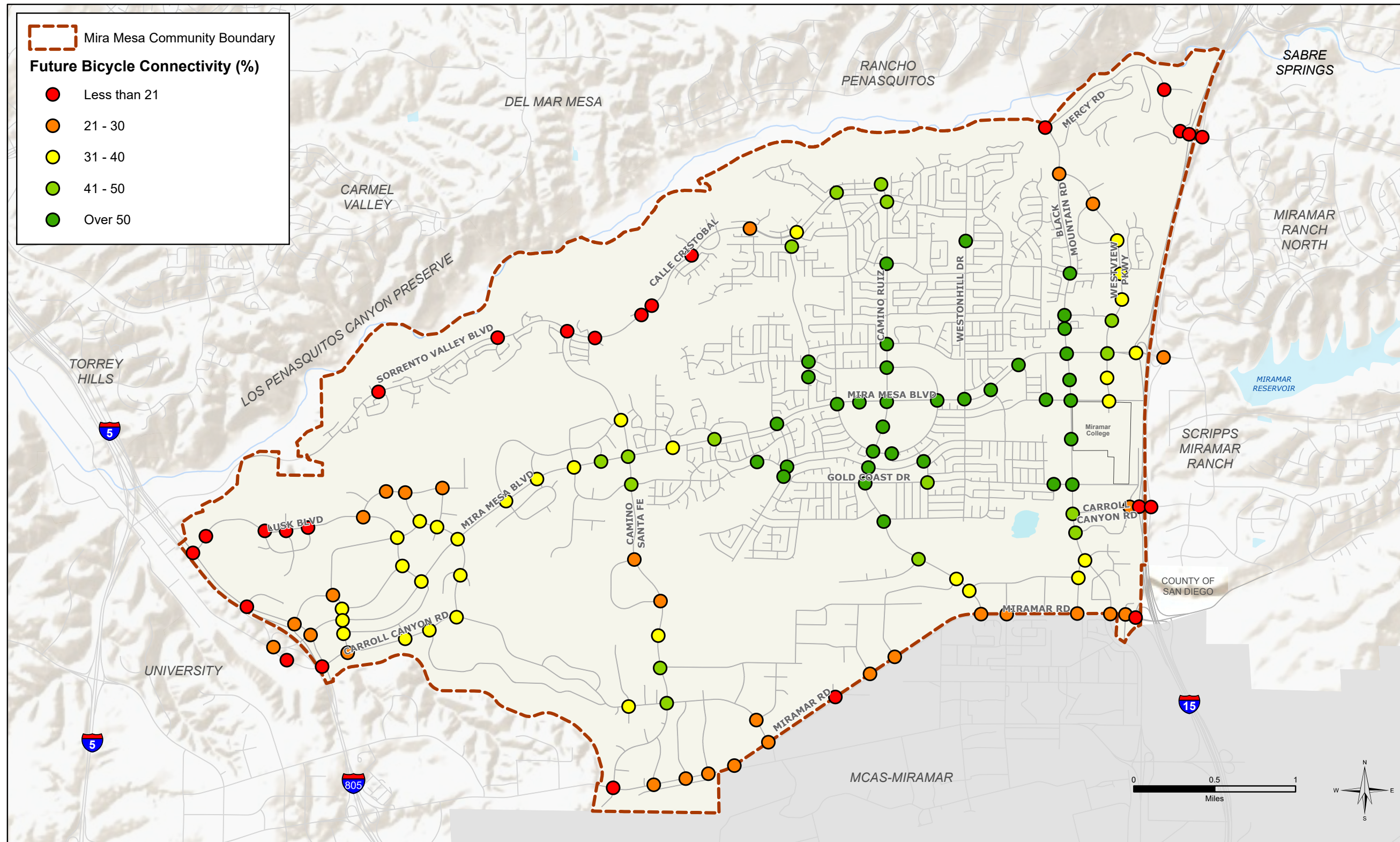
### 5.2.1 Bicycle Connectivity Ratio

Figure 5-3 displays bicycle network connectivity to and from Study Area intersections. This analysis calculates the percent of area accessible to bicyclists within a 1.0-mile network buffer from the respective intersection (connectivity ratio). For context a connectivity ratio of 50 percent or greater is considered to be ideal.

As shown, bicycle connectivity is at ideal levels near the Mira Mesa Town Center area, the Mira Mesa Gateway area, and near the Miramar College Transit Center. The connectivity level decreases as the location is further away from these two focus areas.



Figure 5-3



Bicycle Network Connectivity – Proposed Plan Conditions

## 5.2.2 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 **Chapter 2**. **Figure 5-4** displays the Bicycle Level of Traffic Stress (LTS) analysis results for all bikeable roadways in Mira Mesa with implementation of the improvements indicated in **Section 3.3.2**. **Table 5-6** summarizes the LTS analysis results by linear miles for each of the four LTS categories.

**Table 5-6 Bicycle Facilities by Network Mileage – Proposed Plan Conditions**

Level of Traffic Stress	Mileage	Percent
LTS 1	80.4	73.1%
LTS 2	7.3	6.6%
LTS 3	3.7	3.4%
LTS 4	18.6	16.9%
<b>Total</b>	<b>110</b>	<b>100%</b>

The proposed bicycle network identifies protected facilities along many of the higher speed roadways within Mira Mesa. Protected facilities, such as Class I multi-use paths and Class IV bikeways provide physical separation from vehicular traffic resulting in the lowest traffic stress for bicyclists, LTS 1. 80 percent of the study area would be considered to have a low-stress bicycling environment (LTS 1 or 2).

The future bicycle LTS analysis assumed implementation of the proposed bicycle network and traffic calming and posted speed limit reduction on the following key corridors:

- Westmore Road – reduce to 25 mph with traffic calming
- Gold Coast Drive – reduce to 25 mph with traffic calming
- Hillery Drive – reduce to 30 mph with traffic calming
- Galvin Avenue – reduce to 25 mph with road diet and traffic calming

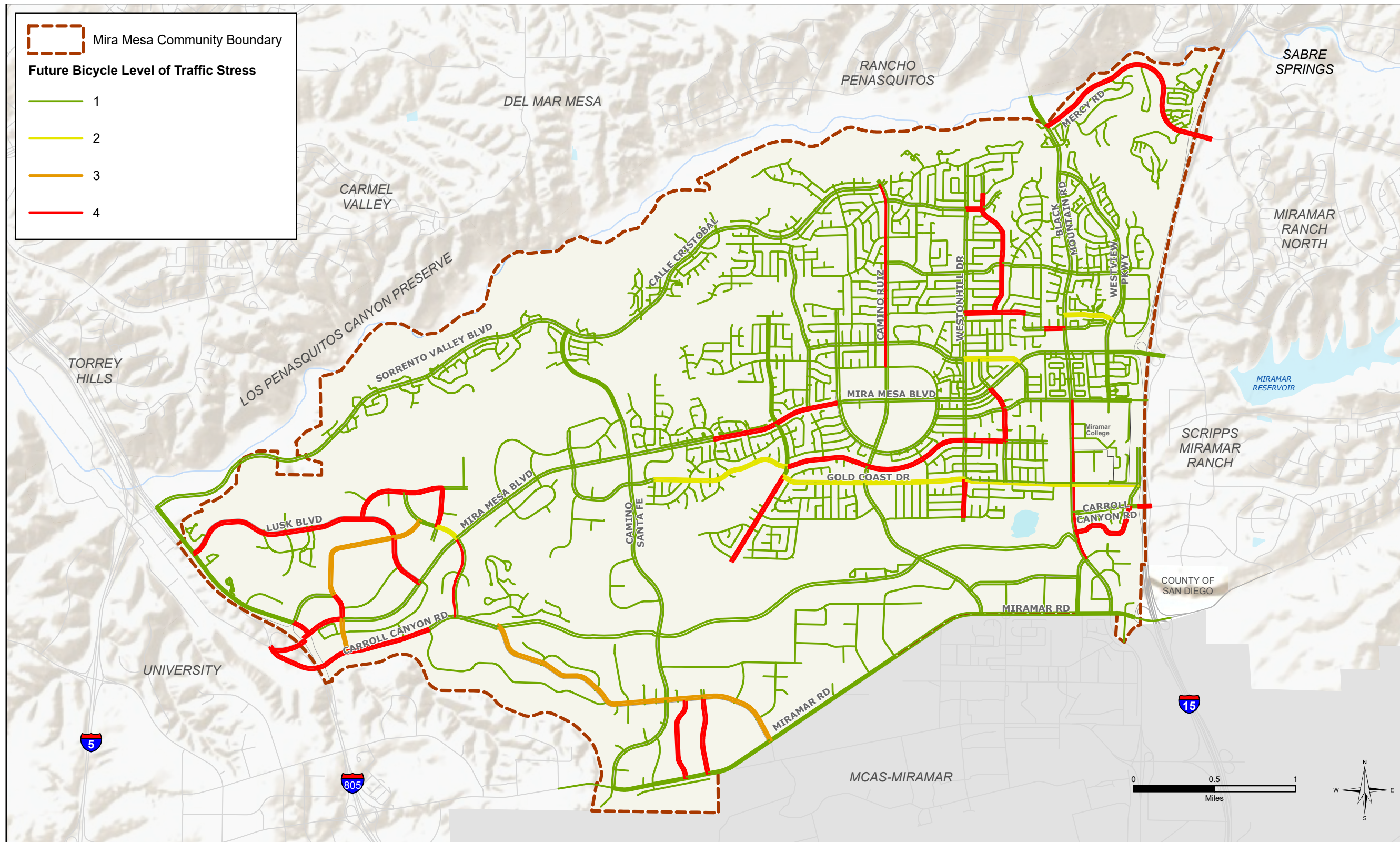
## 5.2.3 Low-Stress Bicycle Connectivity Analysis

The low-stress bicycle connectivity analysis calculates the percentage of the bike network that a bicyclist can access from each TAZ in the study area using only bike facilities with a score of LTS 1 and/or 2 in both directions under the Proposed Plan conditions. **Figure 5-5** displays the results of the low-stress bicycle connectivity assessment for the Proposed Plan bike network.

As a result of the proposed bike improvements, the number of TAZs with 20% or more accessibility via low-stress facilities increased, and the number of TAZs with less than 1% accessibility decreased. Specifically, the accessibility in the Sorrento Mesa area increased and access from the Miramar College Transit Station to the remainder of the community via low-stress bike facilities increased significantly. Proposed separated facilities on Westview Parkway, Black Mountain Road, and N Campus Drive provide increased access to the community. Hillery Drive still presents a barrier to unlocking a greater portion of the adjacent land uses via the low-stress bicycle network.



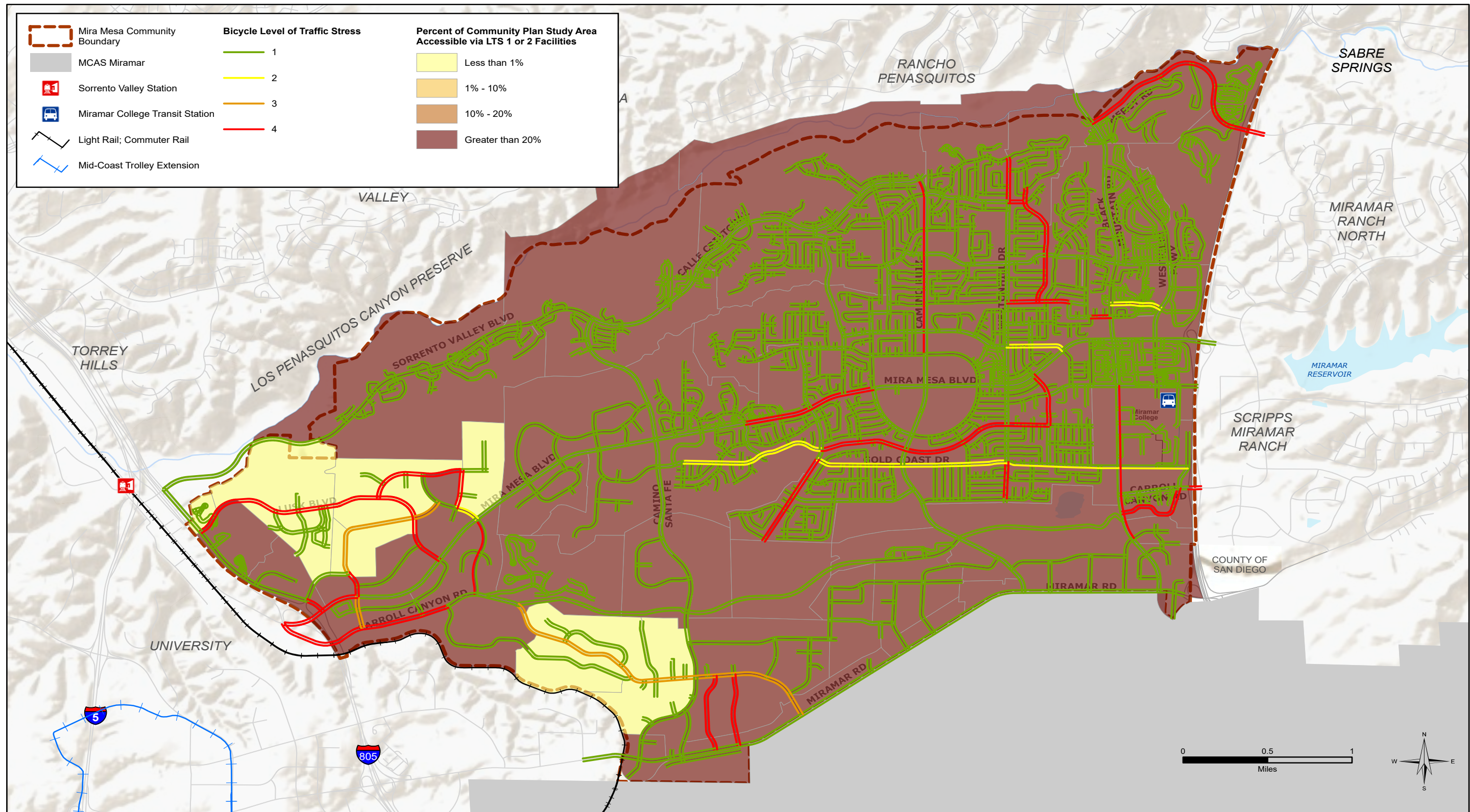
Figure 5-4



Bicycle Level of Traffic Stress (LTS) – Proposed Plan Conditions



Figure 5-5



Low Stress Bicycle Connectivity – Proposed Plan Conditions



### 5.3 Transit Assessment

Public Transit services and facilities under the Proposed Plan conditions assume the implementation of the 2050 transit improvements and routes from SANDAG’s 2021 Regional Plan including the Mid-Coast Trolley Extension, commuter rail, and a new rapid transit route on Carroll Canyon Road with a center-running guideway with access to the I-15 and I-805 freeways. The Regional Plan was supplemented with improvements from previous feasibility studies such as the Sorrento Valley Coaster Station relocation and an aerial skyway connecting the Blue Line Trolley in University to the Sorrento Mesa employment area (shown as a commuter rail in the Regional Plan), with a stop at the relocated station. The Proposed Plan recommends extending the aerial skyway (transit) into the heart of Mira Mesa near Camino Ruiz.

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 by considering the new proposed flexible lanes and Rapid Transit routes. Although not all of the projects that are currently proposed in the 2021 Regional Plan were included in the SANDAG model, 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.

#### 5.3.1 Transit Route Daily Ridership

**Table 5-7** displays the projected transit boardings and alightings by route for each transit stop under Proposed Plan conditions. 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 Mira Mesa.

**Table 5-7 Daily Transit Ridership – Proposed Plan Conditions**

Route	Proposed Plan Daily Ridership
20	1,669
31	7,287
110	764
235	35,527
237	6,593
280	871
921	12,115
964	5,431
972	779

*Source: SANDAG Series 13 Model Run*

Based on future ridership levels projected at each transit stop/station, specific amenities are required per MTS Designing for Transit Manual. **Table 5-8** indicates additional amenities that will be required based on future boardings by stop/station.

Table 5-8 Bus Stop Amenity Standards by Ridership Levels

Amenity	Daily Passenger Boardings by Stop/Station				
	<50	50-100	101-200	201-500	>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/Recycling 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 Feature

O = Optional Feature

\* = Required for stops 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)

### 5.3.2 Transit Service Quality/Arterial Performance

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. Although all of the flexible lanes in the network could become high-occupancy vehicle lanes instead, the more conservative option, transit-only lanes, were modeled on the following corridors: Mira Mesa Boulevard, Camino Ruiz, Carroll Canyon Road, Lusk Boulevard, Barnes Canyon Road / Scranton Road.

**Table 5-9** summarizes future transit travel time along Mira Mesa Boulevard 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 on Mira Mesa Boulevard, as well as an average vehicle dwelling time for each bus route on the corridor. The wait time was developed based on the route headways, assuming travelers plan ahead more for bus routes with longer headways.

**Table 5-9 Mira Mesa Blvd Travel Time (I-805 to I-15) – Proposed Plan Conditions**

Proposed Plan Vehicle Travel Times (min)		Proposed Plan Transit Travel Times (min)*					
		Route 237/BRT		Route 921		Route 110	
AM	PM	AM	PM	AM	PM	AM	PM
17	36	21	20	27	26	28	27
29	16	21	21	27	27	28	28

Note: Analysis completed using Synchro 11 Travel Time Run.

\* Transit travel time accounts for anticipated bus stop wait time and bus route dwelling time.

As shown in the table, it can take anywhere from 16 to 36 minutes to travel by car across the length of the corridor. The best-case scenario for transit indicates the future BRT route would be expected to take 20 to 21 minutes across the corridor in either direction during either peak hour period. Route 921 and Route 110 would be anticipated to take between 26 and 28 minutes. The results indicate taking transit is not only more reliable, but also a competitive option to taking a vehicle on Mira Mesa Boulevard based on travel time.

## 5.4 Street Assessment and Results

The local street system in Mira Mesa was evaluated under Proposed Plan conditions, which assumes implementation of the improvements identified in **Chapter 3**. The assessment includes projected daily roadway segment level of service, peak hour intersection level of service, and arterial analysis. Roadway classifications under the Proposed Plan are presented in **Figure 5-6**.

### 5.4.1 Roadway Segment Analysis

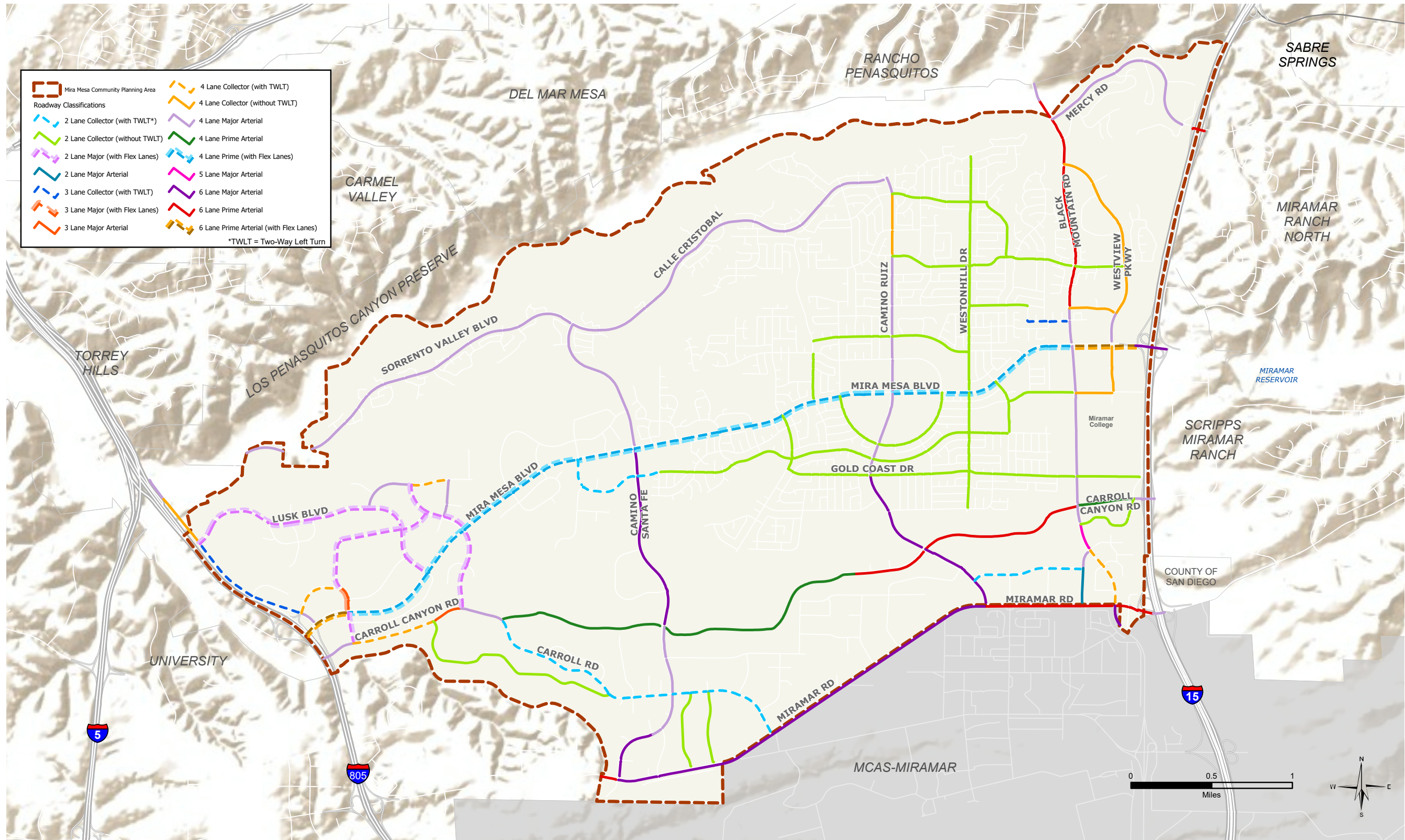
The roadway segment analysis was conducted for the Proposed Plan roadway classifications displayed in **Figure 5-6**. **Figure 5-7** and **Table 5-10** display the roadway LOS under Proposed Plan conditions.



As shown **Figure 5-7**, 144 Mobility Element roadway segments of the Mira Mesa study area were analyzed under Proposed Plan conditions. 88 of those segments are projected to operate at an acceptable LOS D or better, while 56 segments are projected to operate at LOS E or F (40%). 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 Mira Mesa Boulevard, Miramar Road, Black Mountain Road, Camino Santa Fe, and Camino Ruiz. Many of these have flexible lanes and high-quality bicycle facilities proposed, which incentivize people to use alternative modes of transportation and decrease the single-occupancy vehicle demand.



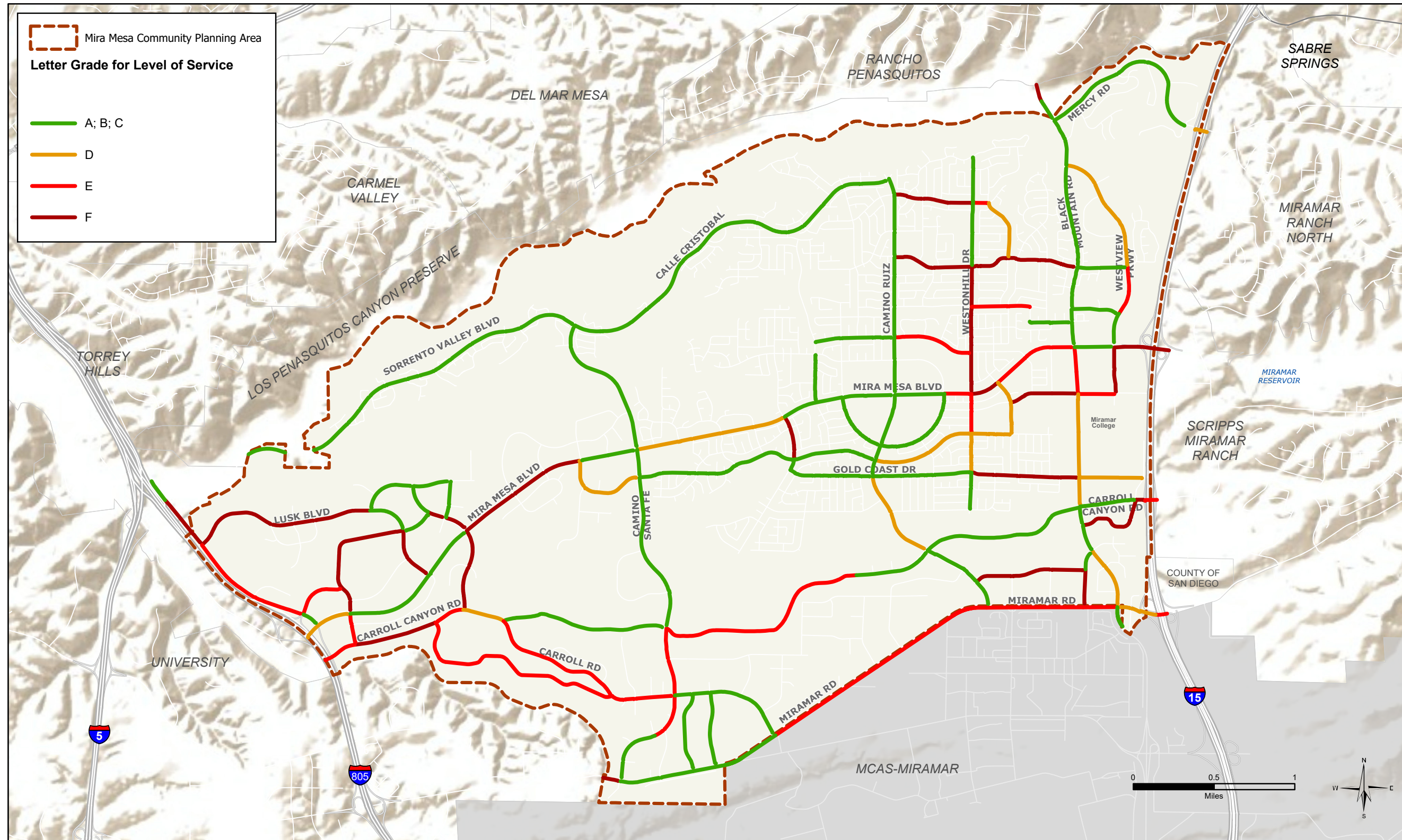
Figure 5-6



Roadway Classifications – Proposed Plan Conditions



Figure 5-7



Daily Roadway Segment LOS – Proposed Plan Conditions

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
<b>Vista Sorrento Parkway</b>					
North of Sorrento Valley Blvd.	4 Lane Major Arterial	40,000	20,092	0.50	B
Sorrento Valley Blvd (N. Community Limit) to Lusk Blvd	4 Lane Collector (without two-way left-turn Lane)	15,000	25,400	1.69	F
Lusk Blvd to Mira Sorrento Pl	3 Lane Collector (with two-way left-turn Lane)	22,500	21,342	0.95	E
Mira Sorrento Pl to Mira Mesa Blvd	4 Lane Major Arterial	40,000	17,131	0.43	B
<b>Sorrento Valley Blvd</b>					
West of Western Community Limit to I-805	4 Lane Major Arterial	40,000	34,647	0.87	D
I-805 to Camino Santa Fe	4 Lane Major Arterial	40,000	27,792	0.69	C
<b>Lusk Blvd</b>					
Vista Sorrento Pkwy to Pacific Center Blvd	2 Lane Major (with 2 flexible lanes)	20,000	26,163	1.31	F
Pacific Center Blvd to Barnes Canyon Rd	2 Lane Major (with 2 flexible lanes)	20,000	12,240	0.61	C
Barnes Canyon Rd to Mira Mesa Blvd	2 Lane Major (with 2 flexible lanes)	20,000	29,455	1.47	F
<b>Mira Sorrento Pl</b>					
Vista Sorrento Pkwy to Scranton Rd	4 Lane Collector (with two-way left-turn Lane)	30,000	26,973	0.90	E
<b>Scranton Rd</b>					
Barnes Canyon Rd to Mira Sorrento Pl	2 Lane Major (with 2 flexible lanes)	20,000	23,915	1.19	F
Mira Sorrento Pl to Mira Mesa Blvd	3 Lane Major (with 2 flexible lanes)	30,000	31,535	1.05	F
Mira Mesa Blvd to Carroll Canyon Rd	2 Lane Major (with 2 flexible lanes)	20,000	19,397	0.97	E

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Barnes Canyon Rd					
Scranton Rd to Lusk Blvd	2 Lane Major (with 2 flexible lanes)	20,000	21,952	1.10	F
Lusk Blvd to Pacific Heights Blvd	2 Lane Major (with 2 flexible lanes)	20,000	12,491	0.63	C
Pacific Center Blvd					
Lusk Blvd to Pacific Heights Blvd	4 Lane Major Arterial	40,000	8,761	0.22	A
Pacific Heights Blvd to Pacific Mesa Blvd	4 Lane Collector (with two-way left-turn Lane)	30,000	12,555	0.42	B
Pacific Heights Blvd					
Pacific Center Blvd to Barnes Canyon Rd	2 Lane Major (with 2 flexible lanes)	20,000	8,216	0.41	B
Barnes Canyon Rd to Mira Mesa Blvd	2 Lane Major (with 2 flexible lanes)	20,000	29,003	1.45	F
Mira Mesa Blvd to Carroll Canyon Rd	2 Lane Major (with 2 flexible lanes)	20,000	21,651	1.08	F
Pacific Mesa Blvd					
Pacific Heights Blvd to Pacific Center Blvd	4 Lane Major Arterial	40,000	20,838	0.52	B
Calle Cristobal					
Camino Santa Fe to Acama Ct	4 Lane Major Arterial	40,000	17,507	0.44	B
Acama Ct to Camino Ruiz	4 Lane Major Arterial	40,000	10,936	0.27	A
Mira Mesa Blvd					
I-805 to Scranton Rd	6 Lane Prime (with 2 flexible lanes) (SMART)	68,400	62,244	0.91	D
Scranton Rd to Lusk Blvd	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	33,699	0.66	C
Lusk Blvd to Pacific Heights Blvd	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	39,445	0.77	C

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Pacific Heights Blvd to Flanders Dr	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	56,324	1.10	F
Flanders Dr to Camino Santa Fe	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	26,040	0.51	B
Camino Santa Fe to Parkdale Ave	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	41,507	0.81	D
Parkdale Ave to Reagan Rd	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	34,490	0.67	C
Reagan Rd to Camino Ruiz	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	28,016	0.55	C
Camino Ruiz to New Salem St/Marauder Wy	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	35,352	0.69	C
New Salem St/Marauder Wy to Westonhill Dr	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	47,405	0.92	E
Westonhill Dr to Greenford Dr	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	53,720	1.05	F
Greenford Dr to Black Mountain Rd	4 Lane Prime (with 2 flexible lanes) (SMART)	51,300	48,242	0.94	E
Black Mountain Rd to Westview Pkwy	6 Lane Prime (with 2 flexible lanes) (SMART)	68,400	56,411	0.82	C
Westview Pkwy to I-15	6 Lane Prime (with 2 flexible lanes) (SMART)	68,400	88,145	1.29	F
I-15 to East of Eastern Community Limit	6 Lane Major Arterial	50,000	52,324	1.05	F
Carroll Canyon Rd					
Sorrento Valley Rd/Mira Mesa Blvd to Scranton Rd	4 Lane Major Arterial	40,000	36,330	0.91	E
Scranton Rd to Nancy Ridge Dr (W)	4 Lane Collector (with two-way left-turn Lane)	30,000	30,587	1.02	F
Nancy Ridge Dr (W) to Pacific Heights Blvd	3 Lane Major Arterial	30,000	26,477	0.883	E
Pacific Heights Blvd to Carroll Rd	4 Lane Major Arterial	40,000	32,098	0.802	D

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Carroll Rd to Camino Santa Fe	4 Lane Prime (SMART)	51,300	22,917	0.45	B
Camino Santa Fe to Juniper Creek Ln	4 Lane Prime (SMART)	51,300	46,859	0.91	E
Juniper Creek Ln to Camino Ruiz	6 Lane Prime (SMART)	68,400	47,879	0.70	C
Camino Ruiz to Black Mountain Rd	6 Lane Prime (SMART)	68,400	14,320	0.21	A
Black Mountain Rd to Maya Linda Rd	4 Lane Prime (SMART)	51,300	33,095	0.65	C
Maya Linda Rd to I-15	4 Lane Major Arterial	40,000	53,470	1.34	F
I-15 to East of Eastern Community Limit	4 Lane Major Arterial	40,000	37,044	0.93	E
<b>Carroll Rd</b>					
Carroll Canyon Rd to Camino Santa Fe	2 Lane Collector (with two-way left-turn Lane)	15,000	14,130	0.94	E
Camino Santa Fe to Miramar Rd	2 Lane Collector (with two-way left-turn Lane)	15,000	7,724	0.51	C
<b>Nancy Ridge Dr</b>					
Carroll Canyon Rd to Carroll Rd	2 Lane Collector (without two-way left-turn Lane)	8,000	6,700	0.84	E
<b>Miramar Rd</b>					
West of Western Community Limit	6 Lane Prime Arterial	60,000	71,154	1.19	F
Western Community Limit to Camino Santa Fe	6 Lane Prime Arterial	60,000	74,362	1.24	F
Camino Santa Fe to Production Ave	6 Lane Major Arterial	50,000	33,046	0.66	C
Production Ave to Distribution Ave	6 Lane Major Arterial	50,000	32,438	0.65	C
Distribution Ave to Carroll Rd	6 Lane Major Arterial	50,000	31,871	0.64	C
Carroll Rd to Camino Ruiz	6 Lane Major Arterial	50,000	48,411	0.97	E
Camino Ruiz to Black Mountain Rd	6 Lane Prime Arterial	60,000	59,114	0.99	E

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Black Mountain Rd to Kearny Villa Rd	6 Lane Prime Arterial	60,000	59,098	0.98	E
Kearny Villa Rd to I-15	6 Lane Prime Arterial	60,000	54,339	0.91	D
I-15 to East of Eastern Community Limit	4 Lane Major Arterial	40,000	38,666	0.97	E
Flanders Dr					
Mira Mesa Blvd to Camino Santa Fe	2 Lane Collector (with two-way left-turn Lane)	15,000	12,388	0.83	D
Camino Santa Fe to Caminito Alvarez	2 Lane Collector (with two-way left-turn Lane)	15,000	7,488	0.50	C
Caminito Alvarez to Parkdale Ave	2 Lane Collector (without two-way left-turn Lane)	8,000	3,334	0.42	B
Parkdale Ave to Camino Ruiz	2 Lane Collector (without two-way left-turn Lane)	8,000	4,690	0.59	C
Camino Ruiz to Westonhill Dr	2 Lane Collector (without two-way left-turn Lane)	8,000	5,552	0.69	D
Westonhill Dr to Greenford Dr	2 Lane Collector (without two-way left-turn Lane)	8,000	5,969	0.75	D
Camino Santa Fe					
Sorrento Valley Blvd/Calle Cristobal to Top Gun St	4 Lane Major Arterial	40,000	24,315	0.61	C
Top Gun St to Mira Mesa Blvd	4 Lane Major Arterial	40,000	13,832	0.35	A
Mira Mesa Blvd to Flanders Dr	6 Lane Major Arterial	50,000	16,467	0.33	A
Flanders Dr to Carroll Canyon Rd	6 Lane Major Arterial	50,000	35,412	0.71	C
Carroll Canyon Rd to Carroll Rd	4 Lane Major Arterial	40,000	38,802	0.97	E
Carroll Rd to Spectrum Ln	4 Lane Major Arterial	40,000	37,880	0.95	E
Spectrum Ln to Miramar Rd	6 Lane Major Arterial	50,000	38,420	0.77	C



Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
<b>Parkdale Ave</b>					
Mira Mesa Blvd to Flanders Dr	2 lane Collector (without two-way left-turn lane)	8,000	8,363	1.05	F
Flanders Dr to Osgood Wy	2 lane Collector (without two-way left-turn lane)	8,000	3,517	0.44	C
<b>Production Ave</b>					
Carroll Rd to Miramar Rd	2 lane Collector (without two-way left-turn lane)	8,000	2,547	0.32	B
<b>Distribution Ave</b>					
Carroll Rd to Miramar Rd	2 lane Collector (without two-way left-turn lane)	8,000	2,284	0.29	A
<b>Montongo St</b>					
Acama St to Westmore Rd	2 lane Collector (without two-way left-turn lane)	8,000	2,982	0.37	B
Westmore Rd to Mira Mesa Blvd	2 lane Collector (without two-way left-turn lane)	8,000	4,656	0.58	C
<b>Camino Ruiz</b>					
Calle Cristobal to Aquarius Dr	4 Lane Major Arterial	40,000	12,108	0.30	A
Aquarius Dr to Teresa Dr/Capricorn Wy	4 Lane Collector (without two-way left-turn Lane)	15,000	7,846	0.52	C
Teresa Dr/Capricorn Wy to Westmore Rd	4 Lane Major Arterial	40,000	12,152	0.30	A
Westmore Rd to Mira Mesa Blvd	4 Lane Major Arterial	40,000	24,906	0.62	C
Mira Mesa Blvd to Reagan/Marauder Wy	4 Lane Major Arterial	40,000	14,614	0.37	A

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Reagan Rd/Marauder Wy to Flanders Dr	4 Lane Major Arterial	40,000	14,614	0.37	A
Flanders Dr to Gold Coast Dr	4 Lane Major Arterial	40,000	25,618	0.64	C
Gold Coast Dr to Carroll Canyon Rd	6 Lane Major Arterial	50,000	43,612	0.87	D
Carroll Canyon Rd to Activity Rd	6 Lane Major Arterial	50,000	24,696	0.49	B
Activity Rd to Miramar Rd	6 Lane Major Arterial	50,000	24,696	0.49	B
Westmore Rd					
Montongo St to Camino Ruiz	2 lane Collector (without two-way left-turn lane)	8,000	4,029	0.50	C
Camino Ruiz to Westonhill Dr	2 lane Collector (without two-way left-turn lane)	8,000	7,741	0.97	E
Reagan Rd					
Mira Mesa Blvd to Camino Ruiz	2 lane Collector (without two-way left-turn lane)	8,000	4,834	0.60	C
Marauder Wy					
Camino Ruiz to Mira Mesa Blvd	2 lane Collector (without two-way left-turn lane)	8,000	2,382	0.30	A
Gold Coast Dr					
Parkdale Ave to Camino Ruiz	2 lane Collector (without two-way left-turn lane)	8,000	6,955	0.87	E
Camino Ruiz to Westonhill Dr	2 lane Collector (without two-way left-turn lane)	8,000	2,390	0.30	A
Westonhill Dr to Black Mountain Rd	2 lane Collector (without two-way left-turn lane)	8,000	10,233	1.28	F

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Black Mountain Rd to Maya Linda Rd	2 lane Collector (without two-way left-turn lane)	8,000	6,329	0.79	D
Westonhill Dr					
Menkar Rd to Aquarius Dr	2 lane Collector (without two-way left-turn lane)	8,000	2,118	0.26	A
Aquarius Dr to Capricorn Wy	2 lane Collector (without two-way left-turn lane)	8,000	2,464	0.31	A
Capricorn Wy to Libra Dr	2 lane Collector (without two-way left-turn lane)	8,000	10,489	1.31	F
Libra Dr to Westmore Rd	2 lane Collector (without two-way left-turn lane)	8,000	8,338	1.04	F
Westmore Rd to Mira Mesa Blvd	2 lane Collector (without two-way left-turn lane)	8,000	9,237	1.15	F
Mira Mesa Blvd to Flanders Dr	2 lane Collector (without two-way left-turn lane)	8,000	6,920	0.87	E
Flanders Dr to Gold Coast Dr	2 lane Collector (without two-way left-turn lane)	8,000	5,300	0.66	D
Gold Coast Dr to Jade Coast Dr	2 lane Collector (without two-way left-turn lane)	8,000	2,991	0.37	B
Aquarius Dr					
Camino Ruiz to Westonhill Dr	2 lane Collector (without two-way left-turn lane)	8,000	8,758	1.09	F

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Westonhill Dr to Bootes Dt	2 lane Collector (without two-way left-turn lane)	8,000	6,758	0.84	E
Capricorn Wy					
Camino Ruiz to Westonhill Dr	2 lane Collector (without two-way left-turn lane)	8,000	8,394	1.05	F
Westonhill Dr to Bootes St	2 lane Collector (without two-way left-turn lane)	8,000	9,078	1.13	F
Bootes St to Black Mountain Rd	2 lane Collector (without two-way left-turn lane)	8,000	16,976	2.12	F
Black Mountain Rd to Westview Pkwy	2 lane Collector (without two-way left-turn lane)	8,000	2,807	0.35	B
Bootes St					
Aquarius Dr to Capricorn Wy	2 lane Collector (without two-way left-turn lane)	8,000	5,365	0.67	D
Libra Dr					
Westonhill Dr to Hyades Wy	2 lane Collector (without two-way left-turn lane)	8,000	7,612	0.95	E
Greenford Dr					
Mira Mesa Blvd to Hillery Dr	2 lane Collector (without two-way left-turn lane)	8,000	5,240	0.66	D
Hillery Dr to Flanders Dr	2 lane Collector (without two-way left-turn lane)	8,000	5,787	0.72	D
Black Mountain Rd					
North of Northern Community Limit	4 Lane Major Arterial	40,000	42,365	1.06	F

Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Northern Community Limit to Westview Pkwy	6 Lane Prime Arterial	60,000	45,767	0.76	C
Westview Pkwy to Capricorn Wy	6 Lane Prime Arterial	60,000	35,630	0.59	C
Capricorn Wy to Galvin Ave	6 Lane Prime Arterial	60,000	25,553	0.43	B
Galvin Ave to Gemini Ave	4 Lane Major Arterial	40,000	24,570	0.61	C
Gemini Ave to Mira Mesa Blvd	4 Lane Major Arterial	40,000	29,460	0.74	C
Mira Mesa Blvd to Hillery Dr	4 Lane Major Arterial	40,000	35,618	0.89	E
Hillery Dr to Gold Coast Dr	4 Lane Major Arterial	40,000	30,065	0.75	D
Gold Coast Dr to Carroll Canyon Rd	4 Lane Major Arterial	40,000	31,172	0.78	D
Carroll Canyon Rd to Maya Linda Rd	4 Lane Major Arterial	40,000	18,381	0.46	B
Maya Linda Rd to Black Mountain Rd/Carroll Centre Rd	5 Lane Major Arterial	45,000	28,973	0.64	C
Black Mountain Rd/Kearny Villa Rd to Activity Rd	4 Lane Major Arterial	40,000	14,013	0.35	A
Activity Rd to Miramar Rd	2 Lane Major Arterial	20,000	20,174	1.01	F
Kearny Villa Rd					
Black Mountain Rd/Carroll Centre Rd to Miramar Rd	4 Lane Collector (with two-way left-turn Lane)	30,000	23,233	0.77	D
Miramar Rd to South of Southern Community Limit	6 Lane Major Arterial	50,000	34,364	0.69	C
Gemini Ave					
Hyades Wy to Black Mountain Rd	3 Lane Collector (with two-way left-turn Lane)	22,500	13,639	0.61	C
Hillery Dr					
Greenford Dr to Black Mountain Rd	2 lane Collector (without two-way left-turn lane)	8,000	16,025	2.00	F

**Table 5-10 Roadway Segment Analysis – Proposed Plan Conditions**

Roadway Segment	Proposed Plan Condition Ultimate Classification	LOS E Capacity (a)	ADT (b)	V/C Ratio (c)	LOS
Black Mountain Rd to Westview Pkwy	4 Lane Collector (without two-way left-turn Lane)	15,000	13,113	0.87	<b>E</b>
Activity Rd					
Camino Ruiz to Black Mountain Rd	2 Lane Collector (with two-way left-turn Lane)	15,000	17,213	1.15	<b>F</b>
Mercy Rd					
Black Mountain Rd to I-15	4 Lane Major Arterial	40,000	18,233	0.46	<b>B</b>
I-15 to East of Eastern Community Limit	6 Lane Prime Arterial	60,000	52,435	0.87	<b>D</b>
Westview Pkwy					
Black Mountain Rd to Capricorn Wy	4 Lane Collector (without two-way left-turn Lane)	15,000	10,137	0.68	<b>D</b>
Capricorn Wy to Galvin Ave	4 Lane Collector (without two-way left-turn Lane)	15,000	14,687	0.98	<b>E</b>
Galvin Ave to Mira Mesa Blvd	4 Lane Major Arterial	40,000	23,733	0.59	<b>C</b>
Mira Mesa Blvd to Hillery Dr	4 Lane Collector (without two-way left-turn Lane)	15,000	27,172	1.81	<b>F</b>
Galvin Ave					
Black Mountain Rd to Westview Pkwy	4 Lane Collector (without two-way left-turn Lane)	15,000	3,807	0.25	<b>A</b>
Maya Linda Rd					
Carroll Canyon Rd to Black Mountain Rd	2 lane Collector (without two-way left-turn lane)	8,000	14,320	1.79	<b>F</b>

Notes: **Bold** Values indicate roadway segments operating at LOS E or F.

- a) Proposed Plan road capacities are based on **Table 2-8** of this report.
- b) Average Daily Traffic volumes for the roadway segments are based on SANDAG’s model data.
- c) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment’s capacity.

### 5.4.2 Peak Hour Arterial Analysis

AM and PM peak hour segment level of service analyzes forecasted travel speeds based on anticipated conditions. **Table 5-11** shows the AM and PM peak hour arterial level of service results. The analysis output is provided in **Appendix G**.

**Table 5-11 Peak Hour Arterial Analysis – Proposed Plan Conditions**

Roadway Segment	Period	Direction	Roadway Speed (mph)	LOS
<b>Black Mountain Rd:</b> Miramar Rd to Mercy Rd	AM	NB	16.2	<b>E</b>
		SB	13.6	<b>E</b>
	PM	NB	12.3	<b>F</b>
		SB	10.9	<b>F</b>
<b>Camino Ruiz:</b> Activity Rd to Aquarius Dr	AM	NB	21.8	D
		SB	20.7	D
	PM	NB	17.4	<b>D</b>
		SB	20.8	D
<b>Mira Mesa Blvd<sup>1</sup>:</b> I-805 NB Off-Ramp to I-15 NB Off-Ramp	AM	EB	16.0	<b>E</b>
		WB	9.4	<b>F</b>
	PM	EB	9.8	<b>F</b>
		WB	17.6	D
<b>Miramar Rd:</b> Camino Santa Fe to Kearny Villa Rd	AM	EB	27.3	C
		WB	19.5	<b>E</b>
	PM	EB	18.6	<b>E</b>
		WB	23.2	D
<b>Camino Santa Fe:</b> Calle Cristobal to Miramar Rd	AM	NB	21.1	D
		SB	16.9	<b>E</b>
	PM	NB	12.1	<b>F</b>
		SB	16.9	<b>E</b>
<b>Westview Pkwy:</b> Black Mountain Rd to Mira Mesa Blvd	AM	NB	19.6	D
		SB	15.0	<b>E</b>
	PM	NB	11.7	<b>F</b>
		SB	19.2	D
<b>Scranton Rd:</b> Mira Sorrento Pl to Carroll Canyon Rd	AM	NB	7.1	<b>F</b>
		SB	11.1	<b>E</b>
	PM	NB	12.7	<b>E</b>
		SB	7.4	<b>F</b>
<b>Barnes Canyon Rd:</b> Lusk Blvd to Pacific Heights Blvd	AM	EB	19.2	<b>C</b>
		WB	4.6	<b>F</b>
	PM	EB	13.1	<b>E</b>
		WB	8.2	<b>F</b>

Notes: **Bold** Values indicate roadway segments operating at LOS E or F.  
The travel times are reported from the Arterial LOS report from Synchro 11.

1. Includes reduction of one through lane in both directions along Mira Mesa Boulevard to accommodate for a transit only lane.

### 5.4.3 Intersection Geometry and LOS Analysis

Proposed Plan intersection geometrics are presented in **Figure 5-8**, while forecast AM and PM peak hour turning movements are displayed in **Figure 5-9**. Note that on **Figure 5-8**, the bicycle facilities shown at the intersection are primarily intended to show that there is a bicycle facility traversing the roadway segment. The bicycle intersection treatments for each intersection will need to be decided during the design phase. It is likely that all proposed bicycle facilities will be able to be implemented without widening at the intersection, removing an exclusive right turn lane, or other geometry reconfiguration. By removing an exclusive right turn lane and implementing bicycle improvements up to and through an intersection, this would prevent vehicles from turning right on red and therefore, the bicycle facility symbol in the figure is to indicate this preferred condition.

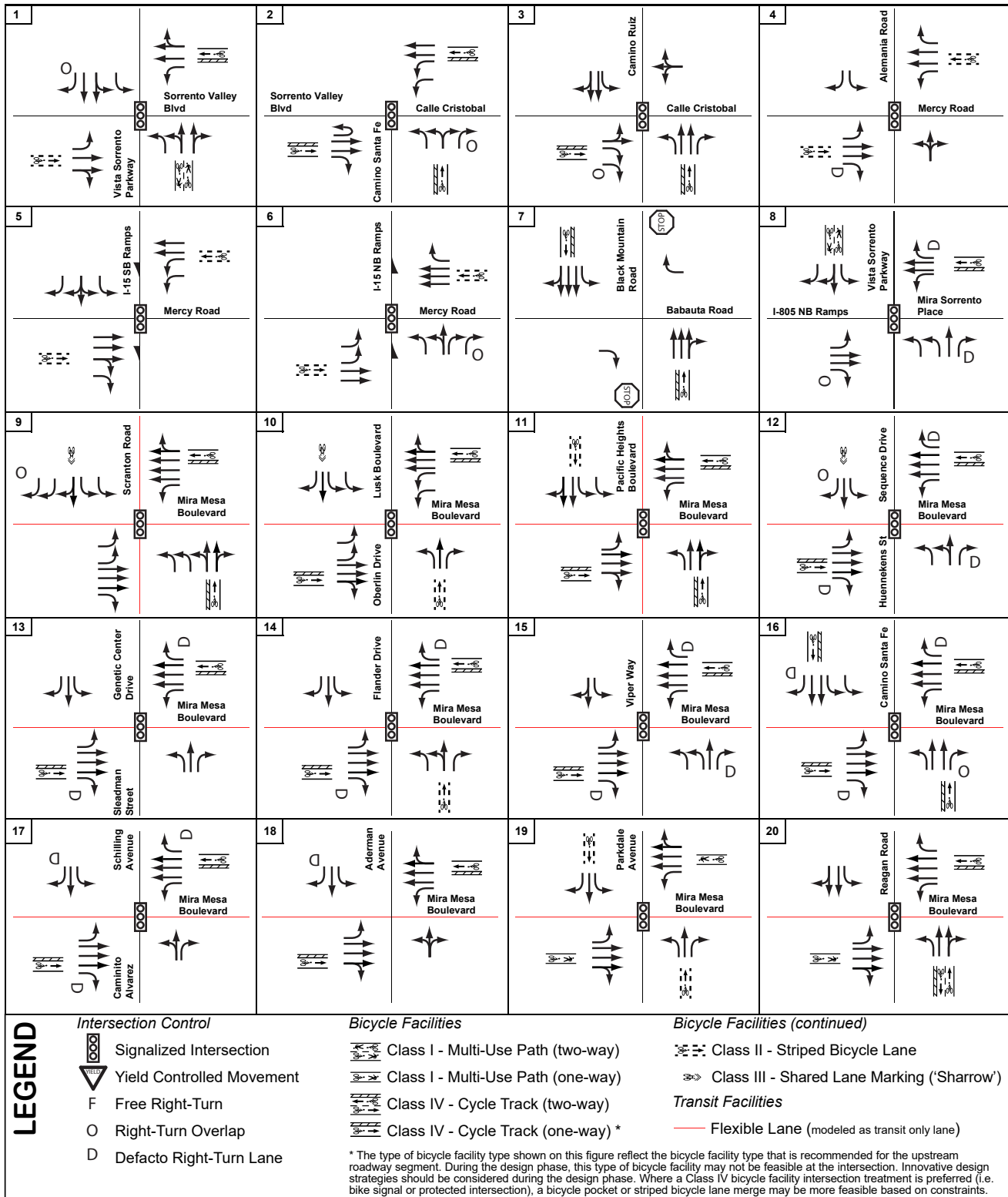
Also, on **Figure 5-8**, the flexible lane designations are shown to indicate a flexible lane would be provided through the intersection. The location of the flexible lane in relationship to the general-purpose travel lanes will be decided during the design phase.

Intersection analysis results are provided for a total of 92 intersections. As shown in the results table, 66 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 one-third of the substandard intersections are located along the Mira Mesa Boulevard corridor where one general-purpose travel lane was removed in each direction to accommodate a transit-only lane. This was a conservative approach where the vehicle demand for Mira Mesa Boulevard 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. The analysis output is provided in **Appendix H**.





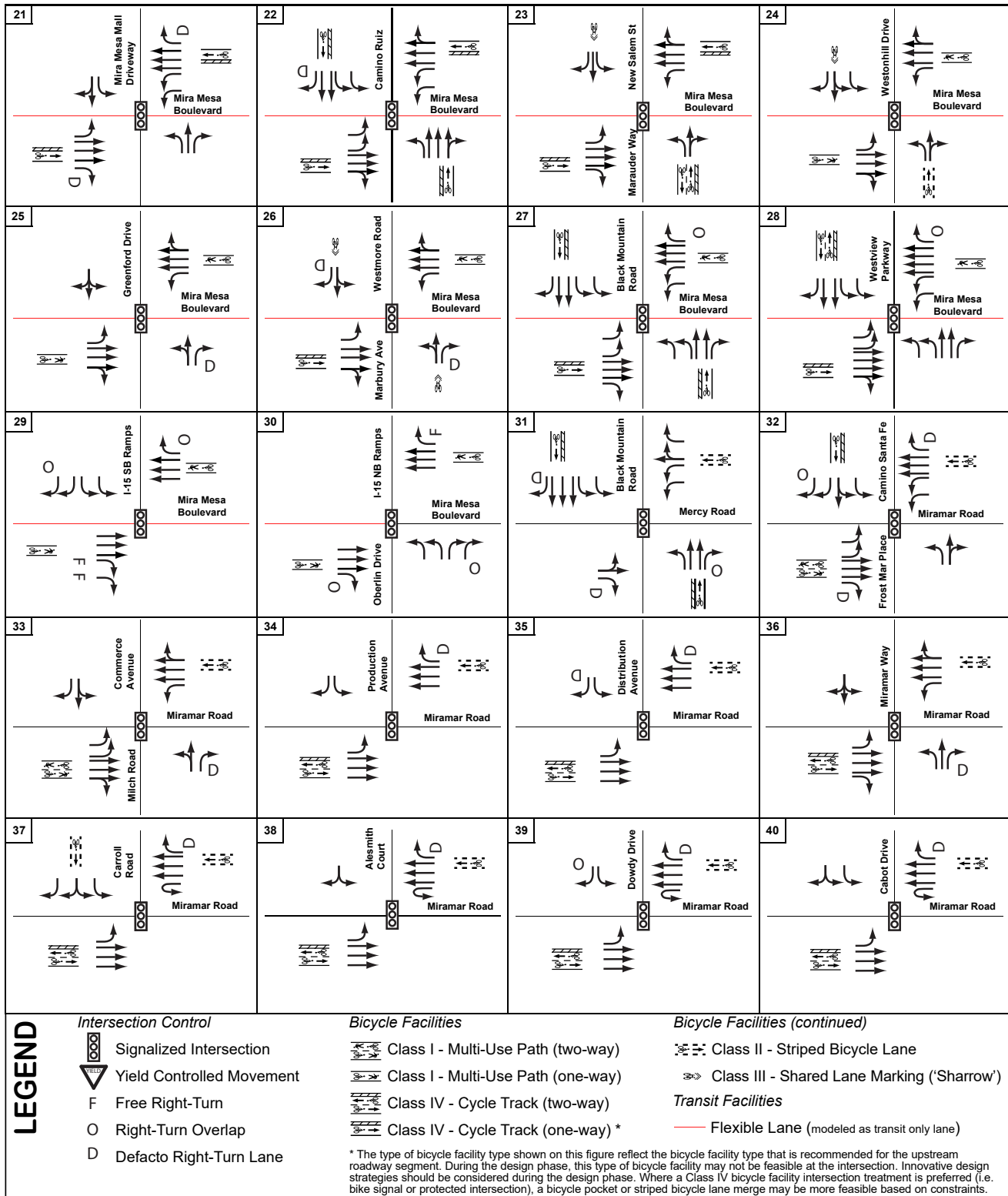
Figure 5-8a



Intersection Geometrics – Proposed Plan Conditions



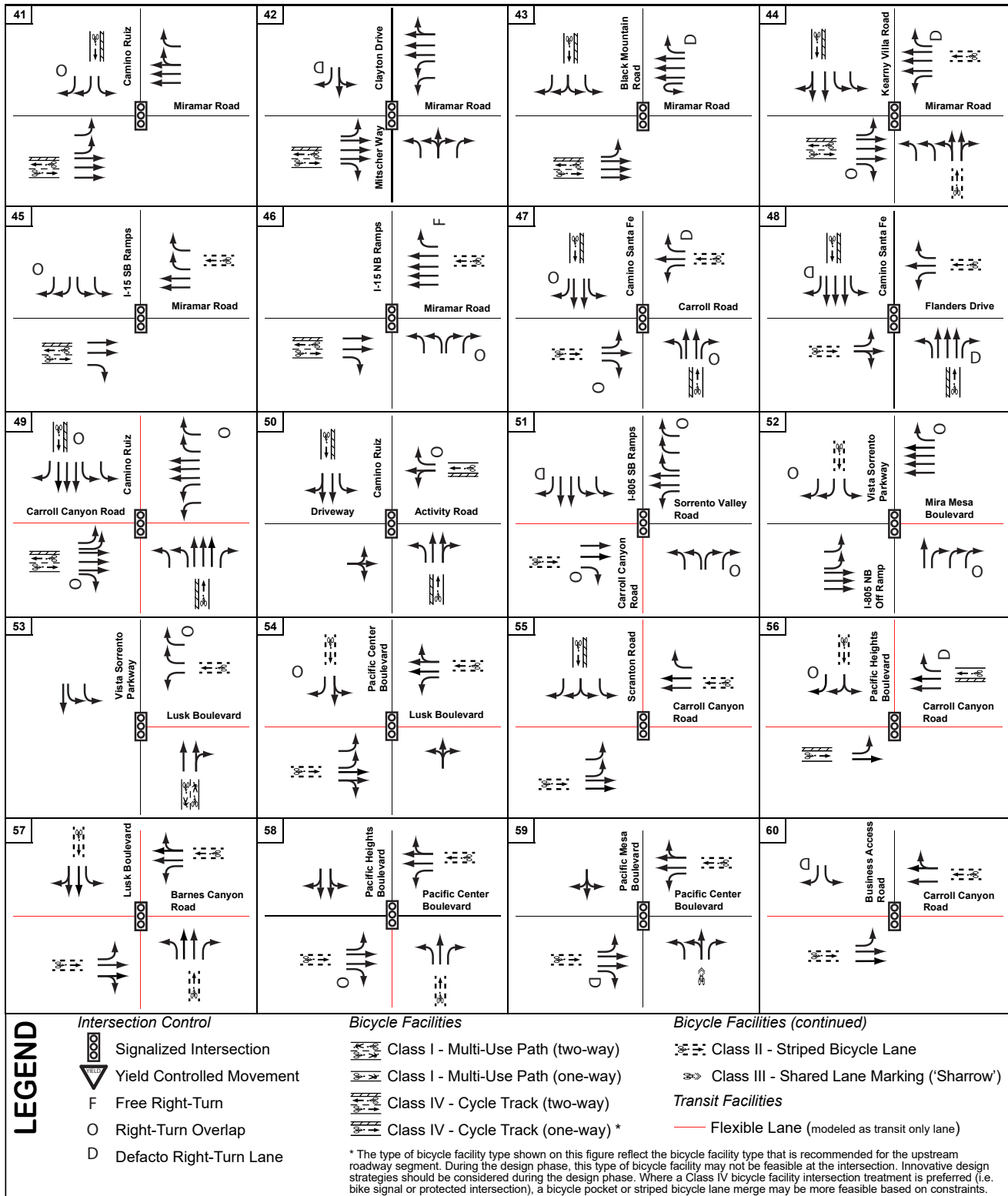
Figure 5-8b



Intersection Geometrics – Proposed Plan Conditions



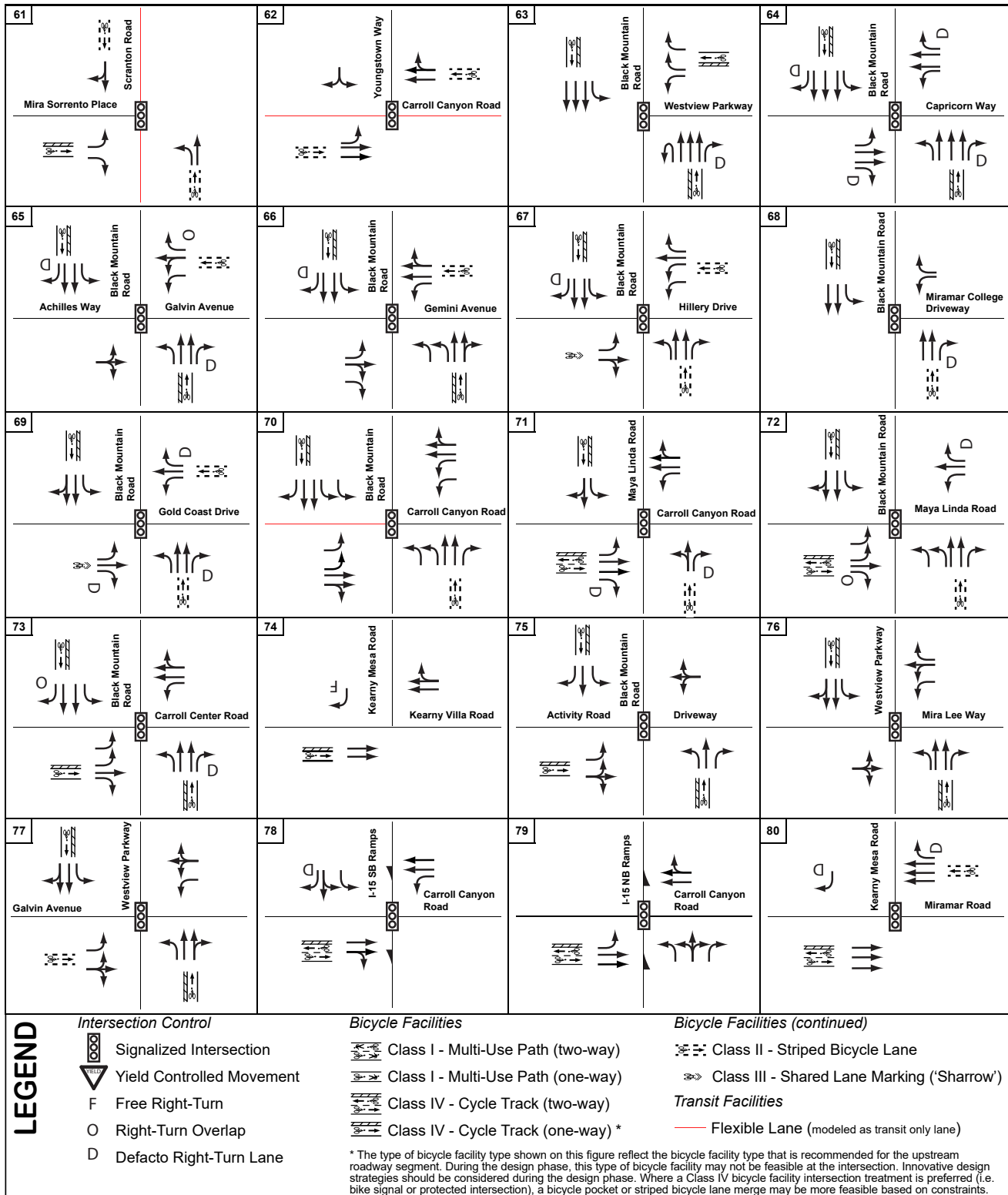
Figure 5-8c



Intersection Geometrics – Proposed Plan Conditions



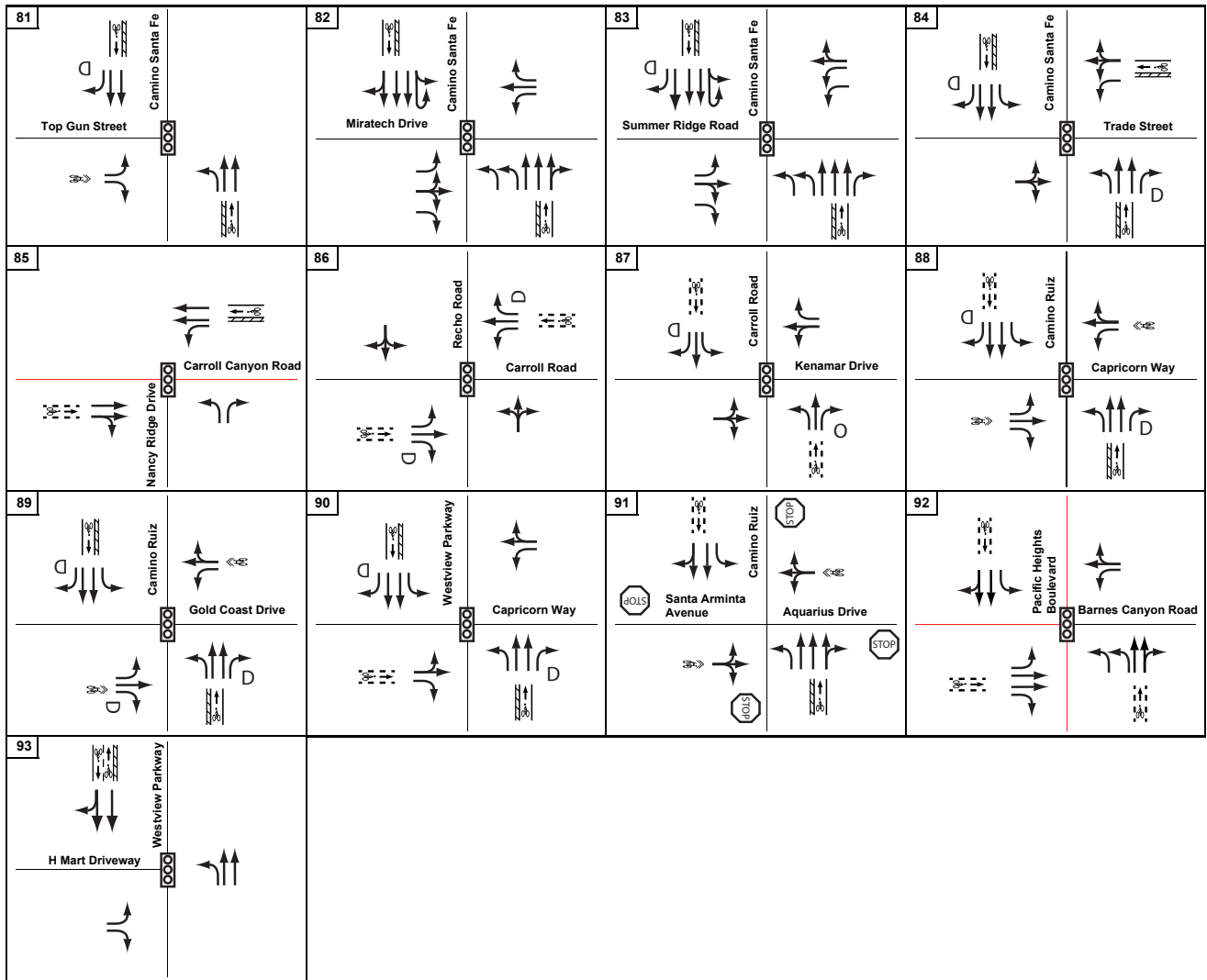
Figure 5-8d



Intersection Geometrics – Proposed Plan Conditions



Figure 5-8e



LEGEND	<p><b>Intersection Control</b></p> <ul style="list-style-type: none"> <li> Signalized Intersection</li> <li> Yield Controlled Movement</li> <li> Free Right-Turn</li> <li> Right-Turn Overlap</li> <li> Defacto Right-Turn Lane</li> </ul>	<p><b>Bicycle Facilities</b></p> <ul style="list-style-type: none"> <li> Class I - Multi-Use Path (two-way)</li> <li> Class I - Multi-Use Path (one-way)</li> <li> Class IV - Cycle Track (two-way)</li> <li> Class IV - Cycle Track (one-way) *</li> </ul>	<p><b>Bicycle Facilities (continued)</b></p> <ul style="list-style-type: none"> <li> Class II - Striped Bicycle Lane</li> <li> Class III - Shared Lane Marking ('Sharrow')</li> </ul> <p><b>Transit Facilities</b></p> <ul style="list-style-type: none"> <li> Flexible Lane (modeled as transit only lane)</li> </ul>
	<p>* The type of bicycle facility type shown on this figure reflect the bicycle facility type that is recommended for the upstream roadway segment. During the design phase, this type of bicycle facility may not be feasible at the intersection. Innovative design strategies should be considered during the design phase. Where a Class IV bicycle facility intersection treatment is preferred (i.e. bike signal or protected intersection), a bicycle pocket or striped bicycle lane merge may be more feasible based on constraints.</p>		

Intersection Geometrics – Proposed Plan Conditions



Figure 5-9a

<p><b>1</b></p> <p>↔ 310 / 190 ↔ 830 / 100 ↔ 370 / 620 Vista Sorrento Pkwy</p> <p>↔ 120 / 240 ↔ 450 / 1440 ↔ 730 / 110</p> <p>↔ 390 / 350 ↔ 1490 / 480 ↔ 300 / 40</p> <p>Sorrento Valley Blvd</p>	<p><b>2</b></p> <p>Sorrento Valley Blvd</p> <p>Calle Cristobal</p> <p>↔ 1080 / 90 ↔ 810 / 80</p> <p>↔ 50 / 1250 ↔ 660 / 1010</p> <p>Camino Santa Fe</p> <p>↔ 820 / 780 ↔ 50 / 960</p>	<p><b>3</b></p> <p>↔ 60 / 60 ↔ 10 / 10</p> <p>Camino Ruiz</p> <p>↔ 10 / 10</p> <p>Calle Cristobal</p> <p>↔ 50 / 90 ↔ 0 / 10 ↔ 160 / 1030</p> <p>↔ 820 / 240 ↔ 10 / 20 ↔ 10 / 10</p>	<p><b>4</b></p> <p>↔ 10 / 10</p> <p>↔ 100 / 80</p> <p>Alemania Rd</p> <p>↔ 90 / 90 ↔ 700 / 1040 ↔ 50 / 70</p> <p>Mercy Rd</p> <p>↔ 20 / 30</p>
<p><b>5</b></p> <p>↔ 360 / 700 ↔ 10 / 10 ↔ 530 / 830 I-15 SB Ramps</p> <p>↔ 640 / 760 ↔ 600 / 260</p> <p>↔ 690 / 770 ↔ 780 / 930</p> <p>Mercy Rd</p>	<p><b>6</b></p> <p>I-15 NB Ramps</p> <p>↔ 740 / 920 ↔ 1500 / 1880</p> <p>Mercy Rd</p> <p>↔ 10 / 10 ↔ 1520 / 1740</p> <p>↔ 10 / 10 ↔ 10 / 10 ↔ 1610 / 1020</p>	<p><b>7</b></p> <p>↔ 10 / 20 ↔ 270 / 1740 ↔ 10 / 10 ↔ 10 / 10</p> <p>Black Mountain Rd</p> <p>↔ 50 / 20</p> <p>Babauta Rd</p> <p>↔ 20 / 10</p> <p>↔ 1130 / 2460 ↔ 30 / 30</p>	<p><b>8</b></p> <p>↔ 110 / 480 ↔ 170 / 260 ↔ 320 / 100 ↔ 10 / 80</p> <p>Vista Sorrento Pkwy</p> <p>↔ 110 / 210 ↔ 250 / 1920 ↔ 30 / 180</p> <p>I-805 NB Ramps</p> <p>↔ 960 / 450 ↔ 1650 / 200 ↔ 170 / 130</p> <p>Mira Sorrento PI</p> <p>↔ 560 / 800 ↔ 110 / 80 ↔ 170 / 20</p>
<p><b>9</b></p> <p>↔ 280 / 620 ↔ 110 / 320 ↔ 50 / 90 Scranton Rd</p> <p>↔ 1240 / 340 ↔ 1470 / 750 ↔ 1070 / 420</p> <p>↔ 110 / 100 ↔ 750 / 890 ↔ 50 / 100</p> <p>Mira Mesa Blvd</p> <p>↔ 130 / 630 ↔ 130 / 160 ↔ 20 / 30</p>	<p><b>10</b></p> <p>↔ 100 / 240 ↔ 210 / 1390 ↔ 90 / 230 Lusk Blvd</p> <p>↔ 470 / 100 ↔ 1340 / 580 ↔ 280 / 100</p> <p>Oberlin Dr</p> <p>↔ 600 / 60 ↔ 570 / 660 ↔ 610 / 290</p> <p>Mira Mesa Blvd</p> <p>↔ 50 / 280 ↔ 320 / 330 ↔ 160 / 970</p>	<p><b>11</b></p> <p>↔ 50 / 230 ↔ 110 / 710 ↔ 210 / 1690 ↔ 10 / 10</p> <p>Pacific Heights Blvd</p> <p>↔ 1830 / 370 ↔ 1230 / 820 ↔ 1170 / 410</p> <p>Mira Mesa Blvd</p> <p>↔ 300 / 100 ↔ 1370 / 1180 ↔ 420 / 150</p> <p>↔ 40 / 160 ↔ 150 / 130 ↔ 340 / 1000</p>	<p><b>12</b></p> <p>↔ 290 / 340 ↔ 20 / 10 ↔ 10 / 20</p> <p>Sequence Dr</p> <p>↔ 30 / 10 ↔ 3190 / 810 ↔ 80 / 10</p> <p>Mira Mesa Blvd</p> <p>↔ 400 / 260 ↔ 780 / 2810 ↔ 990 / 340</p> <p>Huennekens St</p> <p>↔ 200 / 790 ↔ 10 / 10 ↔ 10 / 50</p>
<p><b>13</b></p> <p>↔ 340 / 480 ↔ 270 / 50 ↔ 100 / 370 ↔ 440 / 50 Genetic Center Dr</p> <p>↔ 460 / 280 ↔ 410 / 2070 ↔ 140 / 50</p> <p>↔ 510 / 120 ↔ 2140 / 360 ↔ 440 / 50</p> <p>Mira Mesa Blvd</p> <p>↔ 40 / 50 ↔ 90 / 260 ↔ 50 / 390</p> <p>Steadman St</p>	<p><b>14</b></p> <p>↔ 110 / 120 ↔ 90 / 230 ↔ 40 / 220 Flanders Dr</p> <p>↔ 110 / 210 ↔ 210 / 1560 ↔ 400 / 490</p> <p>Oberlin Dr</p> <p>↔ 240 / 60 ↔ 1760 / 250 ↔ 110 / 40</p> <p>Mira Mesa Blvd</p> <p>↔ 520 / 280 ↔ 200 / 130 ↔ 60 / 160</p>	<p><b>15</b></p> <p>↔ 20 / 40 ↔ 190 / 470 ↔ 60 / 360 ↔ 10 / 10</p> <p>Viper Way</p> <p>↔ 670 / 200 ↔ 1820 / 200 ↔ 350 / 260</p> <p>Mira Mesa Blvd</p> <p>↔ 40 / 100 ↔ 170 / 1570 ↔ 100 / 400</p> <p>↔ 150 / 90 ↔ 400 / 460 ↔ 240 / 480</p>	<p><b>16</b></p> <p>↔ 130 / 50 ↔ 250 / 170 ↔ 80 / 280 ↔ 10 / 20</p> <p>Camino Santa Fe</p> <p>↔ 230 / 110 ↔ 2710 / 470 ↔ 460 / 120</p> <p>Mira Mesa Blvd</p> <p>↔ 40 / 70 ↔ 300 / 2450 ↔ 120 / 100</p> <p>↔ 110 / 140 ↔ 90 / 280 ↔ 50 / 390</p>
<p><b>17</b></p> <p>↔ 150 / 30 ↔ 20 / 0 ↔ 60 / 50 Schilling Ave</p> <p>↔ 30 / 170 ↔ 390 / 2710 ↔ 20 / 70</p> <p>↔ 20 / 50 ↔ 2990 / 640 ↔ 20 / 50</p> <p>Mira Mesa Blvd</p> <p>↔ 70 / 40 ↔ 10 / 40 ↔ 50 / 80</p> <p>Caminito Alvarez</p>	<p><b>18</b></p> <p>↔ 40 / 10 ↔ 20 / 10 ↔ 150 / 70 Aderman Ave</p> <p>↔ 20 / 30 ↔ 500 / 2820 ↔ 10 / 20</p> <p>↔ 40 / 70 ↔ 3000 / 700 ↔ 20 / 50</p> <p>Mira Mesa Blvd</p> <p>↔ 20 / 10 ↔ 10 / 10 ↔ 40 / 40</p>	<p><b>19</b></p> <p>↔ 370 / 110 ↔ 100 / 80 ↔ 30 / 20 ↔ 10 / 10</p> <p>Parkdale Ave</p> <p>↔ 20 / 50 ↔ 2340 / 620 ↔ 30 / 60</p> <p>Mira Mesa Blvd</p> <p>↔ 100 / 250 ↔ 460 / 2000 ↔ 150 / 630</p> <p>↔ 290 / 140 ↔ 30 / 180 ↔ 50 / 60</p>	<p><b>20</b></p> <p>↔ 60 / 20 ↔ 50 / 50 ↔ 80 / 20 ↔ 20 / 20</p> <p>Reagan Rd</p> <p>↔ 10 / 30 ↔ 1840 / 540 ↔ 30 / 60</p> <p>Mira Mesa Blvd</p> <p>↔ 20 / 40 ↔ 430 / 1450 ↔ 70 / 200</p> <p>↔ 140 / 140 ↔ 20 / 60 ↔ 20 / 30</p>
<p><b>21</b></p> <p>↔ 180 / 270 ↔ 20 / 150 ↔ 50 / 420 Mira Mesa Mall Dwy</p> <p>↔ 160 / 820 ↔ 280 / 690 ↔ 20 / 30</p> <p>↔ 80 / 310 ↔ 1570 / 280 ↔ 20 / 20</p> <p>Mira Mesa Blvd</p> <p>↔ 20 / 20 ↔ 20 / 180 ↔ 10 / 20</p>	<p><b>22</b></p> <p>↔ 20 / 20 ↔ 120 / 160 ↔ 103 / 1070 Camino Ruiz</p> <p>↔ 20 / 50 ↔ 380 / 1270 ↔ 10 / 10</p> <p>↔ 590 / 830 ↔ 1690 / 540 ↔ 420 / 370</p> <p>Mira Mesa Blvd</p> <p>↔ 10 / 20 ↔ 80 / 350 ↔ 280 / 320</p>	<p><b>23</b></p> <p>↔ 240 / 220 ↔ 10 / 10 ↔ 10 / 10 ↔ 10 / 10</p> <p>New Salem St</p> <p>↔ 10 / 10 ↔ 3020 / 1820 ↔ 10 / 10</p> <p>Mira Mesa Blvd</p> <p>↔ 180 / 200 ↔ 1040 / 2190 ↔ 100 / 120</p> <p>↔ 140 / 120 ↔ 10 / 10 ↔ 10 / 10</p> <p>Marauder Way</p>	<p><b>24</b></p> <p>↔ 40 / 20 ↔ 140 / 160 ↔ 340 / 130 ↔ 10 / 80</p> <p>Westonhill Dr</p> <p>↔ 50 / 130 ↔ 2410 / 1140 ↔ 70 / 160</p> <p>Mira Mesa Blvd</p> <p>↔ 20 / 40 ↔ 1060 / 2050 ↔ 10 / 50</p> <p>↔ 70 / 70 ↔ 100 / 230 ↔ 130 / 80</p>

AM/PM Peak Hour Intersection Volumes – Proposed Plan Conditions



Figure 5-9b

<p><b>25</b></p> <p>30 / 20 ↔ ↔ 20 / 20 ↔ ↔ 10 / 10 ↔ ↔</p> <p>Greenford Dr</p> <p>20 / 20 ↔ ↔ 2250 / 1280 ↔ ↔ 20 / 30</p> <p>Mira Mesa Blvd</p> <p>240 / 200 ↔ ↔ 30 / 50 ↔ ↔ 50 / 20</p>	<p><b>26</b></p> <p>20 / 30 ↔ ↔ 20 / 10 ↔ ↔ 140 / 80 ↔ ↔</p> <p>Westmore Rd</p> <p>150 / 190 ↔ ↔ 1810 / 920 ↔ ↔ 30 / 40</p> <p>Mira Mesa Blvd</p> <p>30 / 20 ↔ ↔ 1120 / 1560 ↔ ↔ 10 / 10</p> <p>Marbury Ave</p> <p>10 / 10 ↔ ↔ 20 / 20 ↔ ↔ 20 / 50</p>	<p><b>27</b></p> <p>210 / 160 ↔ ↔ 1220 / 680 ↔ ↔ 400 / 260 ↔ ↔</p> <p>Black Mountain Rd</p> <p>90 / 140 ↔ ↔ 1470 / 750 ↔ ↔ 440 / 460</p> <p>Mira Mesa Blvd</p> <p>100 / 210 ↔ ↔ 990 / 1130 ↔ ↔ 240 / 220</p> <p>310 / 330 ↔ ↔ 420 / 1070 ↔ ↔ 300 / 490</p>	<p><b>28</b></p> <p>90 / 70 ↔ ↔ 540 / 410 ↔ ↔ 880 / 520 ↔ ↔</p> <p>Westview Pkwy</p> <p>310 / 570 ↔ ↔ 1820 / 1050 ↔ ↔ 1530 / 1270</p> <p>Mira Mesa Blvd</p> <p>70 / 150 ↔ ↔ 1550 / 1550 ↔ ↔ 80 / 110</p> <p>80 / 340 ↔ ↔ 190 / 580 ↔ ↔ 870 / 1380</p>
<p><b>29</b></p> <p>1570 / 1490 ↔ ↔ 30 / 40 ↔ ↔</p> <p>I-15 SB Ramps</p> <p>720 / 320 ↔ ↔ 2050 / 1510</p> <p>Mira Mesa Blvd</p> <p>1500 / 2310 ↔ ↔ 1500 / 800</p>	<p><b>30</b></p> <p>450 / 790 ↔ ↔ 2410 / 1510</p> <p>Mira Mesa Blvd</p> <p>480 / 1210 ↔ ↔ 1150 / 1440</p> <p>180 / 90 ↔ ↔ 0 / 10 ↔ ↔ 1620 / 1490</p>	<p><b>31</b></p> <p>1990 / 1010 ↔ ↔ 490 / 250 ↔ ↔</p> <p>Black Mountain Rd</p> <p>230 / 380 ↔ ↔ 0 / 20 ↔ ↔ 460 / 560</p> <p>Mercy Rd</p> <p>10 / 0 ↔ ↔ 0 / 20 ↔ ↔ 0 / 10</p> <p>140 / 120 ↔ ↔ 640 / 1690 ↔ ↔ 500 / 630</p>	<p><b>32</b></p> <p>1520 / 1780 ↔ ↔ 10 / 10 ↔ ↔ 20 / 40 ↔ ↔</p> <p>Camino Santa Fe</p> <p>20 / 30 ↔ ↔ 1580 / 810 ↔ ↔ 10 / 20</p> <p>Miramar Rd</p> <p>1210 / 1520 ↔ ↔ 610 / 1250 ↔ ↔ 60 / 140</p> <p>50 / 100 ↔ ↔ 10 / 40 ↔ ↔ 10 / 10</p>
<p><b>33</b></p> <p>40 / 90 ↔ ↔ 40 / 20 ↔ ↔ 20 / 50 ↔ ↔</p> <p>Commerce Ave</p> <p>70 / 30 ↔ ↔ 1280 / 650 ↔ ↔ 130 / 50</p> <p>Miramar Rd</p> <p>90 / 90 ↔ ↔ 490 / 1110 ↔ ↔ 140 / 50</p> <p>160 / 120 ↔ ↔ 40 / 30 ↔ ↔ 70 / 70</p>	<p><b>34</b></p> <p>60 / 60 ↔ ↔ 60 / 90 ↔ ↔</p> <p>Production Ave</p> <p>150 / 60 ↔ ↔ 1410 / 680</p> <p>Miramar Rd</p> <p>60 / 40 ↔ ↔ 550 / 1180</p>	<p><b>35</b></p> <p>50 / 80 ↔ ↔ 40 / 80 ↔ ↔</p> <p>Distribution Ave</p> <p>80 / 70 ↔ ↔ 1550 / 690</p> <p>Miramar Rd</p> <p>40 / 60 ↔ ↔ 580 / 1230</p>	<p><b>36</b></p> <p>50 / 10 ↔ ↔ 60 / 140 ↔ ↔</p> <p>Miramar Way</p> <p>90 / 110 ↔ ↔ 1520 / 60 ↔ ↔ 100 / 650</p> <p>Miramar Rd</p> <p>70 / 40 ↔ ↔ 510 / 380 ↔ ↔ 60 / 1030</p> <p>0 / 620 ↔ ↔ 0 / 640</p>
<p><b>37</b></p> <p>30 / 30 ↔ ↔ 180 / 530 ↔ ↔</p> <p>Carroll Rd</p> <p>610 / 150 ↔ ↔ 1710 / 690 ↔ ↔ 10 / 10</p> <p>Miramar Rd</p> <p>30 / 20 ↔ ↔ 560 / 1260</p>	<p><b>38</b></p> <p>10 / 30 ↔ ↔ 20 / 30 ↔ ↔</p> <p>Alesmith Ct</p> <p>30 / 20 ↔ ↔ 2790 / 920</p> <p>Miramar Rd</p> <p>20 / 20 ↔ ↔ 760 / 2030</p>	<p><b>39</b></p> <p>60 / 60 ↔ ↔ 60 / 100 ↔ ↔</p> <p>Dowdy Dr</p> <p>170 / 30 ↔ ↔ 2830 / 850 ↔ ↔ 10 / 10</p> <p>Miramar Rd</p> <p>50 / 50 ↔ ↔ 700 / 2040</p>	<p><b>40</b></p> <p>90 / 90 ↔ ↔ 160 / 250 ↔ ↔</p> <p>Capot Dr</p> <p>260 / 200 ↔ ↔ 2990 / 800 ↔ ↔ 10 / 30</p> <p>Miramar Rd</p> <p>70 / 160 ↔ ↔ 700 / 2040</p>
<p><b>41</b></p> <p>650 / 190 ↔ ↔ 470 / 360 ↔ ↔</p> <p>Camino Ruiz</p> <p>160 / 580 ↔ ↔ 2730 / 940</p> <p>Miramar Rd</p> <p>160 / 490 ↔ ↔ 570 / 1890</p>	<p><b>42</b></p> <p>270 / 100 ↔ ↔ 420 / 260 ↔ ↔ 210 / 420 ↔ ↔</p> <p>Clayton Dr</p> <p>150 / 200 ↔ ↔ 2560 / 1150 ↔ ↔ 260 / 130</p> <p>Miramar Rd</p> <p>80 / 150 ↔ ↔ 740 / 1900 ↔ ↔ 120 / 140</p> <p>180 / 300 ↔ ↔ 150 / 360 ↔ ↔ 170 / 340</p>	<p><b>43</b></p> <p>430 / 300 ↔ ↔ 210 / 780 ↔ ↔</p> <p>Black Mountain Rd</p> <p>340 / 260 ↔ ↔ 2680 / 1210</p> <p>Miramar Rd</p> <p>150 / 500 ↔ ↔ 960 / 2190</p>	<p><b>44</b></p> <p>230 / 140 ↔ ↔ 480 / 850 ↔ ↔ 230 / 510 ↔ ↔</p> <p>Kearny Villa Rd</p> <p>160 / 280 ↔ ↔ 1970 / 910 ↔ ↔ 200 / 460</p> <p>Miramar Rd</p> <p>100 / 210 ↔ ↔ 650 / 1790 ↔ ↔ 370 / 900</p> <p>102 / 400 ↔ ↔ 650 / 750 ↔ ↔ 120 / 120</p>
<p><b>45</b></p> <p>880 / 320 ↔ ↔ 300 / 160 ↔ ↔</p> <p>I-15 SB Ramps</p> <p>590 / 490 ↔ ↔ 1340 / 950</p> <p>Miramar Rd</p> <p>280 / 1070 ↔ ↔ 960 / 2390</p>	<p><b>46</b></p> <p>130 / 80 ↔ ↔ 1160 / 940</p> <p>Miramar Rd</p> <p>10 / 10 ↔ ↔ 740 / 1710</p> <p>310 / 100 ↔ ↔ 137 / 1550</p>	<p><b>47</b></p> <p>230 / 60 ↔ ↔ 126 / 1120 ↔ ↔ 120 / 110 ↔ ↔</p> <p>Camino Santa Fe</p> <p>80 / 150 ↔ ↔ 240 / 60 ↔ ↔ 110 / 170</p> <p>Carroll Rd</p> <p>50 / 230 ↔ ↔ 100 / 260 ↔ ↔ 170 / 450</p> <p>340 / 120 ↔ ↔ 590 / 1420 ↔ ↔ 230 / 160</p>	<p><b>48</b></p> <p>280 / 50 ↔ ↔ 870 / 240 ↔ ↔ 20 / 60 ↔ ↔ 20 / 60 ↔ ↔</p> <p>Camino Santa Fe</p> <p>30 / 20 ↔ ↔ 590 / 40 ↔ ↔ 340 / 30</p> <p>Flanders Dr</p> <p>30 / 110 ↔ ↔ 20 / 490 ↔ ↔ 370 / 870</p> <p>390 / 410 ↔ ↔ 110 / 910 ↔ ↔ 20 / 560</p>

AM/PM Peak Hour Intersection Volumes – Proposed Plan Conditions



Figure 5-9c

<p><b>49</b></p> <p>↔ 480 / 280 ↔ 1540 / 820 ↔ 630 / 470 Camino Ruiz</p> <p>↔ 220 / 660 ↔ 1320 / 1220 ↔ 380 / 280</p> <p>Carroll Canyon Rd</p> <p>↔ 0</p> <p>↔ 260 / 310 ↔ 250 / 1380 ↔ 110 / 380</p>	<p><b>50</b></p> <p>↔ 30 / 170 ↔ 790 / 370 ↔ 250 / 730 Camino Ruiz</p> <p>↔ 480 / 250 ↔ 70 / 0 ↔ 240 / 60</p> <p>Activity Rd</p> <p>↔ 20 / 20 ↔ 0 / 190 ↔ 30 / 100</p> <p>↔ 100 / 210 ↔ 190 / 690 ↔ 70 / 150</p>	<p><b>51</b></p> <p>↔ 30 / 30 ↔ 530 / 110 ↔ 2290 / 880 I-805 SB Off</p> <p>↔ 860 / 1710 ↔ 1090 / 1050 ↔ 190 / 230</p> <p>Sorrento Valley Rd</p> <p>↔ 960 / 1270 ↔ 390 / 200 Carroll Canyon Rd</p> <p>↔ 40 / 120 ↔ 290 / 1580</p>	<p><b>52</b></p> <p>↔ 450 / 620 ↔ 10 / 10 ↔ Vieta Sorrento Pkwy</p> <p>↔ 80 / 300 ↔ 1250 / 1880</p> <p>Mira Mesa Blvd</p> <p>↔ 630 / 400 ↔ 2250 / 920 I-805 NB Off</p> <p>↔ 60 / 110 ↔ 1360 / 540</p>
<p><b>53</b></p> <p>↔ 390 / 40 ↔ 2160 / 250 Vieta Sorrento Pkwy</p> <p>↔ 320 / 2610 ↔ 130 / 420 Lusk Blvd</p> <p>↔ 190 / 480 ↔ 460 / 210</p>	<p><b>54</b></p> <p>↔ 180 / 1040 ↔ 30 / 0 ↔ 30 / 250 Pacific Center Blvd</p> <p>↔ 250 / 60 ↔ 210 / 150 ↔ 90 / 20 Lusk Blvd</p> <p>↔ 770 / 100 ↔ 190 / 280 ↔ 60 / 30</p> <p>↔ 10 / 120 ↔ 30 / 50 ↔ 20 / 110</p>	<p><b>55</b></p> <p>↔ 210 / 930 ↔ 360 / 120 Scranton Rd</p> <p>↔ 40 / 220 ↔ 300 / 2100 Carroll Canyon Rd</p> <p>↔ 230 / 160 ↔ 1700 / 530</p>	<p><b>56</b></p> <p>↔ 120 / 510 ↔ 670 / 1960 Pacific Heights Blvd</p> <p>↔ 770 / 640 ↔ 210 / 740 Carroll Canyon Rd</p> <p>↔ 380 / 80 ↔ 1120 / 650</p>
<p><b>57</b></p> <p>↔ 100 / 360 ↔ 180 / 340 ↔ 40 / 50 Lusk Blvd</p> <p>↔ 60 / 30 ↔ 390 / 430 ↔ 30 / 40 Barnes Canyon Rd</p> <p>↔ 190 / 100 ↔ 290 / 170 ↔ 80 / 70</p>	<p><b>58</b></p> <p>↔ 30 / 90 ↔ 20 / 320 Pacific Heights Blvd</p> <p>↔ 0 / 150 ↔ 180 / 390 ↔ 40 / 400 Pacific Center Blvd</p> <p>↔ 70 / 40 ↔ 230 / 350 ↔ 10 / 30</p> <p>↔ 80 / 110 ↔ 190 / 110 ↔ 370 / 120</p>	<p><b>59</b></p> <p>↔ 10 / 10 ↔ 20 / 0 Pacific Mesa Blvd</p> <p>↔ 510 / 410 ↔ 100 / 1230 Pacific Center Blvd</p> <p>↔ 20 / 70 ↔ 180 / 440 ↔ 10 / 60</p> <p>↔ 450 / 110 ↔ 20 / 110 ↔ 1730 / 160</p>	<p><b>60</b></p> <p>↔ 220 / 360 ↔ 0 / 100 Business Access Rd</p> <p>↔ 270 / 120 ↔ 10 / 1260 Carroll Canyon Rd</p> <p>↔ 310 / 50 ↔ 910 / 350</p>
<p><b>61</b></p> <p>↔ 230 / 1400 ↔ 40 / 220 Scranton Rd</p> <p>↔ 1450 / 310 ↔ 180 / 80 Mira Sorrento Pl</p> <p>↔ 130 / 330 ↔ 150 / 110</p>	<p><b>62</b></p> <p>↔ 170 / 1410 ↔ 160 / 670 Youngstown Way</p> <p>↔ 350 / 380 ↔ 160 / 1210 Carroll Canyon Rd</p> <p>↔ 370 / 150 ↔ 1680 / 450</p>	<p><b>63</b></p> <p>↔ 251 / 1380 ↔ 280 / 260 ↔ 120 / 130 Black Mountain Rd</p> <p>↔ 280 / 380 ↔ 100 / 60 Westview Pkwy</p> <p>↔ 10 / 10 ↔ 920 / 2260 ↔ 60 / 160</p>	<p><b>64</b></p> <p>↔ 101 / 800 ↔ 138 / 630 ↔ 30 / 30 Black Mountain Rd</p> <p>↔ 20 / 20 ↔ 80 / 70 ↔ 20 / 20 Capricorn Way</p> <p>↔ 710 / 1220 ↔ 110 / 110 ↔ 170 / 60</p> <p>↔ 110 / 130 ↔ 380 / 1240 ↔ 20 / 30</p>
<p><b>65</b></p> <p>↔ 10 / 20 ↔ 142 / 640 ↔ 20 / 30 Black Mountain Rd</p> <p>↔ 30 / 40 ↔ 0 / 10 ↔ 90 / 30 Achilles Way Galvin Ave</p> <p>↔ 10 / 10 ↔ 10 / 0 ↔ 30 / 20</p> <p>↔ 10 / 20 ↔ 470 / 1340 ↔ 80 / 110</p>	<p><b>66</b></p> <p>↔ 270 / 110 ↔ 120 / 480 ↔ 70 / 80 Black Mountain Rd</p> <p>↔ 40 / 120 ↔ 50 / 140 ↔ 50 / 140 Gemini Ave</p> <p>↔ 180 / 460 ↔ 50 / 140 ↔ 480 / 440</p> <p>↔ 280 / 420 ↔ 360 / 950 ↔ 30 / 40</p>	<p><b>67</b></p> <p>↔ 210 / 120 ↔ 880 / 570 ↔ 280 / 260 ↔ 120 / 130 Black Mountain Rd</p> <p>↔ 100 / 70 ↔ 340 / 260 ↔ 310 / 180 Hillery Dr</p> <p>↔ 140 / 270 ↔ 190 / 510 ↔ 300 / 220</p> <p>↔ 290 / 350 ↔ 320 / 810 ↔ 160 / 420</p>	<p><b>68</b></p> <p>↔ 130 / 840 ↔ 180 / 130 ↔ 30 / 70 Black Mountain Rd</p> <p>↔ 20 / 70 ↔ 30 / 90 Mira College Dwy</p> <p>↔ 700 / 1500 ↔ 250 / 160</p>
<p><b>69</b></p> <p>↔ 240 / 130 ↔ 940 / 650 ↔ 150 / 120 Black Mountain Rd</p> <p>↔ 180 / 170 ↔ 180 / 150 ↔ 30 / 30 Gold Coast Dr</p> <p>↔ 180 / 290 ↔ 120 / 120 ↔ 350 / 500</p> <p>↔ 250 / 270 ↔ 540 / 1200 ↔ 20 / 150</p>	<p><b>70</b></p> <p>↔ 470 / 330 ↔ 880 / 610 ↔ 300 / 120 Black Mountain Rd</p> <p>↔ 130 / 380 ↔ 1330 / 920 ↔ 540 / 170 Carroll Canyon Rd</p> <p>↔ 250 / 520 ↔ 760 / 1190 ↔ 30 / 40</p> <p>↔ 40 / 30 ↔ 470 / 950 ↔ 180 / 400</p>	<p><b>71</b></p> <p>↔ 10 / 10 ↔ 10 / 10 ↔ 730 / 420 Maya Linda Rd</p> <p>↔ 730 / 810 ↔ 1950 / 840 ↔ 530 / 420 Carroll Canyon Rd</p> <p>↔ 10 / 10 ↔ 970 / 1590 ↔ 10 / 10</p> <p>↔ 10 / 10 ↔ 10 / 10 ↔ 540 / 1100</p>	<p><b>72</b></p> <p>↔ 110 / 40 ↔ 129 / 700 ↔ 30 / 70 Black Mountain Rd</p> <p>↔ 120 / 40 ↔ 200 / 70 ↔ 300 / 60 Maya Linda Rd</p> <p>↔ 70 / 170 ↔ 60 / 270 ↔ 330 / 740</p> <p>↔ 570 / 530 ↔ 520 / 1250 ↔ 20 / 240</p>

AM/PM Peak Hour Intersection Volumes – Proposed Plan Conditions





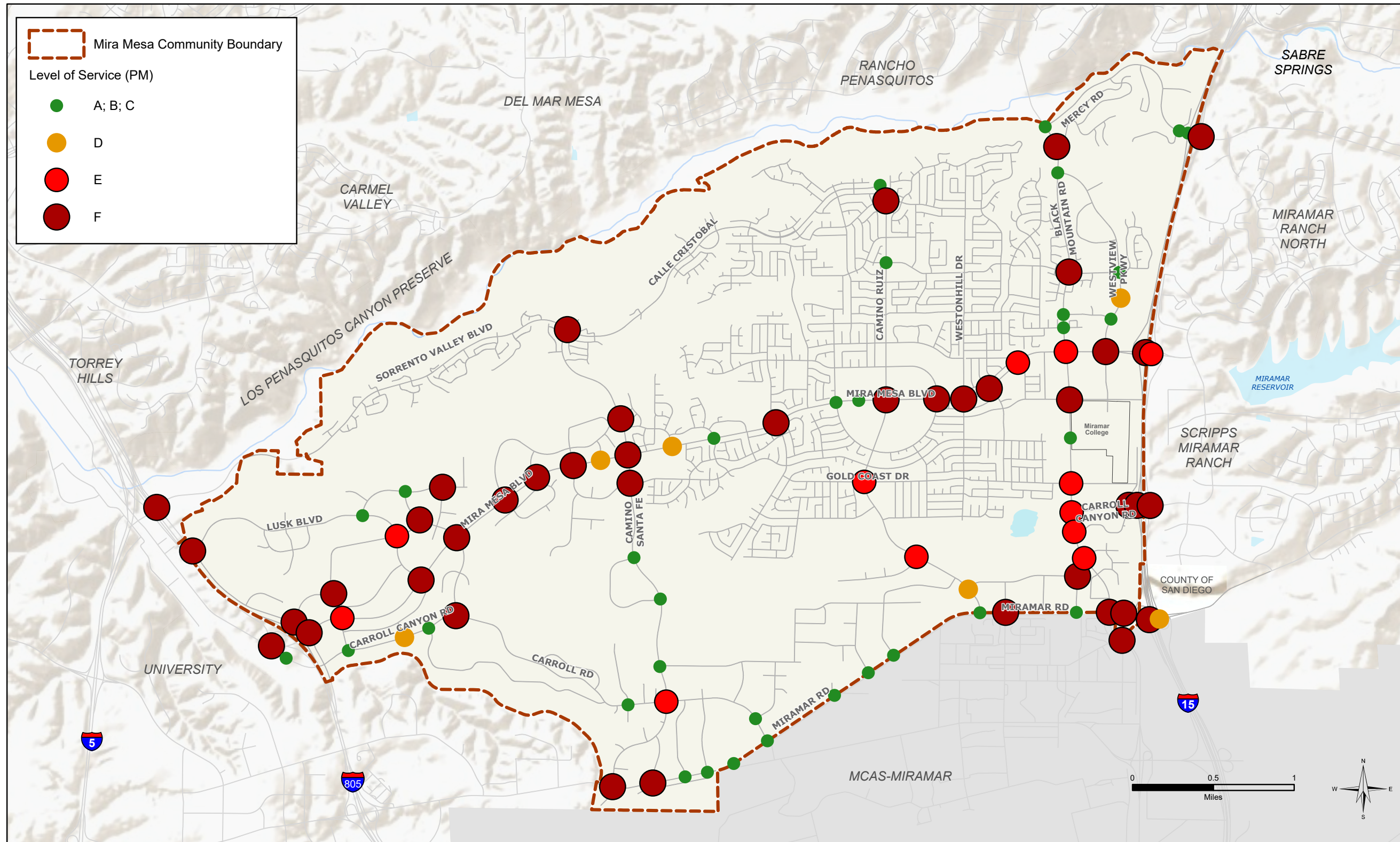
Figure 5-9d

<p><b>73</b></p> <p>820 / 200 630 / 400 310 / 160 Black Mountain Rd / Kearny Villa Rd</p> <p>170 / 410 240 / 80 340 / 410</p> <p>Carroll Center Rd</p> <p>80 / 670 80 / 210 20 / 210</p> <p>110 / 30 150 / 710 280 / 240</p>	<p><b>74</b></p> <p>180 / 130 Kearny Mesa Rd</p> <p>170 / 100 2090 / 1360</p> <p>Kearny Villa Rd</p> <p>930 / 2100</p>	<p><b>75</b></p> <p>900 / 120 260 / 140 70 / 30 Black Mountain Rd</p> <p>0 / 90 30 / 90 50 / 170</p> <p>Activity Rd</p> <p>90 / 730 110 / 70 270 / 970</p> <p>410 / 270 70 / 310 100 / 140</p>	<p><b>76</b></p> <p>10 / 10 560 / 340 10 / 30 Westview Pkwy</p> <p>30 / 20 20 / 10 200 / 70</p> <p>Mira Lee Way</p> <p>60 / 20 20 / 10 60 / 20</p> <p>50 / 30 200 / 460 30 / 160</p>
<p><b>77</b></p> <p>80 / 20 750 / 370 20 / 70 Westview Pkwy</p> <p>70 / 30 30 / 10 270 / 120</p> <p>Galvin Ave</p> <p>100 / 60 10 / 30 220 / 220</p> <p>140 / 120 200 / 610 70 / 270</p>	<p><b>78</b></p> <p>I-15 NB Ramps</p> <p>590 / 1000 2350 / 1920</p> <p>Carroll Canyon Rd</p> <p>300 / 590 1590 / 2030</p> <p>350 / 200 0 / 10 1170 / 870</p>	<p><b>79</b></p> <p>870 / 590 10 / 10 270 / 170 I-15 SB Ramps</p> <p>2920 / 1860 280 / 430</p> <p>Carroll Canyon Rd</p> <p>1260 / 2250 930 / 820</p>	<p><b>80</b></p> <p>190 / 420 Kearny Mesa Rd</p> <p>150 / 150 3140 / 1680</p> <p>Miramar Rd</p> <p>1530 / 3990</p>
<p><b>81</b></p> <p>980 / 220 460 / 440 Camino Santa Fe</p> <p>Top Gun St</p> <p>340 / 1500 10 / 10</p> <p>10 / 10 510 / 600</p>	<p><b>82</b></p> <p>240 / 30 1650 / 980 30 / 80 Camino Santa Fe</p> <p>80 / 40 10 / 0 70 / 40</p> <p>Miratech Dr</p> <p>20 / 240 0 / 10 10 / 110</p> <p>110 / 20 610 / 1860 20 / 80</p>	<p><b>83</b></p> <p>30 / 10 1590 / 980 90 / 160 Camino Santa Fe</p> <p>70 / 50 10 / 10 200 / 140</p> <p>Summers Ridge Dr</p> <p>10 / 30 10 / 10 40 / 260</p> <p>210 / 20 700 / 2130 30 / 130</p>	<p><b>84</b></p> <p>80 / 20 1420 / 930 340 / 210 Camino Santa Fe</p> <p>170 / 350 50 / 20 230 / 190</p> <p>Trade St</p> <p>20 / 90 0 / 40 10 / 90</p> <p>50 / 20 410 / 1770 220 / 140</p>
<p><b>85</b></p> <p>400 / 1360 20 / 10 Carroll Canyon Rd</p> <p>1300 / 700 500 / 100 Nancy Ridge Dr</p> <p>130 / 470 10 / 20</p>	<p><b>86</b></p> <p>10 / 20 10 / 10 80 / 330 Rehco Rd</p> <p>340 / 50 350 / 150 30 / 10</p> <p>Carroll Rd</p> <p>30 / 10 210 / 420 10 / 10</p> <p>10 / 10 10 / 10 10 / 30</p>	<p><b>87</b></p> <p>10 / 0 240 / 520 10 / 10 Carroll Rd</p> <p>10 / 10</p> <p>Kenamar Dr</p> <p>10 / 10 480 / 140 90 / 50</p>	<p><b>88</b></p> <p>10 / 10 210 / 380 60 / 250 Camino Ruiz</p> <p>150 / 60 50 / 60 260 / 230</p> <p>Capricorn Way</p> <p>10 / 10 80 / 70 60 / 40</p> <p>30 / 50 220 / 210 130 / 240</p>
<p><b>89</b></p> <p>240 / 240 870 / 710 50 / 110 Camino Ruiz</p> <p>90 / 60 30 / 20 30 / 10</p> <p>Gold Coast Dr</p> <p>420 / 360 30 / 80 50 / 100</p> <p>30 / 30 360 / 1150 10 / 10</p>	<p><b>90</b></p> <p>120 / 70 410 / 260 10 / 20 Westview Pkwy</p> <p>40 / 20 30 / 20 30 / 20</p> <p>Capricorn Way</p> <p>70 / 140 20 / 40 160 / 80</p> <p>50 / 80 220 / 390 10 / 30</p>	<p><b>91</b></p> <p>0 / 10 30 / 260 120 / 810 Camino Ruiz</p> <p>770 / 160 50 / 40 140 / 140</p> <p>Aquarius Dr</p> <p>10 / 10 60 / 50 20 / 20</p> <p>20 / 20 80 / 40 150 / 160</p>	<p><b>92</b></p> <p>30 / 50 10 / 70 80 / 740 Pacific Heights Blvd</p> <p>130 / 190 230 / 420 40 / 380</p> <p>Barnes Canyon Rd</p> <p>280 / 20 190 / 450 30 / 30</p> <p>220 / 10 290 / 10 190 / 190</p>

AM/PM Peak Hour Intersection Volumes – Proposed Plan Conditions



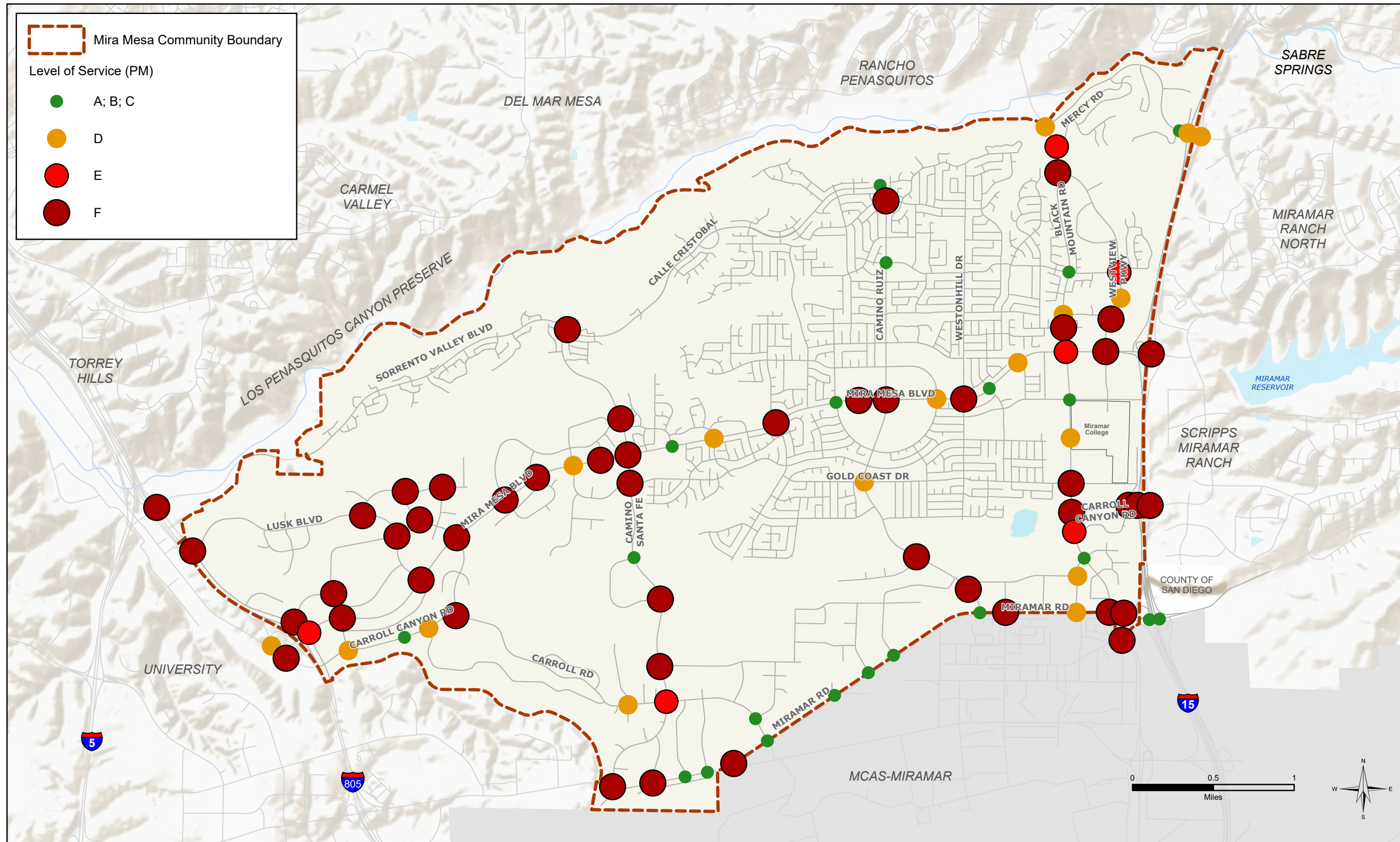
Figure 5-10



AM Peak Hour Intersection LOS – Proposed Plan Conditions



Figure 5-11



PM Peak Hour Intersection LOS – Proposed Plan Conditions

Table 5-12 Peak Hour Intersection Analysis – Proposed Plan Conditions

	Intersection	Traffic Control	Peak Hour	Proposed Plan Conditions	
				Delay (a)	LOS (b)
1	Vista Sorrento Pkwy & Sorrento Valley Blvd	Signal	AM	176.6	F
			PM	144.8	F
2	Camino Santa Fe & Sorrento Valley Blvd/Calle Cristobal	Signal	AM	87.6	F
			PM	141.5	F
3	Camino Ruiz & Calle Cristobal	Signal	AM	10.2	B
			PM	11.1	B
4	Alemania Rd & Mercy Rd	Signal	AM	9.7	A
			PM	18.7	B
5	I-15 SB On-ramp/I-15 SB Off-ramp & Mercy Rd	Signal	AM	31.2	C
			PM	48.8	D
6	I-15 NB Off-ramp/I-15 NB On-ramp & Mercy Rd/Scripps Poway Pkwy	Signal	AM	139	F
			PM	42.3	D
7	Black Mountain Rd & Babauta Rd	One-Way Stop	AM	50.6	F
			PM	41.6	E
8	I-805 NB Ramps/Mira Sorrento Pl & Vista Sorrento Pkwy	Signal	AM	133.8	F
			PM	ECL	F
9	Scranton Rd & Mira Mesa Blvd	Signal	AM	57.9	E
			PM	80.3	F
10	Oberline Dr/Lusk Blvd & Mira Mesa Blvd	Signal	AM	80	F
			PM	160.4	F
11	Pacific Heights Blvd & Mira Mesa Blvd	Signal	AM	ECL	F
			PM	ECL	F
12	Mira Mesa Blvd & Sequence Dr	Signal	AM	ECL	F
			PM	129.1	F
13	Mira Mesa Blvd & Genetic Center Dr	Signal	AM	131.7	F
			PM	115.1	F

Table 5-12 Peak Hour Intersection Analysis – Proposed Plan Conditions

	Intersection	Traffic Control	Peak Hour	Proposed Plan Conditions	
				Delay (a)	LOS (b)
14	Mira Mesa Blvd & Flanders Dr	Signal	AM	113	F
			PM	41.5	D
15	Mira Mesa Blvd & Viper Wy	Signal	AM	35.2	D
			PM	ECL	F
16	Camino Santa Fe & Mira Mesa Blvd	Signal	AM	100.7	F
			PM	114.3	F
17	Mira Mesa Blvd & Schilling Ave	Signal	AM	41.9	D
			PM	13	B
18	Mira Mesa Blvd & Aderman Ave	Signal	AM	33.4	C
			PM	39.7	D
19	Parkdale Ave & Mira Mesa Blvd	Signal	AM	130.3	F
			PM	90.8	F
20	Reagan Rd & Mira Mesa Blvd	Signal	AM	17.8	B
			PM	13.9	B
21	Mira Mesa Blvd & Driveway	Signal	AM	15	B
			PM	142.2	F
22	Camino Ruiz & Mira Mesa Blvd	Signal	AM	130	F
			PM	119.4	F
23	Reagan Rd/New Salem St & Mira Mesa Blvd	Signal	AM	ECL	F
			PM	35.3	D
24	Westonhill Dr & Mira Mesa Blvd	Signal	AM	104.9	F
			PM	86.5	F
25	Greenford Dr & Mira Mesa Blvd	Signal	AM	89.2	F
			PM	30.9	C
26	Marbury Ave/Westmore Rd & Mira Mesa Blvd	Signal	AM	78.4	E
			PM	45.2	D

Table 5-12 Peak Hour Intersection Analysis – Proposed Plan Conditions

	Intersection	Traffic Control	Peak Hour	Proposed Plan Conditions	
				Delay (a)	LOS (b)
27	Black Mountain Rd & Mira Mesa Blvd	Signal	AM	72.1	E
			PM	76.1	E
28	Westview Pkwy & Mira Mesa Blvd	Signal	AM	179	F
			PM	ECL	F
29	Mira Mesa Blvd & I-15 SB Off-ramp	Signal	AM	ECL	F
			PM	26.7	C
30	I-15 NB Off-ramp & Mira Mesa Blvd	Signal	AM	77.4	E
			PM	ECL	F
31	Black Mountain Rd & Mercy Rd	Signal	AM	33.6	C
			PM	41.1	D
32	Camino Santa Fe & Miramar Rd	Signal	AM	92.9	F
			PM	89.5	F
33	Miramar Rd & Commerce Ave	Signal	AM	ECL	F
			PM	136.6	F
34	Miramar Rd & Production Ave	Signal	AM	16.2	B
			PM	25.1	C
35	Miramar Rd & Distribution Ave	Signal	AM	4	A
			PM	8.1	A
36	Miramar Wy & Miramar Rd	Signal	AM	14.4	B
			PM	ECL	F
37	Miramar Rd & Carroll Rd	Signal	AM	7.2	A
			PM	20.9	C
38	Miramar Rd & Empire St	Signal	AM	2	A
			PM	2.9	A
39	Miramar Rd & Dowdy Dr	Signal	AM	4	A
			PM	6	A

Table 5-12 Peak Hour Intersection Analysis – Proposed Plan Conditions

	Intersection	Traffic Control	Peak Hour	Proposed Plan Conditions	
				Delay (a)	LOS (b)
40	Miramar Rd & Cabot Dr	Signal	AM	24.6	C
			PM	19.5	B
41	Miramar Rd & Camino Ruiz	Signal	AM	17.7	B
			PM	20.4	C
42	Mitscher Wy/Clayton Dr & Miramar Rd	Signal	AM	135.9	F
			PM	93.1	F
43	Miramar Rd & Black Mountain Rd	Signal	AM	15.4	B
			PM	37.1	D
44	Kearny Villa Rd & Miramar Rd	Signal	AM	94.1	F
			PM	150.1	F
45	Miramar Rd/Pomerado Rd & I-15 SB Ramps	Signal	AM	ECL	F
			PM	25.8	C
46	I-15 NB Ramps & Pomerado Rd	Signal	AM	37	D
			PM	2.6	A
47	Camino Santa Fe & Carroll Rd	Signal	AM	56.4	E
			PM	70.9	E
48	Camino Santa Fe & Flanders Dr	Signal	AM	120.6	F
			PM	174.7	F
49	Camino Ruiz & Carroll Canyon Rd	Signal	AM	64	E
			PM	ECL	F
50	Camino Ruiz & Activity Rd	Signal	AM	53.8	D
			PM	ECL	F
51	Carroll Canyon Rd/I-805 SB Ramps & Sorrento Valley Rd	Signal	AM	104.6	F
			PM	37.6	D
52	I-805 NB Off-ramp & Mira Mesa Blvd	Signal	AM	101.8	F
			PM	75.3	E

Table 5-12 Peak Hour Intersection Analysis – Proposed Plan Conditions

	Intersection	Traffic Control	Peak Hour	Proposed Plan Conditions	
				Delay (a)	LOS (b)
53	Vista Sorrento Pkwy & Lusk Blvd	Signal	AM	111.6	F
			PM	ECL	F
54	Lusk Blvd & Pacific Center Blvd	Signal	AM	29.3	C
			PM	ECL	F
55	Carroll Canyon Rd & Scranton Rd	Signal	AM	13.3	B
			PM	49.4	D
56	Carroll Canyon Rd & Pacific Heights Blvd	Signal	AM	152	F
			PM	ECL	F
57	Lusk Blvd & Barnes Canyon Rd	Signal	AM	69	E
			PM	178.9	F
58	Pacific Heights Blvd & Pacific Center Blvd	Signal	AM	21.4	C
			PM	85.7	F
59	Pacific Mesa Blvd & Pacific Center Blvd	Signal	AM	ECL	F
			PM	ECL	F
60	Carroll Canyon Rd & Business Access Rd	Signal	AM	34.4	C
			PM	133.2	F
61	Scranton Rd & Mira Sorrento Pl	Signal	AM	174.6	F
			PM	ECL	F
62	Carroll Canyon Rd & Youngstown Wy	Signal	AM	40	D
			PM	32.6	C
63	Black Mountain Rd & Westview Pkwy	Signal	AM	16.5	B
			PM	ECL	F
64	Black Mountain Rd & Capricorn Wy	Signal	AM	ECL	F
			PM	11	B
65	Black Mountain Rd & Achilles Wy/Galvin Ave	Signal	AM	14.9	B
			PM	54.2	D



Table 5-12 Peak Hour Intersection Analysis – Proposed Plan Conditions

	Intersection	Traffic Control	Peak Hour	Proposed Plan Conditions	
				Delay (a)	LOS (b)
66	Black Mountain Rd & Gemini Ave	Signal	AM	29.8	C
			PM	101.6	F
67	Black Mountain Rd & Hillery Dr	Signal	AM	84.9	F
			PM	9.3	A
68	Black Mountain Rd & Miramar College Drwy	Signal	AM	11.6	B
			PM	53.0	D
69	Black Mountain Rd & Gold Coast Dr	Signal	AM	65.9	E
			PM	150.4	F
70	Black Mountain Rd & Carroll Canyon Rd	Signal	AM	69.3	E
			PM	ECL	F
71	Maya Linda Rd & Carroll Canyon Rd	Signal	AM	ECL	F
			PM	ECL	F
72	Black Mountain Rd & Maya Linda Rd	Signal	AM	67.3	E
			PM	67.6	E
73	Kearny Villa Rd & Black Mountain Rd & Carroll Center Rd	Signal	AM	75.2	E
			PM	23.7	C
74	Kearny Villa Rd & Kearny Mesa Rd	Signal	AM	ECL	F
			PM	ECL	F
75	Black Mountain Rd & Activity Rd	Signal	AM	ECL	F
			PM	46.6	D
76	Westview Pkwy & Mira Lee Way	Signal	AM	35.8	D
			PM	49.2	D
77	Westview Pkwy & Galvin Ave	Signal	AM	18.2	B
			PM	ECL	F
78	I-15 NB Off-ramp/I-15 NB On-ramp & Carroll Canyon Rd	Signal	AM	ECL	F
			PM	ECL	F

Table 5-12 Peak Hour Intersection Analysis – Proposed Plan Conditions

	Intersection	Traffic Control	Peak Hour	Proposed Plan Conditions	
				Delay (a)	LOS (b)
79	I-15 SB On-ramp/I-15 SB Off-ramp & Carroll Canyon Rd	Signal	AM	ECL	F
			PM	ECL	F
80	Miramar Rd & Kearny Mesa Rd	One-Way Stop	AM	ECL	F
			PM	108.7	F
81	Camino Santa Fe & Top Gun St	Signal	AM	91.7	F
			PM	108.7	F
82	Camino Santa Fe & Miratech Dr	Signal	AM	32.4	C
			PM	28.1	C
83	Camino Santa Fe & Summers Ridge Rd	Signal	AM	20.6	C
			PM	ECL	F
84	Camino Santa Fe & Trade St	Signal	AM	32.5	C
			PM	156	F
85	Nancy Ridge Rd & Carroll Canyon Rd	Signal	AM	13	B
			PM	40.4	D
86	Rehco Rd & Carroll Rd	Signal	AM	6.2	A
			PM	42.4	D
87	Carroll Rd & Kenamar Dr	Signal	AM	6.8	A
			PM	17.1	B
88	Camino Ruiz & Teresa Dr/Capricorn Wy	Signal	AM	13.9	B
			PM	19.2	B
89	Camino Ruiz & Gold Coast Dr	Signal	AM	63	E
			PM	46.7	D
90	Westview Pkwy & Capricorn Wy/Dauntless St	Signal	AM	10.7	B
			PM	78.6	E
91	Camino Ruiz & Aquarius Dr	All-Way Stop	AM	ECL	F
			PM	ECL	F

**Table 5-12 Peak Hour Intersection Analysis – Proposed Plan Conditions**

	Intersection	Traffic Control	Proposed Plan Conditions		
			Peak Hour	Delay (a)	LOS (b)
92	Pacific Heights Blvd & Barnes Canyon Rd	Signal	AM	ECL	<b>F</b>
			PM	176.4	<b>F</b>

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 6<sup>th</sup> Edition Highway Capacity Manual and performed using Synchro 11.